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SOUTHERN CALIFORNIA EDISON®

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(U 338-E)

Phase 2 Rebuttal Testimony of Southern California Edison Company (U 338-E) on the Results of its 2013 Local Capacity Requirements Request for Offers (LCR RFO) for the Moorpark Sub-Area

Before the

Public Utilities Commission of the State of California

PUBLIC VERSION

Rosemead, California
October 27, 2016

SCE-12: Phase 2 Rebuttal Testimony of Southern California Edison Company (U 338-E) on the Results of its 2013 Local Capacity Requirements Request for Offers (LCR RFO) for the Moorpark Sub-Area

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I.

THERE IS AN UNMET RESILIENCY TARGET IN THE SANTA BARBARA/GOLETA AREA

A. There is an Identified Shortfall in the Santa Barbara/Goleta Area

The Office of Ratepayer Advocates ("ORA") argues that "there is no unmet local reliability need in the Goleta area,[1] based on NERC and CAISO standards[,]" and "SCE fails to identify any relevant regulation or standard adopted by the Commission that would lead the Commission to determine that there is an 'unmet …need in the [Santa Barbara/]Goleta area."[2] With regard to the unique needs of the Santa Barbara/Goleta area due to the N-2 contingency, Southern California Edison Company ("SCE") does not claim that the shortfall in the Santa Barbara/Goleta area for the N-2 of the Goleta-Santa Clara 230 kV transmission lines is based on North American Reliability Corporation ("NERC"), California Independent System Operator ("CAISO") or other standards adopted by the Commission. In its testimony, SCE explains that the unique issue in the Santa Barbara/Goleta area that is the result of the N-2 contingency[3] is distinct from the long-term local capacity needs in the Moorpark sub-area, as determined by the CAISO, that are largely the result of the retirement of the once through cooling ("OTC") units in the area. Furthermore, and contrary to ORA's assertion, SCE is not trying to create a new standard to be defined through a rulemaking proceeding;[4] SCE is simply responding to the questions posed in the Second Assigned Commissioner's Ruling and Scoping Memo ("Phase 2 Scoping Memo") that are intended to help the Commission determine if there is a specific unmet need in the Santa Barbara/Goleta area and what that need is, since Phase 2 of this proceeding is intended to explore this exact issue.

Moreover, the unique issues in the Santa Barbara/Goleta area should not be dismissed because they are not studied as part of the CAISO Transmission Planning Process. As stated by the CAISO,

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1 ORA is currently the only party disputing the unique need issue in the Santa Barbara/Goleta area that is the result of the N-2 contingency. Robert Perry's testimony agrees with SCE's need assessment for the Santa Barbara/Goleta area. WBA Phase 2 Testimony at 2.

2 ORA Phase 2 Testimony at 3.

3 In its Phase 2 Opening Testimony, SCE explains that the N-2 is compliant with the NERC Reliability Standard TPL-001-4, which allows customer load to be dropped without a stated timeframe for restoration.

4 ORA Phase 2 Testimony at 4.

"[t]he CAISO has not independently studied these scenarios because the reliability concerns are not related to the bulk electric system."[5] The fact is SCE's subtransmission system is unable to fully restore service to the Santa Barbara/Goleta area after an identified N-2 event, and though this issue is not within CAISO's purview, SCE should not ignore the issue and nor should the Commission.

1. LCR Need in the Moorpark Sub-Area Without Ellwood

Although the focus of Phase 2 is on the specific and unique needs in the Santa Barbara/Goleta area,[6] ORA's argument that there is not an unmet local reliability need in the area prompts SCE to remind the Commission that part of SCE's motivation for selecting the Ellwood Refurbishment contract, as stated in its Opening and Rebuttal Testimony, [redacted].[8] The basis for SCE's rationale is that the same principle the Commission applied to the retirement of the OTC units[9] should apply to Ellwood, which if it retires would create additional LCR need in the Moorpark sub-area. If SCE waited for NRG to retire Ellwood instead of contracting to refurbish the plant, this would create a situation in which the Commission would have to reassess the LCR need in the Moorpark sub-area and then order SCE to fulfill that need with a resource or portfolio of resources that could take years to build,[10] and very likely cost much more than the Ellwood refurbishment. In addition, CAISO's Phase 2 testimony states that absent Ellwood and Mandalay 3, both of which the CAISO considers to be unavailable/offline for purposes of its analysis, there would be a 29.6 megawatt ("MW")

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5 March 8, 2016 Reply Comments of the CAISO on the Alternate Proposed Decision at 3.

6 Phase 2 Scoping Memo at 2-4.

7 As indicated in the Independent Evaluator's Report, [redacted] Exhibit SCE-2C, Appendix D: Independent Evaluator Report, at D-69. *See also* SCE, Bryson, Confidential Tr., Vol. 1 at 178:7 – 179:2.

8 Exhibit SCE-1C, SCE's Opening Testimony, at 43, 46; Exhibit SCE-7, SCE's Rebuttal Testimony, at 6-7.

9 The basis for the need established in the LTPP Track 1 decision is the retirement of the OTC units by 2021. *See* D.13-02-015 at 68-73.

10 *See* D.14-03-004 at 10 ("At the same time, due to long lead times for new resources, the Ruling determined that [] it was urgent to start [to] identify and fill any identified need as soon as possible."); *id*. at 11 ("With long lead-time resources requiring several years of effort, and potential reliability issues surfacing starting in 2018, we cannot wait for further information at this point.").

LCR need in the Moorpark sub-area that could be "adequately address[ed]" by the 54 MW Ellwood Refurbishment contract and the linked 0.5 MW in-front-of-the-meter energy storage contract.[11] Ellwood is operating beyond its original design life, and it is prudent to plan for an extension of the capacity through refurbishment, especially considering that Ellwood is also crucial to addressing the unique resiliency needs in the Santa Barbara/Goleta area. Thus, the Commission should approve the Ellwood Refurbishment contract to prevent a situation that would create additional LCR need in the Moorpark sub-area that will need to be filled by more expensive resources that could take years to build.

a) If Approved, the Ellwood Refurbishment Contract Should Receive Cost Allocation Mechanism Treatment

Based on the premise that absent Ellwood there would be a 29.6 MW unmet LCR need in the Moorpark sub-area, as explained above, SCE asserts that should the Commission approve the Ellwood Refurbishment contract it should receive cost allocation mechanism ("CAM") treatment because the refurbishment not only enhances the grid for all customers, but the resource is necessary to meet local reliability needs for the benefit of all customers in SCE's distribution service area.

The CAM has been developed and refined through a series of Commission decisions[12] to address instances where SCE has procured GFG to meet identified system needs. With this well-established history of utilizing CAM to allocate the costs of GFG to all benefitting customers, SCE proposes utilizing CAM for the Ellwood Refurbishment contract. Thus, consistent with prior CAM allocations, all costs and benefits of the Ellwood Refurbishment contract should be allocated to all benefitting customers through the NSG rate component.

B. Short Circuit Duty is Crucial to Maintaining Safe Operation of the Electric System After the Loss of the Goleta-Santa Clara Transmission Lines

ORA asserts that "the Commission should not permit SCE to use SCD levels…as a justification for the Ellwood contract."[13] It is in the public interest for SCE to provide safe and reliable electric

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[11] CAISO's Phase 2 Testimony at 2, Table 1 and Attachment 1.
[12] *See* D.14-03-004 at 120.
[13] ORA Phase 2 Testimony at 5.

service by maintaining appropriate levels of short circuit duty ("SCD") after the loss of the Goleta-Santa Clara 230 kV transmission lines, which Ellwood helps to provide. For example, if a car hits a pole and brings down a 66 kV line onto the ground this becomes an immediate threat to public safety since an energized line can electrify nearby conductive material such as cars, water pipes, and water on the ground. An energized line on the ground is known as a fault and SCE has specialized equipment to detect faults and de-energize the line. Low SCD will result in SCE taking longer to clear the fault by de-energizing the line. The risk of an electrocution to a member of the general public with an energized line on the ground increases in proportion to the length of time required to clear the fault.

ORA also argues that the Commission should disregard the SCD issue because the Santa Barbara County Reliability Project ("SBCRB"), when complete, will improve the level of SCD in the Santa Barbara/Goleta area.[14] ORA bases its argument on a data request response provided by SCE.[15] However, ORA misstates the content of the data request response. ORA's question was to "explain the current level of SCD and how the planned upgrade to the 66 kV subtransmission ties will impact the level of SCD."[16] SCE responded that since Ellwood is currently in service, SCD is sufficient; thus, the SBCRP, when complete, would further improve SCD. However, the SBCRP by itself, without Ellwood, would be insufficient to provide adequate SCD for the Santa Barbara/Goleta area and would not facilitate safe operation of the electric system after the loss of the Goleta – Santa Clara No. 1 & No. 2 230 kV lines.

ORA also argues that because SCE did not identify "any CPUC or non-CPUC requirement or standard for appropriate levels of SCD," SCE should not be permitted to use SCD levels to support the need for Ellwood in the Santa Barbara/Goleta area.[17] SCE needs to provide safe and reliable electric service to its customers and employees, and in doing so there may not always be a specific CPUC or non-CPUC standard supporting SCE's efforts. In this instance, as explained in SCE's response to

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[14] *Id.* at 4-5.
[15] *See id.*, Appendix B.
[16] *Id.*
[17] *Id.* at 5.

ORA's data request,[18] SCE needs to rely on its own data and professional judgment to determine what level of SCD is needed to maintain safe and reliable electric service for its customers, and the lack of a "standard" should not prohibit SCE from using good utility practices in determining the appropriate SCD level for the Santa Barbara/Goleta area under the N-2 contingency.

[18] *See id*., Appendix B ("As a minimum design guideline, SCE uses a fault current/minimum trip current ratio of 2.3 for minimum three-phase fault conditions, 2.0 for minimum phase-to-phase fault conditions, and 3.0 for minimum single line to ground fault conditions. Although these are minimal guidelines, in practice SCE prefers ratios on the order of 4.0 to 5.0 for single line to ground fault conditions.").

II.

ELLWOOD IS ESSENTIAL TO THE STRATEGY TO ADDRESS THE RESILIENCY TARGET IN THE SANTA BARBARA/GOLETA AREA

A. Ellwood is Critical in the Event of the Loss of the Goleta-Santa Clara 230kV Transmission Lines

As previously explained, SCE's integrated mitigation strategy to provide for resiliency in the Santa Barbara/Goleta area includes: (1) obtaining approval of the Ellwood Refurbishment contract to address both capacity and SCD constraints; (2) considering the implementation of cost-effective traditional electric system upgrades; and (3) the pursuit of cost-competitive Distributed Energy Resources ("DER") in the Santa Barbara/Goleta area.

Although Ellwood is only one part of SCE's mitigation strategy, it is the foundation of the strategy and is essential to addressing the unique issues in the Santa Barbara/Goleta area. First, Ellwood is an existing unit that, upon approval of the Ellwood Refurbishment contract, will be immediately available to meet the needs in the area in 2018; and upon completion of its refurbishment will be available for ten years. This is a decade plus component of SCE's mitigation strategy and is not a "band-aid solution" as suggested by World Business Academy ("WBA").[19] Planning assessments performed by CAISO, Pacific Gas & Electric Company, San Diego Gas & Electric Company, and SCE examine ten years into the future as the long term planning horizon. Looking beyond ten years becomes speculative, since load forecasts and the penetration of DERs on the customer's side of the meter become less predictable.

Second, as an existing resource, Ellwood ensures that a significant portion of the 105 MW shortfall in the area will be met when it is needed in 2018. Whereas the other components of SCE's mitigation strategy, the pursuit of DERs and potential electric system upgrades, will most likely not be available in 2018 and do not provide as much certainty as Ellwood. For example, SCE does not know the cost or how long it might take to develop additional electric system upgrades, nor is there certainty

[19] WBA Phase 2 Testimony at 2.

on what DER offers SCE will receive through its DER solicitation for the Santa Barbara/Goleta area, the cost of those offers, when the projects can be online, etc. Ellwood provides the certainty, at a low cost, that is needed in the area while SCE thoughtfully pursues and considers the other elements of its mitigation strategy.

Moreover, Ellwood will also allow SCE time to evaluate how effective any DERs procured in the area are at addressing the area's needs. In addition to being assessed as part of SCE's solicitation process, the MW capacity, SCD contribution and location of each DER will determine each resource's ability to address the area need, and must be re-evaluated as the DERs come on-line before determining if a capacity or SCD deficit remains. This is a prudent approach to ensure safe and reliable service at reasonable cost.

Third, Ellwood currently provides SCD in the area in the event of the loss of the Goleta-Santa Clara transmission lines, making it essential to supporting the unique needs in the Santa Barbara/Goleta area. If Ellwood is not approved, in the event of the loss of the Goleta-Santa Clara transmission lines, the SCD contribution from only the 66 kV tie lines from Santa Clara would result in very low SCD and create a public safety hazard when faults occur on the system.

1. The Role of Energy Storage in Meeting the Unique Needs in the Santa Barbara/Goleta Area

WBA also asserts that "a more reasonable strategy would be for SCE to invest in utility-scale energy storage facilities that can not only serve as a source of synchronous generation, but also provide other ancillary service while allowing for accelerated development of DERs."[20] SCE welcomes participation of utility-scale energy storage projects in its DER solicitation for the Santa Barbara/Goleta area but would like to clarify the role energy storage can play in the solution for the area.

Energy storage projects are typically comprised of batteries, which are direct current resources that rely on an inverter to convert their power output to alternating current to synchronize to the grid. Battery storage is therefore an asynchronous resource and though it can provide MW it

[20] *Id*. at 6.

generally is not as effective in providing SCD as compared to a synchronous machine such as Ellwood. Once the N-2 contingency occurs, the primary source of power for the area will be via the 66 kV tie lines to Santa Clara limiting the amount of available energy in the area. In order for batteries to contribute to meeting load, they must charge during periods of surplus energy.

WBA also asserts that "the development of utility-scale storage…would also enable accelerated development of DER generation."[21] The development of energy storage projects in the area may not necessarily increase the development of DERs, however, it may increase the need for additional off peak DERs to enable energy storage to recharge in preparation to help meet load. Moreover, the amount of energy storage that would be effective in meeting the unique needs in the Santa Barbara/Goleta area must be considered in the context of the entire resource portfolio and the load shape in Santa Barbara/Goleta area.

B. The Operation of Ellwood in the Event of the Loss of the Goleta-Santa Clara Transmission Lines

ORA states that Ellwood should not be used to meet the unique needs in the Santa Barbara/Goleta area because increased operation of Ellwood could exceed emissions standards.[22] However, as SCE has previously explained, Ellwood's relative efficiency is low enough that the facility is not expected to be dispatched during normal market conditions.[23] Ellwood may be required to be operated more than expected during the loss of the Goleta – Santa Clara transmission lines but there are sufficient hours to run Ellwood continuously for over [redacted]. If the time required to repair the Goleta – Santa Clara transmission lines is expected to exceed emission limits, SCE may ask NRG to seek permission from the Santa Barbara County Air Pollution Control District to exceed the run-hour limitations specified in the permit and contract.

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[21] *Id.* at 11.
[22] ORA Phase 2 Testimony at 6.
[23] Exhibit SCE-7C, SCE's Rebuttal Testimony, at 8.

III.

A SOLICITATION FOR RESOURCES IN THE SANTA BARBARA/GOLETA AREA IS PROPER

ORA states that "if the Commission does determine that there is an unmet…need in the…more narrowly focused Santa Barbara/Goleta area" then SCE should issue a new request for offers ("RFO") to "compare the new offers with the Ellwood contract and choose the least cost, best fit option."[24] WBA states that "given the area's long-standing vulnerability to transmission outages, a special, expedited RFO process, similar to those enacted in connection with the closure of Aliso Canyon and SONGS, should be immediately convened…."[25] In its Phase 2 testimony, SCE stated that it intends to launch one or more solicitations to potentially acquire a portfolio of cost competitive DERs that will help address the shortfall in the Santa Barbara/Goleta area. Thus, it seems that if the Commission determines that need has been established in the Santa Barbara/Goleta area there is general agreement that an RFO should be issued to identify resources to meet the shortfall in the Santa Barbara/Goleta area.

ORA contends that "[i]f SCE already plans to issue a solicitation to procure additional resources in the same area, it should have the opportunity to choose the least cost, best fit, option for the area without binding itself to a contract that only appears to be acceptable when compared to prices from 2013."[26] Although SCE will be issuing a DER solicitation for the Santa Barbara/Goleta area, the resources, if any, procured through that solicitation will probably not be online for at least a couple of years, and as SCE has explained, there is an immediate need in the area, especially for resources like Ellwood that can address the SCD issues. It is prudent that SCE quickly take the first step towards solving the resiliency issues in the event that future solicitations do not result in enough cost-competitive offers to meet the needs in the Santa Barbara/Goleta area. Moreover, if Ellwood were required to resubmit a bid in a new RFO, the resource would not be available when needed, starting in June 2018,

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[24] ORA Phase 2 Testimony at 5.
[25] WBA Phase 2 Testimony at 12.
[26] ORA Phase 2 Testimony at 6.

and the price for the Ellwood refurbishment could go up considering NRG now knows Ellwood is a critical component of SCE's mitigation strategy for the Santa Barbara/Goleta area.

ORA also asserts that the Commission should reject the Ellwood 0.5 MW in-front-of-the-meter energy storage offer and allow it to participate in SCE's proposed DER solicitation for the Santa Barbara/Goleta area.[27] The Ellwood Refurbishment contract and the 0.5 MW in-front-of-the-meter energy storage contract are reasonable and should be approved for the reasons SCE has set forth throughout this proceeding. Moreover, each of the contracts are [redacted],[28] as such it is not a trivial matter to separate them and have them participate in different procurement tracks.

A. <u>A New RFO Does Not Necessarily Guarantee Cost-Competitive Offers</u>

ORA also suggests that a new RFO will necessarily result in cheaper preferred resources given that SCE's 2014 and 2015 Renewable Portfolio Standard ("RPS") RFOs' most cost-effective bid prices were [redacted], respectively.[29] While the prices for large-scale solar, sited far from a population center, may have decreased during that time, there is no direct evidence that small scale distributed energy projects sited in the Santa Barbara/Goleta area will follow suit. Indeed, SCE has not observed significant price decreases in smaller scale distributed energy projects. Also, SCE signed 100% of the Goleta solar capacity that was offered in the LCR RFO, which suggests that the potential for large amounts of price competitive distributed solar energy projects are not likely to be present.

ORA further touts the merits of deferring approval of the Ellwood Refurbishment contract and the linked 0.5 MW in-front-of-the-meter energy storage contract and waiting for a new solicitation by comparing the prices of offers from SCE's 2014 Energy Storage RFO to that of the 0.5 MW energy storage offer.[30] This comparison is flawed for multiple reasons. First, the offers cited in SCE's 2014

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[27] *Id.* at 7.
[28] Exhibit SCE-2C, Confidential Appendix B - LCR RFO Contracts, Ellwood Gas-Fired PPA, Section 2.02(a) at 5 and A-11, and Ellwood Storage PPA, Section 2.02(a) at 4-5 and A-10.
[29] ORA Phase 2 Testimony at 5.
[30] *Id.* at 7.

Energy Storage RFO were for RA-only products, whereas the Ellwood storage contract is for both RA and energy rights. This means that the benefits for SCE's 2014 Energy Storage RFO offers are limited to RA, while the Ellwood storage contract will also provide energy and ancillary services benefits. RA-only products can be cheaper in price than those that also provide energy since the counterparty to an RA-only transaction will be able to collect energy and ancillary service revenues as well as capacity payments. Therefore, a comparison of the capacity price between the two types of offers is not apples-to-apples. Additionally, and importantly, SCE's 2014 Energy Storage RFO offers were not located in the Santa Barbara/Goleta area. In the LCR RFO, aside from the Ellwood energy storage offer, the next best storage offer located in Goleta was priced at [redacted] kW-month and [redacted] [31] The only existing evidence of pricing for Santa Barbara/Goleta area energy storage projects is the offers received in SCE's LCR RFO. ORA's assertion that a future energy storage solicitation or a solicitation that includes energy storage will produce a lower-cost solution to the Santa Barbara/Goleta resiliency need is purely speculative.

B. Procurement of Ellwood Capacity Through SCE's Annual Resource Adequacy RFO is Not a Reasonable Solution

WBA states that "continued operation of the Ellwood Plant should be procured on an annual basis through the Commission's annual Resource Adequacy procurement process."[32] Since there is no way to force NRG to keep Ellwood operational so they can potentially receive contract awards in future Resource Adequacy ("RA") RFOs, SCE views this option as the equivalent of ignoring the Santa Barbara/Goleta resiliency need and betting on an unknown solution, with an unknown implementation time, at an unknown cost. SCE was provided with information regarding the future operating plans for the Ellwood facility, and also with an offer to extend the facility's operating timeline. SCE's quantitative analysis concluded that the combined Ellwood refurbishment and energy storage offer was

[31] Exhibit CO-05C, SCE's Workpapers, at 164-166.
[32] WBA Phase 2 Testimony at 13.

significantly more cost-effective than any other LCR RFO offer that could address the resiliency need, and additional LCR needs in the Moorpark sub-area.[33] Discarding this information in favor of a "blank slate" approach to meeting the needs of the Santa Barbara/Goleta area places a tremendous cost and reliability risk on SCE's customers. A large part of the Santa Barbara/Goleta shortfall can be met at a reasonable cost, and at the right time, with the Ellwood refurbishment and energy storage contracts.

[33] Exhibit CO-05C, SCE's Workpapers, at 164-166.