Application No.: 14-11-012
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Witness:

Application of Southern California Edison Company (U338E) for Approval of the Results of Its 2013 Local Capacity Requirements Request for Offers for the Western Los Angeles Basin.	Application 14-11-012

TESTIMONY OF NEIL MILLAR
ON BEHALF OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

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I. PROFESSIONAL QUALIFICATIONS

Q. What is your name and by whom are you employed?

A. My name is Neil Millar. I am employed by the California Independent System Operator Corporation (ISO), 250 Outcropping Way, Folsom, California as the Executive Director, Infrastructure Development.

Q. Please describe your educational and professional background.

A. 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 preparing, overseeing, and providing testimony for numerous transmission planning and regulatory tariff applications. I have appeared before the Alberta Energy and Utilities Board, the Alberta Utilities Commission, and the British Columbia Utilities

Commission. Since November, 2010, I have been employed at the ISO, leading the Transmission Planning and Grid Asset departments.

II. PURPOSE AND RECOMMENDATIONS

Q. What is the purpose of your testimony?

A. The purpose of my testimony is to provide a general overview of how the results of Southern California Edison Company's (SCE) 2013 request for offers (RFO) meets the local capacity requirement (LCR) needs for the Western Los Angeles (LA) Basin as identified in Commission Decisions (D.) 13-02-015 (Track 1 Decision) and D.14-03-004 (Track 4 Decision). My testimony addresses the following issues set forth in the Assigned Commissioner's Ruling and Scoping Memo issued March 5, 2015 (Scoping Memo):

1. Whether the results of SCE's 2013 LCR RFO for the LA Basin enhance the safe and reliable operation of SCE's electrical service; and
2. Whether the results of SCE's 2013 LCR RFO for the LA Basin is a reasonable means to meet the 1,900 to 2,500 MW of identified LCR need determined by D.13-02-015 and D.14-03-004.

Q. What are your recommendations in this proceeding?

A. I recommend that the Commission:

1. Approve the results of SCE's 2013 RFO for the LA Basin;
2. Find that the results of SCE's 2013 LCR RFO for the LA Basin enhance the reliable operation of SCE's electrical service;
3. Find that the results of SCE's 2013 RFO for the LA Basin represent an reasonable means to meet a portion of the identified LCR need determined in D.13-02-015 and D.14-03-004; and
4. Confirm that consistent with the Track 1 and Track 4 Decisions, SCE may procure an additional 617 megawatts (MW) of additional resources, if necessary.

These recommendations are discussed in detail below.

Q. Please describe the Commission's findings for SCE's LCR need in the LA Basin in the Track 1 and Track 4 Decisions.

A. The Track 1 Decision authorized SCE to procure between 1,400 and 1,800 MW of capacity primarily to meet capacity needs resulting from the retirement of once-through cooling generators in compliance with State Water Control Board regulations. The Track 1 Decision specified that SCE was to procure at least 1,000 MW, but no more than 1,200 MW, of this capacity from conventional gas-fired resources.[1] The Commission also required that SCE procure at least 50 MW of capacity from energy storage resources and an additional 150 MW of capacity from preferred resources or energy storage.

The Track 4 Decision authorized additional procurement in light of the June 7, 2013 closure of the San Onofre Nuclear Generating Station (SONGS). Specifically, the Commission authorized SCE to procure an additional 500 to 700 MW of capacity by 2021 to meet LCR needs.

In total, the Track 1 and Track 4 Decisions authorized SCE to procure 1,900 to 2,500 MW of electric capacity in the Western LA Basin area to meet LCR needs. Of this total, the Commission directed SCE to procure a minimum of 550 MW from preferred resources, 50 from energy storage and 1,000 MW from gas-fired generation.

In making a final need determination, the Commission recognized that it would be necessary to undertake a concerted effort to meet all of the needs identified in the CAISO's power flow studies. To that end, the Commission authorized additional procurement from preferred resources, energy storage and gas-fired generation. The Commission also assumed the CAISO would identify transmission solutions to mitigate a portion of the identified LCR need, which the CAISO accomplished in its

[1] D.13-02-015, p. 2.

2013-2014 transmission plan. With the transmission solutions identified by the CAISO, the results of this RFO represent an important step toward resolving reliability needs in the Western LA Basin.

Q. Are the results of SCE's Western Basin RFO consistent with the Track 1 and Track 4 Decisions?

A. Yes, though SCE has not yet completed the minimum level of procurement. SCE's Application requests approval to procure approximately 1,883 MW of capacity, whereas the Commission's Track 1 and Track 4 decisions authorized procurement of a minimum of 1,900 MW and a maximum of 2,500 MW of capacity. As a result, SCE's total RFO procurement is approximately 17 MW short of the Commission's minimum procurement target for capacity for the Western LA Basin sub-area.

The CAISO has conducted analyses of the results of SCE's RFO in the context of the draft 2014-2015 transmission plan, which will be presented to the CAISO Board of Governors for approval on March 26.[2] These results indicate that the proposed RFO procurement can meet long-term local capacity requirement needs when combined with repurposing of existing demand response resources in the LA Basin. These findings are based on several important assumptions developed in the transmission plan including (1) the timely development of CAISO-approved transmission solutions, (2) the procurement, approval and development of the maximum authorized long-term procurement plan resources by San Diego Gas & Electric Company (SDG&E) and (3) the development and implementation of Additional Achievable Energy Efficiency and demand response at levels previously assumed by the Commission. The Commission must monitor the development of these resources to ensure the long-term reliability of the system.

[2] The CAISO also studied the combined LA Basin and San Diego area LCR needs in the 2013-2014 transmission planning process. The CAISO presents the results of the 2014-2015 transmission planning process in this testimony because it is the most up-to-date analysis of LCR needs.

Mr. Sparks' concurrently served testimony provides additional detail regarding the results of the CAISO's 2014-2015 transmission plan and the local capacity requirement analysis the CAISO conducted for the LA Basin and San Diego areas.

Q. How should the Commission assess whether additional procurement is necessary to meet Western LA Basin LCR needs?

A. The Commission should continue to rely on the comprehensive analysis prepared by the CAISO through its annual transmission planning processes, which identifies the local needs and assesses the impacts of preferred resources, transmission being developed, and conventional resource procurement. This analysis utilizes assumptions coordinated with the Commission and the California Energy Commission, and which are publicly vetted through the CAISO's stakeholder process. Further, the CAISO has been working with the Commission and CEC staff to ensure alignment with study plan cycles to feed into the appropriate regulatory proceedings on a timely basis.

Q. Please describe the consultations between the CAISO and SCE regarding requirements for resources considered in the 2013 SCE RFO.

A. The CAISO worked with SCE to confirm that the location and characteristics of the procured resources would meet the local capacity needs. To accomplish this, the CAISO provided locational effectiveness factors, described below, for use by SCE in their procurement evaluation process. Due to the timing of the RFO, the CAISO supplied SCE with locational effectiveness factors based on its 2013-2014 transmission plan. The 2014-2015 draft transmission plan updated the locational effectiveness factors based on updated planning assumptions.

During the pendency of the RFO process, SCE provided the CAISO with numerous conceptual procurement scenarios with varying preferred resource characteristics. The CAISO studied a representative sampling of those scenarios to determine whether the conceptual portfolios would meet the local capacity needs. The CAISO

discussed the results of those studies with SCE showing which conceptual portfolios would meet the local capacity needs and which conceptual portfolios would not.

The CAISO also informed SCE that demand response and non-dispatchable resources must have a fixed operational period of four hours for qualified capacity valuation calculations set by the Commission.[3] Resources that do not meet the Commission's minimum standards for qualifying capacity are not capable of receiving system resource adequacy credit.

The CAISO understands that these consultations were conducted according to the Commission's directive in the Track 1 long-term procurement plan decision to "meet the identified reliability constraint identified by the CAISO" and "use the most up-to-date effectiveness ratings."[4]

Q. Are the RFO results reasonable based on the locational effectiveness factors identified by the CAISO?

A. Yes, SCE's RFO procurement selection is reasonable based on the locational effectiveness factors identified in the CAISO's 2013-2014 and 2014-2015 transmission plans. The CAISO identified that Southwest LA Basin sub-area resources have higher locational effectiveness factors than other areas in the LA Basin. Consistent with that finding, SCE limited gas-fired generation offers to those resources located Southwest sub-area of the Basin. For preferred resources, except for in-front-of-meter energy storage, SCE generally did not differentiate in its procurement based on locational effectiveness factors. This is also consistent with the CAISO's study assumptions in the 2013-2014 and 2014-2015 transmission plans

[3] *See* the Commission's 2015 Filing Guide for System, Local and Flexible Resource Adequacy (RA) Compliance Filings, issued September 9, 2015. http://www.cpuc.ca.gov/NR/rdonlyres/70C64A46-89DE-4D90-83AB-93FD840B4251/0/Final2015RAGuide.docx.
[4] D.13-02-015 at 131-132.

which distributed the preferred resources throughout the entire LA Basin based on input from SCE.

As Mr. Sparks' testimony describes in detail, the locational effectiveness analysis became more complex in the 2014-2015 transmission plan as the most limiting constraint shifted from a voltage stability concern to a thermal overloading concern. This was not entirely unexpected, as different constraints can become more prominent as new solutions to previous limitations are identified. In this case, the Imperial Valley 230kV phase-shifting transformers that the CAISO approved as part of its 2013-2014 transmission plan to mitigate the post-transient voltage instability concerns triggered such a shift in the most-constraining reliability concern. The phase-shifting transformers effectively reduced the risk of post-transient voltage instability as modeled in the 2014-2015 transmission plan, but then themselves become subject to thermal overloading concerns (at a higher transfer level than the previous voltage stability concern without the phase shifting transformers). The post-transient voltage instability is a continuing issue — one that could again become the primary concern based on relatively minor fluctuations in projected load growth. It is therefore appropriate to consider the locational effectiveness of resources based on both their ability to address thermal overloading concerns and post-transient instability constraints.

The CAISO calculated locational effectiveness factors for both constraints in its 2014-2015 transmission plan. For the thermal overloading concern, the locational effectiveness of resources in the Southwest LA Basin remain more effective than other LA Basin resources, but somewhat less effective than resources located further south in the San Diego area. However, for the voltage stability concern, Southwest LA Basin area resources remain very effective, consistent with the findings of the 2013-2014 transmission plan. Given the high degree of effectiveness overall in addressing voltage stability concerns and the degree of effectiveness in addressing thermal overloading relative to other areas in the LA Basin area, the CAISO

considers the SCE procurement consistent with the 2013-2014 and 2014-2015 transmission plans.

Q. Please summarize your recommendations.

A. The CAISO's local capacity requirement analyses show that the RFO resources will enhance the reliable operation of SCE's electrical service and that the results are reasonable based on the locational effectiveness factors identified by the CAISO. As a result, I recommend that the Commission approve the results of SCE's 2013 LCR RFO for the LA Basin.

Q. Does this conclude your testimony?

A. Yes, it does.