

**September 17, 2011**

**Testimony of Michael Picker, Senior Advisor to the Governor for Renewable Energy Facilities to the Little Hoover Commission**

**Case Study: Renewable Energy Action Team**

**Siting large-scale renewable power plants in California: coordination between state and Federal Agencies has been helpful to recent progress**

***Background:***

There are lots of considerations about using different renewable resources to produce electric power – geothermal energy doesn't occupy a lot of land, while solar and wind energy generators require thousands of acres. Wind towers are tall and can interfere with military aircraft, but have smaller footprints on the land than solar. Big generating projects are frequently far from customers and in places that need new or expanded transmission lines. Local renewable power generation will be closer to customers and may not require new transmission lines, but will be smaller to fit into crowded urban settings, won't have the same economies of scale, and, as more is built, could have more potential to disrupt the local grid.

The ways that these technologies are permitted and regulated are just as diverse. The laws that projects respond to are overlapping, conflicting and sometimes based on situations from years past. Because Californians have supported laws to protect their communities and the natural environment that are both broader and more stringent than federal (and other state laws), the complexities from navigating a diverse set of state policies are sometimes more nettlesome.

But for developers of power projects, California is still a very good place to be: lots of sun, good steady wind in certain parts of the state, and concentrations of geothermal activity. California has lots of customers, roughly 36 million of them at 20 million different structures. And California has several policies that make the renewable industry competitive with older fossil fuel-based power industries. In order to reduce green house gas emissions in the electric power industry, state policy maker developed, and expended a renewable portfolio standard (RPS).<sup>1</sup>

The RPS currently sets a goal for all utilities to produce 33% of their electric power from renewable power sources, including biofuels, solar, wind, geothermal and some "run of the river" hydropower by 2020. The California Public Utilities Commission (PUC) enforces the RPS, and can levy fines on investor owned utilities (PG&E, SDG&E and SCE) if they fail to meet goals. Publicly owned utilities (like the Sacramento Municipal Utility District or the Los Angeles Department of Water and Power) also must comply. Accordingly, renewable power developers, representing a relatively new segment of the

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<sup>1</sup> The first RPS was set as 20% by 2017 in legislation, which was amended by later legislation to 20% by 2010. At the end of 2010, about 18% of all electricity sold in California came from wind, solar, geothermal or biomass. Governor Schwarzenegger raised the RPS goal to 33% by 2020 in a 2008 Executive Order, which the California Air Resources Board adopted as an enforceable regulation in September 2010. Then, earlier this year, Governor Brown signed another statute that codified the Executive Order.

electric power industry, are flocking to California in large numbers – at the end of 2010, roughly 270 projects were seeking permits to construct and operate almost 70,000 MW of RPS compliant electric power, more than the state’s electric transmission grid can accommodate at any one point. (See *Renewable Power Projects Seeking Permits in California* on page 3)

### ***Who does what?***

The California Energy Commission (CEC) issues permits (and imposes conditions) for constructing and operating solar thermal, geothermal, nuclear, natural gas, and biomass projects over 50 MW in peak generating capacity<sup>2</sup> Local governments issue most of the permits to locate and build wind projects and photovoltaic solar projects (PV) on privately owned lands.

The US Bureau of Land Management (BLM) issues right of way permits for all energy projects on BLM lands. In 2010, the CEC joined in issuing dual permits for six large thermal projects located on BLM lands. Because it’s very difficult to assemble large numbers of small private parcels into one contiguous block big enough (3,000 to 7,500 acres) required for 200 MW+ projects, many solar and wind projects will turn to BLM for land for their power plants. BLM has lots of land in sunny and windy areas (like the California desert, for example), has a process that mandates consideration of power project applications, and only requires one land transaction.

In addition to the CEC and BLM jointly-permitted solar thermal projects, the CEC issued three permits for other solar thermal projects on privately owned lands. BLM will issue one permit for a PV project in July. Local governments issued or will shortly issue permits for six large PV projects on privately-owned lands and for wind projects. Kern County is a major leader in these efforts. (See *ARRA Renewables Tracking Sheet* from December 2010 on page 5.)

Most projects must be subjected to environmental review before a permit can be issued: federal permits undergo review outlined in the National Environmental Protection Act (NEPA), and California permits are conducted under the provisions of the California Environmental Quality Act (CEQA), or, if issued by the CEC, by the somewhat more rigorous Warren-Alquist Act.

Permits setting conditions for harm caused to endangered species and their sensitive habitats come from either the California Department of Fish and Game (CDFG) or the US Fish and Wildlife Service (USFWS), or both. The US Army Corps of Engineers (USACE) issues permits for impacts to federally-designated waters, and may conduct environmental review, as does CDFG for other waterways and wetlands not covered by USACE. Other agencies also issue various permits or approvals for such activities as contracts with regulated investor-owned utilities or to connect to the power transmission grid, but this memo focuses on land use decisions.

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<sup>2</sup> The CEC was created early in Governor Brown’s first term – a time when most electrical power was produced from technologies like solar troughs, geothermal, coal, natural gas, diesel or nuclear, all using heat to produce steam for turbines. Congress reserved authority over hydropower to the Federal Energy Regulatory Commission (FERC). FERC now also regulates ocean wave energy projects (but has delegated wave energy permitting to the California Public Utilities Commission).

## Renewable Energy Projects Currently Seeking Permits in California

| <b>SNAPSHOT OF PROJECTS</b>   |                   |                         |
|-------------------------------|-------------------|-------------------------|
| <b>Scale</b>                  | <b>Projects</b>   | <b>Capacity (MW)</b>    |
| <i>Seeking ARRA Funds</i>     |                   |                         |
| 200 MW+                       | 21                | 9,156                   |
| 100-199                       | 7                 | 949                     |
| 50-99 MW                      | 9                 | 611                     |
| 49 MW or less                 | 13                | 359                     |
| <b><i>Subtotal</i></b>        | <b><i>50</i></b>  | <b><i>11,075 MW</i></b> |
| <i>Not Seeking ARRA Funds</i> |                   |                         |
| 200 MW+                       | 73                | 54,009                  |
| 100-199                       | 16                | 1,972                   |
| 50-99 MW                      | 18                | 1,017                   |
| 49 MW or less                 | 120               | 2,154                   |
| <b><i>Subtotal</i></b>        | <b><i>227</i></b> | <b><i>59,152 MW</i></b> |
| <b><i>TOTAL</i></b>           | <b><i>277</i></b> | <b><i>70,227 MW</i></b> |

**Total generation needed to achieve 33% goal: 15,000 to 25,000 MW**

**Total capacity of California's electrical grid: 60,000 MW**

### Impacts of the 22 Priority Projects

**Total Jobs: 12,200**

- ***Construction*** ***10,000***
- ***Operations*** ***2,200***

**Total Investment: \$20 to \$30 billion**

**Total Stimulus Dollars into California: \$5 to \$10 billion**

**Homes Powered Annually: 6.75 million**

*\*All of the Economic Impacts are Estimates*

***How regulations and permitting programs affect the industry:***

In brief, developers approach utilities and offer to build renewable power projects at a proposed price. Utilities negotiate a contract and submit the contract to the PUC for approval. Once the contract is in place, the developer can go to investors and seek financing. But, at this point, developers can't be certain that they can get permits from land use agencies, transmission regulators and from fish and game protection agencies to proceed. This uncertainty has a price that adds to the cost of borrowing lending, as do all other risks, and bankers and investors call it *regulatory risk*.

There are also *transaction costs* involved in these permitting and regulatory processes – permit application fees, special studies of impacts on habitats and sensitive species, studies on how projects might affect hydrology of wetlands, streams and drainages, making presentations at public hearings and community meetings, purchase of replacement lands for displaced flora and fauna, payments to neighbors for impairing property values, etc. Still, as irksome as these transaction costs may be, developers of large scale renewables have pointed to the uncertainties and consequent increased cost of borrowing as the most significant challenge to building in California, at least when they're facing a financial deadline, such as the ARRA 1603 requirement for "significant construction" to occur before December 2011.

For smaller projects, and for manufacturers of components for these large renewables projects, both set of consequences can be crippling. The economy of scale of large renewables projects (100 MW or greater) allow for more spending on borrowing and on the permitting and regulatory process. For smaller startups, or for segments of the industry with very thin margins, California's environmental protections, high land costs, and high labor costs – without other compensating forms of support like the RPS – can be an insuperable barrier.

***Getting stuff done***

The focus here is primarily on how to reduce regulatory risk and transaction costs. The two are sometime in conflict – some agencies charge a fee to cover the costs of speedy review and permit issuance. That raises transaction costs, but can reduce potential for delay. Again, a 7,000 acre solar project will choose certainty of a speedy permit and offsetting mitigation in order to displace sensitive species, while a small manufacturer who needs an air quality permit for applying coatings to a community-scale wind generator propeller might just move to another state.

Many of the tactics outlined here come from picking the low hanging fruit of improving agency leadership and interagency coordination. The *primary model* is to get all the agencies with a say over a project into the same room, to set a set of common information needs, a set of milestones and a calendar for carrying out their regulatory processes, and for high level official to hold them accountable. That kind of joint activity and high level problem solving resulted in substantial progress on issuing land use permits for large scale renewable energy projects in 2010 and early 2011.

In California, no one decision maker or agency has the legal power of dictate or decree on large renewable power generation facilities. So, priorities, coordination, motivation, organization, accountability have provided the most immediate return.

**Big Goals, proclaimed clearly, loudly and persistently:**

The 33% RPS standard gives utilities the permission to offer financing through their rate base, helps attract developers to supply renewable power, and assures bankers that there’s a revenue stream to pay back loans (and investors that there is some hope of shareholder value). It also tells bureaucrats that they have a larger role in human affairs than just showing up on the job every day. The 33% renewables goal is a clear target for the efforts of public agency managers and line staffs – they can see whether they are making progress and how they are succeeding. The basis for policy – reducing greenhouse gas emissions, setting the pace for the rest of the US, helping to build the industry, and producing jobs in California – all creates an job satisfaction that increases productivity and inspires state worker innovation. Initial results from our workforce evaluation for 2010’s joint program showed that, by a significant margin, both managers and general state workers feel that they made a difference working together to produce a big result. The initial 2010 list of the 21 largest projects resulted in issuing permits for 5,200 megawatts by December 2010, and another 2,300 MW since. At least 10 projects have initiated some level of construction as of this date.

**ARRA RENEWABLES TRACKING SHEET**

| #   | Project Name      | Developer        | Type     | Cap. (MW)       | Lead Agency |
|---|-------------------|------------------|----------|-----------------|-------------|
| <b>Projects Already Approved - 5,210 MW</b>     |                   |                  |          |                 |             |
| 1   | Blythe            | Solar Millennium | Solar    | 1000            | CEC/BLM     |
| 2   | Alta-Oak Creek    | Terra-Gen        | Wind     | 800             | Kern        |
| 3   | Imperial Valley   | Teserra Solar    | Solar    | 750             | CEC/BLM     |
| 4   | Calico Solar      | Teserra Solar    | Solar    | 660             | CEC/BLM     |
| 5   | Ivanpah           | BrightSource     | Solar    | 370             | CEC/BLM     |
| 6   | Beacon            | NextEra          | Solar    | 250             | CEC         |
| 7   | Mojave Solar      | Abengoa Solar    | Solar    | 250             | CEC         |
| 8   | Genesis           | NextEra          | Solar    | 250             | CEC/BLM     |
| 9   | Antelope Valley   | First Solar      | Solar PV | 230             | LA/Kern     |
| 10  | Palen *           | Solar Millennium | Solar    | 500             | CEC/BLM     |
| 11  | Rice *            | Solar Reserve    | Solar    | 150             | CEC         |
| <b>Projects Still in the Process - 3,705 MW</b> |                   |                  |          |                 |             |
| 12  | Maricopa Valley   | Granville Homes  | Solar PV | 700             | Kern        |
| 13  | Desert Sunlight   | First Solar      | Solar PV | 550             | BLM         |
| 14  | Topaz             | First Solar      | Solar PV | 550             | San Luis    |
| 15  | Panoche Ranch     | Solargen         | Solar PV | 420             | San Benito  |
| 16  | North Sky River   | NextEra          | Wind     | 300             | Kern        |
| 17  | Pacific Wind      | EnXco            | Wind     | 289             | Kern        |
| 18  | California Valley | Sun Power        | Solar PV | 250             | San Luis    |
| 19  | Shiloh III        | EnXco            | Wind     | 200             | Solano      |
| 20  | Manzana           | PG&E             | Wind     | 246             | Kern/CPUC   |
| 21  | Iberdrola         | Pacific Wind     | Wind     | 200             | BLM         |
| <b>Approved</b>                                 |                   |                  |          | <b>5,210 MW</b> |             |
| <b>Pending</b>                                  |                   |                  |          | <b>3,705 MW</b> |             |
| <b>Total:</b>                                   |                   |                  |          | <b>8,915 MW</b> |             |

\* Final CEC Vote Scheduled for December 15, Proposed Decision recommends approval.

**The Model: “Get everyone together. Cut through the red tape to get it done.”**

The entities that carried out this coordinated permitting programs were the Renewable Energy Action Team (REAT) and the Renewable Energy Policy Group (REPG).

The REAT started as a working group of the US Bureau of Land Management, the US Fish and Wildlife Service, the California Energy Commission and the California Department of Fish and Game. The agencies sat down to identify studies and reports that they would need in common to make regulatory decisions and to issue licenses and permits, developed a calendar that guaranteed a decision within the timeline required for large renewables projects to break ground and get federal stimulus dollars (ARRA Section 1603 cash grants in lieu of tax credits), and meet weekly to deal with problems.

The REPG was a representative from the California Governor's Office and from the Office of the Secretary of the Interior. Each month, the REPG called in the REAT to meet with the renewable developers seeking permits. The REPG asked the 20 largest renewables developers (both wind and solar) to answer three questions:

1. Where are you in the permitting process?
2. What problems are you encountering?
3. What should we do about it?

Then, the Governor's Office and the Secretary of the Interior's staff directed state and federal managers to solve those problems. In addition, they developed some fine-grained policy solutions that have helped projects (joint endangered species mitigations and monitoring, etc.) to gain speed and certainty, and have kicked off a 24 million acre land use planning program for renewables in the California Desert to speed future permits. But since each project is somewhat different, many solutions are one-off. And, in general, the focus on the larger projects helped build cooperation and joint procedures that benefitted many smaller projects, as well.

This model of matrix management requires that the leadership of the key agencies (CEC Siting Committee Chair, Director of the Bureau of Land Management) give firm direction to their staff that they should take direction and cues from outside agencies. This kind of model forces employees of state and federal agencies to work together with employees of other agencies on these renewables projects.

In addition, the participation of high level appointees/decision makers made it practical to bring in other agencies as needed. When nine project applicants all said that they needed to make sure that transmission permits would also be completed by a date certain, the REPG brought in the CPUC and CAISO. That meant more brokering with top decision makers (Chair of the PUC and CEO of CAISO).



***Extending the model to transmission projects that take clean power to urban markets.***

The REAT is also working with SCE, PG&E and SDG&E to identify different transmission projects to begin similar review, timelines and problem solving by the REAT, along with the CPUC and the ISO. There are significant differences:

- These diverse transmission projects won't have common calendars or deadlines.
- Transmission projects are controversial not in just one contiguous land area and political jurisdictions, as a generation project might, but get strong reaction for the length of the power line – often hundreds of miles and involving dozens of political jurisdiction and leaders.

***Market shifts will increase the local government role in land use permitting.***

As the price of PV cells continues to decline (costs per square foot dropped more than 30% between 2009 and 2010, and industry analysts predict additional cost decreases in this year), PV-generated electricity generation is growing in its share of the overall large-scale solar power project market.

- The CPUC's average price in approved contracts for thermal trough solar power is \$220 per MW/hour. The average cost for tracking photovoltaic is \$185 per MW/hour and for thin film photovoltaic (PV); the average is \$190 per MW/hour. Some of the most recently bid contracts for PV have come in even lower: \$105 per MW/hour for tracking PV projects.
- Several solar thermal projects (Solar Millennium's Blythe Solar Power Project and Tessera's Calico and Imperial projects, for example) are responding to these price shifts and are converting their projects to PV.

Several other issues will contribute to the shift to local governments as the lead on land use permits:

- BLM decision-makers in Washington, DC set high rents for solar right of way leases on BLM lands in California. The rents, based on comparable valuations to other California land transactions, can be as high as four times as pricey as similar acreage might be in other neighboring states, and, of course are close to the costs of the private lands used for valuations .
- Federal lands are increasingly the richest habitat for endangered animals like the desert tortoise, bighorn sheep or rare plants– locating a project on these BLM parcels can result in higher costs for purchasing replacement lands from increasingly shrewd private land owners.
- BLM has also been effective at protecting Native American cultural resources on their lands; private land owners not so much so over the course of the last century and a half. Environmental groups and some Native American tribes and bands have made it clear that they will be looking harder at renewables projects on federal lands in the future. They will issue more challenges in NEPA environmental reviews – where it is even easier to sue than projects undergoing review under California's CEQA.

- In addition, local governments are increasingly opposing use of private lands to mitigate for endangered species impacts from projects built on Federal lands. Because the Federal lands are generally better habitat than private lands, it takes more degraded private land to replace the range and habitat lost to the plants and animals on public lands. Locals see the perpetual conservation easement attached to requirements that developers set aside private land as replacement habitat as an even greater infringement on their land use authority. San Bernardino County is already 85% federal lands (military bases, forest lands and BLM holdings); each 20,000 acres lost for solar habitat carves into their flexibility to site other jobs-producing industries.