Comments of the Natural Resources Defense Council (NRDC) on the
2011 Integrated Energy Policy Report (IEPR)
Docket No. 11-IEP-1G
RE: Renewable Power in California: Status and Issues
September 14, 2011
Submitted by:
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I. Introduction and Summary

The Natural Resources Defense Council ("NRDC") appreciates the opportunity to offer these comments on the issues discussed at the California Energy Commission's ("CEC" or "Commission") *2011 Integrated Energy Policy Report* ("IEPR") committee workshop on Renewable Power in California, Status and Issues, held on September 14, 2011 and on the draft staff report "*Renewable Power in California: Status and Issues*" ("draft Staff Report"). NRDC is a nonprofit membership organization with a long-standing interest in minimizing the societal costs of the reliable energy services that Californians demand. We represent our nearly 100,000 California members' interests in receiving affordable energy services and reducing the environmental impact of California's energy consumption.

NRDC staff participates in the Western Governors Association's Western Renewable Energy Zone Process, California Transmission Planning Group, and the Western Electricity Coordinating Council's (WECC) Regional Transmission Expansion Planning process. We are actively involved in Federal Energy Regulatory Commission rulemakings, including Order 1000 implementation efforts. We also participate in regional transmission planning in the Eastern Interconnection. We commend the commission and its staff for the draft *Renewable Power in California: Status and Issues.*

NRDC believes that the goals of increased reliance on renewables and protection of our nation's unique and sensitive places are not necessarily in conflict and that prudent transmission policy should consider environmental issues early in the planning process. While we support a number of observations and recommendations (as noted in more detail below), we also note that there are several areas that need further consideration or which merit a more detailed discussion. Our comments are summarized as follows:

1. NRDC urges the CEC to include a specific recommendation to develop a Transmission Authority, which would be responsible for integrating and streamlining the numerous transmission planning efforts including an institutional stakeholder participation mechanism.
2. NRDC recommends that the Commission develop a plan to address the disparate transmission systems and to address key differences among utilities and authorities to ensure California customers receive streamlined and affordable transmission services.
3. NRDC suggests that the final Staff Report include a recommendation to ensure that state transmission planning focuses not only on the interconnection needs of the generators, but also looks long term to ensure optimal system performance, usage, and future needs.
4. NRDC recommends that the state add a detailed section to the Staff Report that would identify and take advantage of regional energy market opportunities and foster greater cooperation with states in the Western Electricity Coordinating Council (WECC) territory.

II. Discussion

Before delving into the details of our recommendations, we first want to note our strong support of key lessons that have been incorporated into the draft Renewable Energy Strategic plan, which recognize and promote many of the key improvements to the transmission and renewable energy siting processes that have emerged over the last four to five years. In particular, we support the integration of the following observations and recommendations noted throughout the report:

1. Maximum use of existing infrastructure
2. Need for coordinated land use/transmission planning
3. Need to identify and avoid land use conflicts at the beginning of planning ("location matters")
4. Need to coordinate state agencies
5. Need to streamline and coordinate fragmented and overlapping permitting authorities to interconnect most appropriate renewable energy resources
6. Need to exploit geographical diversity as an aid in integrating variable generation
7. Need to use better weather forecasting to manage and operate a grid with a greatly more variable fuel mix
8. Need to make use of system flexibility for variable generation integration (taking advantage of our existing generation fleet and repowering of once through cooling plants) and to encourage and incorporate innovations like energy storage demand side management and demand response to reduce integration costs and the amount of reserve generation needed for system balancing and reliability

Furthermore the draft recognizes that the Renewable Portfolio Standard (RPS) is a floor, not a ceiling, and that, given contract failure rates and the eventual closure of California nuclear units, the state will likely need a very large amount of additional renewable capacity. This added capacity (both in-state and imported) is needed to meet climate and renewable energy goals, and will also need to make heroic use of distributed generation and non-wires energy generation and load reduction measures.

We offer the following recommendations below to expand on the draft Staff Report.

1. **NRDC urges the CEC to include a specific recommendation to develop a Transmission Authority, which would be responsible for integrating and streamlining the numerous transmission planning efforts.**

NRDC actively participates in the numerous transmission planning processes. As it stands now, to participate in transmission planning, stakeholders must participate in four (or more) planning exercises: the California Transmission Planning Group (CTPG), a subregional planning entity of the WECC; The CPUC's Long Term Procurement Plan; the Commission's Integrated Energy Policy Report; and the California Independent System Operator's transmission plan. All entities are open to stakeholders but all are technically demanding and resource intensive. We therefore urge the Commission to recommend that a process to develop Transmission Authority be initiated to simplify the transmission planning process into a single statewide and regional integrated effort. This should include a stakeholder participation mechanism similar to that employed by the Renewable Energy Transmission Initiative (RETI).

2. **NRDC recommends that the Commission develop a plan to address the disparate transmission systems and to address key differences among utilities and authorities to ensure California customers receive streamlined and affordable transmission services.**

The current status of California's energy delivery system is disconnected across utilities and authorities, which results in significant replication of effort and expense. Investment in transmission, system reserves, and control technology is duplicative, costing all California consumers. It is critical to optimize the use of the existing grid and to ensure the entire state energy delivery system is more connected and secure for all utilities, both public and private.

Our largely balkanized public-private balancing area authority system costs California dearly as we pay for infrastructure we probably do not need and are unable to use that infrastructure in ways that are most efficient. As a result, we are also less able to take advantage

of geographically distributed generation resources that would facilitate better renewable to renewable energy integration or make best use of existing electricity storage, such as the Helms pumped storage facility. Furthermore, mutual aid between Investor Owned Utility (CAISO) and publicly owned Utility Balancing Area Authorities (BAAs) in the event of an emergency is difficult or impossible. However, recognizing that this is a hampering factor in the state's strategic plan for renewable energy and a reliability millstone pressing on our electricity delivery system, NRDC strongly recommends that the final Staff Report include a recommendation that all appropriate agencies develop a plan to address these transmission concerns and ensure that California's transmission system is connected, coordinated, and not duplicative.

3. **NRDC suggests that the final Staff Report include a recommendation to ensure that state transmission planning focuses not only on the interconnection needs of the generators, but also looks long term to ensure optimal system performance, usage, and future needs.**

Transmission needs to be planned to meet present and future needs and take into account system integration, balancing, and reliability benefits. Right now the process for transmission upgrades is focused on serving discrete generation proposals and sequential interconnection requests, without much consideration for an integrated long term approach. This is not a new problem and CAISO has made significant improvements to its interconnection process in recent years in an attempt to address this concern. However, CAISO's improvements to the process still do not adequately address planning transmission needs long term. Planning transmission to serve future generation and loads in a way that advances other policy goals is also much more cost effective and conserves limited resources. However, despite these known benefits, the state has yet to develop a coordinated or strategic effort to do so. Planning for future needs now means fewer future enhancements will be needed, fewer rights of way and corridors established, fewer environmental conflicts encountered and more renewable power interconnected faster.

NRDC therefore urges the Commission to include a recommendation that the state, perhaps through the Transmission Authority proposed above, should consider transmission upgrades that are not based as heavily on conventional demonstrations of commercial interest such as power purchase agreements or loan guarantees, but rather based on taking advantage of system optimization needs and state goals such as access to storage, creating broader geographical diversity to ease renewables integration, and opening development of chemically impaired and marginally productive agricultural lands such as those in the San Joaquin Valley.

While the indicators of commercial interest are important and no one wants stranded transmission, the record indicates that stranded transmission to rich resource areas like the West Mojave and the San Joaquin Valley will not likely be a problem. A likelier problem is premature congestion. Prioritizing upgrades that enhance balancing will reduce the reserves needed for integrating variable resources and enables us to get better value out of generation from different technologies. For example, the Midway-Gregg transmission upgrade would enable Valley solar to match Tehachapi wind, and also take better advantage of the Helms pumped storage facility. It would also accomplish a major policy goal of encouraging renewable development on chemically altered, drainage impaired, or marginally productive farmland and serve expected load growth in a part of the state with noted transmission congestion issues. However, under our present reactive planning process, this line is not a top priority, presenting a huge missed opportunity. We therefore urge the Commission to ensure that planning strategies which focus on long term proactive planning- as well as the needed short term but largely reactive planning - be integrated into the statewide transmission plan.

4. **NRDC recommends that the state add a detailed section to the Staff Report that would identify and take advantage of regional energy market opportunities and foster greater cooperation with states in the Western Electricity Coordinating Council (WECC) territory.**

California cannot stand alone in fighting Climate Change.

California has been the nation's leader on ambitions greenhouse gas reduction goals for more than a decade. California is the world's eighth largest economy, but the state's climate mitigation actions by itself will not reduce the threat from global climate change. Recognizing this fact, California Governors—Democratic and Republican – have sought to use the state's enormous political, economic and market influence to drive U.S. and even global policy making. This has led to vehicle greenhouse gas (GHG) standards in a dozen states, a nation-leading RPS, and our landmark GHG Reduction statue, AB 32. Thirty seven states have adopted RPS standards or goals. Complying with the emissions reductions and electricity procurement targets specified in these laws is not the state's only goal; leading regional and national policy decisions is equally if not more important. Ignoring regional energy procurement and transmission cooperation undermines this strategy.

Regional cooperation in electricity markets will benefit California in attaining climate mitigation goals and will reap financial benefits for California consumers and businesses.

Regional cooperation and a regional energy market can effectively aggregate the variability of generation and load as well as facilitate both the retirement of baseload coal resources and the integration of variable renewable energy resources into the grid. This combination allows for more rapid coal retirements in parts of the West we otherwise could not influence, while reducing both the amount of reserve energy individual balancing authorities need to have on hand and the amount of natural gas-fired electricity otherwise needed to firm variable renewable energy generation.[1,2] Without such regional cooperation, fewer renewable energy sources will be developed because each balancing area authority (BAA) must attend to most of its own needs. Although there is presently limited sharing across system "seams", this level of sharing is grossly insufficient for efficient and low-cost renewable energy integration. The current disaggregated way of integrating renewables drives up costs,[3] increases GHG emissions, and makes the whole system more unwieldy to operate.

In addition, it also makes the system more unreliable as the recent blackout in San Diego County demonstrated. Lack of transparency between CAISO and Arizona and Mexican balancing authorities has been implicated in worsening the blackout and delaying the reenergizing of the transmission service serving the region. The power outage forced the reactors at San Onofre to trip out of service. Clearly better coordination would have enabled CAISO to more readily identify problems and bring the system back into service faster. Strategic cooperation on the other hand, allows for more efficient use of the grid overall, resulting in better use of transfer capacity freed up from transitioning coal plants and less need for transmission. Thus enhanced coordination not only provides a climate abatement benefit, it also has a land use benefit that enables more renewable power to be integrated with fewer wires and less controversy.

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[1] M. Milligan, B. Kirby, *Calculating Wind Integration Costs: Separating Wind Energy Value from Integration Cost Impacts*, NREL/TP-550-46275, July. 2009

[2] M. Milligan, B. Kirby, J. King, and S. Beuning, *Potential Reductions in Variability with Alternative Approaches to Balancing Area Cooperation with High Penetrations of Variable Generation*, NREL/MP-550-48427, August. 2010

[3] Michael Milligan, Erik Ela, Bri-Mathias Hodge, Brendan Kirby (Consultant), and Debra Lew, *Cost-Causation and Integration Cost Analysis for Variable Generation,* National Renewable Energy Laboratory, June 2010
Charlton Clark, Jennifer DeCesaro, and Kevin Lynn, *U.S. Department of Energy* Prepared under Task No. WE110820, Technical Report NREL/TP-5500-51860 June 2011

California has enormous market influence. Sending the right signals to potential collaborators is essential to foster a western renewable energy market.

The opportunity of western generators to trade into and with California in a virtual energy market is a huge inducement to renewable energy development in some of the world's best renewable energy resource areas, such as Wyoming, Montana, Nevada and Arizona. All of these states have a common interest in better regional coordination: reducing the costs and burdens of renewable energy integration and supporting economic development that such development brings. A common assumption for regional market development is that states will seek to develop local resources first, and then seek cooperation to take advantages of the operational efficiencies and grid services such cooperation provides. Sending public messages to potential partners that renewable energy they produce could have no role in an energy market that includes California will have chilling and perhaps destructive effect on renewable energy development across the region.

California generators could participate in restoring seasonal energy exchanges and exports if there was a market and transmission infrastructure to support it. Steve Wright, CEO of the Bonneville Power Administration, recently told Northwest stakeholders that BPA would be interested in purchasing peak renewable power from California during summer months, but that transmission limitations were a barrier. The National Renewable Energy Laboratory renewable integration study suggests that there is a potential for California geothermal generators to sell power into Arizona utility markets. According to research being done at the University of Wyoming, Wyoming wind resources are high quality (greater than 40% capacity factor), low cost, and complement the generation curves of California wind, making it a potentially valuable balancing resource. Utilizing them in combination with our own resources can drive down the overall cost our consumers – residential and commercial – pay for renewable power. Business opportunities like this will depend upon regional coordination and the development of regional energy market

There are current efforts to establish mechanisms to launch a virtual (non-RTO) renewable energy market underway, California should support these efforts.

There are numerous regional and federal initiatives underway that lead to better regional coordination between BAAs and states. These initiatives will create market mechanisms that potentially benefit California greatly. They include: rulemakings at FERC on regional planning, cost allocation and variable resource integration; WGA renewable energy zoning and a state

wildlife decision support system for regional transmission; and the proposed energy imbalance market; NREL, DOE and private work on renewable energy grid integration and balancing; and efforts by individual governors to seek cooperative relationships (such as efforts by Nevada Governor Sandoval to establish an energy collaboration with California; Governor Kitzhaber of Oregon's desire to coordinate with both Washington and California, and to foster broader bipartisan cooperation across the western interconnection). The opportunity for California to shape this cooperation is extremely great given our market power. Finally, several prominent California stakeholders are engaged in regional transmission planning. Renewable energy trade associations and an association of former regulators with strong California ties, the Western Grid Group, are partnering with the NGO community to advanced regional cooperation and grid efficiency efforts. In August, the groups working collectively as the Western Clean Energy Advocates released a Clean Energy Vision for the West that intensively relies on broader regional cooperation across the interconnection to advance climate mitigation goals while containing costs, reducing environmental impacts and creating jobs and economic development for workers in California and throughout the West.[4]

III. Conclusion

Thank you for the opportunity to comment on the issues discussed in the draft report "*Renewable Power in California: Status and Issues,"* and for considering our recommendations. We look forward to continuing to work with the CEC to identify and implement effective policies to meet California's carbon reduction and renewable energy development needs.

Sincerely,

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[4] Carl Linvill, John Candelaria, *Western Grid 2050:Contrasting Futures, Contrasting Fortunes,* Aspen Environmental for the Western Grid Group, August, 2011