

## Comments of Pacific Gas & Electric Company Frequency Response Issue Paper

Submitted by	Company	Date Submitted
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Pacific Gas and Electric Company (PG&E) appreciates the opportunity to submit comments on the California ISO's frequency response issue paper, which was posted on August 7<sup>th</sup>, and frequency response stakeholder call, which was held on August 13<sup>th</sup>. PG&E looks forward to working with the ISO and other stakeholders to ensure that NERC compliance is achieved and that high standards of grid reliability are maintained.

PG&E's comments below are split into two sections. The first section seeks to clarify the exact ISO requirements related to primary frequency response; the second section lists PG&E's initial thoughts on options to meet the requirements.

### 1. The California ISO's Frequency Response Obligation

#### Background

In December 2016, the ISO must begin complying with a new NERC reliability standard (BAL-003-1), which was approved by FERC in January 2014. The new standard includes a minimum frequency response obligation for each balancing authority as well as consistent methods for measuring frequency response and determining the frequency bias setting. The ISO is seeking stakeholder input on how best to comply with these new requirements.

#### The ISO's Frequency Response Obligation

According to NERC, WECC's frequency response obligation for operating year 2015 is 906 MW / 0.1 Hz<sup>1</sup>, and the corresponding California ISO obligation is 218 MW / 0.1 Hz, based on a 24% generation/load share. Furthermore, the loss of two Palo Verde units, totaling 2626 MW and defined as the largest category C (N-2) event for WECC, is expected to reduce system frequency by 0.35 Hz. As a result, in its August 13<sup>th</sup> presentation, the ISO states the need for 763 MW of upward frequency response ((218 MW / 0.1 Hz) x 3.5 decihertz).

#### PG&E Requests that the CAISO Provide Additional Information on the Magnitude of Frequency Response Needed

While PG&E understands how the ISO is calculating the need for 763 MW of upward frequency response, PG&E requests additional information on why this calculation is appropriate. PG&E would like to ensure that 763 MW is the right amount of upward

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<sup>1</sup> According to NERC's 2014 Frequency Response Annual Analysis, published in February 2015

frequency response for the ISO to maintain high standards of grid reliability and comply with NERC BAL-003-01. More specifically, PG&E seeks to understand why the ISO obligation is based on a 24% share of WECC's generation/load, when the range is 24%-30%. In addition, PG&E seeks to understand why the ISO needs to reserve for a category C (N-2) event at all times, when NERC is asking for a median response greater than 218 MW / 0.1 Hz.

## **2. PG&E's Initial Thoughts on CAISO's Options to Comply with the new NERC Reliability Standard (BAL-003-01)**

Listed below are PG&E's initial thoughts on potential ideas for the ISO to explore. Before it can advocate for any particular solution, PG&E needs more detail and a full understanding of the reliability and cost implications.

### **A. PG&E Believes that CAISO Should Focus on Developing a Permanent Solution**

PG&E requests that the ISO focus on the development of a permanent solution, unless the ISO believes that an interim solution is needed to maintain high standards of grid reliability and comply with NERC BAL-003-01. If the ISO does indeed believe that an interim solution is needed, PG&E asks the ISO to provide data and analysis to justify why additional steps are needed to comply with the NERC standards and/or maintain reliability.

### **B. Inter-Balancing Area Procurement**

If additional procurement is warranted, PG&E asks the ISO to explore procuring frequency response from other WECC balancing areas. From PG&E's perspective, this might be an efficient way (at least in the interim) to meet the overall objective, which is reliability across the WECC interconnection and compliance with NERC standards.

### **C. Spinning Reserve Requirements:**

PG&E supports exploring the expansion of spinning reserve requirements, which could potentially provide the incentive needed for generators to reserve headroom and respond to system disturbances within 1 minute. However, PG&E wants to ensure that the ISO fully examines the cost implications of such an expansion.

### **D. Monitoring and Forecasting**

PG&E suggests exploring what it would take to actively monitor frequency responsive reserves. Real-time monitoring would allow the ISO to ensure that minimum reserves are available and adjust if reserves are trending low. In addition, PG&E suggests that the ISO explore tools to forecast frequency response needs, allowing the ISO to use such inputs in the Day-Ahead and Real-Time Markets. This is particularly important if the ISO is going to secure frequency responsive reserves by modifying the spinning reserves requirements.

### **E. Asynchronous Wholesale Generators**

PG&E supports the examination of using asynchronous wholesale generators to provide primary frequency response, where practical and efficient. Today's inverter technology allows for DC-based generation to contribute to real and reactive power needs within cycles. Furthermore, the California ISO is moving forward (through a separate initiative) to require asynchronous generators to provide reactive power. If asynchronous generators are going to provide reactive power, then they will already have the inverter technology necessary to provide frequency response.