The "Perfect Storm" for Renewable Energy: Policy Drivers and Decisionmaking

Editors' Summary

The American Recovery and Reinvestment Act, AB 32, multiple memoranda of understanding, and recent Executive Orders have created a "perfect storm" of renewable energy policies, making California the hottest place for large-scale renewable energy development in the country. These policies and laws have inspired collaboration among multiple agencies, streamlined project review processes, and triggered substantial engagement from stakeholders throughout the state and country. On September 29, 2010, the Environmental Law Institute brought together a panel of experts representing federal and state agencies, industry, and the environmental community to discuss the successes and pitfalls of the policies, the lessons learned, and what the panel believed should be done in the future to either protect or improve the regulatory framework for developing renewable energy.

David Lazerwitz, Farella Braun + Martel LLP (moderator)
Joshua Basofin, California Representative, Defenders of Wildlife
Ashley Conrad-Saydah, Bureau of Land Management
Roger Johnson, California Energy Commission
Sue Kateley, California Solar Energy Industries Commission

I. Introductions

David Lazerwitz: Well, thank you everyone for coming. My name is David Lazerwitz. I'm an attorney here at Farella, Braun & Martel and on behalf of Farella, the Environmental Law Institute, and the Berkeley Center for Law, Energy, and the Environment, I'd like to welcome you all.

Just to give you a little bit of background on this seminar, we were approached by ELI back in April when they were doing their annual [Western Boot Camp on Environmental Law] here in San Francisco, and they wanted to do a seminar in conjunction with that. We put together a renewable energy seminar called "NEPA Revival," focused on all the NEPA [National Environmental Policy Act][1] issues that were emerging in the state. It was so well-received that we decided to start a series to focus on these issues, and Berkeley has joined us in this as well.

The first seminar will focus on how we got to where we are today, looking at policy drivers and the decisionmaking processes with renewable energy, principally with solar and wind. We also have a panel set for January 2011 that is going to focus on the nuts and bolts of technology. It will focus on solar, particularly looking at utility-scale permitting both for thermal and PV [photovoltaic] projects.[2]

I'd like to go ahead and introduce our panelists today who are going to lead us through this topic. I've asked each of them as an initial part of this to give about a 10-minute presentation and overview of the issues emerging from their own areas and their own work.

Our first panelist is Ashley Conrad-Saydah, the California renewable energy program manager for the Bureau of Land Management (BLM). In that capacity, Ashley works with stakeholders to encourage environmentally and technologically viable wind and solar energy development and transmission on BLM land throughout the state. She represents BLM in California on numerous renewable energy initiatives, including the National Solar Programmatic Environmental Impact Statement and the state's Renewable Energy Action Team (REAT).

Next, is Roger Johnson. He's the manager of the California Energy Commission's (CEC's) Energy Facilities Siting Office and has worked with the CEC for 30 years. He also represents the CEC on several renewable energy planning and permitting initiatives, including the REAT that Ashley is involved with. Since electricity deregulation occurred in California in 1998, Roger has overseen the CEC staff's permitting work on over 100 power plants totaling more than 38,000 megawatts (MW).

Next, is Sue Kateley. She is the executive director of the California Solar Energy Industries Association. Sue has over 30 years of experience in developing and implementing energy policies and programs with a particular focus on renewable energy and advanced technologies. She has extensive experience in the renewable energy codes

1. 42 U.S.C. §§4321-4370f, ELR Stat. NEPA §§2-209.
2. "Nuts and Bolts of Technology: Closer Look at Utility-Scale Solar Power" took place on January 26, 2011. More information is available on the ELI website at http://www.eli.org/Seminars/past_event.cfm?eventid=582.

and standards, which includes work on the uniform solar energy code, implementation of the California building energy-efficiency standards, and development and adoption of building codes for electric vehicle charging systems.

Joshua Basofin is the California representative at Defenders of Wildlife, where his principal focus is on issues related to renewable energy. Josh represents Defenders in solar-thermal plant siting cases and has participated in several applications for certification hearings before the CEC. In addition, Josh has substantial experience with Defenders on fisheries, watersheds, and wetland issues.

Finally, I would just add that to save them all the hassle of doing it, they're here today speaking as individuals; they're not speaking on behalf of nor are they spokespeople for their organization.

II. Federal Policy Drivers and Responses

Ashley Conrad-Saydah: My name is Ashley Conrad-Saydah. I've been working with BLM for just over two years, so I don't have nearly as much experience as Roger has, but we've gone through a lot in the last few years on renewables. So, what I wanted to talk to you about today is how we got here.

We've been talking about how we're at this point where there are a lot of applications out there, there are a lot of projects about to be permitted, so what I'll cover is, what is the landscape where we are now? What were the policy drivers from the federal perspective that got us to that point? And then, what type of responses did both the federal government and the state government have, and what sort of innovation did those policy drivers inspire? Then, I'll talk a little bit about the way the landscape is shifting, especially on BLM lands where there was once very little in the desert on BLM lands, and now we have a lot of applications out there. Finally, next-generation projects, how we start thinking about what we need to move in to the next generation and how we think about what we've learned and take that forward to potentially do a more expansive job next time.

We're in the middle of this fast-track process, and we have three gigs of solar with records of decision pending in 2010 right now—over three gigs actually—and nearly all of those are on BLM lands in California, with one project pending in Nevada. You could hear a decision on the first project as early as the end of this week or hopefully by the beginning of next week, and some of the last decisions will be coming out by early November. So, we're anticipating those decisions, and it's been a long process but we're really excited that we're getting to that point. All of this, by the way, is on the BLM website, and you'll have access to these slides if you'd like these data.[3]

So, the drivers that got us to this "here" point: first, we have the Energy Policy Act of 2005, and it was really about national security. Section 211 of the Energy Security Policy Act of 2005 was this initiative to have 10,000 MWs of nonhydro renewables on public lands by 2015. It was a suggestion; there was no shall or should in the Act, and it was just a target for all of us. But when President [Barack] Obama came into office, we did—well, both in 2008, when he was running and after he was elected, this New Energy for America plan is really what helped us shift our focus, so that renewable energy became the number one priority for at least BLM. We managed 256 million acres in the West, and those acres, as you'll see later in the presentation, have a lot of good potential for wind and solar projects. So, a lot of our focus shifted immediately as soon as Obama became president.

When Secretary [Ken] Salazar was confirmed, a lot of our goals also shifted, so that renewables became the number one priority. It's not like before President Obama and Secretary Salazar started we weren't working on renewables. We were just kind of getting a sense of what was out there. We didn't really have a lot of direction. So, that direction was really helpful, and we've had multiple secretarial orders. The first substantial one was in March 2009, and there have been ones that have followed up that have essentially said pay attention to renewables, think about the link between renewables and climate change, help enhance gases by putting these renewables on public lands, and that public lands have to play that role in minimizing the impacts of climate change.

So, again, renewable energy is a department priority. With the massive oil spill in the Gulf this summer, there was some staffing pulled off for that, but we still maintained full steam ahead on renewables as our priority.

Then, finally, the American Recovery and Reinvestment Act (ARRA) really drove permitting targets for us. We did understand the heightened responsibility for permitting renewables. That ARRA gave us a deadline, so we had that deadline of permitting projects by the end of 2010 to allow developers to qualify for the cash grants, or by September of 2011 to qualify for the loan guarantees. Roger will talk more about that.

So, in response to the four agencies that are at the helm of the renewable energy action team—and that's the California Department of Fish and Game, the California Energy Commission, BLM and the [U.S.] Fish and Wildlife Service (FWS)—we four agencies had already been working together understanding that we *had* to work together. There was no way we could accomplish these goals without actually talking regularly. So, we had already been working together, but multiple memoranda of understanding (MOUs) came out as these priorities shifted. The first joint one was between then BLM State Director Mike Pool and Gov. Arnold Schwarzenegger, and it just basically codified the renewable energy action team. It gave us a name; we started calling ourselves the REAT more often. It meant that we were meeting more regularly.

Then, in October 2009, the governor signed with the Secretary of the Interior, and that just defined our roles in the desertwide renewable energy conservation plan,

3. Panelists' slideshow presentations can be accessed on the ELI website, at http://www.eli.org/Seminars/past_event.cfm?eventid=580.

and it also established another group called the Renewable Energy Policy Group, or the REPG. Roger will also talk about some of these.

Then, also, BLM joined in MOUs with multiple other agencies, and the intent was to make permitting processes more efficient. We have avoided the word "streamline" because we just overused it for a good six to nine months. So, now we say our permitting processes are more efficient.

At the same time, we had been working on a national solar programmatic environmental impact statement (EIS). It started with this idea that we would look at the entire West, and as President Obama came into office, we shifted our focus a little and we started thinking about zones. Rather than trying to look at the entire West, we said, well, how could we focus and consider tens of thousands of acres, instead of millions of acres being available for solar?

Then, finally, we received a lot of funding both through ARRA and through other sources for renewable energy coordination offices, so we were able to cluster our staffing in areas where there's a lot of interest in wind and solar developments. You can see we created a lot of positions, so these are green jobs for sure and they're good jobs. They're not temporary jobs; they're permanent positions within the government. We're assuming that in the reasonably foreseeable future type of actions, we'll continue to see wind and solar development. Even with these fast-track projects, we haven't seen interest die out, so these positions will stick around.

Talking about landscape shifting, BLM has the California Desert Conservation Area Plan, and we've got other plans in the desert where we anticipated certain types of development, but in formulating those plans for BLM, there was no anticipation of millions of acres or thousands of acres that would be taken up for renewable energy projects. So, it's been a real shift for BLM to start thinking about major changes and uses in the desert.

According to the wind programmatic EIS, BLM across the West has the potential for 206,000 MW for wind or 20.6 million acres. For solar, about 23 million acres are suitable for solar. What that means is that the slope is suitable and the insulation is high. It doesn't mean that we've tested all of those and we know that projects will thrive there or that there's transmission, but that about 45 million acres are suitable for wind and solar.

So, with wind energy, the status is that the programmatic EIS did come out in June 2005. We've been authorizing testing all over BLM, and that's basically putting up met towers or SODAR [Sonic Detection and Ranging] units and testing wind opportunities.

Challenges with wind: we've recently faced a lot of challenges with migratory birds and especially golden eagles. The FWS doesn't have great guidance on how to permit when golden eagles are present, and we don't have much data that says the reliable distance from a turbine or from a net tower that would guarantee take of a golden eagle or that would guarantee protection of a golden eagle, so we've been struggling with that on wind lately, and I think will continue to struggle with that until we actually have some data.

Visual resources and radar: the U.S. Department of Defense gave us maps a couple of years ago that said these areas are open and great for wind, and just recently, we received maps that said this space was once a green light, and it's now actually a red light. Don't put wind there. So, that's also been a challenge for us lately.

Solar: the programmatic EIS is underway, as I mentioned. There are four solar energy study areas in California and I'll highlight this with a map in just a minute. And we have 131 active applications, 45 of those are in California. Challenge is, again, well, it sort of varies, but we do have wildlife issues associated with solar, especially because so much of the good solar does overlap with great desert tortoise habitat, and desert tortoises are highly protected and trying to find a way where we can fit solar in with desert tortoise habitat has been an interesting process. I mean, we've been working really well with stakeholders, but it's been a really difficult process as well. And trying to figure out what's the point—how many can we move? What's the threshold for moving desert tortoises? When do we affect the population in such a way that we've gone too far? We don't want to reach that point, so we're trying to figure that out, again, with as much data as possible. Then, other issues are just we're joining a lot of documents for NEPA, CEQA documents. How do we make that happen in the states?

So, some of our limitations: BLM has limited jurisdiction. We have the acreage that we have and we can't, in our alternative analysis in NEPA at this point, look at alternatives that are, say, rooftop solar alternatives, because we don't have jurisdiction over those. So, that's been a challenge, and a lot of our stakeholders are frustrated with us and would like us to consider that in the alternative analysis. So, that's something, as we move forward, we do need to look at with CEQ and figure out as NEPA grows and we see case law, what can we do with this alternative analysis section? We're still not sure, but we're working on that.

As I mentioned data, the desert is not very—it's been studied but some of the studies are very old, some of them are new. The data are not normalized, so we're trying to get some new studies where we can collect new data using consistent protocols, so that we actually know what the effects of these projects are. And we'd really like to do a very good pre- and post-construction monitoring following the same protocols preconstruction and post-construction that we can definitively say where the impact came from and how large the impact is from these projects. So, we're working right now on trying to implement a long-term monitoring plan.

Then regulations and policy, it can be frustrating to be out in a state in BLM or in a field office where the Washington office dictates often what we do. We receive instructional memoranda about rental policies or other policies, and we haven't had a say in that, so it's kind of tough sometimes to have a focused part of BLM in Washington, but

then a decentralized agency out in the field. And that's been a challenge with us, too. California, everything is different here from all of our other states. So, we fortunately have been leading the way, and the other states have followed along, but not in all cases. We struggle sometimes with that. And there are others, and that's just open-ended, because there are a lot of issues that we deal with.

But thinking about that, we do have a path forward, and we're all working together to come up with a good comprehensive path forward where all of our stakeholders are engaged. The solar programmatic EIS is under review at the administrative level right now and will be out in draft. They say the publication date is December 17, so look for an 8,000-page document on December 17. I think the California section is a thousand pages, so it'll be a breeze over Christmas. You can just whip through it.

Then the final EIS, we anticipate in the fall of 2011. We'll have three scoping meetings in California, probably all in the month of February, so if you're interested in those, there will be one in Sacramento, and two down in the desert area. California has four study areas, over 350,000 acres. Riverside East is the most enormous of the four, and there are already a lot of projects proposed in there.

There are 45 next-generation solar applications in the Desert District and 46 next-generation wind applications. So, even though we're getting through these fast-track projects, the work is still coming. We've already had meetings with a lot of developers who would like to make it to the September deadline for ARRA.

I don't want to forget the rest of the state. In northeastern California, we do have a lot of wind applications. We have one wind plan of development in northern California, and then actually one in Central California. I didn't include that map because the central part of the state really only has one solar plan of development at this point and one wind plan of development, so the focus is on northeastern California and the desert really for us.

III. California Energy Commission Activities

Roger Johnson: I'm glad to be here to share with you what we've been doing at the Energy Commission in the last couple of years on renewable energy.

Our current effort right now is to get these projects that are trying to obtain these U.S. Treasury cash grants to get a permit and start construction by the end of the year. The deadlines have to do with both federal and state permits. For thermal projects in California, the Energy Commission has the permitting authority for anything greater than 50 MW, so when a thermal project is looking beyond that, they require permits from both agencies.

I'm getting ahead of myself here. I just want to give you a couple more points about the ARRA. There's an opportunity for developers if they can't physically start construction by the end of the year; they can use the "safe harbor" provision, where they can extend 5% of the project cost and essentially order materials for the project, and that would satisfy Treasury's requirements for starting construction. The solar thermal projects, even if they start construction by this year, have to be online and commercial by the end of 2016.

A lot of projects are pursuing both the Treasury cash grant and the DOE [U.S. Department of Energy] loan guarantee. Some projects view a loan guarantee as more important than a cash grant, because the grant is in lieu of the investment tax credit, which is available to the projects regardless of whether or not they take the Treasury grant. They can't have both. It's one or the other. So, they have to start construction by September 30, but they also have to be through the Treasury grant process. We had a meeting with folks from the DOE process a few weeks ago, and they mentioned that that September 30 deadline includes their process as well.

The administration I mentioned has jurisdiction of the thermal power plants in California. We are the CEQA [California Environmental Quality Act] lead agency. We have a regulatory program that's certified to be equivalent to CEQA. I call it CEQA-plus, because we do more than environmental; we do the engineering, we do the projects as well. In such economics, we also look at endangered species, cultural resources, visual, and all the other CEQA areas of evaluation. We do alternatives. We must make a significant impact in those that can't be mitigated, to lessen significance. The commission has the ability to do a finding and override considerations. We ensure compliance with laws, ordinances, regulations, and standards, and we look at safety and reliability.

At the Energy Commission, when we approve a project, it's in lieu of any permits required by the local agencies, so we should finish the building permit, and we also are the CBO, the chief building official, who oversees the construction of the project. But we do work closely with local agencies in the counties to ensure that their normal permitting requirements are included in our decisions.

A little bit of our permitting process: it's mandated to be 12 months. Last time we had an audit, they told us that our average was 22 months, and that was based upon collection of projects that gave no reason for the ones they picked. But it's been growing. A couple of audits ago it was 13 months, and now it's 22. Well, we've just recently finished some projects in 12 months, so it'll help our average, but then we had a three-year project in there too. Our 12 months starts upon the project being data-equipped. So, they file an application with the Energy Commission. It's reviewed for completeness. If it's not complete, we send it back to them and tell them to complete it. When they finally get it completed, we begin proceeding through the project phases.

We have a data discovery phase where we ask for additional information if an application wasn't complete. We do public workshops and then we come up with a staff assessment. In our normal process, we come out with a preliminary and a final staff assessment, but lately, we've

been coming out with what's called a staff assessment and a revised staff assessment. The reason there is if we issue a staff assessment that's a complete evaluation, we could start hearing on those technical areas that have been completed. But the final is our testing audience, so we have to hold hearings later in the process.

Hearings are conducted by a committee of two commissioners. Each project is assigned two commissioners, a presiding and an associate commissioner. They have a hearing officer to help them through the process. There is the staff's testimony. It's considered the applicant's testimony, and then interveners are allowed to intervene and provide their own testimony and do cross-examination of the witnesses. The committee takes that administrative and hearing record and they go out and provide a proposed decision. And then that proposed decision goes out for public commentary and then a final adoption by the full commission. Today, we had two projects that were reviewed and approved.

There are five projects now—let's see. Actually, there are six because we just had an approval. We have a lot of work to get that word "approved," a lot of staff time and a lot of committee time on it. The public process of the Energy Commission is open and is held through public workshops, public hearings. We have an ex parte rule where the staff cannot discuss anything with the commissioners out of a public meeting, nor can we talk to the applicant or interveners. So, everything needs to be handled in public, which extends the effort here. It's not uncommon to have 10 to 20 public workshops through the permitting process to get all the issues discussed.

The focus is then on the desert, as Ashley mentioned. These are the projects that are being considered right now. They're mostly clustered.

So, here's what we'll compare to that. I was putting together this presentation, and I want to remind you that we also do natural gas projects at the Commission, so the focus has been on renewables. As to the complaints we get for the natural gas projects: you're not looking at our project, you're not processing our projects. Well, we have these deadlines. The governor's office wants us to get these projects permitted, so we've really been focusing on solar, but we have gotten a few natural gas projects through the permitting process as well, and now we'll turn our attention to those after the end of the year.

The comparison was interesting, that of the nine solar and the 12 natural gas projects, they all averaged 500 MW, but the average acre is 3,800 acres for a solar project, and 30 acres for natural gas projects. So, there's a little bit of difference in the analysis that goes into the solar projects when you have to talk about all the surveys that have to go on for cultural resources and biology compared to a natural gas project.

The large project size truly exacerbates the impact. In many areas with minimal previous disturbance, there is potential for significant impacts. When the applicants file applications with us, they have to do protocol-level surveys for culture and biology. There are significant cultural resources that people weren't aware of, and the biology as well. Some rare plants have been found in these sites that people didn't know were out there.

Water is a big deal out here in the desert. It doesn't rain very often, and when it does, it's torrential and there are these huge flashfloods that can go to the desert, These sites have to be reengineered to manage those waters.

We're coordinating with BLM. There are two permits required, and we thought we should do this together for two reasons. It would be very confusing for the public to have to go through two separate permitting processes, so we decided if we give them a single process, then they only have one set of workshops to go through. If they have a single document, there's no inconsistency between the two permits, so we tried that. We did a number in BLM, and we started preparing these projects as joint documents. We issued joint staff assessments/draft EISs. It was a single document, but then for whatever reason, it was determined that we should go our separate ways and that BLM needed to issue their own final EIS, and the Commission would issue its own decision.

One of the reasons for that split was because these projects in the desert require BLM to revise their language plan. In addition to issuing the right-of-way grant, there's a 90-day public comment period. The commission only has a 30-day comment period, so if we have to wait 90 days to start our hearings, it was going to delay our process. So, we decided to go our separate ways. We managed to do it. It's working out, but it's really been an extra effort here to do that.

The impacts on endangered species require close coordination. Ashley mentioned the work of Fish and Game or the FWS and BLM, and we meet weekly. The Renewable Energy Action Team that was created by the MOU, we just have to meet for two hours every Tuesday morning to talk about the projects, to talk about the issues, to coordinate the schedules, and to make sure that we're all working on the same projects.

SB X8 34 was signed by the governor, and it was legislation that was designed to improve the siting process. It set up a process for interim mitigation strategy for the state where, for projects located in the desert, they can take advantage of the FWS, they could take money from Fish and Game, and then go out and buy that. Fish and Game will do a habitat bank and use these lands to mitigate the projects. That was the idea. No one has come forward yet to take advantage of that, and actually the final report hasn't been published. They loved the idea, and the result was some staffing improvements at the Energy Commission to help us with our overtime.

The REPG was developed with the MOU between Secretary Salazar and the governor, and that just brought another level of oversight to the REAT, where they show up every month and we have a meeting with them to explain where we are and they bring in the developers to hear what the developers have to say about the process and how we're doing.

Then, finally, the Desert Renewable Energy Conservation Plan. This is what started the REAT. It was the decision that for future permitting—not now—it would be good to have areas of the state designated for places that we'd like to see development to occur and then with that development, areas we'd like to see conservation happen to balance that development. So, that's the plan. We've embarked upon this huge natural community's conservation planning effort, in effect, a combination habitat conservation plan for the desert.

We've hired an executive director and assistant executive director. We've got some consultants hired now. We've had some stakeholder meetings, and we're moving forward on that process, and we hope that that's done by December 2012. So, when that's complete then, projects that locate in areas that have been identified in that plan will have the advantage of easily obtaining their endangered species take permits from both the federal and the state levels. That's the purpose of that effort.

External critical path: we ran into a little glitch with our working together with BLM on cultural resources. We accidentally gave away big sensitive cultural resource information to one of the interveners, and we had to get it back. We had to have a hearing to decide that in the future, BLM owns the data and we just get to borrow it when we have our projects talking with them. So, we fixed that and we got the data back to them, but it cost us a little delay because we couldn't complete our analysis without the data.

Legal vulnerability: if you don't do a good job, if you don't follow the process, and if you don't put out a good document, you have vulnerability. Biological resources have been huge. There's been essentially no giveaway on the desert. It's being mitigated for the impacts. The mitigation is sometimes 1:1, sometimes 3:1, and the quality of the habitat that'll be used to replace the land that's going to be used by the solar projects is going to be better than essentially what's being used.

Finally, you can't do this project without this transmission. All the projects that we're going through now that we fast track have their transmission figured out. They've got interconnection agreements. They've got essentially large generation-interconnection agreements with utilities. It's the next set of projects that we have to understand where those projects are going to be located and then what kind of transmission that's needed to connect those projects.

In summary, hearings are being completed. We had two today at the business meeting. We've got, I think, only three more projects left with the Commission that we're finishing up on. We should be done by the end of the year on those three. BLM is writing records of decisions. FWS is putting out opinions. Things are all coming together. The next step is compliance and construction. When you get the decisions, they really have hundreds and hundreds of conditions of certification associated with them, so there's a long list of things that have to be accomplished before they can go out there and start construction. That's what we're focusing our efforts on now, it's getting staffed to be able to review those submittals and make sure that they're going to have those things checked off and be able to start construction when they need to.

Crossing the finish line, these final arrangements have to be made, final power-purchase agreements. The PUC [Public Utilities Commission] and [Southern California] Edison have to have credible transmission arrangements approved. That's another approval that these projects need at DOE. DOE loan guarantees need to be secured, project financing closed, project owners meet substantial construction requirements, and the cash grants be paid.

IV. Distributed Generation

Sue Kateley: The conversation is going to shift a little bit because my colleagues from the government, federal and state, were really talking about utility-scale solar, which is basically remote, large-scale systems that are out somewhere away from where we are. And on day-to-day, you know that air conditioner loads are pretty high here in California, so we're using the energy here, and what they were talking about is making the energy somewhere else. So, I'm going to talk about making the energy here. That's called distributed generation close to where the load is.

When people say solar, they don't really talk about the different subcategories of solar. Solar is not a generic term. A solar PV cell is for generating electricity. A solar water-heating system is for generating solar water heating. The kinds of systems that Roger was talking about are concentrating solar systems that use either large mirrors or big troughs that focus the sun's energy on a tube that then carries and transfers fluid to generate electricity through a turbine.

So, what's CALSEIA? CALSEIA is the Solar Energy Industries Association. We were founded in 1977. We have a 15-member board of directors elected by our membership. We are contractors, manufacturers, and distributers. I'd like to point out that CALSEIA is made up of both the world's largest solar companies and California's smallest solar companies. If you look at some of the history of the companies that are doing business today in California, many of them started in their garage and, oddly enough, the guys that are now big forgot that. We have a history of leadership and success on tax credits, net metering, property tax reassessment exemptions, the state solar rebate program, and building code standards. We've done a lot and collaborated with others.

Our focus is principally on distributed generation. I'm in a new mode here when I start my presentations, because we've actually had some fatalities, now and that bothers me, so I made a commitment to myself that every time I do a presentation, I'm going to talk about safety: worker safety, personnel safety, equipment safety. If you're working with companies that are developing projects, your safety plans need to be enforced. They can't be just talked about; they have to be implemented. [Speaking to Roger] I know you

have that now in your project reviews, and I'm really glad to see that, but it's got to be more than a piece of paper. It's actually got to be done.

Ethics is an issue. There are a lot of companies out there that are making claims. CALSEIA is actively working to try to encourage newcomers from being unscrupulous. We're concerned about customer satisfaction. I started in the solar industry in the 1970s and honestly thanks to the tax credits that brought a lot of new people in, it actually hurt the industry's reputation, because people were buying tax credits instead of solar products. So, we ended up with a lot of people who were dissatisfied with solar. It hurt its reputation, and it's taken decades to bring it back again. I'm very worried about that scenario happening now, a lot of people are making claims that can't be fulfilled. I see that both on the large scale as well as the residential scale.

The little list, there are the different kinds of technologies. Understand that solar thermal can do air-conditioning on your home and business. People don't think about solar for air-conditioning but it's doable.

Then I want to make sure I had pictures to make this a little less boring. So, this is a picture of a distributed generation system. Unfortunately, it's not in California. It's in France. It's a two-MW system. It's about 16 acres. A two-MW system by a California qualified solar contractor probably takes about four months from start to finish to start digging and start generating, so it's about a four-month project. So, when we talk about a couple of years or a lot of time to get the permit, the actual construction time is quite short.

Now the smaller the project, these are now smaller distributed generation systems, the top photo is a wastewater facility. It's a 50-kilowatt system—okay, watt, one watt, 20-watt compact fluorescent, one kilowatt, one MW, one gigawatt, one terawatt, so you get a thousand steps up there. So, this is a 50-kilowatt wastewater facility plan on a rooftop in northern California, then the bottom one is a one-half-a-MW system on a rooftop at a school campus here in California. So, it gives you an idea of some of the ways that you can see distributed generation. It doesn't actually have to be on the ground. It doesn't have to be large. It's totally scalable.

So, the potential for distributed generation in California was recently analyzed in a California PUC working group and they estimated just the rooftops—actually, no, the 20 MW sites were not rooftops—27,000 MW of 20 MW sites. That 20 MW and below number is for something called a qualified facility, so that's why the PUC in California was specifically looking at that. They also looked at large rooftops, rooftops with a one-third of an acre or more. There are actually large warehouses spread all over California, and if you fly into Burbank like I do, you see them all, and there are no solar panels on them, and you wonder why. We'll get to that. So, there's about 11,500 MW available in those kinds of rooftops. The PUC did not analyze smaller rooftops like your Targets and your Safeways and things like that. So, there's actually quite a lot of land that's already disturbed that's available for renewable energy generation.

Now, totally truth and honesty here, I'm here for solar. I'm not here for wind—love it; not here for biogas—love it; not here for fuel cells—love them too. So, I'm really here about solar today, but I want to make sure that we know that in general when you're talking about renewables, there are other technologies that are out there. It happens in California because of our air-conditioning load. Solar works best when it's sunny, and generally when it's sunny, it's not windy. So, what happens is that our solar actually is working pretty well when we need the electricity.

DG [distributed generation] industry opportunities are just beginning to emerge, mostly because if you went back just three years ago, we were way too expensive, we couldn't compete on a cost dollar per MW basis. But in the last probably three years and particularly in 2008, our capacity production worldwide grew and our prices came down, so that is actually making us, in many cases, some of our technologies on distributed generation are now competing on a dollar per MW basis with some of the large CSP projects, which is pretty exciting. It means that we're basically a stalking horse for them in terms of cost perspective. And we're getting better and more efficient all the time.

However, our policies, our regulations, our rulemaking, and all of that has not caught up with that, so we got a little bit of a disconnect going on that's making it a little bit difficult for us to get the utilities to procure distributed generation projects. The current way that these large-scale solar projects are selling into the market is through power-purchase agreements negotiated with or through solicitations by the investor-owned utilities or the public utilities. In the solicitation process, it's complicated and expensive. That has actually shut out the smaller developers. The smaller project developer doesn't have as much capital investment, so there isn't much money available to negotiate these contracts. So, in a sense, it shut the distributed generation projects out of the competitive solicitation projects.

There are some new utility procurement programs going for small-scale solar. Southern California Edison, PG&E, and San Diego Gas & Electric just started new distributed generation programs. There are also solicitations, and they are in fact solicitations that are, again, designed to attract the larger of the folks that are developing projects, so even they're shutting out the little guys. And then there are a few other variations that Southern California Edison offers.

The PUC recognized this here in California. They developed a program that they proposed called the Renewable Auction Mechanism. This program has not yet been implemented. In fact, comments were just due a couple of days ago. If you would like to read those comments, they're kind of fun and interesting. Mine are in there, mine aren't as fun or as interesting.

I want to make very clear to everybody here that when I talk about DG, even though I think DG is fantastic, some people are characterizing DG as an alternative to large-scale solar, and I want to make it clear it's not an alterna-

tive. It's in addition to, it's in combination with, but it's not instead of. You still need it because we've got the lights on in the room, we need the air-conditioning, we have to run our laptops, we have to charge our cell phones, you still need to have electricity in the state. And you need to get it from many different sources, and we should avoid like in a sailboat, don't all jump over to one side of the boat and say that's your single solution. You want diversity so you want the large-scale solar, you want the DG, renewables, you want it all, but you want to be careful about how you plan and develop these projects.

So, the missing element in California and actually throughout the United States, except in a couple of small pockets, is something called the feed-in tariff. The way we get renewable generation in small scale is through something called a feed-in tariff. It's a prenegotiated contract. It's your standard agreement, here's the price we're going to pay. Once the small developers know what the revenue is, the cash flow from the project, then they can go out and they can get a bid and build it. If they can get a positive cash flow, they will build those projects, but they can't bid in to an unknown, because of the cost of the bid in the larger solicitations. So, we need a feed-in tariff.

There are challenges to getting a feed-in tariff. The biggest issue is that the current law in California uses something called the market price reference. It's basically the cost of electricity from an efficient natural gas generator. There really aren't that many efficient natural gas generators out there, so essentially you're comparing the generation from renewable technologies to a mythical beast, which is unfortunate.

What that does though is it keeps us from developing renewable generation close to load centers where, for example, if you went today to go get a permit from the South Coast Air Quality Management District for a natural gas generator in downtown Los Angeles, it would be an amount of money that would be astronomical. If we put a solar facility in downtown Los Angeles, it would be please go ahead; it would be practically a zero environmental cost because you're already developing on disturbed land. That is not factored into the equation of determining the payment for renewable energy generation. What that is, it's almost like a little eminent domain take. You can develop your solar projects here, but you won't get paid for its value.

CALSEIA proposed legislation to do a value-based feed-in tariff. It was enacted in 2009, and signed into law in August. It's SB 32. We are awaiting the PUC to implement that. They have not been enthusiastic about implementing it, and I'll tell you a little story about that because I know I'm going to run out of time, but it specifically targets projects up to three MW, so they're small to as low as one kilowatt, so it actually would cover residential, industrial, commercial, and small agricultural parcels.

This is a brand-new chart from the Los Angeles Business Council. What's interesting about this chart was the Los Angeles Business Council hired the UCLA Business School to look at what a feed-in tariff would look like for a 600-MW feed-in tariff program in the Los Angeles Department of Water and Power area. Interesting challenge because they have very low rates there, because they haven't retired those coal plants yet, so their rates are quite low.

They took a scenario where they chose different payment levels for cents per kilowatt hour for renewable generation. For residential, the rate was like 32 cents per kilowatt-hour. For commercial, it was 16 cents per kilowatt-hour based on the size of the system, economies of scale. And they hypothetically threw out what the payment stream would look like and what the cost would be to rate payers. What they found out was if you sign a contract for a price today just for 20 years, it actually takes about eight years, and then it becomes a revenue generator for the citizens of Los Angeles. So, there are short-run costs; yes, it's going to raise your rates a little bit, but in the long run, it's going to be to your benefit.

So, renewable energy generation costs are declining. The balance of the system, the install cost, the hardware cost, the racking and all that, that's also improving. Equipment standards and construction codes, if you just go back a couple of years ago, the type of technology that you installed two years ago is different than what you'd install today. Since it takes three years for a code cycle to change the equipment standards, they're always lagging behind the technology, which causes some really interesting challenges for the industry.

The important thing about distributed generation that I talked a little bit about is they're located close to load. It does reduce some of the transmission improvements and upgrades that we need, and it can, in many areas, reduce the need to improve distributed-line capacity. So, transmission lines for the big guys look like trellises, distribution lines are the power polls down your street.

Local environmental health benefits, for those of you who work on environmental justice, I spent a lot of time with those groups. It's really sad because the people who are low-income, affordable housing tend to live in some of the worst polluted areas. We need more distributed generation in those areas to help clean up the air in those communities. It also creates jobs there and is very involved in apprenticeship standards with both the trade unions and with the local pre-apprenticeship programs. And of course, it reduces the time of delivery problems. We get congestion on the distribution lines. When we have everybody asking for electricity at once, that's called congestion. Solar generation at the other end of the distribution line will reduce congestion.

Here's your alphabet soup: the Federal Power Act and PURPA [Public Utility Regulatory Policies Act]. Essentially, they say that the price that can be paid for qualified facilities is the avoided cost to the utility, which is essentially the utilities saying no more than the price of natural gas. They have threatened to sue the California PUC about setting any price that's different from that. In fact, the investor-owned utilities say a feed-in tariff is illegal, and

if it's a reverse auction, it's illegal, so apparently we do nothing. But I'm working with the utilities and hopefully we can convince them to do a voluntary program.

Understand REC trading, the gaming that's going on, the out-of-state power. What they're doing is they're trying to get renewable energy certificates reserved out of state to sell into state, so there's an issue there.

Interconnection, I'm not going to go into that, but that's actually a very deep level that will drive you all crazy. Understand there are about five federal and state agencies. FERC [the Federal Energy Regulatory Commission], the PUC, the Energy Commission, never forget the California Integrated System Operator, the ARB [Air Resources Board], and I did forget the WDAT [Wholesale Distribution Access Tariff] process, which is the distribution-level interconnection process.

Time is of the essence where tax credits are currently slated to expire at the end of 2016, and that's actually a major economic benefit to justifying the capital cost to these systems.

V. Siting and Species Concerns

Joshua Basofin: I was contemplating the title for this panel, and I thought Perfect Storm. I saw that movie, and I don't remember it working out that well. So, maybe that's why I'm here, to talk about what the potential pitfalls are, especially from an environmental perspective and specifically of wildlife and habitat perspectives, since that is the mission of my organization, to conserve native wildlife and their habitat.

I'm going to start by talking about the environmental community's perspective on our renewable energy portfolio, at least from Defenders and our partners' perspective, and then get into a couple of the projects of the CEC [California Energy Commission] because I spend most of my time before the CEC. Defenders is an intervener on a couple of projects and may be an intervener on a couple more cases. So, I'm going to talk a little bit about how the cases of the CEC that we've worked on have changed and become sometimes reconfigured based on biological resource issues.

So, from the perspective of Defenders and our partners, a diversified portfolio really is key, and this gets into a little bit about what Sue was saying about how you can't just have DG. I appreciate her perspective on distributed generation and the necessity of it, but I think it's absolutely correct that we need a diversified portfolio, we need energy efficiency measures, we need distributed generation, and we do need some of her utility-scale facilities. Diversifying makes sense economically. You don't want to put all your eggs in one basket. Some of these utility-scale technologies are nascent technologies. Some of them have had limited development at a utility scale. Some of them haven't had any development at a utility scale.

One of the big projects that I've worked on is the Calico Solar project, which uses Stirling engine technology, and the largest Stirling dish engine project thus far was a 1.5 MW project. Now we're contemplating ramping up to several hundred MW, a massive scaling up of that technology. It makes sense to diversify to make sure that we have these different types of technologies to provide renewable electrical energy for California.

Diversifying helps protect our desert ecosystems. As Roger and Ashley have alluded to, there are huge issues with the amount of land in the Mojave Desert that we are appropriating for some of these projects. We've really got to make smart decisions about how we're siting these projects, and I'll talk a little bit about how those decisions we think should be made.

Treading lightly on the desert, how do we do utility-scale and protect our desert ecosystems at the same time? We need to do this responsibly. Environmental groups, including Defenders, the NRDC [Natural Resources Defense Council], the Sierra Club, and a host of other groups developed criteria that we are recommending be used by the various agencies—BLM, the FWS, the CEC, the permitting agencies—in looking at what types of lands should be looked at first for siting, what are the characteristics of those lands?

This is just a brief aggregation of some of those criteria: mechanically disturbed private lands so lands that were previously mined, lands that had intensive agriculture that were deep-disked, major surface disturbance that's really precluded any type of habitat value. Brownfields are always good. Public lands with little resource value. Locations that could be served by existing substations, transmission lines, and load centers, so that we don't have to build more transmission lines, we don't have to build ties into transmission lines. And locations that minimize the need to build new roads, some of these new facilities require a tremendous amount of new roads in order to get the access with the washing trucks and the maintenance crews that are necessary to maintain them.

This is a little bit of a tongue-and-cheek title here, but I think really it comes down to looking at the biology and it's important, a lot of my colleagues in the environmental community have developed this mantra: Smart from the start. What we've seen were some of the fast-track projects this year in BLM, and the project applicants have looked at a site, but they haven't looked at all of the resources that might be on that site before identifying it, and before you know it, we have an application for certification at the CEC, we've got an application for a right-of-way at least at BLM, and we're moving forward at an extremely high velocity before we've even done the basic biological surveys and other ground-truthing that we need to do to see what resources are actually in that site. We really need to look at what the conditions are on the site before that train leaves the station.

The CEC has mandates for protection of biological resources. The CEC is the CEQA regulatory program. The Warren-Alquist Act has protections for environmental resources. These projects do have to comply with the Cali-

fornia Endangered Species Act. Roger is correct that the site certification is a one-stop shopping, but in our opinion, there is a necessity to comply with particularly §2081 of the Fish and Game Code, which is the Incidental Take Permit process. On the federal side, you have of course NEPA, where projects are sited on BLM land. You've got FLPMA [Federal Land Policy and Management Act], which is the organic statute for BLM, and you have of course the Endangered Species Act (ESA),[4] usually requiring a consultation with the FWS.

So, here are a few examples of affected species. On many of the sites that we've seen proposed for the Mojave Desert, golden eagle, as Ashley referred to, we also have burrowing owl, which is a special status species. Really, the focal species in a lot of these projects is the desert tortoise. This is a species that's listed as threatened under the federal ESA. It is declining throughout its range, its range being the entire Mojave Desert in California, Arizona, and Nevada. And frankly, recovery actions for the species have not been working. There's a consensus among wildlife agencies and scientists that those recovery actions that were set up in the recovery plan simply aren't working.

This is a tremendously sensitive species. Unfortunately, for a number of these projects, there are a lot of desert tortoises on the sites; some of them have 15, some of them have 50. The one I'm working on now, the Calico Project, originally had up to 200. That project has been cut back significantly, in part due to the potential impacts to desert tortoises from the full footprint. This is a species that we're going to continue to see observed through surveys on these sites, and we're going to have to deal with it somehow. Whether it's translocation, whether it's avoidance, I don't know. I'm going to talk a little bit about translocation in another slide.

White-margined beardtongue is a very rare species that has really only one community of occurrences left in the state of California in the Pisgah region, where the Calico site is proposed. So, we've got to be really careful about how we deal with the white-margined beardtongue, and make sure that it is fully protected and that it's not in jeopardy of going extinct in the state of California. Some of the mammals, the badger, the bighorn sheep, desert kit fox, giant kangaroo rat—all prevalent on any of these sites.

I want to talk about two projects that have gone through the CEC site-certification process and have had significant changes or even delays when going through that process. The Ridgecrest Solar Power Project—this is a solar parabolic trough technology proposed on a site near Ridgecrest. The staff recommendation in the staff assessment was denial because the biological impacts, according to the staff, could not be mitigated. Many of those impacts related to the Mojave ground squirrel and therefore, Solar Millennium, the project proponent, opted to pull that project back to do a two-year study to determine what the impacts of the project might be on the ground squirrels' habitat and its connectivity to other habitats. That was probably a good decision.

What we're seeing is there's such a rush to get these projects through the permitting process to secure funds and DOE loan guarantees that unfortunately we're not seeing the type of analysis in the staff assessments that we'd like to see. We're not seeing comprehensive surveys. We're not seeing a full assessment of impacts. We're not seeing the type of avoidance measures that we'd like to see. We're seeing in-lieu mitigation that is essentially punting mitigation, compensatory mitigation to a later time. And we're not used to seeing these types of things in an environmental analysis, so to see the Ridgecrest project say, "hey, we're going to pull back and wait to see what kind of an impact we're really going to have on the species" is refreshing.

Calico Solar Project, this is a Stirling dish engine technology. This is a nascent technology. This is the one that I mentioned that has only been developed at a 1.5 MW capacity as a pilot plant. Originally proposed on 8,200 acres, the company cut it back to 6,200 acres in response to concerns from the FWS and the Desert Tortoise Recovery Office to maintain a linkage movement corridor in the northern portion of the site. Then, after an order that was subsequent to the evidentiary hearings at the CEC, the committee said that they couldn't recommend approval to the full commission for this project due to the impacts on desert tortoise and bighorn sheep, and so they cut it back again to 4,600 acres.

So, what we've seen here is a 45% decrease in the area of the project. Now, in my opinion, Defenders' opinion, we could have avoided that if we had, as I said, looked at what the resources are early on, smart from the start, do comprehensive surveys, make sure we know what's out there before we file, before we're having companies expending major investments into projects and really look at whether the site is appropriate. In our opinion, it's still not an appropriate site.

I wanted to talk a little bit about desert tortoise translocation. As I said, the desert tortoise is one of the focal species because it is declining throughout the desert. This is a really problematic process. A lot of the information that we're seeing now about translocation is coming from the expansion of the Fort Irwin military base, which precipitated a very large-scale desert tortoise translocation effort. The information from that translocation is sort of trickling in, but we've seen that each year, there are more and more mortalities of desert tortoises that have been moved.

Why is that? You move desert tortoises, you take them out of their native habitat, you put them into a new habitat, and there's a whole host of problems that could happen. There are diseases in the receiving population. There's a question about how much forage is available to them, how much food there is to eat in their new habitat, there's a question about whether they're going to acclimate to that new habitat, whether they're going to turn around and go right back home like most of us probably would do if we're pulled out of our houses and thrown into Milwaukee. Not

4. 16 U.S.C. §§1531-1544, ELR Stat. ESA §§2-18.

that there's anything wrong with Milwaukee. I went to school in Wisconsin. Milwaukee is a fine place, but I don't want to be pulled out of my house and taken on an airplane over there and told to find another house.

These are tremendous levels of mortalities. We saw 25% in the first year. We saw another 25% in the second year. We're aggregating these mortalities because we're dealing with the same population, but we're seeing more mortality over the years. These translocated populations are really getting hit hard by predation, by disease, by the inability to acclimate to new environments. So, translocation is not a proven methodology. It's far from it. From this Fort Irwin translocation, we're really starting to understand the problems with that. And unfortunately, for many of these projects on BLM land, it is necessary to relocate or translocate desert tortoises, and there's really no guarantee that those processes will be successful.

So, what's my take on keeping fast-track projects on track? Looking at degraded and disturbed sites on private land near transmission is really optimal. This is a difficult thing to do. Often, private land sites accumulate enough private land sites to accommodate a large-scale facility like what we're seeing in some of these projects that are 5,000, 6,000, 8,000 acres, it requires a number of private land parcels. It's difficult to work with individual landowners, 30, 50, 100 different landowners to acquire those parcels. We know that. We realize that, but the fact is that bigger may not be better. Maybe we don't need to work with 100 landowners. Maybe we can cut some of these projects back.

A really good example is something that the company First Solar has been doing. They've been designing 50-MW projects or less on the I-10 corridor near Los Angeles. They said, look, it's really hard for us to find a site that's going to accommodate a 5,000-acre project, so let's look at some smaller sites and let's do a number of them instead of one large site. That's been very effective for them. They've been able to find degraded sites, sites that don't have significant biological resources. That's something that we in the environmental community very much support.

Alternatives, alternatives, alternatives, there's a mandate in the CEQA and NEPA that we have an analysis of a broad range of alternatives. The agencies, with all due respect to BLM and the CEC, I think have fallen short of that mandate. We need to be looking at private land alternatives. We need to be looking at site reconfigurations. We need to be looking at different technologies that are less impactful. It's extremely important that when we do that alternative analysis that we look at a whole host of broad range of alternatives that would serve the same basic objectives. That's the language in the CEQA and NEPA—the same basic objectives as the proposed projects.

Thorough biological surveys are absolutely key. Some of these projects do protocol-level surveys, but as an example of where they fall short, in the area of botany, a consultant to a solar company may do a spring botany survey. Well, the fact is that many desert plants do emerge and flower in the spring, but many of them don't—many of them come out in the summer, some of them come out in the fall—and we've got to be looking at spring, summer, and fall occurrences of some of these plants or we're not going to get a foundational understanding of what biological resources we have on the site. That is really the key, because if we're going to look at the impacts and we're going to try to avoid them or we're going to try to mitigate for them, we've got to know what's out there in the first place, so information is absolutely imperative.

As I mentioned before, translocation is tricky, and so a translocation plan is necessary and it's got to be carefully developed. There's got to be a lot of matrices of analysis. We've got to look at: what's the forage in the receiving site; what's the disease level of the translocating population as well as the receiving population; what's the potential for those animals to be able to burrow; what sort of predation can we predict because a lot of this mortality is due to predation from coyotes and ravens? Frankly, we're not there yet with the translocation plan effectiveness, so that's got to be an evolving science.

VI. Discussion

David Lazerwitz: How much can policy really impact and guide development here? I mean, when I look back on sort of what's occurring particularly in the solar area, you have a huge influx of almost entrepreneurial-type applications. I mean there are no restrictions on using federal lands that we spent a good time talking about, a lot of emphasis through ARRA funding, a lot of emphasis just through technology improvements that have occurred in large part in Europe because of the feed-in tariff.

At this point in time when you have applications pending, as the CEC and BLM do, how much after-the-fact planning can we really do to guide development? A good example of this is the PEIS [programmatic environmental impact statement] that BLM is working on and what kind of effect that will have, but even more generally, what can we do from a policy perspective to guide development?

Ashley Conrad-Saydah: At this point, we've taken on the suggestions for screening tools for the projects that we receive at BLM. What we can do is work with developers when they come in to show us an area where they would like to develop a project and say based on what we know currently, these are the issues we will face along the way. But what we can't say is sorry, we're not touching the application. And that's the challenge with the screening tools; it's that at this point, we can't be predecisional. If they want to go ahead and amend the land use plan, they can; if they go through that process, they can try to go through that process. If a developer goes into an area where a land use plan is amended and wants to develop a project, we also have to entertain that application.

So, unfortunately at this point, we don't have policies that tell us red light, stop, don't even look at this application. We do have to look at the application. I think BLM

needs to do a better job of the pre-application meeting, where we actually share all of the data that we have and we're sure that we've looked at what's on the land, we know more about that, but it also means we have to gather more data. So, unfortunately at this point, our policy tells us that when an application comes in, we actually have to entertain it and that, again, if we said no right away, we could actually be sued on that position before actually going through the analysis process.

Then, the other challenge too is DOE and Treasury conceived of these ARRA deadlines without consulting BLM and the CEC, the permitting agencies, without saying, hey, these are feasible to finish NEPA in 12 months or to meet the CEC deadline in 12 months. That was really frustrating for us, because we're land management agencies. We rely on partners and we rely on contractors to help us understand technology as we make our decision. So, that's also another important part of understanding policy—it's that the federal agencies actually need to talk more, so we don't have another situation where agencies that know nothing about land management or technology dictate what we have been doing.

David Lazerwitz: We've talked a lot about ARRA funding driving this obviously. What's going to happen after the ARRA? I mean this is a temporary measure. It's stimulus funding. Is there enough economic incentive without the funding?

Joshua Basofin: That's difficult for me to speak to from my position. I suspect that there will be. I am lucky enough to work with a number of companies that are open enough to talk with the environmental community to discuss the impacts of their projects and how we can change them or restructure them to be a little more environmentally friendly. And frankly, many of them have said we want to do this right. I can think of a couple of companies that have said we want to this right, and if it means that we are not going to be eligible for funding this year, then so be it, because we want to get this right the first time. We don't want to be sued. We don't want to find out later that we've had impacts that we couldn't conceive of because we didn't have the information available to us.

So, I think it will be. I think there's enough demand for renewable electric energy in the state of California and the regulations are accommodating enough that we will see these after this first tranche of fast-track projects. My understanding is there won't be a second tranche of fast-track projects, that this will be it. And so I'm hopeful that there will be—how do I put this delicately—more thought and preparation going into the projects that are being proposed in the future. I know that is the intention of BLM and the intention of the CEC, and I can appreciate the extreme pressures that have been exerted on both the companies and the agencies from these ARRA and DOE deadlines. But in the environmental community, we're hopeful that these extremely fast time lines won't create a precedent for how we do business in the renewable energy siting area in the future. We're very much looking forward to working with the agencies and with the companies after the fast-track project is over to look at the second generation.

Roger Johnson: We do expect there will be additional projects filed next year. We've had discussions with some of the developers who have current projects with us and some of the new companies that are new to California. But a little information about these projects, these projects are very large, but they're also phased. When we approved the Blythe Project last week, a 1,000-MW, the largest solar power plant to be approved in the world. It's really four 250-MW projects. That developer would be able to develop two of those projects, start construction on two of them this year, but the other two are phased in later.

As far as how we're going to handle these projects, the next tranche that people have been talking about, is that the DRECP [Desert Renewable Energy Conservation Plan] and I mentioned that planning process is going forward now and there's a requirement in there that there's probably interim mitigation strategy. So, any project that goes through permitting during the pendency of this plan needs to be looked at by the permitting agencies as if it's going to be essentially held to the same level of permitting requirement.

We are going to be more careful when we look at these projects in the interim now. There is the DRECP planning process and we're going to be evaluating these projects and looking to see how they would be consistent with what's being proposed for the final set of mitigation requirements, if you would.

I just want to clarify one thing that Josh said. When he said the in-lieu mitigation was essentially future mitigation, that's really not correct. In-lieu means there are two ways you can mitigate your project. You can take all your requirements if it's a 1,000-acre project and your mitigation is 3:1, you have to go purchase 3,000 acres and conserve it—improve it, have it managed for the perpetuity of the life of that land. You can do it yourself and so you're given the requirements, and the applicant could go out and purchase the land and turn it over to BLM or turn it over to somebody else to manage. Or, they can use an in-lieu fee process, where we tell them how much it's going to cost for someone else to do it. We have an MOU right now with the National Fish and Wildlife Foundation to do this work for us. But if the developer just doesn't have the interest or the ability to do that, we can tell them how much it's going to cost. When we say in-lieu mitigation, that's in lieu of doing it yourself; somebody else does it, but you pay them to do it.

David Lazerwitz: In terms of permitting, and we've talked a lot about the federal permitting processes as well as the CEC's jurisdiction, but you sort of have this disparate permitting process when you start talking about PV-owned private land. I know that there have been legislative initia-

tives in the past to bring PV under the CEC's jurisdiction, but any thoughts on having a more centralized process looking at private lands projects and dealing with different jurisdictions versus the centralized permitting authority with the CEC?

Sue Kateley: Because we're in the DG end of the market, we actually have to deal with the 900 local jurisdictions on a day-to-day basis, and the idea of them consolidating their authority is probably pretty much a dream. I think they like it that way. Rightfully so, there are some areas where they have very high aesthetic concerns or they're not willing to have solar in their community. We deal with that on a day-to-day basis.

Public policy design is really tough, but one of the things that is true today about federal tax credit that was true in the 1980s, particularly for PV, not for solar water-heating—it's only PV—there is no performance requirement, and there is no cost attached. You could put in a PV system that doesn't work and get a tax credit. The same is true at energy efficiency. You can go out and you can buy an energy-efficient device, have no material benefits from that technology, and you'll get a tax credit.

So, the customers who are driven to do tax management will buy a product without thinking through clearly, is this a good idea or not? There are a lot of poor quality products in energy efficiency too. Ask me about my dual-pane windows that failed, which really makes me angry more than you know because that was actually my thing about energy efficiency first, it was doing my windows first before I put my solar system on. It makes me very angry to have to go back and respend that money. So, energy efficiency has the same problem. I think that there are some risks now in solar in the same way.

I thought initially until I went to a conference last week that the best thing to do would be something like what the wind industry has. Their tax credit is actually a cents-per-kilowatt-hour payment. Until I was talking to some folks at BLM up in the Pacific Northwest where they have wind farms generate a lot of wind, not coincident with when the demand is, the wind farms want to generate as much electricity as they can to avail themselves of the benefits of tax credits. And BLM is having balancing problems that leave them to try to spill more water over their dams, which affect the endangered species. So, it's a very interesting thing that policy design that's not fully integrated is really difficult, and there aren't simple solutions.

And I agree with what Josh said, and I also understand the challenges of the federal and state agencies. This technology is changing. What you are dealing with a year ago isn't what you're dealing with today. Same here, and I've been in this industry 30 years. I think it's a tough issue to design policy correctly.

Audience Member: I'm wondering if lessons that we're learning at the community-scale projects translate to processes at the city and county level?

Ashley Conrad-Saydah: I think first and foremost, our experiences with the REAT is really important, and this idea of getting everyone who's responsible for issuing a permit for that, whatever system it is that you're putting out there, that those agencies get together and actually talk and see, well, where do our schedules line up, how do we approve this, where could we have one report that would be suitable for all of us? So, I think the REAT is a really good example of something that should be replicated in other policy decisionmaking processes.

And then in terms of the environmental impacts, utility-scale impacts are just so big, and we're looking at underserved areas in some cases, so where you've got like a disturbed rooftop, I don't know how much would translate, but I think the suite of issues that we've looked at should be looked at in those other situations as well. So, we figure out issues along the way that when you look at that full list once we finish our lessons-learned activities, you can take that list and say, hey, let's check this box off and make sure we look at everything they looked at out there. And some may not apply, but at least it'll be a really exhaustive list.

Roger Johnson: When Ashley was answering your question, it reminded me of something we do have available for all local agencies, and that's the Best Management Practices Manual that the REAT put together.[5] The four agencies put together a list of permitting guidelines and best management practices for renewable development in the desert, but many of those guidelines and practices are applicable to any kind of a project. It identifies the areas that developers should be looking at. If they would include these activities, these design measures into their projects, it's really going to improve their permitting ability to get the project permitted in a more efficient manner.

Audience Member: The agencies are working more on the land use permitting side of what developers need to do. I just wondered, having gone through the process and taking policy that's a challenge to get through in a regular time frame and actually getting it through in a short time frame, are there any of the policies that you see going forward that you're going to try to influence or see some changes in?

Ashley Conrad-Saydah: I actually think that one thing that was good was foreseeing we have to go through this faster—I guess the review time in the agencies was better. We synced up our review with our field offices, our state office, our Washington office, and our lawyers, and made sure that everyone reviewed along the way. So, I think that because of this heightened need to get through the process, we were that much more careful about making sure that all of those reviews happened. That's not necessarily a policy, but it's an effect of the timing of policy that I think is actu-

5. This manual is available at http://www.energy.ca.gov/2010publications/REAT-1000-2010-009/REAT-1000-2010-009.PDF.

ally really good for us, and we're implementing that as we move forward.

I think something else that's tough to deal with is that we have project proposals that don't necessarily have transmission. We wouldn't accept a proposal unless it has transmission, but we wouldn't even allow transmission to be built unless there was a project at the end of it. I think it could be wiser to look at transmission and permitting transmission and getting it to the load sensors where the load sensors are "far from the start" and—I'm sorry, not the load sensors but the energy availability is in a good place for building. So, I think the way we plan is a kind of flip-flop right now where we're saying, first project, and then we'll figure out the transmission.

We tried with the RETI, Renewable Energy Transmission Initiative, to look at that and say let's kind of see where transmission should go and look at all the areas where there's good energy, but the way that BLM permits, we just wouldn't permit transmission before projects. So, that's a little backwards, and it would be nice to see that flip around.

Roger Johnson: At the Energy Commission, we're doing lessons learned right now. I met yesterday with the project managers, and we had a good discussion on what they felt were some of the needs that would improve permitting, and one of the suggestions was to improve the data adequacy regulations. Essentially, front-load the projects; essentially improve the information requirements for surveys. Let's just understand the project site fully before we start the project application.

And then finally, the Energy Commission has an integrated energy policy proceeding that's on a two-year cycle, and we're getting ready to essentially go through the next cycle. I think the ARRA project and the permitting is going to be a topic of that, so there are some policies coming out of the Commission on that effort.

Sue Kateley: I know that both the Energy Commission and the PUC filed comments at FERC asking for flexibility in establishing feed-in tariffs, but we're really not pushing hard here enough in California to get in a feed-in tariff or to get the authority. And we're not integrating—I mean it's like you say, we get the applications, and then we evaluate them, but we don't think about it in the big picture. It'd be nice to have a more comprehensive approach, but right now, we're still fractured.

Joshua Basofin: I appreciate Roger's explanation of the in-lieu fee mitigation program. But this is a really important point. We are punting this mitigation into the future. When we have applicants paying into a fund a certain amount per acre, it may be $500, $600, to $900 an acre. That money is going into a fund, and those mitigation lands may not be identified until perhaps a year later. In addition to that, there's really no guarantee that those mitigation lands are going to be of the same, suitable, or better quality than the lands that have been impacted.

Compounding that is the fact that we've got many, many projects, and we're going to have to find mitigation lands for all of those projects with tens of thousands of acres of desert habitat. And we don't have the Desert Renewable Energy Conservation Plan, and we don't have interim mitigation measures. So, we're really shooting in the dark in terms of finding mitigation lands, and it's been very difficult for the applicants and for the environmental community and for the agencies to identify them. I think it's a really important point.

Audience Member: I'm actually doing NEPA work in Arizona, although I've done CEQA work obviously in California, but I guess I just want to put Joshua on the spot a little bit. I kind of take issue when you said that we need to look at a broad range of alternatives, wind. By regulation, we're looking at a reasonable range of alternatives, and we're told by NEPA that we need to make sure that the alternatives meet the purpose and needs. I've seen that here, and I understand it. We all want a smarter, better approach to energy development and protecting the environment, but when you're talking about distributed generation or other technologies, well, I believe that it was Sue who said these things are supplemental to, there is no panacea, there is no one way.

Under NEPA, if you're to do due diligence and do your job correctly, we really can't take a look at that if it's on BLM land. I mean, BLM can still look at alternatives outside of their jurisdiction. NEPA does want that. But if it doesn't meet a purpose of the need and it's not considered reasonable, we're kind of prohibited from doing that.

Joshua Basofin: Well, just to respond, thank you for correcting me. You're right and I should have committed that language to memory better. It is a reasonable range of alternatives, and it's a little bit of a subjective assessment of what constitutes a reasonable range of alternatives.

To give you a couple of examples, one of the things that at Defenders of Wildlife we're disappointed in is we intervened as a party in the Ivanpah Project and were quite active there. One of the things we saw was there weren't enough private land alternatives that were carried forward for analysis, and not only is this really a prerogative for the environmental community, but it's also a prerogative for the agencies. The RETI group has identified private degraded lands as a priority for siting of renewable energy facilities in the state. So, we really have a policy mandate and we have an environmental mandate to look at those private land alternatives. The one private land alternative identified in the staff assessment PEIS for Ivanpah was immediately dismissed, because apparently the applicant thought it would cost too much money to deal with the number of landowners.

So, to dismiss it without really any kind of assessment into what might be the environmental benefits, doing a real cost-feasibility assessment of that alternative site I think is a mistake. And so you're right, it is a reasonable range, I

apologize for my mistake there. But I think a reasonable range does include off-site alternatives, and you are correct that BLM is required under NEPA to look at alternative sites that are outside of its jurisdiction. It may get tricky if it wanted to adopt a ROD [Record of Decision] for a site that was outside its jurisdiction, but NEPA is absolutely clear in the regulations that the federal agencies do have to look at alternatives that are outside their jurisdiction.

I don't want to be polarizing on this issue. I understand that resources for federal agencies are limited, and there's only so much you can do, but in an instance where you have a policy mandate and a responsibility to look at the private degraded land alternative, I think that it's really necessary to do a full analysis of it.

David Lazerwitz: That's a great question, a good point, a real taxing issue on purpose and need and alternatives. So, thanks. Well, our panelists are going to hopefully stick around, and please join me in thanking all of them.