

and environmental policy goals. Given the uncertainty around exact timing and content of some of the related legislative proposals, consideration of any regulatory changes to meet these various policy goals should occur in a coordinated manner to ensure consistent and rational outcomes.

The NOI is wide-ranging in scope and poses numerous questions regarding the impacts of integrating VERs⁴ in seven different subject areas: (1) data, reporting, and forecasting tools; (2) scheduling practices; (3) forward market structure and reliability commitment processes; (4) Balancing Authority Area coordination and/or consolidation; (5) efficient use of reserve products; (6) capacity market reforms; and, (7) re-dispatch and curtailment practices. While EPSA believes the Commission has correctly identified the areas that require further consideration from both a market and operational standpoint for reliably accommodating increasing amounts of VERs, EPSA will not respond to each individual question. Rather, EPSA offers overarching comments herein on critical issues of concern to EPSA and its members within the context of these identified subject areas.

Additionally, EPSA requests that as a next step the Commission conduct technical conferences to allow for further discussion and technical analysis of these issues, along with issues raised in other parties' written comments. Further, EPSA submits it may be beneficial for the Commission to issue an Advanced Notice of Proposed Rulemaking ("ANOPR") following such conferences and prior to a Notice of Proposed Rulemaking ("NOPR") to allow for

⁴ See VERs NOI, footnote 1: "For purposes of this proceeding, VERs refers to renewable energy resources that are characterized by variability in the fuel source that is beyond the control of the resource operator, including wind and solar generation facilities and certain hydroelectric facilities."

a full record on the products, services and technologies needed to reliably integrate VERs while fully optimizing use of the existing generation and transmission infrastructure necessary to support such integration.

I. COMMUNICATIONS

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II. COMMENTS

EPSA welcomes the Commission's initiation of this rulemaking proceeding to examine the market and operational issues surrounding integration of VERs into the electric grid given the significant impacts to its membership of any resulting changes. EPSA's member companies are operating across the RTO and non-RTO regions and, collectively, are owners, operators, and/or developers of every type of generation resource and associated technologies under development, including investments in energy storage and CCS. As an American Wind Energy Association ("AWEA") report noted, "Independent Power Producer ownership of wind assets is still the norm," with 7,258.5 MW (85%) of the 8,545 MW of wind capacity that was constructed in 2008 developed by competitive suppliers.⁵ Further, due to their transparency and more flexible

⁵ AWEA Annual Wind Industry Report, Year Ending 2008, issued April 2009, the report is available at: www.awea.org/reports. Also, see EPSA's Powerfact: "New Reports Confirm Regional Power Markets Reliably Facilitate Renewable Energy," issued April 22, 2009, available at: <http://www.epsa.org/forms/documents/DocumentFormPublic/>.

operating characteristics, the ISO/RTO regions in particular are attracting VERs. As reflected in a recent ISO/RTO Council (“IRC”) report, 21,254 MW, or nearly 80% of total U.S. wind generating capacity operated in ISO/RTO regions in 2008.⁶

EPSA agrees that VERs and other renewable resources provide environmental and other potential benefits to consumers. However, due to their differing characteristics, large-scale integration of such resources must be carefully considered to ensure that: grid reliability is maintained, well-functioning market mechanisms remain in place, comparability among resources is maintained, and necessary products are developed that appropriately compensate investment by conventional generation resources, which will remain the primary suppliers of electricity under any scenario, to support these new variable power supply sources. EPSA urges a balanced approach by the Commission with respect to potential changes, with an eye towards the effects on other policy initiatives that are or have been under consideration in other proceedings, including transmission planning and cost allocation, smart grid development, demand response and energy efficiency integration. These issues are inter-related in the overall effort to respond in a manner that will be sustainable to requirements of national and state energy and environmental policy mandates. EPSA requests that as a next step in this proceeding, the Commission establish a series of technical conferences to allow for further discussion of the appropriate operational and performance requirements,

⁶ See ISO/RTO Council, 2009 State of the Markets Report, pg. 29, September 2009, available at <http://www.isorto.org/site/c.jhKQIZPBIImE/b.2603295/k.BEAD/Home.htm>, (“IRC 2009 SOM Report”).

technology, and products needed to move forward on large scale VERs integration.

A. Grid Reliability Must Be Maintained

EPSA agrees with the Commission that any necessary reforms culminating from this proceeding must be consistent with the need to maintain system reliability in accordance with the Reliability Standards proposed by the North American Electric Reliability Corp. (“NERC”) and approved by the Commission (and also that modified or new standards may be necessary as a result of this proceeding).⁷ As the Commission is aware, numerous initiatives, studies and ISO/RTO stakeholder processes have been conducted or are underway to examine various aspects of VERs integration, with reliability and resource adequacy as key considerations in these undertakings.⁸ EPSA has two points to offer in this regard.

First and importantly, some of these reports and, in particular, the NERC IVGTF report concludes among other things that, with respect to Ancillary Services, many Balancing Authorities (“BAs”) need to change practices and/or increase amounts of Operating Reserves for anticipated increases in variable

⁷ VERs NOI at P. 11.

⁸ For example, see ISO/RTO Council report, “Increasing Renewable Resources: How ISOs and RTOs Are Helping Meet This Public Policy Objective,” issued October 16, 2007, available at: <http://www.isorto.org/site/c.jhKQIZPBlmE/b.2603295/k.BEAD/Home.htm>.

generation.⁹ The NOI states that “[t]he Commission’s preliminary view is that one of the most important operational issues affecting the integration costs for VERs involves the reserves necessary to address variability in VER output” with respect to both the amount of reserves needed as well as the cost of those reserves.¹⁰ While EPSA believes there may be products that should be developed to decrease reliance on reserves, and possible products should be considered at a technical conference, the Commission should not move to relax requirements at this time to ensure sufficient resource adequacy and address resource management concerns.¹¹ Specifically, consideration of a reduction in reserve requirements for existing Ancillary Services (“AS”) should not occur until new products are actually implemented (and note below that with respect to the long-term, EPSA supports development of market-based products and solutions to address operational challenges associated with VERs integration). Also critical to grid reliability is the need to procure replacement reserves such that are deliverable to the load supplied by the VER, which is particularly important in

⁹ NERC Special Report: “Accommodating High Levels of Variable Generation,” issued April 2009, available at: http://www.nerc.com/files/IVGTF_Report_041609.pdf. The NERC Planning and Operating Committees’ Integration of Variable Generation Task Force (“IVGTF”) and other NERC Committees continue work on recommendations from the report. The IVGTF leadership and members include representatives from the Electric Power Research Institute (“EPRI”), ISOs/RTOs and industry, among others. See also, NERC IVGTF Activity Updates, PJM presentation to its Intermittent Resources Working Group (“IRWG”), pg. 3, January 25, 2010, available at: <http://www.pjm.com/~media/committees-groups/working-groups/irwg/20100125/20100125-item-03-nerc-ivgtf-update.ashx>.

¹⁰ VERs NOI at P. 12.

¹¹ In the FERC’s Smart Grid Policy Statement at P. 19, the Commission discussed issues that will face grid operators when considering integration of large amounts of variable generation, including resource adequacy and resource management. Resource adequacy issues were referred to as the “potential loss and unavailability of variable resources at peak periods and other critical times such as loss of other generators or transmission lines” and the resource management issue is the “potential for over-generation by variable resources during off-peak periods when there is insufficient load to accommodate such generation.” 126 FERC ¶ 61,253, Docket No. PL09-4-000 (March 19, 2009).

transmission constrained areas. EPSC believes these reserves function as a necessary complement to VERs, and it is important that the Commission continue to require AS reserves necessary to maintain system reliability.

As a case in point, the ERCOT experience with integrating VERs is instructive. ERCOT, with approximately 9,000 MW of installed wind capacity in its region, has been a leader in this area, with its experience highlighting both the operational challenges and benefits of VERs. Based on a recent study by GE Energy Consultants examining wind generation impact on ERCOT Ancillary Services requirements, ERCOT has increased its procurement of reserves based on the volatility of “net load.”¹² Net load is defined as load minus output of wind farms (the latter which is not committed by, and only sometimes dispatched in, a downward direction by the grid operator). Under this framework ERCOT dispatches thermal generation in real-time to meet net load. The smaller the net load at a given time (that is, the larger the output from variable resources relative to overall electric use), the fewer MWs of thermal and hydroelectric generation that is centrally dispatched by the grid operator in real time.

The second concern relates to potential ISO/RTO seams issues, which may threaten reliability under a large-scale VERs integration scenario. While as referenced above many studies and discussions are underway on VERs issues, there remain many different rules and operating procedures at the boundaries of the RTOs. This will likely require further examination to ensure that in events

¹² The concept of using “net load” to estimate the needed levels of ancillary services procurement based on the penetration of wind farms in ERCOT is found in Public Utility Commission of Texas, Docket No. 33672, *Commission Staff’s Petition for Designation of Competitive Renewable-Energy Zones*, Attachment A, “Analysis of Wind Generation Impact on ERCOT Ancillary Services Requirements” in “ERCOT’s Information Filing of the GE Ancillary Services Study,” (April 2, 2008).

where wind may be exported from one RTO to another, further specificity and compatibility is in place for scheduling with respect to weather forecasting, voltage issues and other required coordination. In its recently issued Power Trends 2010, the New York ISO advocates and recognizes this need for broader market coordination, noting: “The benefits of regional collaboration will increase as additional variable, renewable resources (such as windpower) are added to the system. More frequent scheduling of transactions would improve market and operational efficiency by grid operators and allow for faster adjustments to dynamic changes in system conditions.”¹³ The necessary regional coordination and new technologies from VERs, which may also assist in managing potential seams issues, should be explored at a technical conference.

B. Well-functioning Market Mechanisms Should Remain In Place

As the NOI discusses, the Commission has required targeted revisions to date to ensure competitive markets and facilitate VERs participation through certain incremental changes to interconnection procedures and pricing, creation of conditional firm point-to-point transmission service and changes related to imbalance penalties for renewables.¹⁴ EPSA believes a similarly targeted approach should be employed here to maintain and preserve the overall well-functioning competitive market framework that is now in place and to ensure appropriate price signals are sent to all generation resources. In particular, many of the ISOs/RTOs utilize security-constrained economic dispatch, which is a key

¹³ New York ISO, “Power Trends 2010: New York’s Emerging Energy Crossroads” at 23, (issued March 2010). The report is available at: http://www.nyiso.com/public/media_room/press_releases/index.jsp.

¹⁴ VERs NOI at Paragraphs 7 and 8.

element of an efficient market. In practice, it allows for dispatch in accordance with reliability constraints on the transmission grid.

EPSA supports expanded use of this mechanism to other regions and does not believe the practice should be altered to accommodate VERs, which are able to schedule day-ahead to a reliable level under this mechanism. Several of the ISOs/RTOs, including the NYISO and PJM, have made recent enhancements with modeling and operational requirements to further accommodate VERs under this mechanism, and this should also be encouraged.¹⁵ It is these types of rule changes within the existing, well-functioning markets, along with new technologies and products, which will help to increase flexibility of conventional generators and assist in reducing costs of VERs integration. There are significant conventional generation resources available that are able and will be needed to provide this increased flexibility. It is important to recognize that such flexibility by conventional resources provides market value in the effort to reliably integrate and support participation of VERs and must be properly compensated. Alternatively, changes that carve-out or grant preference to a particular resource will ultimately distort price signals, thereby weakening reliability and creating a disincentive for necessary generation and demand resource investment.

While not a panacea, central wind forecasting programs assist with improved dispatch and exist in some form across all the ISOs/RTOs, with BPA, Xcel and others adopting such programs in 2010.¹⁶ Several of the ISOs/RTOs,

¹⁵ IRC 2009 SOM Report at 30.

¹⁶ See the Utility Wind Integration Group (“UWIG”) summary of “Wind Power and Electricity Markets” (providing a summary of markets and market rules for wind energy and capacity in

including PJM, ERCOT and CAISO have recently initiated use of enhanced forecasting systems and such enhancements should be encouraged across all regions to allow operators to better respond to variability of renewables.¹⁷ Common forecasting tools will allow BAs to utilize common information for determining available reserves on a forecast basis, thus more reliably allowing the exchange of forecast and real time energy and more cost effective utilization of reserves. Additionally, improved central forecasting should facilitate the ability of VERs to bid into the Day-Ahead energy markets.

Further, EPSA urges the Commission to use this proceeding as a vehicle to require more comparability between RTO and non-RTO market requirements, for example, by requiring enhanced forecasting, intra-hour scheduling and consolidation of balancing areas within the non-RTO regions.

C. Products Should Be Developed That Support Investment By Conventional Generation Resources Necessary To Integrate VERs

An operational reality surrounding VERs integration is that conventional generation resources will remain the “backbone” supply sources under any large-scale VERs integration scenario, and will be required as primary support to VERs to maintain resource adequacy and reliability (acknowledging that storage and other technologies will also play a role). Competitive suppliers have made significant investments in new, more efficient plants and to upgrade existing generation plants, including with environmental enhancements. On-demand gas-

North America), information compiled through August 2009 and the UWIG table of “Central Wind Power Forecasting Programs in North America by RTOs and Electric Utilities,” released December 2009. The UWIG materials are available at: <http://www.uwig.org/>.

¹⁷ IRC 2009 SOM Report at 30.

fired generation will provide flexibility to facilitate VERs.¹⁸ Continued generation investments will be required to support changing market needs and resource diversity. As noted by AWEA, “[t]he expansion of energy markets, as well as the creation of markets for flexibility itself, can create strong incentives for power plant owners to make their plants more flexible.”¹⁹ EPSA submits that in assessing potential market reforms, including products and services that should be developed, there must be appropriate price signals for conventional generation to compensate for and reflect these necessary investments.

In particular, EPSA believes the ISOs/RTOs should be encouraged to further articulate needs in managing and developing products that fully compensate and promote ramp capability to balance VERs. EPSA recognizes there has been some level of assessment on the capability needed, particularly to manage the morning and evening ramps.²⁰ However, there remains a lack of transparency with regard to managing what can be excessive levels of ramping and drop-off that in turn is resulting in uneconomic out of market commitments by the ISOs/RTOs to meet this volatility risk.

The implications for conventional generators to cover what can be a significant volume on short notice is not reflected in the current prices. As is the case with all aspects of the wholesale market, clear and accurate price signals

¹⁸ For example, see Calpine Corporation’s January 11, 2010 press release “Calpine Corporation to Sell Wind-Based Firm Power Product,” available at: <http://phx.corporate-ir.net/phoenix.zhtml?c=103361&p=RssLanding&cat=news&id=1373566>.

¹⁹ AWEA Fact Sheet – Wind Power and Energy Storage, available at: www.awea.org.

²⁰ For example, see remarks of Udi Helman, Principal Economist, California ISO at 1-2, FERC Technical Conference on Integrating Renewable Resources into the Wholesale Electric Grid, Docket No. AD09-4-000, March 2, 2009: “The system will benefit from additional flexibility capabilities provided from generation and non-generation resources, such as demand response and storage. These would include: fast ramping, quick start resources, increasing operating ranges on generation, Regulation capability, and load shifting from peak to off-peak.”

which ensure appropriate compensation for market value are necessary for efficient operations and dispatch. EPSA requests that consideration of tailored, specific products and associated costs to address this significant system reliability issue should be considered at a technical conference.

D. Ensure Comparability Among Resources

To reiterate, EPSA and its members support use of all resources as part of a balanced portfolio approach that will be necessary to meet a low-carbon future – and indeed, many EPSA members are engaged in development of VERs and associated technologies. Further, EPSA members have been active stakeholder participants in ISO/RTO and other initiatives to identify barriers and develop solutions to successfully integrate VERs, as well as demand response and energy efficiency resources, and associated technologies into the markets under just and reasonable terms.

Given that, EPSA’s overarching concern in this proceeding relates to any proposed reforms that would confer preferential treatment to a certain class of resource to achieve a desired policy outcome, but may instead or concurrently distort price signals or result in cost shifting, thereby producing inefficient market outcomes. When considering comments and any proposed reforms in this proceeding, it is instructive to consider Commissioner Spitzer’s remarks at the January 21, 2010 FERC open meeting where the NOI was approved:

The NOI does not seek to change rules for certain types of resources to incent certain types of energy resources or create preferences as between types of resources. Indeed, the ultimate goal of the NOI is the Commission’s standard obligation: to ensure that rates are just and reasonable and to deter undue discrimination. Therefore, the NOI asks whether any of the rule or practice changes that may facilitate the integration of renewables should also apply to conventional resources to

ensure that rates are just and reasonable and that we deter undue discrimination.^[21]

III. CONCLUSION

Wherefore, EPSA respectfully requests that the Commission consider the recommendations herein, including scheduling technical conferences as a next step to allow for further discussion, record development and technical analysis of the NOI issues. Additionally, EPSA submits it may be beneficial for the Commission to issue an Advanced Notice of Proposed Rulemaking (ANOPR) following such conferences and prior to a Notice of Proposed Rulemaking (NOPR) to allow for a more complete record on the products, services and technologies needed to reliably integrate VERs while fully optimizing use of the existing generation and transmission infrastructure necessary to support such integration.

Respectfully Submitted,



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²¹ Statement of Commissioner Marc Spitzer on Efficient Integration of Renewables into the Grid, January 21, 2010, statement available at: <http://www.ferc.gov/news/statements-speeches/spitzer/2010/01-21-10-spitzer-E-4.pdf>.

CERTIFICATE OF SERVICE

I hereby certify that I have served a copy of the comments via email upon
Each person designated on the official service list compiled by the Secretary in
this proceeding.

Dated at Washington, D.C. April 12, 2010.



Nancy Bagot, VP of Regulatory Affairs