UNITED STATES OF AMERICA
FEDERAL ENERGY REGULATORY COMMISSION

Utilization in the Organized Markets of Electric Storage Resources as Transmission Assets Compensated Through Transmission Rates, for Grid Support Services Compensated in Other Ways, and for Multiple Services	Docket No. AD16-25-000

Prepared Statement of Neil Millar
on behalf of the California Independent System Operator Corporation

My name is Neil Millar. I serve as Executive Director, Infrastructure Development at the California Independent System Operator Corporation (CAISO). In this role, I oversee Transmission Planning and Grid Asset departments at the CAISO. I received a Bachelor of Science in Electrical Engineering degree at the University of Saskatchewan, Canada, and am a registered professional engineer in the province of Alberta. I have been employed for over 30 years in the electricity industry, primarily with a major Canadian investor-owned utility, TransAlta Utilities, and with the Alberta Electric System Operator and its predecessor organizations. Within those organizations, I have held management and executive roles responsible for transmission planning.

I am providing this statement in connection with my participation on the panel discussion at the Commission's November 9, 2016 technical conference involving utilization of electric storage resources for grid support services. This panel will explore potential models to enable an electric storage resource to provide a compensated grid support service rather than being compensated for providing transmission service.

Utilization of electric storage resources is a significant issue to the CAISO, given the industry development underway and the potential for electric storage to play a

growing role in the reliability of the transmission system, as well as a growing role in renewable integration and overall system efficiency. At the same time, care must be taken considering the importance of electric reliability and ratepayer impacts. As an initial matter, the Commission's guidance that transmission assets – and in particular the use of electric storage as a transmission asset – should provide transmission services focusing on thermal loading and voltage support is appropriate and has been particularly helpful to the CAISO in past transmission planning processes. The CAISO is open to explore how it can support the opportunity for electric storage to provide renewable integration services. However, renewable integration is not a transmission service. The CAISO believes existing procurement mechanisms should, in the first instance, support resources providing these services through the CAISO's wholesale markets.

In the context of our transmission planning process, the CAISO has studied a number of potential electric storage projects as reliability solutions, ranging from transmission asset models to local resources participating in markets. The former has not resulted in energy storage transmission assets moving forward, whereas the latter has resulted in a number of energy storage projects providing local capacity. In this context, the CAISO's experience reflects that electric storage has more effectively fit within the framework of market resources providing local capacity rather than as transmission assets. The needs can be driven by a variety of causes, including generation retirements, load growth, or other issues affecting existing resource availability.

To the extent independent system operators and regional transmission operators (ISO/RTOs) have developed models for electric storage resources to participate in energy and ancillary serves markets, exploring a separate mechanism to compensate electric storage resources for these services could distort efficient market outcomes. In the CAISO balancing authority area, procurement of resources to participate in these markets occurs principally through bi-lateral procurement by load serving entities. Electric storage resources are eligible to participate in these procurements and offer their output as system or local capacity to address transmission system needs. In the latter instance, these resource procurement processes support electric grid reliability and the CAISO's preference is to coordinate those procurements with the responsible local regulatory authority (e.g., the California Public Utilities Commission) rather than develop duplicative procurement processes. Although the CAISO does not approve non-transmission alternatives in its existing transmission planning process, the CAISO promotes opportunities for non-transmission resources such as storage to serve as the preferred solution, and the CAISO does work to support regulatory approvals for those projects if the CAISO's transmission planning process identifies them as the preferred alternative.[1]

The CAISO also prefers that operation of these resources occur through the CAISO's energy and ancillary services market processes rather than the CAISO controlling the operation of a resource outside of its market processes. This approach

[1] The CAISO also published a stand-alone paper presenting its methodology for considering non-transmission alternatives in 2013. http://www.caiso.com/Documents/Paper-Non-ConventionalAlternatives-2013-2014TransmissionPlanningProcess.pdf. Detailed information on the CAISO's most recent consideration of non-transmission alternatives and preferred resources can be found in the CAISO's 2015-2016 Transmission Plan, beginning on page 27. http://www.caiso.com/Documents/Board-Approved2015-2016TransmissionPlan.pdf.

ensures that system resources or resources within a transmission constrained area operate together to meet grid reliability needs, and enables the resource to participate most broadly in providing value to the market. In the case of electric storage resources, procurement also may result in distribution-connected resources and behind-the-meter resources that do not participate in the CAISO's wholesale markets.

The CAISO acknowledges that there may be instances where a dedicated electric storage solution could support local transmission needs with limited or no alternatives. In these instances, it is likely that the CAISO may need to constrain or narrowly define the operation of the electric storage resource so that it is available to meet the local transmission need. In these limited instances, a reliability-must-run or similar arrangement could serve to support an electric storage resource, although these arrangements generally serve to maintain existing resources.