State of California **Public Utilities Commission**
San Francisco

M E M O R A N D U M

Date : March 4, 2010

To : The Commission
(Meeting of March 11, 2010)

From : Laurence Chaset, Legal Division
Colette Kersten and Keith White, Energy Division

Subject : FERC Docket No. RM10-11-000 - Staff Seeks Authority to File Comments in Response to the Federal Energy Regulatory Commission's Notice of Inquiry Regarding the Extent of Barriers and Needed Reforms for Integrating Variable Energy Resources (VERs) into the Electric Grid.

I. INTRODUCTION

The Federal Energy Regulatory Commission ("FERC") has issued a Notice of Inquiry ("NOI") seeking comment on the extent to which barriers may exist that impede the reliable and efficient integration of variable energy resources ("VERs"), such as wind and solar generation, into the electric grid, and whether reforms are needed to eliminate those barriers. Comments are due on April 12.

FERC states that VERs will be an increasingly important part of electric supply portfolios due to environmental, sustainability and other advantages, and also due to state renewable portfolio standards and other energy policy developments. On the other hand, VERs present unique challenges for integrated operation within electric systems, particularly due to their nature-driven, partly unpredictable variations in output that may include large ramps (rapid changes) up and down. FERC seeks comment on whether existing rules, regulations, tariffs or industry practices are impeding efficient integration of VERs and require changes, particularly within the context of FERC's authority regarding discrimination in wholesale markets and access to transmission, regarding just and reasonable rates, and regarding electric reliability.

II. DISCUSSION

California is at the forefront of addressing the challenge of preparing to develop and integrate large amounts of variable renewable generation. Consequently, the issues raised by FERC in this NOI are of great interest and concern to the California Public Utilities Commission ("CPUC"), and to California and its energy stakeholders more generally. More specifically, the questions that FERC poses in the NOI regarding operating reserves, scheduling practices, forecasting VER output and other matters are already receiving considerable attention from the California Independent System Operator ("CAISO"), from the CPUC , from utilities and from others in California.

Thus, the CPUC should state its strong support for the overall direction that FERC is taking in this proceeding. The specific points which staff seeks CPUC authorization to address focus on: (1) the desirability of FERC support for preparations already under way in California; (2) the need for expanding such efforts in several ways, with additional support from FERC; and (3) the importance of allowing considerable flexibility and avoiding prescriptive approaches, especially when the development of needed solutions is in early stages and where the challenges are both complex and highly situation-specific.

(1) Data and Forecasting

CPUC comments should support the use of centralized (not necessarily based on a single source) forecasts of VER output such as that utilized under the CAISO's Participating Intermittent Resource Program, both to facilitate grid operations and to motivate VER participation in forward markets using such forecasts. Similarly, CPUC comments should support the communication of information regarding VER status, including operational and meteorological conditions, on as frequent a basis as is technically and economically feasible and justified.

(2) Scheduling Flexibility and Incentives

CPUC comments should support the increased use of intra-hour scheduling, including dynamic transfers between balancing authority areas, to the extent technically and economically warranted. This amounts to supporting more RTO-like flexibility in areas outside of the CAISO footprint, which would facilitate more flexible integration of VERs in those areas. In addition, it would also allow more flexible imports of VER generation into California, within the limits permitted by transmission capacity and by communication, control and transaction tracking capabilities. In particular, the CPUC should recommend that FERC support (and not preempt) existing Western (outside of California) efforts to implement such reforms, such as via the Western "Joint Initiatives" process, as long as these efforts are progressing.

Regarding incentives for VERs to submit accurate schedules, CPUC comments should support approaches such as that used by the CAISO, in which VERs are rewarded for scheduling according to centralized forecasts meeting prescribed conditions, in return for which VERs' output deviations from schedules (such as due to wind fluctuations) are netted out over time rather than assessed more burdensome imbalance penalties. Thus, CPUC comments should recommend that VERs *not* be treated the same as conventional resources with regard to deviations from schedules, and in particular, that VERs should not be significantly penalized for deviations if their output is scheduled according to approved forecasts.

(3) Day-Ahead Market Participation and Reliability Commitments

The comments (recommended above) regarding participation by VERs in forward scheduling should apply specifically to day-ahead markets, to the extent that forecasting methods and their application to operations can be effectively extended to the day-ahead time frame, which goal should be supported (but not imposed) by FERC.

(4) Balancing Authority Coordination

CPUC comments should recognize that small balancing authority areas do generally encounter physical and economic limitations in accommodating VERs, as has been observed in both studies and practice. The West is making voluntary bilateral and multilateral efforts to address this problem, short of actual balancing authority consolidation, considering reserve sharing, virtual balancing authorities and ACE (control error) sharing. Thus, CPUC comments should recommend that FERC pragmatically support these Western efforts without acting prescriptively or imposing a specific, one-size-fits-all RTO-like design (which already failed once).

(5) Reserve Products and Ancillary Services

CPUC comments should note that while other reforms and initiatives (described above) will be very beneficial, reforms and innovations specifically concerning ancillary services (*e.g.*, regulation) will likely also be valuable, in terms of the amounts of reserves procured, new types of services and procedures for deploying flexible reserves to manage output from VERs. However, ancillary service needs and alternative solutions are currently being analyzed through very complex studies. Because these analyses will be on-going and major policy and tariff changes regarding the provision of ancillary services will likely have substantial operating and economic ramifications, FERC needs to be receptive to new ideas and solutions, and to avoid being prescriptive or acting prematurely.

Moreover, it is premature to commit to some of the concepts on which FERC is seeking comment, pending consideration of a wider range of options, because what will

ultimately work best and most cost-effectively to integrate VERs will very much depend on specific circumstances. In particular, where controlled (not as fast) ramping and occasional curtailment of output by VERs is technically and economically feasible, it can avoid much more costly integration solutions.

Finally, with regard to FERC's request as to whether there are new sources and/or providers for reserve products, such as storage or aggregated demand response, which can reduce reserve requirements and costs, CPUC comments should state an emphatic "yes" and point out that California is pursuing cost-effective and low-or zero-emitting alternatives to conventional fossil fuel-based ancillary services for integrating VERs. FERC should generally defer to these state energy priorities, and should be open to reducing market and regulatory barriers without requiring or constraining particular options. Moreover, FERC's own policies should prefer efficient and cost-effective market-based approaches for obtaining such new services.

(6) Capacity Markets

CPUC comments should call for an appropriate balance between capacity (resource adequacy) credits for VERs (*e.g.*, wind energy systems) and the imposition of penalties for under-provision of rated capacity. Furthermore, CPUC comments should support efficient market-based methods for obtaining both conventional and new sources of ancillary services, rather than either creating new forward ancillary services markets or subdividing existing forward capacity markets in a quest for ensured long-term provision of ancillary services, which is premature at this time.

(7) Real-Time Adjustment

Greater reliance on renewable generation, specifically variable renewable generation, will foreseeably lead to pressures to re-dispatch other resources and to occasionally curtail excess variable renewable generation. A useful tool in such situations is economic re-dispatch, under which the allocation of transmission and the dispatch of generators in real time is based on how the generators -- or transactions using the generators -- bid or signal how highly they value ability to run, subject to meeting reliability constraints that may require certain generators to run in certain locations.

Accordingly, CPUC comments should support making economic re-dispatch more widely available across the West, which would facilitate access to transmission by renewable generation, even where that generation cannot be precisely scheduled ahead of time. However, we should stop short of calling for a complete and rapid switch to CAISO-like re-dispatch procedures West-wide, because such procedures would be inconsistent with current widespread physical transmission rights regimes and would require substantial operational and information systems changes, although we should encourage acceleration of Western efforts in this direction (which may be spurred by

state RPS policies) and should encourage FERC to promote such efforts so as to facilitate the investment in cost-effective renewable resources that may otherwise be underutilized.

III. RECOMMENDATION

Staff requests authorization to submit CPUC comments in response to the FERC's NOI that are consistent with the recommendations discussed above.

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