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Subject: Transmission Planning for Renewables Docket numbers **11-IEP-1E** and **11-IEP-1G**

**“Benefits and Challenges to Out-of-State Renewables”**

These comments supplement the comments that I provided at the IEPR Committee Workshop “Transmission Needed to Meet State Renewable Policy Mandates and Goals” on May 17, 2011.

In my comments I mentioned that the views I presented were expressed in the Black & Veatch WECC Energy Market Perspective 25-year forecast. I want to emphasize that this is our base line view of where WECC Power Markets are likely to go given what we know today. This is not our proposal of what should be done in the WECC in the next 25 years. We have not attempted to perform an analysis of what the WECC should do.

In my comments I discussed a variety of challenges that development of new out-of-state transmission faces. I also indicated that, in the event developers of renewable projects outside the state of California bring desirable projects to California, California should be prepared with transmission in California that will be able to accommodate that power.

The purpose of these comments is to (1) provide information on what attributes projects outside of California have that would make the projects desirable to California and (2) discuss some of the general benefits that are associated with such projects.

**Attributes of Desirable Projects outside California**

Overall, it is a combination of attributes that make a project desirable, according to the “Least Cost – Best Fit” (LCBF) principal being used in California to select renewable projects. In addition, Project Viability is an important aspect in making a project look desirable. Project attributes that would be beneficial are:

1. Projects that demonstrate they have firm transmission to California. Senate Bill No. 2 approved by the Governor of California on April 12, 2011 greatly restricts the use of Renewable Energy Credits in meeting California RPS goals. The larger amount of the RPS goal needs to be met with projects that either directly connect to a grid controlled by a California Balancing Authority or be dynamically transferred to a grid controlled by a California Balancing Authority. In order to be dynamically transferred, the out of state renewable project needs to have firm transmission from the project to a California Balancing Authority.
2. Lower cost renewable projects. California has already developed many of its lowest cost resources. There are resources outside California that are lower cost. For example, geothermal resources in Nevada and Oregon have been identified as potentially attractive. Furthermore, wind projects in some states outside of California have net capacity factors that are better than most of the remaining resources in California. These out of state net capacity factors may be 25% better than in state capacity factors. This suggests that out of state wind may cost as much as 25% less than in state wind at the bus bar of the projects. Everything else being equal, the delivered price for wind from out of state may be lower than delivered price of renewables that are located inside of California.

3. Desirable output patterns. There are additional base load renewables available outside California. Furthermore, out of state wind projects may be able to demonstrate hourly, daily and monthly output patterns that are more aligned with utility needs. If that is the case, these projects would have an advantage in the Best Fit category of the LCBF analysis. Our research on daily wind shapes in WECC states, based on WREZ data, shows that for every state in WECC, the net capacity factor is somewhat higher during the night hours than the daylight hours. Some projects in those states may vary from their state average.
4. Lower cost transmission services. Projects that can in aggregate improve the utilization (capacity factor) of the transmission delivery path will reduce overall \$/MWh delivered cost and will be more competitive in the Market.
5. Project Viability. A well-capitalized developer with a broad set of skilled and experienced transmission and investment partners are a lower risk and will help demonstrate the Project Viability of the out of state renewable resource.

### **General Benefits of Out-of-State Renewables and Associated Transmission**

In addition to the attributes listed above that might make specific projects attractive, there are also several benefits of out-of-state renewables:

1. Development Costs. Costs to develop, construct, and operate transmission assets outside of California generally are lower on a cost/MW-mile basis than in-state. In addition, costs to develop generation assets outside of California may be lower on a cost/MW basis than in-state.
2. Economics. Studies done by Black & Veatch and others (see for example, the RETI Phase 2B Final Report) have shown that out-of-state resources can be cost competitive with in-state resources.
3. Diversity. California has indicated that it wants its resource portfolio to foster diversity. Resources outside of California can add diversity of ownership, diversity of location (thus resource performance), and diversity of technology.
4. Additional good renewable. California needs considerable renewables. Renewables outside the state of California can help meet the current goal and be especially helpful if RPS goals in California are increased.
5. Increased market competition. Perhaps with the exception of solar photovoltaics, supply of renewables in California is constrained due to lack the necessary delivery infrastructure to bring renewables to market. Building new transmission to facilitate imports will increase access to new supplies which will increase competition.
6. More Robust Transmission Network. The addition of new transmission links in the West may provide more than just access to generation resources. They may also increase reliability, reduce congestion, and lead to market-wide benefits.

Please add these comments to the comments that I previously provided in this Docket.

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