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State of California

Energy Resources

Conservation and Development Commission

In the Matter of: Application for Certification for the PUENTE POWER PROJECT	Docket No. 15-AFC-01 EXPERT DECLARATION OF BRIAN THEAKER IN RESPONSE TO CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION MOORPARK SUB-AREA LOCAL CAPACITY ALTERNATIVE STUDY

I, Brian Theaker, declare as follows:

1. I am employed by NRG Energy, Inc., and am duly authorized to make this declaration.

2. I hold a Bachelor of Science Degree in Electrical Engineering from Ohio State University and a Master's Degree in Business Administration from Pepperdine University. I have over 15 years of experience with the local capacity requirements process conducted by the California Independent System Operator Corporation (CAISO). A copy of my current curriculum vitae was previously filed in these proceedings. Based on my education, training and experience, I am qualified to provide expert testimony as to the matters addressed herein.

3. I have reviewed the August 16, 2017 Moorpark Sub-Area Local Capacity Alternative Study ("Moorpark Alternatives Study") prepared by the CAISO. Without waiving any rights that Applicant has to raise appropriate objections to the Moorpark Alternatives Study during evidentiary hearings, I hereby respond to certain of the assumptions and findings raised therein.

4. In sum, the CAISO has demonstrated that certain portfolios of preferred resources can provide services that, under the conditions assumed by the Moorpark Alternatives Study, meet the same local capacity requirements (defined by a given set of transmission outages) that would be met by the Puente Power Project ("Puente"). However, these preferred resource portfolios are either far more expensive than Puente (even when some costs, like the cost of replacement batteries, are not included), or do not provide the same level of reliability that Puente would provide relative to other transmission outages. Additionally, the studies are based on certain assumptions that, if not realized, could result in these portfolios providing an even lower level of reliability performance. Finally, the CAISO study expressly provides no assurance that the portfolios of preferred resources that meet the specific local capacity need could be feasibly or timely deployed. For all of these reasons, the CAISO's study affirms the conclusion that Puente is the best resource to ensure the reliability of the Moorpark sub-area.

The Moorpark Alternatives Study Demonstrates That The Preferred Resources Portfolios Do Not Provide The Same Level Of Reliability As Puente Or Even The Same Level Of Reliability That Currently Exists

5. In the Moorpark Alternatives Study, the CAISO assessed whether three scenarios of alternative preferred (i.e., non-combustion) resources could meet the local capacity requirements projected by the CAISO for this sub-area in 2022. For each of the three scenarios, the CAISO first assumed a common "base" portfolio of 135 megawatts (MW) of preferred resources had been deployed. This common base portfolio consists of 80 MW of demand response ("DR") facilitated by behind-the-meter energy storage, 25 MW of photo-voltaic solar generation coupled with energy storage, and 30 MW of existing "slow" DR coupled with short-duration energy storage to enable this existing DR to meet local capacity requirements.[1] The

[1] The CAISO requires that DR be able to respond within 20 minutes of being called upon in order to meet local capacity requirements. Adding an amount of 30-minute energy storage at least equal to the MW capacity of this existing DR ensures this amount of MW would respond within 20 minutes. Assuming the energy storage is properly charged, the energy storage can respond nearly instantaneously to the CAISO's dispatch instructions and sustain its output until the DR can respond.

CAISO's projection of the cost of this "base" portfolio of 135 MW of preferred resources is $259.1 million – 87 percent of the CAISO's projected cost of Puente[2] - for resources that provide approximately 50% of Puente's output, which, unlike preferred resources, can be continuously deployed. Thus, before it even gets to an assessment of whether the selected preferred resources portfolios could meet the local reliability needs of the Moorpark sub-area, the CAISO analysis assumes substantial deployment of preferred resources as a future baseline condition.

6. The CAISO's analysis examined a 48-hour period to determine whether preferred resources portfolios could both meet the local reliability needs of the Moorpark sub-area and be charged, while respecting the overall ability to serve load within that transmission-constrained sub-area. The CAISO developed three load profiles for the sub-area for this 48-hour period by scaling up load hourly profiles from peak days in 2014, 2015 and 2016 such that the peak demand for these three profiles was the projected 2022 peak demand of 1723 MW. The CAISO evaluated a 48-hour period because the preferred resources portfolios being evaluated are energy-limited, meaning that they, unlike a conventional resource like Puente, cannot continuously provide energy across all hours of the day. Further, they must be charged before they can be discharged, and while they are being charged they add a significant contribution to the overall load within the sub-area.

7. After developing three 48-hour load profiles and the base preferred resources portfolio, the CAISO then evaluated three scenarios of additional resources beyond the base preferred resources portfolio. The first scenario, which assumes that the 54-MW Ellwood Generating Unit ("Ellwood") remains in service in 2022, centers on deployment of 125 MW of grid connected (in front of the meter) battery energy storage with a nine-hour discharge duration.[3] The second scenario considers the addition of a 240 MVAr transmission-connected dynamic reactive power device.[4] The third scenario, which assumes that Ellwood is no longer in

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[2] Moorpark Alternatives Study at 25.

[3] Moorpark Alternatives Study at 20-21.

[4] Moorpark Alternatives Study at 2, 21-22.

service, considers deployment of 235 MW of battery energy storage (60 MW battery energy storage with a ten-hour energy duration, 60 MW with a nine-hour discharge duration and 115 MW of battery energy storage with a five-hour duration).[5]

8. The CAISO concludes that each of the three scenarios (consisting of the "base" resources plus the additional battery energy storage in Scenarios 1 and 3 or the dynamic reactive device in Scenario 2) would be able to meet the local capacity area requirements (i.e., to prevent voltage collapse within the sub-area following the worst-case combination of transmission outages).[6] The CAISO also concludes, however, that the projected costs of Scenarios 1 and 3 are far in excess of the projected cost of Puente. The CAISO further concludes that while Scenario 2, which does not deploy real power capability beyond that contained in the "base" preferred resources portfolio, would be able to prevent voltage collapse for the transmission contingencies that define the Moorpark sub-area local capacity need, the resources deployed in this scenario would not be able to prevent load shedding (i.e., the intentional disconnection, or "blacking out," of customer demand) for some other contingencies. Said another way, Scenario 2 allows the system to meet the voltage stability performance required for the particular set of transmission outages that define the local capacity requirement, but Scenario 2 leaves the system vulnerable to the controlled loss of electric service to some customers for other transmission outages or sets of transmission outages. Consequently, the preferred resources and dynamic reactive power resource deployed in Scenario 2 would meet the performance requirements for one set of transmission outages (the set that defines the local capacity requirement), but would not provide the same level of reliability that the sub-area currently enjoys for other transmission outages. Finally, the CAISO reiterates that the Moorpark Alternatives Study was intended to show that certain portfolios of preferred resources

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[5] Moorpark Alternatives Study at 22-23.

[6] The set of transmission outages that drives the 2022 local capacity requirement for the Moorpark sub-area is the loss of the Pardee-Moorpark #3 230-kV line followed by the simultaneous outage of the Pardee-Moorpark #1 and #2 230-kV lines. The last two lines share a common tower and, as a result, the simultaneous outage of these two lines is considered to be a credible single contingency.

can meet the local capacity requirements driven by a set of transmission outages, but the study does not attempt to assess whether those preferred resource portfolios can be feasibly or timely deployed.

9. The Moorpark Alternatives Study clearly demonstrates Puente's superiority across a wide range of evaluation criteria – feasibility, reliability, and cost-effectiveness. As explained further below, none of the scenarios studied provide cost-effective reliability benefits equal to or superior to Puente.

10. Scenario 1, which assumes Ellwood remains in service, is not a viable scenario. Currently pending before the California Public Utilities Commission (CPUC) is a proposed contract submitted by Southern California Edison to refurbish Ellwood to allow it to continue operation in 2022. Administrative Law Judge Regina DeAngelis has issued a proposed decision that calls for the rejection of that contract.[7] While the CPUC has not yet voted on the proposed decision, there is no proposed alternative decision for the CPUC to consider that would result in approval of the contract. The only reasonable assumption based on the proposed decision and lack of alternative decisions is that the Ellwood refurbishment contract will be rejected. If the Ellwood refurbishment contract is rejected, it is not reasonable to assume that Ellwood, currently nearing 50 years old, will remain in service in 2022. As a result, Scenario 1 is not a viable scenario, and should not be used to assess whether preferred resources can meet the local capacity requirements in the Moorpark sub-area.

11. It is also clear that the 240 MVAr dynamic reactive power device evaluated on top of the base preferred resource portfolio in Scenario 2 does not provide the same level of reliability benefits as Puente. This device allows the sub-area to avoid voltage collapse in the event of the set of transmission outages that was used to determine the MW local capacity requirement for this sub-area. As the CAISO notes, however, the fact that this device provides

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[7] Decision in Phase 2 on Results of Southern California Edison Company Local Capacity Requirements Request for Offers for Moorpark Sub-Area Pursuant to Decision 13-02-015, Application of Southern California Edison Company (U338E) for Approval of the Results of Its 2013 Local Capacity Requirements Request for Offers for the Moorpark Sub-Area, Application 14-11-016 (Apr. 7, 2017), attached hereto as Exhibit A.

no real power output leaves this area vulnerable to "load shedding" in the event of other transmission outages or sets of outages. "Load shedding" is an industry euphemism for intentionally reducing the load in the sub-area by involuntarily shutting off power to end-use customers (i.e., intentionally causing "blackouts"). While utilities and the CAISO take precautions to avoid intentionally shutting off power to loads such as hospitals or other medical care or public safety facilities that would have grave public safety consequences, the societal impacts of load shedding, which can include the loss of power to traffic control and transportation systems, homes and businesses, banking, commercial and manufacturing processes, can still be severe. NERC reliability criteria permit the use of load shedding for certain combinations of contingencies.[8] However, because of the potential for severe impacts, the CAISO's reliability criteria do not allow the use of load shedding in dense urban areas.[9] With regards to using load shedding to meet local area reliability needs, the CAISO's Planning Standards state: "Increased reliance on load shedding to meet these needs would run counter to historical and current practices, resulting in general deterioration of service levels."[10] Whether or not the CAISO and NERC planning standards expressly allow the intentional disconnection of customer load under some circumstances, the Moorpark Alternatives Study unequivocally demonstrates that the base preferred resources and dynamic reactive power support device deployed in Scenario 2 would not provide the same level of reliability as Puente, which provides both real and reactive power. In fact, Scenario 2 results in the very deterioration of service levels that the CAISO's Planning Standards caution against, and would not provide even the same level of reliability service that the residents and customers within the Moorpark sub-area currently enjoy.

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[8] NERC TPL-001-4 allows for the non-consequential loss of load for multiple contingencies, including the overlapping outage of two transmission lines. "Non-consequential" means load that is disconnected for reasons other than because it is directly lost to the transmission contingency (e.g., load that is connected to the line that is removed from service).

[9] California ISO Planning Standards (available at http://www.caiso.com/Documents/FinalISOPlanningStandards-April12015_v2.pdf) at page 6.

[10] CAISO Planning Standards at Section 6.1, page 6.

The Moorpark Alternatives Study Relies On A Set Of Assumptions Which May Not Prove Reliable Under Real World Conditions

12. The CAISO's analysis technique – which evaluates whether the preferred resources can be both charged and discharged within the 48-hour analysis period under projected worst-case load conditions, as well as conducts a power flow study within the region for each hour to ensure the system is reliable from a real and reactive power standpoint, is robust. However, the study necessarily makes some assumptions, which may or may not prove reliable under real world conditions. My comments on those assumptions follow.

13. The Moorpark Alternatives Study assumes substantial deployment of preferred resources as a future baseline condition. As indicated in Notice of Ex Parte Communication of Southern California Edison Company (U-338E) with Commissioner Guzman Aceves and David Gamson, Advisor to Commissioner Guzman Aceves (June 6, 2017), attached hereto as Exhibit B, the deployment of preferred resources procured to meet local capacity requirements lags substantially behind the original in-service date for those resources.[11] While the CAISO expressly notes that the Moorpark Alternatives Study does not address the feasibility or timing of deploying preferred resources, the Southern California Edison notice suggests that optimistic assumptions about the deployment of preferred resources in the quantities required for the baseline portfolio used in all Scenarios and the incremental resources required for Scenario 3 cannot be supported. The difficulty deploying preferred resources is also addressed in SCE's brief filed at the CPUC in November 2016.[12] Additionally, even the purported success of the Aliso Canyon storage effort reveals issues with the deployment phase

[11] Notice of Ex Parte Communication of Southern California Edison, Attachment A, at 6, 8.

[12] Phase 2 Reply Brief of Southern California Edison, Application of Southern California Edison Company (U 338-E) for Approval of the Results of Its 2013 Local Capacity Requirements Request for Offers for the Moorpark Sub-Area, Application A.14-11-016, attached hereto as Exhibit C, at page 19-20 ("Because of the feasibility of those, [the] potential wasn't there. There's a lot more analysis that needs to go into…attain[ing] the real feasibility of solar on rooftops.").

given the termination of a contract entered into during that process.[13]

14. The Moorpark Alternatives Study assumes that all 30 MW of the existing "slow" DR can always be successfully deployed as needed. In reality, it is likely that some of the 30 MW would not respond when dispatched, especially if it was called upon after a period of frequent use or after several consecutive hot, high load days. The failure of this DR to respond could put the reliability of the sub-area at risk.

15. Similarly, the actual performance of the 25 MW of paired solar/storage systems may not achieve the "perfect" performance assumed in the study. The sun does not always shine with the same intensity under summer high load conditions. For example, on August 2 and 3, 2017, CAISO solar generation was several thousand MW below its normal output because of cloudy conditions in Southern California during a time of very high system demand.[14] Cloud cover, in concert with high demand conditions, could easily affect the ability of solar resources paired with energy storage to perform as required to ensure reliability within the local sub-area. Moreover, in NRG's experience, expecting the energy storage that is paired with solar would have a seven-hour duration is not reasonable.[15]

16. Given the long duration requirements for the battery energy storage deployed in Scenario 3, and the CAISO's assumptions that the battery energy storage takes 20% longer to charge than to discharge,[16] it is also apparent that the success of Scenario 3 depends on the ability to carefully manage the state of charge for all of the battery energy storage devices.

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[13] Southern California Edison Company's (U 38-E) Motion to Strike the City of Oxnard's Reply Comments, Application of Southern California Edison Company (U 338-E) for Approval of the Results of Its 2013 Local Capacity Requirements Request for Offers for the Moorpark Sub-Area, Application A.14-11-016, footnote 13, attached hereto as Exhibit D.

[14] As reported by the CAISO, peak demands reached 44,187 MW and 44,947 MW on August 2 and 3, respectively. Maximum CAISO solar output on those days was approximately 6,200 MW and 6,500 MW, respectively. In contrast, on July 7, when the peak demand CAISO was 45,453 MW, the maximum solar production was approximately 8,800 MW, and on June 20, when the CAISO peak demand reached 44,290 MW, the maximum solar output was approximately 9600 MW. This relatively small sample demonstrates that the amount of solar output can vary widely (from 6200 MW to 9600 MW) across times of peak system demand.

[15] Moorpark Alternatives Study at 13.

[16] Moorpark Alternatives Study at 12.

Scenario 3 relies on 270 MW of battery energy storage – 135 MW deployed behind the meter in the base preferred resource portfolio and an additional 135 MW in front of the meter. The spreadsheet analysis conducted by the CAISO to ensure load/resource balance in all hours of the 48-hour strip necessarily assumes that every MW of battery energy storage within the Moorpark sub-area charged or discharged precisely when it was supposed to in order to provide real power support and to respect the sub-area's ability to serve load given the amount of internal generation and import transmission capacity limitations. In the real world, managing the state of charge for all of this energy storage would require the storage operators to precisely anticipate future conditions, which would be complicated and unlikely to achieve precisely the dispatch called for. Neither the operators of all this projected energy storage (whoever they may be), nor the CAISO, have perfect information about the future. Consequently, it is not reasonable to assume that all of the long-duration energy storage being relied upon will charge and discharge and perform exactly as intended and required. Further, operating energy storage to meet a reliability need differs from operating energy storage to maximize the economic value of the energy storage. The former operation depends on keeping the storage positioned to be deployed in the event of an outage, regardless of when the outage may occur; the latter depends on charging at times of low prices and discharging at times of high prices. Absent some system to keep all of this energy storage ready to be charged or discharged as needed, solely for reliability purposes, rather than allowing the storage to operate more flexibly and cost-effectively to take advantage of differences in market prices, makes it unreasonable to assume that the energy storage will achieve the perfect dispatch the study assumes.

17. The CAISO notes that it does not factor into the cost of the battery energy storage scenarios ongoing operating costs, maintenance costs, or replacement costs (the cost of replacing batteries, which have a shorter lifespan than conventional generating units).[17] NRG developers who have worked on battery energy storage projects estimate that a battery augmentation program (which would add new batteries to the battery storage systems to maintain

[17] Moorpark Alternatives Study at 2, 24.

the system's rated capability) would add ten to twenty percent to the project costs. Further, most battery storage systems have an expected life of 20-25 years, which is less than the expected life of Puente. Including these costs in the CAISO's estimates of the costs of deploying the three preferred resource portfolios would further increase the costs of all of the portfolios, especially those of the battery storage-dependent scenarios, relative to the cost of Puente.

Conclusions

18. The CAISO's Moorpark Alternatives Study, admirably designed and conducted under very tight timelines, robustly analyzes the ability of preferred resource portfolios to meet the same narrowly-defined local capacity need that would be met by Puente. The CAISO study concludes that all three portfolios analyzed would meet the same local reliability need – the largest overall sub-area need defined by a single given set of transmission contingencies. The CAISO study also concludes, however, that one of the scenarios studied would lead to a lower level of reliability than would be provided by Puente. The CAISO study also concludes that the costs of the battery storage-dependent portfolio in Scenario 3 would greatly exceed the cost of Puente, even with ongoing operating and replacement costs not included. Again, Scenario 1 is not viable, because it assumes Ellwood will be refurbished and remain in operation in 2022, in complete contradiction to the outcome that will result from a pending CPUC decision that would reject the contract that would facilitate the refurbishment of Ellwood.

19. Scenario 2, which meets the reliability needs defined by the specific set of transmission outages that originally defined the need for Puente, fails to mitigate the need for load shedding within the Moorpark sub-area due to other transmission outages. As a result, Scenario 2 not only fails to provide the same or better level of reliability that Puente would provide, it fails to maintain the reliability of the Moorpark sub-area at its current level. While Scenario 2 is only slightly more expensive than the projected costs of Puente, it results in diminished reliability performance and exposes customers within the Moorpark sub-area to having their service involuntarily disconnected, an outcome that could have severe societal impacts.

20. The success of the preferred resources to meet the sub-area reliability needs hinges on precisely managing the state of charge of 270 MW of battery storage devices as reliability resources, as opposed to economic resources, and on all demand response and solar-facilitated resources within the sub-area responding to their full capability when required – events that are more likely to happen in theory than in practice.

21. For all of these reasons, the CAISO Moorpark Alternatives Study confirms that Puente is the most cost-effective resource to maintain the reliability of the Moorpark sub-area.

22. Furthermore, it is unlikely that an alternative generation source could be procured and online by January 1, 2021—the day after the once-through-cooling generation sources, which Puente is designed to replace, must retire. The CPUC's two-step procurement process, discussed in detail in my prior declaration (Applicant's Rebuttal Testimony, Ex. No. 1131, TN# 215553, Joint Expert Declaration of Mr. Brian Theaker and Sean Beatty), takes years to complete. For example, the Request for Offers (RFO) process, in the case of Puente, spanned nearly four years. A new RFO would be subject to CPUC review, and depending on which resources the CPUC approved, could result in another CEC proceeding. The RFO and administrative review would be complex, time-intensive, and, to a great degree, unpredictable. Most importantly, the concomitant delay associated with these procedures could endanger reliability in the Moorpark sub-area.

23. Except where stated on information and belief, the facts set forth herein are true of my own personal knowledge, and the opinions set forth herein are true and correct articulations of my opinions. If called as a witness, I could and would testify competently to the facts and opinions set forth herein and in the attachments hereto.

24. I hereby sponsor this declaration into evidence in these proceedings.

Executed on August 30, 2017, at Placerville, California.

I declare under penalty of perjury of the laws of the State of California that the foregoing is true and correct.

Brian Theaker

Exhibit A

PUBLIC UTILITIES COMMISSION
505 VAN NESS AVENUE
SAN FRANCISCO, CA 94102-3298

FILED
4-07-17
02:52 PM

April 7, 2017

Agenda ID #15645
Ratesetting

TO PARTIES OF RECORD IN APPLICATION 14-11-016:

This is the proposed decision of Administrative Law Judge Regina M. DeAngelis. Until and unless the Commission hears the item and votes to approve it, the proposed decision has no legal effect. This item may be heard, at the earliest, at the Commission's May 11, 2017 Business Meeting. To confirm when the item will be heard, please see the Business Meeting agenda, which is posted on the Commission's website 10 days before each Business Meeting.

Parties of record may file comments on the proposed decision as provided in Rule 14.3 of the Commission's Rules of Practice and Procedure.

The Commission may hold a Ratesetting Deliberative Meeting to consider this item in closed session in advance of the Business Meeting at which the item will be heard. In such event, notice of the Ratesetting Deliberative Meeting will appear in the Daily Calendar, which is posted on the Commission's website. If a Ratesetting Deliberative Meeting is scheduled, ex parte communications are prohibited pursuant to Rule 8.3(c)(4)(B).

/s/ RICHARD SMITH for
Karen V. Clopton, Chief
Administrative Law Judge

KVC:lil

Attachment

Decision **PROPOSED DECISION OF ALJ DEANGELIS** (Mailed 4/7/2017)

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Application of Southern California Edison Company (U338E) for Approval of the Results of Its 2013 Local Capacity Requirements Request for Offers for the Moorpark Sub-Area.	Application 14-11-016 (Filed November 26, 2014)

DECISION IN PHASE 2 ON RESULTS OF SOUTHERN CALIFORNIA EDISON COMPANY LOCAL CAPACITY REQUIREMENTS REQUEST FOR OFFERS FOR MOORPARK SUB-AREA PURSUANT TO DECISION 13-02-015

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DECISION IN PHASE 2 ON RESULTS OF SOUTHERN CALIFORNIA EDISON COMPANY LOCAL CAPACITY REQUIREMENTS REQUEST FOR OFFERS FOR MOORPARK SUB-AREA PURSUANT TO DECISION 13-02-015

Summary

In Phase 2 of this proceeding, we reject the 54 megawatts (MW), 10-year gas-fired generation, 30-year refurbishment Ellwood contract and 0.5 MW, energy storage contract (linked to the Ellwood contract) to give the Commission additional time to explore whether any approved need in the Santa Barbara/Goleta area can be met in a manner more consistent with the Commission's goals of reduced reliance on fossil fuel. We further find that no reliability need justifies approval of the Ellwood contract. This proceeding is closed.

1. Procedural Background

On November 26, 2014, Southern California Edison Company (SCE) filed Application (A.) 14-11-016 seeking approval of the results of its 2013 Local Capacity Requirements Request for Offers (RFO) in the Moorpark sub-area of the Big Creek/Ventura local reliability area (Moorpark sub-area) to meet long-term capacity requirements by 2021, as directed by the Commission in Decision (D.) 13-02-015.[1]

Specifically, D.13-02-015, issued on February 13, 2013, ordered SCE to procure via a RFO a minimum of 215 megawatts (MW) and a maximum of 290 MW of electrical capacity in the Moorpark sub-area to meet identified

[1] D.13-02-015, *Decision Authorizing Long-Term Procurement for Local Capacity Requirements* (February 13, 2013).

long-term local capacity requirements by 2021.[2] The Commission found this local capacity requirement need existed, in large part, due to the expected retirement before 2021 of the Ormond Beach Units 1 and 2 and Mandalay Units 1 and 2 once-through-cooling generation facilities located in Oxnard, California.

The assigned Commissioner issued a Scoping Memo on March 13, 2015.[3] Evidentiary hearings were held, and parties submitted legal briefs on July 22, 2016 and August 5, 2016. On May 26, 2016, the Commission issued D.16-05-050[4] in this proceeding, which approved SCE's contract for the 262 MW Puente Project and, in addition, approved contracts for 12 MW of preferred resources.

The Commission, in D.16-05-050, deferred consideration of the 54 MW Ellwood project (RFO contract #447021) and a linked 0.5 MW energy storage project (RFO contract #447030) to Phase 2 of this proceeding. In deferring consideration of these two contracts, the Commission stated:

> … the record in this proceeding does not appear to be fully developed enough to decide whether to approve the Ellwood contract at this time.
>
> To determine if the Ellwood contract is reasonable, it is necessary to determine if there is a **reliability need** that it would meet. D.13-02-015 required that SCE procure new resources to fill the Moorpark sub-area reliability need. Goleta is within the Moorpark sub-area, but the current Ellwood facility was considered by the CAISO [California Independent System Operator] to be an existing operational resource in the 2012 LTPP

[2] D.13-02-015 at 131 (Ordering Paragraph 2).

[3] On December 4, 2014, the Commission issued Resolution ALJ 176-3347 to preliminarily determine that this proceeding was ratesetting and that evidentiary hearings would be necessary. These preliminary findings were confirmed in the Scoping Memo.

[4] D.16-05-050 was modified on rehearing by D.16-12-030, *Order Modifying Decision (D.) 16-05-050 and Denying Rehearing, as Modified*.

> proceeding in which D.13-02-015 was decided. Thus, the Ellwood peaker would not be eligible to fill the identified reliability need in the Moorpark sub-area.[5] (Emphasis added.)

The Commission stated, in the Findings of Fact, as follows:

> **Finding of Fact 15**: The record is incomplete regarding evaluation of the reliability need for the Ellwood contract and whether the Ellwood contract is the best way to meet any such need.
>
> **Finding of Fact 16**: Under the terms of the contracts, the energy storage contract with NRG California South, located at the site of Ellwood, is not available if the Commission refrains from approving Ellwood at this time.[6]

Thus, as directed by D.16-05-050, the second phase of this proceeding addresses SCE's request for approval of the 54 MW Ellwood contract and the linked 0.5 MW energy storage project with NRG California South LP (NRG).[7]

Earlier in this proceeding, parties filed protests. These protests addressed all the issues in the proceeding, including the issues related to the 54 MW Ellwood contract and the related energy storage project. A public participating hearing was held in Oxnard on July 15, 2015. A second Scoping Memo was issued on August 18, 2016 in Phase 2. Evidentiary hearings were held in Phase 2 on November 1 and 2, 2016. Briefs and Reply Briefs were filed on December 1,

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[5] D.16-05-050 at 30-31.

[6] D.16-05-050 at 36.

[7] As SCE explained in prior testimony in this proceeding, while it is seeking approval of the Ellwood Refurbishment contract in this Application, the Ellwood contract is not considered an incremental resource and does not count toward the procurement targets for the Moorpark sub-area. SCE Application 14-11-016 at 3, fn. 6. More details regarding this project are available in SCE's prepared testimony, referred to as Exhibit SCE-1 (Testimony of Southern California Edison Company on the Results of Its 2013 Local Capacity Requirements Request for Offers for the Moorpark Sub-Area – Chapter VII, Section A.1).

2016 and December 15, 2016, respectively. The evidentiary record of Phase 2 includes all materials entered into the record in Phase 1 and Phase 2.

2. Scope of Issues

The issues to be determined are:[8]

1. Is the 54 MW Ellwood Refurbishment contract reasonable?
2. Is the 0.5 MW storage project contract reasonable?

2.1. Standard of Review

We review SCE's Application and request therein under a reasonableness standard. Pursuant to D.16-05-050 and the August 18, 2016 Phase 2 Scoping Memo, the question presented in Phase 2 of this proceeding is whether the Ellwood contract and linked energy storage contract are reasonable. However, as explained in D.16-05-050, in order to determine if the Ellwood contract is reasonable, it is necessary to determine if there is a need that it will help meet. The need is described in D.16-05-050 as a reliability need.[9]

2.2. Burden of Proof

The burden of proof is on the Applicant in this proceeding to support its request by a preponderance of evidence. In short, the preponderance of evidence burden of proof standard is met if the proposition is more likely to be true than not true. The standard is also described as being met by the evidence presented when the proposition is more likely than not.

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[8] August 18, 2016, *Assigned Commissioner's Ruling and Scoping Memo* at 4.

[9] D.16-05-050 at 30-31.

3. Ellwood Contract

Today's decision considers the 10-year tolling agreement for the operation of the Ellwood facility in Goleta (in Santa Barbara County), a 54 MW existing gas-fired generation peaker plant. The contract includes the refurbishment of the Ellwood plant.[10] The refurbishment will extend the life of the plant by an additional 30 years, to 2048. Ellwood is a combustion turbine generating unit built in 1974. Historically, Ellwood has not been a reliable resource.[11] The Ellwood plant is located adjacent to a residential area and school.[12] The people that live in this area do not, generally, support the continued operation of Ellwood.[13] June 2018 is the start date set forth in the Ellwood contract.[14] Ellwood is currently operating under a short-term contract between SCE and NRG.[15]

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[10] Phase 1 Exhibit SCE-1 at 57.

[11] Phase 1 Exhibit SCE-1 at 57. *See also*, ORA August 5, 2015 Reply Brief at 3, suggesting that because Ellwood has not historically been a very reliable resource, the need for Ellwood to maintain reliability is unclear and further weakens any assertion that Ellwood is necessary to maintain reliability.

[12] The project is located at 30 Las Amas Road, Goleta, California 93117 and the commercial operation date is June 1, 2018. Phase 1 Exhibit SCE-1 at 55. The project is located approximately 1000 ft. from a public school, the Ellwood School.

[13] Public Participation Hearing July 15, 2015. Also, numerous letters from the public are located in the case file.

[14] Phase 2 Exhibit SCE-11C at 3 (fn. 7).

[15] Ellwood is currently subject to a short-term bilateral contract approved by the Commission in Resolution E-4781 (May 26, 2016). The contracting parties are SCE and NRG Energy, Inc. through GenOn Energy Management, LLC. According to the Commission's Resolution, the term of the contract is August 2016 – May 2018. In approving the contract (and denying the Mandalay 3 contract), the Commission stated: "The Ellwood Peaker is needed to cure a 2016 deficiency identified by the California Independent System Operator for 42 MW in the Santa Clara sub-area, which may persist through 2018. In addition, the Ellwood Peaker serves local load in Santa Barbara County and would help meet local reliability needs in the event of an outage on the Goleta-Santa Clara 230 kV transmission lines. With the Ellwood contract in place, there is no residual need for the Mandalay 3 Peaker to meet SCE's local area or sub-area needs in 2016 or 2017."

4. Parameters of RFO in Phase 1

The Ellwood contract falls outside of the parameters of the RFO and the long-term local capacity requirement need determination, as defined D.13-02-015. In D.13-02-015, the Commission ordered SCE to procure a maximum of 290 MW in the Big Creek/Ventura local reliability area. The capacity of the Ellwood contract would result in SCE contracting for amounts that exceed this limitation.[16] D.13-02-015 set this MW limitation to reflect the maximum amount of potential costs that the Commission found reasonable to impose on ratepayers. In addition, the maximum MW amount was the limit of the local capacity requirement need, as determined by the Commission. After the Commission approved the Puente Project contract and the other smaller preferred resource projects totaling 274 MW, the remaining amount identified in D.13-02-015 is 16 MW.

Moreover, Ellwood is not an incremental resource, as required by the terms of the RFO. Under the terms of the RFO approved by the Commission in D.13-02-015, all contract capacity needed to be "incremental." In D.14-02-040, the Commission found that only incremental capacity (i.e., new capacity or additional capacity of existing plants) or repowered plants could participate in long-term RFO.[17] The rationale behind this RFO requirement was to create a level playing field among bidders, which is an essential component to a well-functioning market. All parties agree that Ellwood is not new or incremental capacity.

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[16] ORA July 22, 2015 Opening Brief at 5.

[17] D.14-02-040 at 28.

However, the Commission in D.16-05-050 concluded that consideration of Ellwood in this proceeding was, nevertheless, appropriate but found that the record in Phase 1 of this proceeding did not appear to be developed enough to decide whether to approve of the Ellwood contract. Therefore, D.16-05-050 directed the Commission to revisit the Ellwood contract in Phase 2 to determine if the contract is reasonable.[18] To determine reasonableness, it is necessary to determine "if there is a reliability need that it would meet."[19] The Commission further stated, "[i]f we determine there is an additional unmet local reliability need in the Goleta area that needs to be filled, we will consider if the Ellwood refurbishment contract is the best resource to do so."[20]

5. Existing Reliability Standard

In accordance with the directive in D.16-05-050, Phase 2 of this proceeding examines whether a reliability need exists for Ellwood. Based on the evidence presented, no reliability need exists that justifies the Ellwood contract.

The parties supporting the approval of Ellwood acknowledge that no existing Commission-requirement or standard exists under which consideration of this project would result in approval, including reliability.[21] The Commission could, on this basis alone, deny the contract in this phase of the proceeding since the contract does not meet the approval standard set forth in D.16-05-050.

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[18] In Phase 2, some parties continue to dispute the appropriateness of whether Ellwood should be considered in this proceeding and suggest, among other things, that the contract is more aligned with a bilateral contract and the Commission should review Ellwood under a bilateral standard. *See, e.g.,* ORA December 1, 2016 Opening Brief at 4. We do not address this argument based on the Commission's directive in D.16-05-050 to address Ellwood here.

[19] D.16-05-050 at 30.

[20] D.16-05-050 at 32.

[21] SCE December 15, 2016 Reply Brief at 8.

However, SCE presented a new and different standard by which to evaluate the reasonableness of the Ellwood contract. This new standard is referred to by SCE as the resiliency standard and is purportedly based on the unique geographic area and transmission challenges related to serving the Santa Barbara/Goleta area in the event of an emergency. Our review of Ellwood does not rely on this proposed resiliency standard because no such standard has been vetted and approved by the Commission. We do, however, review Ellwood within the context of the unique geographic area and transmission challenges related to serving the Santa Barbara/Goleta area because the parties supporting Ellwood raise safety considerations related to this geographic area that may arise in the event of an emergency.

6. Unique System Constraints in the Santa Barbara/Goleta Area

SCE explains that the purpose of its testimony in Phase 2 is to explain the "unique resiliency need in the Santa Barbara/Goleta area."[22] SCE states that it needs to provide safe and reliable electric service to its customers and employees, and in doing so there may not always be a specific standard supporting SCE's efforts.[23] SCE further argues that "[r]esiliency refers to the ability of the electrical system to respond to an emergency event so that customers maintain service" and SCE can provide safe service to its customers and employees.[24]

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[22] SCE December 15, 2016 Reply Brief at 3.

[23] SCE December 15, 2016 Reply Brief at 4.

[24] SCE December 1, 2016 Opening Brief at 12 (fn. 55).

SCE asserts that it developed an integrated mitigation strategy to provide for resiliency in the Santa Barbara/Goleta area to address the potential shortfall of 105 MW[25] that could cause rolling blackouts in the area. The cornerstone of SCE's mitigation strategy to support this 105 MW shortfall is Ellwood. According to SCE the 54 MW provided by Ellwood will be available when it is needed in June 2018, and that Ellwood will provide, some – but not all - of the 105 MW needed capacity and support short circuit duty, which will allow SCE to quickly clear faults and reduce the risk of electrocution to the public and its employees in a cost-effective manner. In addition, SCE's mitigation strategy includes the pursuit of cost-efficient local distributed generation resources and consideration of upgrades to the electric system.[26]

The CAISO supports the project, with a caveat, stating: "[t]he CAISO has not independently studied these scenarios because the reliability concerns are not related to the bulk electric system."[27] The CAISO further states that, SCE's subtransmission system is unable to fully restore service to the Santa Barbara/Goleta area after an identified N-2 Contingency,[28] and though this issue

[25] The 105 MW shortfall is calculated based on the upgraded Santa Clara 66 kV distribution system scheduled to be completed in August 2018. This upgrade is discussed below in further detail.

[26] SCE December 1, 2016 Opening Brief at 12.

[27] March 8, 2016 Reply Comments of CAISO on Alternate Proposed Decision at 3.

[28] The loss of the Goleta-Santa Clara 230 kV transmission lines is also referred to as an N-2 Contingency. The N-2 of the Goleta-Santa Clara 230 kV lines is compliant with the North American Electric Reliability Corporation Reliability Standard TPL-001-4, which allows customer load to be dropped without a stated timeframe for restoration. Exhibit SCE-11C, SCE's Phase 2 Opening Testimony, at 2; *see also* SCE, Chinn, Transcript, Vol. 5 at 815:15-22 (November 1, 2016) ("[T]he issue we're trying to address is not specific to a NERC or [CA]ISO standard[] in that NERC and [CA]ISO standards don't provide a restoration time…those

Footnote continued on next page

is not within CAISO's purview, SCE should not ignore the issue and nor should the Commission.

NRG supports the arguments of SCE and CAISO and argues that continued operation of Ellwood is compatible with the development of new preferred resources, and is appropriately characterized as a reliability backstop that would help ensure local reliability during an emergency.[29]

While we decline to review Ellwood under SCE's proposed resiliency standard, we find that SCE provides convincing evidence that unique and localized transmission grid issues exist in this part of SCE's service territory and that, in the event of the loss of the two Goleta-Santa Clara 230 kilovolt (kV) transmission lines (also referred to as an N-2 Contingency), customers in the Santa Barbara/Goleta area will likely lose service.[30] The evidence further establishes that, depending on the circumstances of the outage and when it occurs, in the absence of additional resources, SCE would not be able to meet peak load, and customers could face rolling blackouts.[31]

Below we evaluate the arguments of the parties opposing and supporting the Ellwood contract and further evaluate the questions raised by an N-2 Contingency in the Santa Barbara/Goleta area.

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standards allow for the loss of the transmission system, and basically the systems allow the blackout that is permitted under…both NERC and [CA]ISO standards.").

[29] NRG December 1, 2016 Opening Brief at 9.

[30] Phase 2 Exhibits SCE-1 at 6-7 and SCE-11C at 7. This area is relatively isolated and bound by the Pacific Ocean to the south and west, and the Los Padres National Forest to the north and east.

[31] SCE December 1, 2016 Opening Brief at 5.

7. N-2 Contingency

The evidence presented during this proceeding establishes that the 54 MW provided by Ellwood offers, some – but not all - of the 105 MW needed capacity to prevent possible blackouts, together with short circuit duty which will allow SCE to quickly clear faults and reduce the risk of electrocution to the public and its employees. The evidence is less convincing that Ellwood is the only or the best option to provide these MWs and address these service issues.

7.1. Ellwood does not fulfill any NERC Standard or CAISO Standard

The Office of Ratepayer Advocates (ORA) and Sierra Club argue that the need for Ellwood in the Santa Barbara/Goleta area in the event of an N-2 Contingency is not sufficient to justify approval of Ellwood in this proceeding because this need is not based on any NERC standards, CAISO standards, or Commission standards.[32] We agree with the undisputed fact that Ellwood does not present a solution to any unmet NERC or CAISO standard. Probability of an N-2 Contingency

A critical question in evaluating the reasonableness of Ellwood is the probability of an N-2 Contingency. Helping Hand Tools (HHT)[33] asserts that a loss of both 230 kV transmission lines would be a "rare" event, and the local transmission system can be activated to meet 180 MW of local demand, which,

[32] RT, Vol. 6 (ORA/Li) at 1050:18-22.

[33] HHT filed a Motion for Party Status on October 3, 2016, describing itself as "a California non-profit organization focused on preventing community deterioration. Pollution, environmental injustice, and excessive energy costs contribute to community deterioration. 2HT has members who live, work, recreate, and pay electricity rates in Southern California Edison Company's service territory. The Commission's disposition of this Application will materially impact the

Footnote continued on next page

according to HHT, is a reasonable solution.[34] In fact, all parties generally agree that the loss of both lines would be a rare event, but SCE responds that such a loss could happen.[35]

The unknown but rare possibility of an N-2 Contingency event occurring makes it difficult to justify the Ellwood contract and demands consideration of other options and constraints related to Ellwood and the remote N-2 Contingency.

7.2. Dropping Load is Permissible in an N-2 Contingency

In the event of an N-2 Contingency NERC permits customer load drop without a stated timeframe for restoration.[36] Also, simultaneous loss of both lines has not occurred for more than 4 hours.[37] In the past, when these rare outages occur, the duration is under 90 minutes and the existing distribution system is able to reroute power within an hour and able to meet demand in

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interests of 2HT's [HHT's] members." The Motion for Party Status was granted on October 6, 2016.

[34] HHT December 1, 2016 Opening Brief at 3-4.

[35] No exact probability or risk factor was presented.

[36] Exhibit SCE-11 Phase 2 at 2, which states at fn. 6: The loss of the Goleta-Santa Clara 230 kV transmission lines is also referred to as an N-2 Contingency. The N-2 of the Goleta-Santa Clara 230 kV lines is compliant with the North American Electric Reliability Corporation ("NERC") Reliability Standard TPL-001-4, which allows customer load to be dropped without a standard timeframe for restoration."

[37] Phase 2 Exhibit Sierra Club-2C (Data Request Sierra Club – SCE-1, Q.2d); RT 809; 1-4 (SCE, Chinn).

75 percent of the annual hours (non-peak load)[38] where demand is under the 180 MW supplied by the 66 kV system.[39]

7.3. Air Permit Restrictions

The second question is whether Ellwood would be available to run in the event of an N-2 Contingency. The operation of Ellwood is restricted by its existing Air Permit from the Santa Barbara County Air Pollution Control District. Ellwood's Air Permit allows only 380 hours (or 16 full days) of operation per year.[40] The restrictions on Ellwood's operation raise questions about whether it would even be available to operate in the event of an N-2 Contingency. SCE predicts weeks (not days) of blackouts in the event of the failure of the Goleta-Santa Clara 230 kV lines.[41] In other words, it would need Ellwood to be available for weeks but its Air Permit only allows 16 days. NRG attempts to minimize the impact of this restriction, stating that "Having 54 MW of capacity available for dispatch for 380 hours per year is obviously better than not having the capacity available at all. Further, if it were not run continuously 24 hours per day, the Ellwood Generating Station could operate for more than 16 consecutive days, which would cover a transmission outage lasting more than two weeks."[42]

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[38] Sierra Club December 1, 2016 Opening Brief at 5; HHT December 1, 2016 Opening Brief at 4.

[39] Sierra Club December 1, 2016 Opening Brief at 5. SCE agrees that MW from Ellwood may not be required during 75 percent of annual hours where demand is under 180 MW but states that Ellwood is still required to provide adequate short circuit duty in order to safety utilize the 66 kV tie lines from Santa Clara to supply 180 MW. SCE December 15, 2017 Reply Brief at 6.

[40] Phase 2 Exhibit SCE-11C at 15-16.

[41] HHT December 15, 2016 Reply Brief at 11.

[42] HHT December 15, 2016 Reply Brief at 11, citing to NRG December 1, 2016 Opening Brief at 13.

However, NRG's argument fails to take into account that Ellwood's availability for a 16-day transmission outage depends on whether or not Ellwood has already used its 380 annually-permitted operating hours before the failure of the Goleta-Santa Clara 230 kV lines.[43] In addition, while it appears probable that Ellwood would need to run in the event of an N-2 Contingency, SCE has not negotiated a price with NRG for Ellwood should it be called upon to exceed the 380 hours.[44]

7.4. Air Permit Variance

A further question is whether NRG or SCE would be able or even attempt to seek a variance from the Santa Barbara County Air Pollution Control District for permission to operate Ellwood beyond the existing limitation of 380 hours (or 16 full days) per year. During this proceeding, NRG and SCE suggested that a variance would be the logical course of action but questions remain.[45]

The Santa Barbara County Air Pollution Control District has a procedure for requesting such variances but the record does not show the frequency of such requests or the circumstances under which such requests are approved.[46] No

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[43] ORA December 1, 2016 Opening Brief at 6; Sierra Club December 1, 2016 Opening Brief at 6, 11; WBA Opening Brief at 2-3; HHT December 1, 2016 Opening Brief at 5-6.

[44] HHT December 1, 2016 Opening Brief at 6, citing to RT November 1, 2016 at 991:28, 992:1-6. SCE states, in response, that, while price for operating beyond the Air Permit restrictions has not been agreed upon, it expects NRG to negotiate in good faith and present a fair price. SCE December 15, 2016 Reply Brief at 14.

[45] SCE December 15, 2016 Reply Brief at 12.

[46] As shown in Phase 2 Late-Filed Joint Exhibit SCE/NRG-1: "An Emergency Variance may be granted for good cause, including, ***but not limited to***, breakdown conditions." Breakdown conditions can allow a variance of only 15 days, an emergency variance based on other showings of good cause (in this case, a potential reliability crisis) could be granted for up to 30 days.

clear answer appears regarding Ellwood's ability to qualify and obtain a variance based on the evidence in the record.[47] Nevertheless, NRG and SCE suggest that a clear path to obtain a variance exists. Sierra Club, HHT, and ORA all disagree.

Moreover, Sierra Club, HHT, and ORA argue that, from a planning perspective, the need for a variance from the Santa Barbara County Air Pollution Control District to address a possible N-2 Contingency is not an optimal solution, especially due to the actual air pollution impacts that might occur by operating Ellwood for excess hours near residential communities and a school.[48] The record reflects that Ellwood is a highly polluting resource permitted to emit as much as 103.59 pounds per hour of nitrogen oxide — which is over 20 times the normal emission rate of a modern peaking unit with modern emission controls.[49]

The Santa Barbara County Air Pollution Control District would likely need to balance the benefits and the harms before issuing a variance. The outcome of such an analysis and the result of a request by NRG for an Air Permit variance are not clear and weigh against concluding that Ellwood is the appropriate resource to address an N-2 Contingency event.

7.5. Short Circuit Duty

The argument is also made that Ellwood presents value, in addition to mitigating an N-2 Contingency, by providing short circuit duty. Again, any value from providing short circuit duty would need to be provided consistent

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[47] SCE December 15, 2016 Reply Brief at 12; SCE explains that the Santa Barbara County Air Pollution Control District would need to address potential health and safety risks before granting the variance.

[48] Ellwood is located less than 1,000 feet from an elementary school. Sierra Club December 1, 2016 Opening Brief at 6.

[49] HHT December 1, 2016 Opening Brief at 6, citing to Phase 2 Exhibit 2HT-1 at 6, 7.

with the limitations placed on Ellwood's operation under the restrictions in its Air Permit. Moreover, based on the record, it remains unclear whether a long-term contract, providing for additional 10 years of operation and an additional 30-year lifespan, can be justified based solely on the provision of short circuit duty.

In support of the value of the potential for Ellwood to provide short circuit duty, SCE claims that it strives for an approximate short circuit duty amount in the thousands of amps.[50] SCE further claims that, while no Commission or other standard exists to demonstrate the need for Ellwood to address short circuit duty, SCE has identified a need as part of its responsibility to maintain safe and reliability electrical service.[51]

Based on the evidence, it remains unclear whether an amount of amps lower than that approximated by SCE may be acceptable and whether other means of addressing this short circuit duty exist. The absence of a clear standard applicable to short circuit duty further complicates, rather than clarifies, this matter and weighs against concluding that Ellwood can be deemed reasonable based solely on SCE's need to address short circuit duty.

7.6. Planned Upgrade of 66 kV Distribution System

During the proceeding, the question arose of whether the planned upgrade to the Santa Clara 66 kV distribution system in the Santa Barbara/Goleta area would minimize or eliminate the need for Ellwood. The evidence indicates that the upgrade would minimize but not eliminate the need

[50] RT 825:5-6 (SCE, Chinn).

[51] SCE December 15, 2017 Reply Brief at 8-9.

for additional generation in the event of an N-2 Contingency for the purpose of serving peak load.

Plans exist to improve the Santa Clara 66 kV distribution system in the Santa Barbara/Goleta area. This upgrade is known as the Santa Barbara County Reliability Project. If both 230 kV transmission lines go down, re-routing power through the 66 kV system would allow service of 100 MW of load today, this will increase to 180 MW after the Santa Barbara County Reliability Project is completed in April 2018.[52]

However, rerouting even the full 180 MW through the 66 kV system would not allow for all of the local peak load to be entirely served. Based on SCE's estimates, a 105 MW shortfall would continue to exist, even after the 66 kV upgrade, to serve peak load in the event both 230 kV transmission lines go down.[53] As noted by SCE, even if 180 MW of power are rerouted through the upgraded 66 kV system, the rerouted power would not meet peak load in an N-2 Contingency,[54] 105 MW of peak load would remain at risk.[55]

We find that the planned upgrades to the Santa Clara 66 kV distribution system will limit the extent of any potential service interruptions that result from an N-2 Contingency by reducing the unmet peak load need from 285 MW to 105 MW. We further find that the interruptions to service identified by SCE related to not being able to meet 105 MW of peak load could be partially

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[52] Phase 2 Exhibit SCE-11 at 2, 9 & 10.

[53] Phase 2 Exhibit SCE-11 at 2, 3 & 10.

[54] Phase 2 Exhibit SCE-11 at 10.

[56] SCE does not dispute the assertion by Sierra Club that no deadline exists to meet the 105 MW target but points out that Ellwood is essential to resolve unique issues presented in the Santa Barbara/Goleta area. SCE December 15, 2017 Reply Brief at 7.

addressed by Ellwood, provided compliance with the operating hour restrictions under its Air Permit or a variance. In short, the upgrade does not provide a complete solution to the need of 105 MW, but neither does Ellwood.

7.7. No Urgent Timeline

While parties argue over the probability of an N-2 Contingency and the value of Ellwood in responding to an N-2 Contingency under the operating limits placed on Ellwood by its Air Permit, no party presents an urgent timeline to resolve this potential need.[56] In the absence of urgency, we find that rather than extend the life of a gas-fired plant for an additional 30 years, potentially displacing preferred resources and failing to fully realize the benefits of an upgraded 66 kV distribution system, other options should be reviewed, including preferred resources, to improve upon service in the event of an N-2 Contingency.

8. CAISO Need Assessment of Local Capacity Requirement

The CAISO data presents a separate need related to Ellwood – a reliability need. The most recent assessment by the CAISO shows that, without Ellwood, a residual 29.6 MW need for local capacity resources will exist. This 29.6 MW need is driven by the voltage collapse caused by the N-2 Contingency.[57] The CAISO explains that because the need is driven by the potential for voltage collapse in a

[56] SCE does not dispute the assertion by Sierra Club that no deadline exists to meet the 105 MW target but points out that Ellwood is essential to resolve unique issues presented in the Santa Barbara/Goleta area. SCE December 15, 2017 Reply Brief at 7.

[57] CAISO December 1, 2016 Opening Brief at 1-2.

N-2 Contingency, some types of resources, such as demand response, are not sufficient because reactive power is needed to maintain system voltage.[58]

ORA disputes the CAISO's findings. ORA suggests that the CAISO most recent study is flawed because it analyzes the larger Moorpark sub-area, rather than the area at issue here, the smaller Goleta area.[59] ORA also states that this estimate excludes Mandalay Unit 3 (discussed below) and inappropriately excluded demand response.[60]

The CAISO clarifies that it included demand response with less than or equal to 20-minute response time but ORA suggests that the CAISO should include demand response in a manner consistent with D.16-06-045, which might result in a greater amount of demand response being found available.[61] ORA states that, potentially, only 16 MW would be needed, if the CAISO relied on a different means of calculating the availability of demand response to meet local capacity reliability needs.[62] In addition, ORA and Sierra Club both point to recent studies of the CAISO that appear to overestimate the need in the Moorpark sub-area.

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[58] CAISO December 1, 2016 Opening Brief at 2. Reactive power is needed in when voltage collages occurs to regulate voltage. For example, reactive power is measured in volt-ampere reactive (VAR). If voltage declines on the electrical system, a generator is able to inject reactive power in the system which tends to raise the system voltage.

[59] ORA December 1, 2017 Opening Brief at 7.

[60] ORA December 1, 2017 Opening Brief at 7.

[61] ORA December 1, 2017 Opening Brief at 7.

[62] ORA December 1, 2017 Opening Brief at 7 & 8, stating that "The CAISO has identified 37.5 MW of slow DR in the Moorpark sub-area with a response time of greater than 20 minutes for a total of 55.5 MW of DR."

Taking these factors into consideration and giving weight to the CAISO's findings of a reliability need of 29.6 MW in the Moorpark sub-area in an N-2 Contingency, we find it is, nevertheless, premature to approve Ellwood without first evaluating the situation in the smaller Santa Barbara/Goleta area and determining whether other resources exists to address this 29.6 MW need, which is smaller than the 54 MW provided by Ellwood.

9. Generation Alternative to Ellwood - Mandalay Unit 3

While we have found that no reliability need exists for the Ellwood contract, as required by D.16-05-050, and we have further found that the operating characteristics of Ellwood do not present an optimal solution to the need presented by SCE, our review of the need for Ellwood evaluates the bigger generation picture presented by the Santa Barbara/Goleta area.

Parties presented evidence on whether other resources in the area, such as the Mandalay Unit 3, would be a better option. The evidence indicates that that the 130 MW Mandalay Unit 3 could fill the 29.6 MW need identified by the CAISO.[63] In fact, the CAISO testified that the 130 MW Mandalay Unit 3 - if it remains available – would satisfy the 29.6 MW need identified in the Moorpark sub-area.[64] While no definitive evidence exists that Mandalay Unit 3 will remain available, the record indicates that continued operation is possible.

When NRG was recently asked, "how many more years NRG expects to continue operation of the MGS Unit 3,"[65] NRG responded, "There is no looming regulation that affects the MGS Unit 3 permitted operations. With continued

[63] HHT December 15, 2016 Reply Brief at 2-3.

[64] HHT December 15, 2016 Reply Brief at 2-3, citing to RT Vol. 6 at 1023: 3-7.

[65] The term "MGS Unit 3" refers to Mandalay Unit 3.

maintenance Unit 3 will be capable of operating well into the future."[66] Furthermore, the Puente Power Project was recently approved by the Commission at the Mandalay site,[67] which gives greater credibility to arguments that Mandalay Unit 3 is less likely to be retired.[68] Thus

Therefore, until more information is known about the future of Mandalay Unit 3, it is reasonable to reject the long-term Ellwood contract, a 10-year contract (and 30-year refurbishment).

10. 0.5 MW NRG Energy Storage Project

The Commission found in D.16-05-050 that the 10-year, 0.5 MW energy storage project contract between SCE and NRG at the Ellwood site should be considered in Phase 2 of this proceeding together with the Ellwood contract. In reviewing this contract in Phase 2, we conclude that the approval of the Ellwood contract is a prerequisite for approval of the new 0.5 MW energy storage facility at the Ellwood site, as the two contracts were linked together by NRG as a mutually exclusive offer.

Because the Ellwood contract is not approved today, we must, under the terms of the contract, reject the linked storage contract located at Ellwood. In the future, we expect bidders to abide by the Commission's procurement rules, including the rules that prohibit offers that combine existing generation with incremental energy storage capacity. These rules, and others, function to prevent market distortions and ensure a level playing field among bidders.

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[66] HHT December 15, 2016 Reply Brief at 2, citing to Exhibit 2HT-3 at p. 2-1 (NRG Response to Data Request in CEC Docket 15-AFC-01).

[67] D.16-05-050. The Puente Project is currently under review at other government agencies, including the California Energy Commission.

11. Motions

All outstanding motions to file pleadings confidentially are granted. NRG's and SCE's November 18, 2016, joint motion to admit into evidence a late-filed joint exhibit is granted. SCE's November 21, 2016 motion for leave to correct transcript errors is granted. The motions dated November 21, 2016 and November 29, 2016 by ORA to admit into evidence late-file exhibits and submit exhibits under seal are granted.

12. Comments on Alternate Proposed Decision

The proposed decision of Administrative Law Judge (ALJ) DeAngelis in this matter was mailed to the parties in accordance with Section 311 of the Public Utilities Code and comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure. Comments were filed on _____, and reply comments were filed on _____ by _____.

13. Assignment of Proceeding

Michael Picker is the assigned Commissioner and Regina M. DeAngelis is the assigned ALJ in this proceeding.

Findings of Fact

1. Pursuant to D.16-05-050 and the August 18, 2016 Phase 2 Scoping Memo, the question presented in Phase 2 of this proceeding is whether the Ellwood contract and linked energy storage project are reasonable.
2. As explained in D.16-05-050, in order to determine if the Ellwood contract is reasonable, it is necessary to determine if a reliability need exists.
3. No reliability need exists that justifies the Ellwood contract.

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[68] HHT December 15, 2016 Reply Brief at 2.

4. The Commission could deny the Ellwood contract since it does not meet the approval standard set forth in D.16-05-050.

5. SCE presents a new standard by which to evaluate Ellwood, referred to as the resiliency standard.

6. The resiliency standard is not relied upon because it has not been vetted and approved by the Commission.

7. The reasonableness of the Ellwood contract is reviewed within the context of the unique service issues in the Santa Barbara/Goleta area that implicate safety considerations in the event of an N-2 Contingency.

8. Unique and localized transmission grid issues exist in the Santa Barbara/Goleta part of SCE's service territory and, in the event of the loss of the two Goleta-Santa Clara 230 kV transmission lines (referred to as an N-2 Contingency) customers in the Santa Barbara/Goleta area will likely lose service.

9. Depending on the circumstances of the outage and when it occurs, in the absence of additional resources, SCE would not be able to meet 105 MW of peak load and customers could face rolling blackouts.

10. The undisputed fact is that Ellwood does not present a solution to any unmet NERC or CAISO standard.

11. The N-2 Contingency would be a rare event but is possible. No exact probability or risk factor was presented.

12. Options other than relying on Ellwood exist to address an N-2 Contingency, including dropping load.

13. The availability of Ellwood for an N-2 Contingency is unclear based on its existing Air Permit from the Santa Barbara County Air Pollution Control District, and the unknown price for operating beyond the hours set forth in the Air Permit.

14. A balancing of the harms may need to occur before the Santa Barbara County Air Pollution Control District issues a variance to the Air Permit, and the outcome of such an analysis is unknown.

15. It remains unclear whether an amount of amps lower than approximated by SCE may be acceptable for providing short circuit duty.

16. No clear standards applicable to short circuit duty exist.

17. Ellwood cannot be justified as reasonable based solely on SCE's need to address short circuit duty.

18. No urgent timeline exists for resolving the 105 MW deficiency which could result during peak hours of an N-2 Contingency.

19. Without Ellwood, a residual 29.6 MW need for local capacity resources will exist in the Moorpark sub-area when there is a voltage collapse caused by the N-2 Contingency.

20. Because the 29.6 MW need is driven by voltage collapse, other types of resources, such as demand response, may not be sufficient.

21. The 130 MW Mandalay Unit 3 could fill the 29.6 MW need.

22. No definitive evidence exists that Mandalay Unit 3 will remain available but the record indicates that continued operation is possible.

23. A 105 MW shortfall would continue to exist even after the 66 kV upgrade to serve peak load in the event both 230 kV transmission lines go down.

24. Because the Ellwood contract is not approved, the issue of whether costs are reasonable need not be addressed.

25. The approval of the Ellwood contract is a prerequisite for approval of the 0.5 MW energy storage project located at the Ellwood site.

Conclusions of Law

1. The burden of proof is on the Applicant in this proceeding to support its request by a preponderance of evidence.

2. The argument that Ellwood should be approved because it presents a solution to the outages that could accompany a potential N-2 Contingency is rejected.

3. The argument that Ellwood should be approved to provide short circuit duty is rejected.

4. Ellwood is not the preferred way to resolve the safety and service problems that may arise under an N-2 Contingency.

5. It is premature to approve Ellwood for the purpose of meeting a reliability need of 29.6 MW in the Moorpark sub-area.

6. Until more information is known about the future of Mandalay Unit 3, it is reasonable to reject a long-term contract with Ellwood, a 10-year contract and 30-year refurbishment.

7. The upgrade to the 66 kV subtransmission system does not provide a complete solution to the need of 105 MW.

8. The Ellwood contract between SCE and NRG should not be approved.

9. Whether the costs of the Ellwood contract are reasonable is not addressed because no need for the contract is established.

10. The 0.5 MW energy storage project of NRG, which is linked with the approval of the 54 MW Ellwood contract, should not be approved.

O R D E R

IT IS ORDERED that:

1. The contracts between Southern California Edison Company and NRG California South LP, referred to as the Ellwood contract, with the linked Energy Storage Project contract, are not approved.
2. All outstanding motions are granted.
3. All rulings issued by the Administrative Law Judge during the proceeding are adopted.
4. Application 14-11-016 is closed.

This order is effective today.

Dated _____, 2017, at Merced, California.

Exhibit B

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Application Of Southern California Edison Company (U 338-E) For Approval Of The Results Of Its Second Preferred Resources Pilot Request For Offers.	Application 16-11-002 (Filed November 4, 2016)

NOTICE OF *EX PARTE* COMMUNICATION OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) WITH COMMISSIONER GUZMAN ACEVES AND DAVID GAMSON, ADVISOR TO COMMISSIONER GUZMAN ACEVES

JANET S. COMBS
REBECCA MEIERS-DE PASTINO

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Dated: **June 6, 2017**

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Application Of Southern California Edison Company (U 338-E) For Approval Of The Results Of Its Second Preferred Resources Pilot Request For Offers.	Application 16-11-002 (Filed November 4, 2016)

NOTICE OF *EX PARTE* COMMUNICATION OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E) WITH COMMISSIONER GUZMAN ACEVES AND DAVID GAMSON, ADVISOR TO COMMISSIONER GUZMAN ACEVES

Pursuant to Rule 8.3 of the California Public Utilities Commission's (CPUC's) Rules of Practice and Procedure, Southern California Edison Company (SCE) hereby gives notice of the following *ex parte* communication. The meeting attendees were Commissioner Guzman Aceves and her advisor, David Gamson, and for SCE, Dawn Anaiscourt, Director, CPUC Regulatory Affairs, Colin Cushnie, Vice President, Energy Procurement & Management, and Caroline McAndrews, Director, Preferred Resources Pilot (PRP). The meeting took place in the Commission's San Francisco offices. The meeting started at approximately 11:12 a.m. and ended at 11:42 a.m., lasting 30 minutes. SCE discussed PRP objectives, activities, accomplishments, and challenges faced to date. Among the topics covered, SCE discussed the procurement of PRP resources through the PRP RFO2 solicitation. A handout was provided and is attached to this notice as Attachment A.

To receive a copy of this Notice, please contact Rebecca Meiers-De Pastino at the contact information indicated below and on the cover sheet of this Notice.

Respectfully submitted,

JANET S. COMBS
REBECCA MEIERS-DE PASTINO

/s/ Rebecca Meiers-De Pastino
By: Rebecca Meiers-De Pastino

Attorneys for
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June 6, 2017

Attachment A

Preferred Resources Pilot Overview

Briefing for Commissioner Guzman Aceves - June 2, 2017

SOUTHERN CALIFORNIA EDISON®
Energy for What's Ahead℠

Preferred Resources Pilot Overview

Briefing for Commissioner Guzman Aceves
June 2, 2017

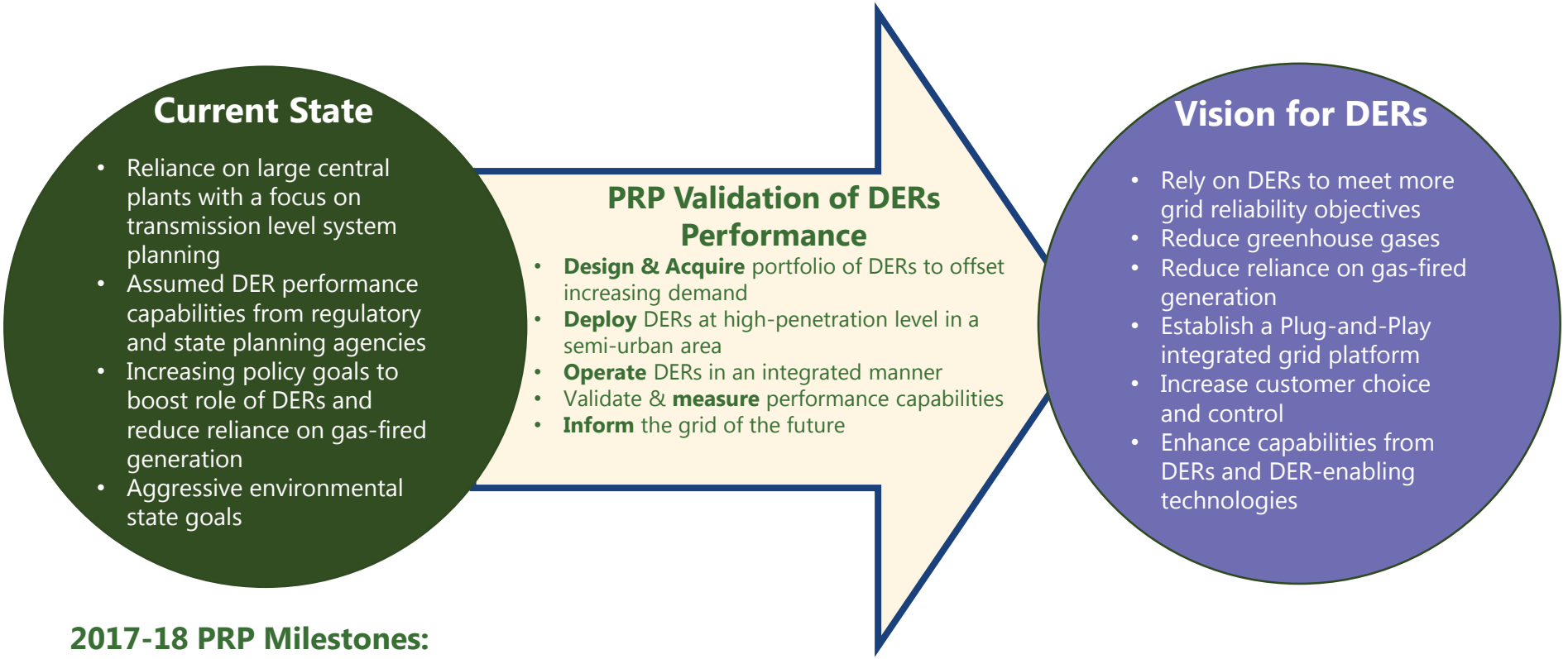
Meeting Objective

Provide an overview of SCE's Preferred Resources Pilot (PRP) including the project's

- Objectives and milestones;
- Roadmap and progress update; and
- Insights.

SCE's PRP Role in Validating DER Performance

The role and functions of DERs in grid operations and the energy economy are rapidly changing. **Validating their performance is vital to properly incorporating them into grid planning and operations.** DER performance validation will help right-size current and future investments in DERs.



2017-18 PRP Milestones:

- Demonstrate the ability to **acquire** and **deploy** a mix of preferred resources to offset the increasing customer demand expected in 2022 in the PRP region.
- **Measure** the performance capabilities of those resources to offset the increasing customer demand for electricity in the PRP region.

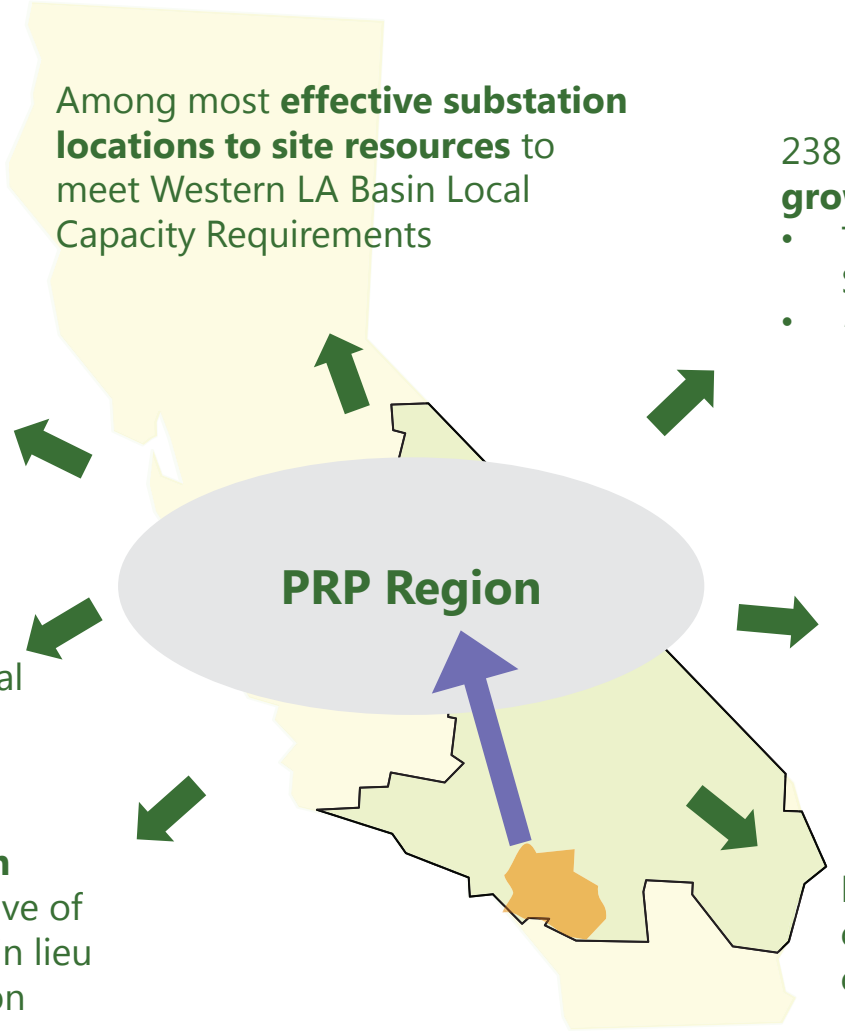
PRP Region: Ideal Real-World Test Location to Validate DER Performance

Among most **effective substation locations to site resources** to meet Western LA Basin Local Capacity Requirements

238 MW of **expected load growth** by 2022

- Two substations – Johanna & Santiago
- ~245,000 total customers

Region will be most affected by closure of SONGS and impending retirement of OTC plants if mitigation efforts in flight do not perform as expected



Enables testing of **high penetration of DERs by 2020**

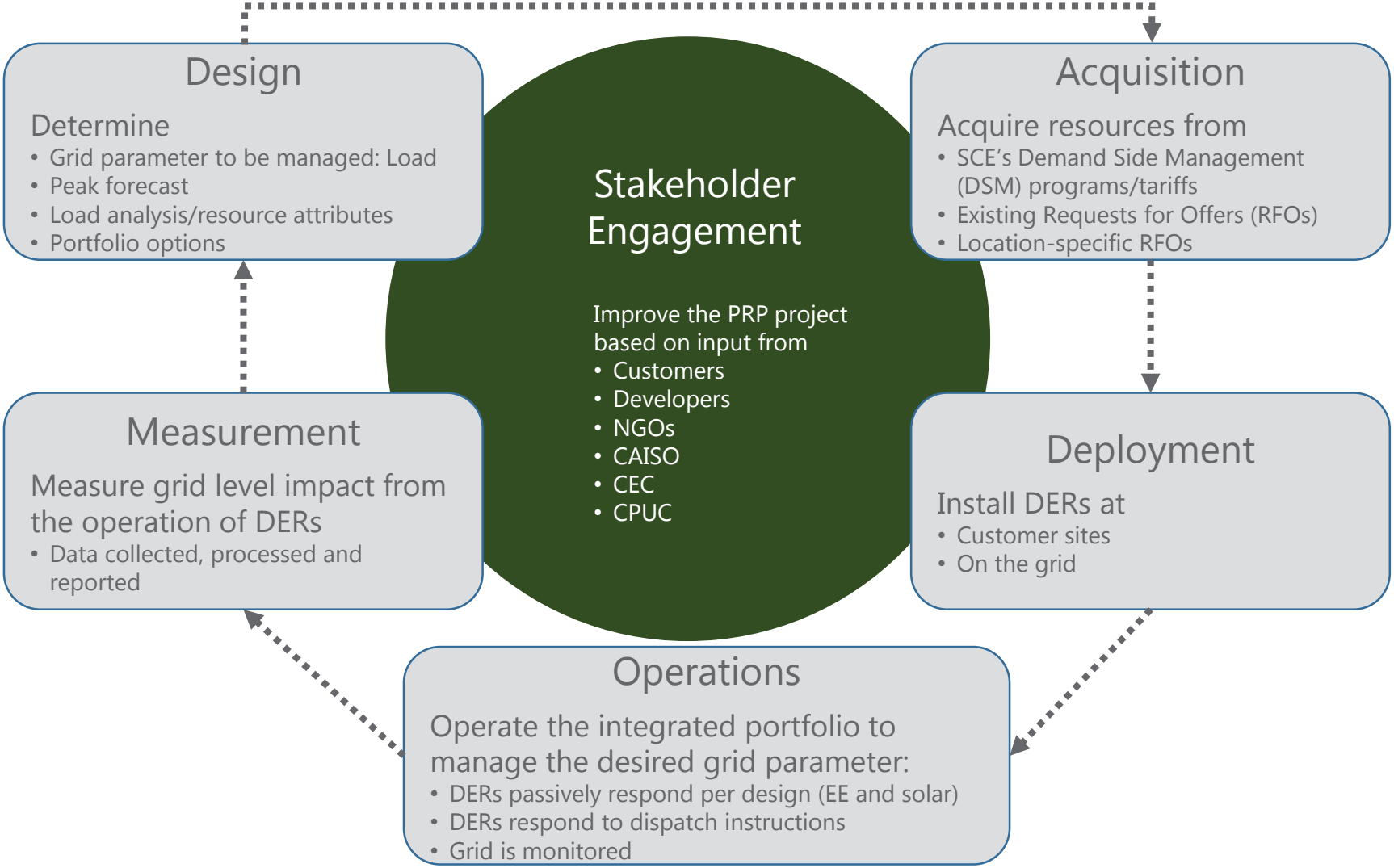
- Over > 22% of the load in the PRP region may be served by the acquired DERs
- The PRP Region will lead SCE in the amount of load served by DERs.

Target region for testing DER high penetration and locational value

Urban to semi-urban region is representative of location to site DERs in lieu of gas-fired generation

Peak is driven by 30,000 commercial and industrial customers

PRP Roadmap to Validate DER Performance



PRP DER Acquisition Progress

Resource	Procurement Source	Procured (MW) PRP Region	Deployed (MW) PRP Region
Energy Efficiency (EE), including Permanent Load Shift (PLS)	DSM EE programs and contracts	73	24
Demand Response through load reduction (LR) and/or energy storage (ES)	Contracts	73	< 1
Distributed Generation – Solar photovoltaic (DG-PV)	CA Solar Initiative and Net Energy Metering (CSI & NEM) and contracts	43	31
Behind the Meter Energy Storage (BTM-ES)	Self-Generation Incentive Program (SGIP)	< 1	< 1
In-Front-of-the-Meter Energy Storage (IFOM-ES)	Contracts, utility owned, developer partnership	66	2
Hybrids (PV + ES)	Contracts	10	0
	Total:	**266**	**58**

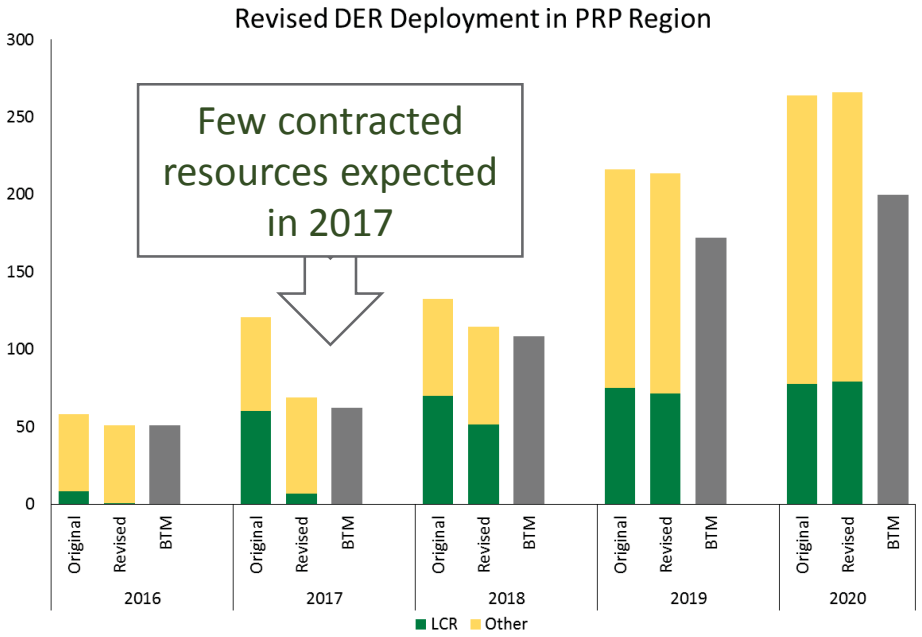
Deployment of LCR procured preferred resources lags the original in-service date.

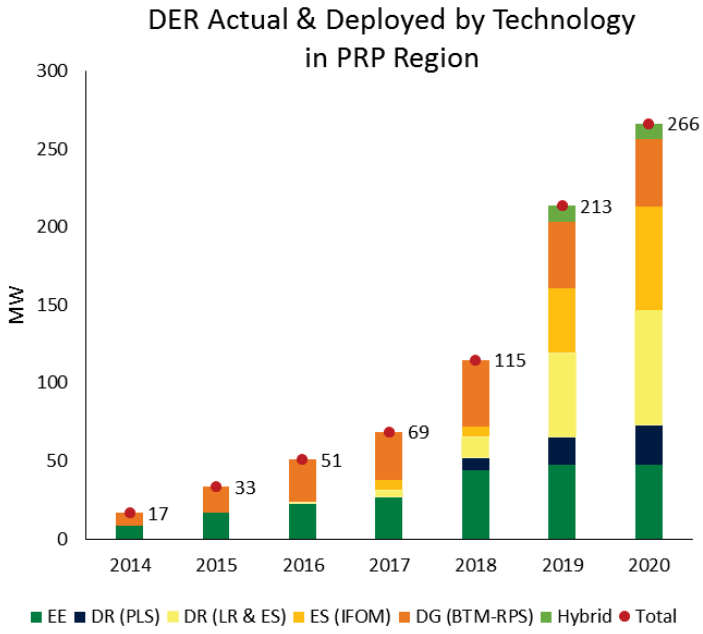
Totals from 2014 through 4/30/2017

PRP DER Acquisition Insights

- Demand Side Management programs were instrumental in early deployment of DERs.
- Competitive solicitations can be inclusive of various DER technologies unless there are certain grid constraints.
- Contract provisions should anticipate future grid needs and allow for:
  - Local use of resources when there is a mismatch between system and local needs;
  - Updates to monitoring and communication system interface as utility systems evolve; and
  - Product design that meets grid parameters.
- More procurement testing is needed to:
  - Control cost of circuit based contracted Distributed Energy Resources (DERs); and
  - Develop best practices to increase customers' enrollment in contracted DERs as well as utility DER programs.

PRP Region DER Deployment Schedule





Early Insights

- Originally, over 100 MW were expected to be on-line in 2017 with the deficit driven by the delay in the LCR contracts.
  - The bulk of the deployed resources stem from SCE's DSM programs/tariffs.

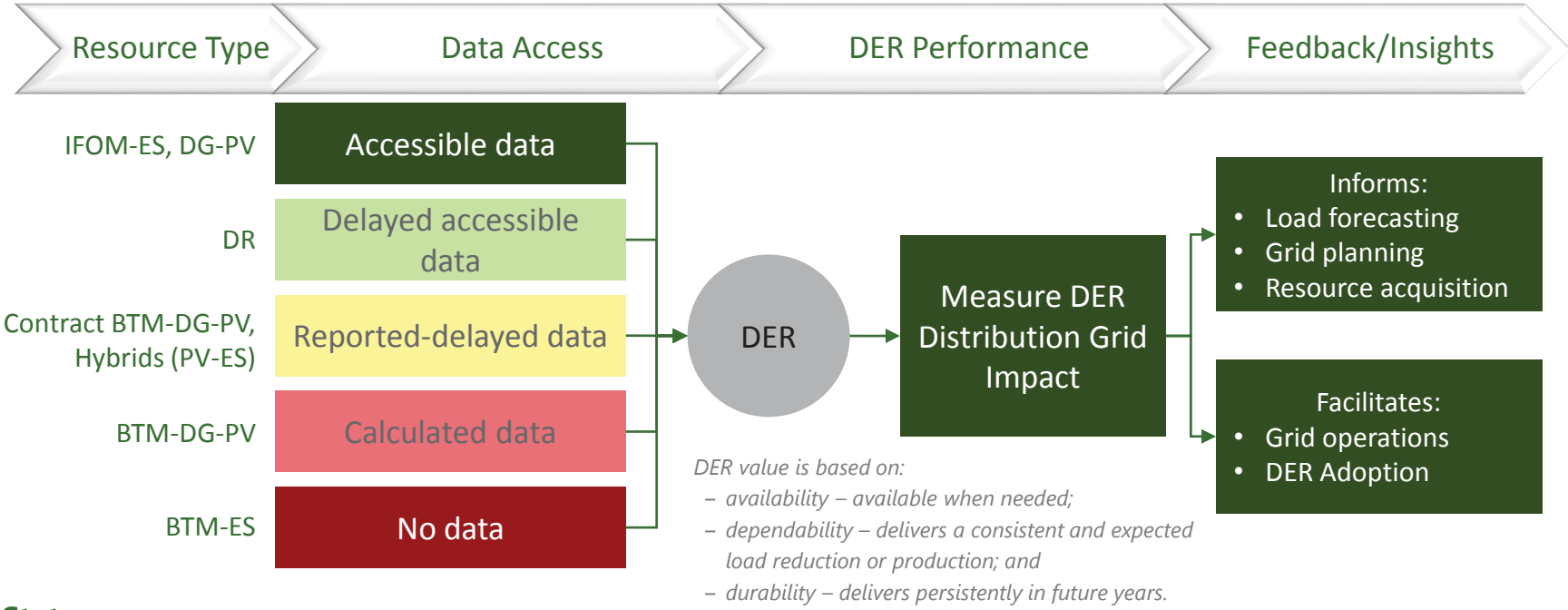
- Majority of procured DERs are targeting the 30,000 Commercial & Industrial (C&I) customers in PRP region.
  - Multiple product offerings are causing customers confusion as they seek their optimal DER participation activities.
  - Developers expressed desire to partner with SCE to create a more integrated DER opportunity platform to enlist customers.

Opportunity

- Proactively identify and implement solutions to improve customer DER adoption.

Totals from 2014 through 4/30/2017

PRP DER Measurement



Status

- DER measurement activities are behind original plan due to DER deployment delays.

Early Insights

- EE program measurement standards are not firmly tied to grid capacity delivery; current contracts are similar to programs.
- Contracted DR has good tie to capacity savings.
- BTM-DG-PV and BTM-ES resources don't have measurement transparency but could be improved with new inverter standards and policy changes.
- IFOM DERs provide the utility with access to real time data.

Opportunity

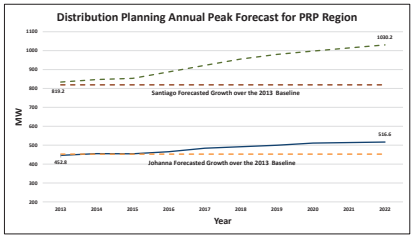
- Work with BTM-ES developers to improve BTM-ES operational dispatch and charging pattern knowledge.
- Seek to influence data access to DER performance using new inverter communication paths.

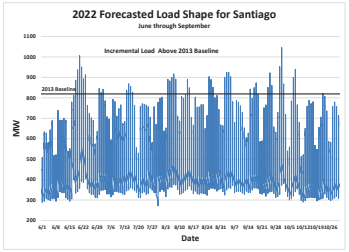
SCE's Next Steps

- Take supportive actions with third parties to improve the deployment rate of contracted preferred resources.
- Inform the emerging modern grid standards with DERs performance data.
- Provide insights about DER locational value.
- Test integrated operations of the PRP DER portfolio.
- Continue sharing lessons learned.
- Issue PRP Milestone 1 report in 2018
  - The timing for the report is based on obtaining DER performance data following deployment.

Back-up

PRP Roadmap to DER Performance Validation

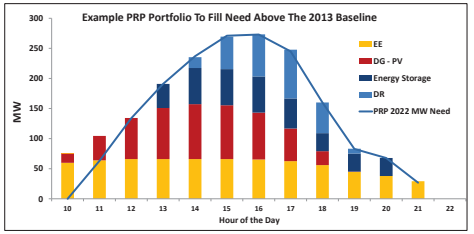




Load Shape Attributes Above The 2013 Baseline

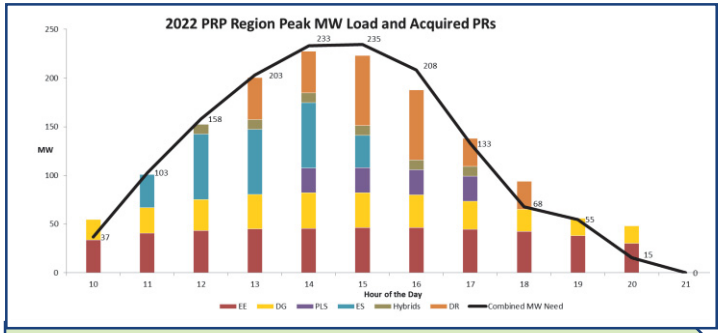
Forecasted MW Required to Meet Any 2022 Need			
Johanna		Santiago	
MW Required	Days	MW Required	Days
> 60 MW	1	> 200 MW	1
		50 MW	2
		00 MW	6
		0 MW	40

2022 Forecasted Capacity Resource Attributes				
	Johanna		Santiago	
Duration	Days	MW	Days	MW
0-2 Hours	5	5	2	8
2-4 Hours	6	17	8	51
4-6 Hour	15	11	13	49
> 6 Hours	13	32	17	103



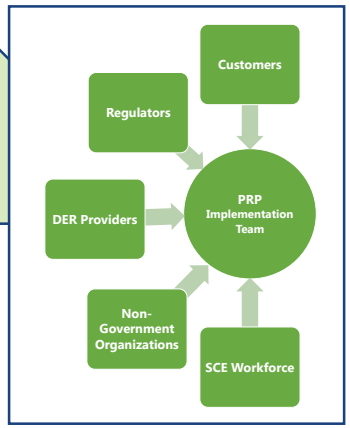
Design

A new approach to resource planning was developed that starts with traditional distribution planning that calculates the annual peak at a substation and then forecasts a location-specific, bottom-up 24-hour, 365-day load shape. Since the PRP seeks to offset the incremental growth above the 2013 baseline, the load shape can be analyzed to define the peak load shape attributes above the baseline. Portfolios options are then developed based on the hourly delivery capabilities of the preferred resources.



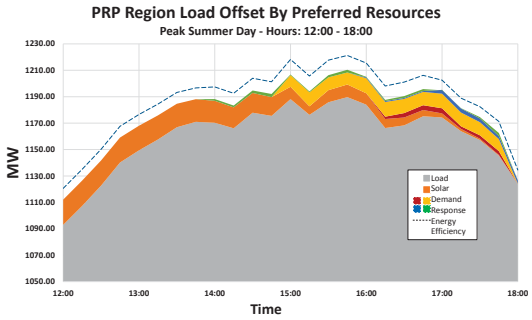
Stakeholder Engagement

Stakeholder engagement, frequent communication and transparency in activities are critical to the PRP's success. Through stakeholder engagement SCE obtains input, accelerates progress and builds trust.

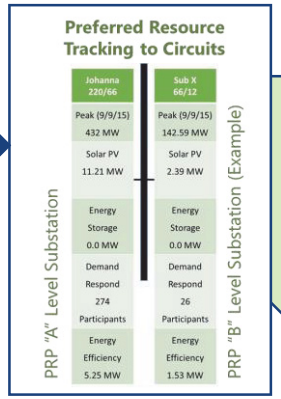


Acquire

Preferred resources are acquired to fill the gap up to the PRP MW need. Using location targeting, preferred resources are acquired through (1) utility programs, (2) existing solicitations, and (3) unique solicitations and transactions.



Operate



Measure

Measured load offset by preferred resources is determined using a new process. This process is validating the assumptions about the performance capabilities of preferred resources.

Deploy

Deployed preferred resources are tracked down to the circuit level. SCE works to identify and develop solutions to overcome the barriers to deployment, such as barriers to interconnection and customer outreach.

Exhibit C

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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

Application of Southern California Edison Company (U 338-E) for Approval of the Results of Its 2013 Local Capacity Requirements Request for Offers for the Moorpark Sub-Area.	A.14-11-016 (Filed November 26, 2014)

PHASE 2 REPLY BRIEF OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E)

(PUBLIC VERSION)

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Dated: **December 15, 2016**

Phase 2 Reply Brief of Southern California Edison Company (U 338-E)
(Public Version)

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Phase 2 Reply Brief of Southern California Edison Company (U 338-E)
(Public Version)

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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Application of Southern California Edison Company (U 338-E) for Approval of the Results of Its 2013 Local Capacity Requirements Request for Offers for the Moorpark Sub-Area.	A.14-11-016 (Filed November 26, 2014)

PHASE 2 REPLY BRIEF OF SOUTHERN CALIFORNIA EDISON COMPANY (U 338-E)

(PUBLIC VERSION)

Pursuant to Rule 13.11 of the Rules of Practice and Procedure of the California Public Utilities Commission ("Commission" or "CPUC") and the schedule set forth in the August 18, 2016 Second Assigned Commissioner's Ruling and Scoping Memo ("Phase 2 Scoping Memo"), Southern California Edison Company ("SCE") respectfully submits this reply brief.

I.

INTRODUCTION

Pursuant to D.16-05-050 and the Phase 2 Scoping Memo, the purpose of Phase 2 of this proceeding is to determine if the Ellwood Refurbishment and linked in-front-of-the-meter ("IFOM") energy storage contracts are reasonable. However, as explained in D.16-050-050, in order to determine if the Ellwood contract is reasonable, it is necessary to determine if there is a need that it will help meet.[1] Throughout this proceeding, and in Phase 2 in particular, SCE has established that in the event of the loss of the Goleta-Santa Clara 230 kV transmission lines

[1] D.16-05-050 at 28.

customers in the Santa Barbara/Goleta area will lose service. Depending on the circumstances of the outage and when it occurs, without Ellwood customers could face rolling blackouts. Because SCE needs to provide safe and reliable electric service to its customers and employees, in response to this concern, SCE developed an integrated mitigation strategy to try and meet the 105 MW shortfall that could cause rolling blackouts in the area. The cornerstone of SCE's mitigation strategy is Ellwood. Ellwood will be available when it is needed in June 2018, it provides 54 megawatts ("MW") of capacity, it provides short circuit duty ("SCD") which allows SCE to quickly clear faults and reduce the risk of electrocution to the public, and it is cost effective. As the electric service provider for the Santa Barbara/Goleta area, SCE needs to be prepared for emergencies in the area that could interfere with safe and reliable electric service. Ellwood is a large component of the solution to providing safe and reliable electric service to customers in the Santa Barbara/Goleta area in the event of an emergency outage of the Goleta-Santa Clara transmission lines. Accordingly, the Commission should approve the Ellwood Refurbishment and linked IFOM energy storage contracts because they are reasonable and needed.

II.

THE COMMISSION SHOULD APPROVE THE ELLWOOD REFURBISHMENT AND LINKED IN-FRONT-OF-THE-METER ENERGY STORAGE CONTRACTS BECAUSE THEY ARE REASONABLE AND NEEDED

A. There is an Identified Need in the Santa Barbara/Goleta Area and Ellwood Fulfills a Substantial Portion of That Need

The Office of Ratepayer Advocates ("ORA"), Sierra Club and Helping Hands Tools ("2HT") generally dispute the identified need in the Santa Barbara/Goleta area.[2] In its Opening Testimony, and again in its Phase 2 testimony in this proceeding, SCE described the unique

[2] ORA Opening Brief at 4-7; Sierra Club Opening Brief at 5-7; 2HT Opening Brief at 3-4.

transmission issues facing the Santa Barbara/Goleta area,[3] issues distinct from the long-term local capacity needs that will be caused by the retirement of the once-through-cooling ("OTC") units in the Moorpark sub-area.[4] It was always intended that the Ellwood Refurbishment contract would help address the unique transmission issues facing the Santa Barbara/Goleta area, while allowing Ellwood to continue to contribute to the local capacity requirements ("LCR") need in the Moorpark sub-area as an existing resource.[5] Consistent with this, the California Independent System Operator's ("CAISO") most recent LCR need assessment for the Moorpark sub-area shows that without Ellwood there will be a 29.6 MW need for LCR resources after the OTC units retire;[6] however, if approved, the CAISO's analysis shows that Ellwood can effectively meet the identified LCR need.[7] Yet, the focus of Phase 2 of this proceeding, as described in the Phase 2 Scoping Memo, is not the LCR needs in the Moorpark sub-area, but whether there is a need in the Santa Barbara/Goleta area without Ellwood and the best way to fill that need.[8]

Pursuant to the Phase 2 Scoping Memo, the purpose of SCE's Phase 2 testimony has been on the unique resiliency need in the Santa Barbara/Goleta area, how Ellwood helps fulfill that need and suggestions on the best way to address the remaining need in the area. SCE's Phase 2 testimony has made it clear that it cannot meet the Santa Barbara/Goleta annual peak load in the event both Goleta-Santa Clara 230 kV transmission lines are down.[9] This means that if both lines are lost, it would result in service disruption and the potential for rolling blackouts for

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3 Exhibit SCE-1, SCE's Opening Testimony, at 6-7.
4 D.13-02-015 at 6.
5 Exhibit SCE-1, SCE's Opening Testimony, at 57.
6 CAISO Opening Brief at 1-2.
7 *Id*. at 2.
8 Phase 2 Scoping Memo at 4. *See al*so D.16-05-050 at 31-32 ("[T]his proceeding is the most efficient procedural venue to establish if there is a separate local reliability need in the Goleta area, given that the identified Moorpark sub-area need identified in D.13-02-015 has been filled. If we determine there is an additional unmet local reliability need in the Goleta area that needs to be filled, we will consider if the Ellwood refurbishment contract is the best resource to do so.").
9 Exhibit SCE-11C, SCE's Phase 2 Opening Testimony, at 2-3, 8-10; Exhibit SCE-12C, SCE's Phase 2 Rebuttal Testimony, at 2.

SCE's customers in the area because repair and replacement of the transmission towers could take weeks if a natural disaster, such as a landslide or earthquake, occurs.[10] In this scenario, without Ellwood there would be a 105 MW shortfall in the Santa Barbara/Goleta area beginning in 2018.[11]

1. SCE Needs to Maintain Safe and Reliable Electric Service for Its Customers

ORA and Sierra Club argue that the need in the Santa Barbara/Goleta area is somehow not legitimate because it is not based on North American Reliability Corporation ("NERC") or CAISO standards.[12] However, as SCE has stated, the unique issues in the Santa Barbara/Goleta area should not be dismissed because they are not based on a NERC standard or studied as part of the CAISO Transmission Planning Process. As stated by the CAISO, "[t]he CAISO has not independently studied these scenarios because the reliability concerns are not related to the bulk electric system."[13] 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,[14] and though this issue is not within CAISO's purview, SCE should not ignore the issue and nor should the Commission.

Sierra Club and 2HT argue that because SCE has not presented evidence of a "long-term outage scenario" in the Santa Barbara/Goleta area in the last ten years[15] and load is

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10 Exhibit SCE-11C, SCE's Phase 2 Opening Testimony, at 2.

11 *Id*. at 3.

12 ORA Opening Brief at 4-5; Sierra Club Opening Brief at 1.

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

14 The loss of the Goleta-Santa Clara 230 kV transmission lines is also referred to as an N-2 contingency. The N-2 of the Goleta-Santa Clara 230 kV lines is compliant with the North American Electric Reliability Corporation ("NERC") Reliability Standard TPL-001-4, which allows customer load to be dropped without a stated timeframe for restoration. Exhibit SCE-11C, SCE's Phase 2 Opening Testimony, at 2; *see also* SCE, Chinn, Transcript, Vol. 5 at 815:15-22 (November 1, 2016) ("[T]he issue we're trying to address is not specific to a NERC or [CA]ISO standard[] in that NERC and [CA]ISO standards don't provide a restoration time…those standards allow for the loss of the transmission system, and basically the systems allow the blackout that is permitted under…both NERC and [CA]ISO standards.").

15 Sierra Club Opening Brief at 5-6; 2HT Opening Brief at 4. *See also* SCE, Chinn, Transcript, Vol. 5 at 809:1-4 (November 1, 2016).

greater than 180 MW only 25 percent of the year[16] that SCE should not be concerned with preparing for a long-term outage or a scenario in which such an outage occurs during the times of the year when load exceeds 180 MW. This is analogous to deciding not to seismically retrofit buildings in the state because there has not been a major earthquake in California for the last ten years. As the electric service provider for a large portion of Southern California, SCE needs to maintain safe and reliable electric service for its customers and cannot take a gamble that an emergency will not occur or wait until an emergency does occur to then plan for it. SCE needs to reasonably do what it can to adequately prepare for emergency situations.

Moreover, the parties' arguments do not negate the risks SCE has identified that could potentially cause a future outage lasting up to several weeks nor do they allow SCE to ignore a long term outage scenario. SCE has stated that the two 230 kV lines are on the same set of transmission towers, which increases the potential for a common-mode failure of both lines. Since the towers are located on rugged mountainous terrain, there is a heightened risk to the transmission lines and towers due to landslides caused by heavy rainfall and fires.[17] Thus, the history of past outages under four hours within the past ten years does not preclude a longer duration outage from occurring in the future. With Ellwood in place, SCE's plan enables electrical service restoration for the Santa Barbara/Goleta area for N-2 outage durations from those spanning multiple hours up to the worst case long term outage scenario.

Sierra Club's claim that Ellwood provides little value in addressing shorter duration outages is also incorrect. In the event of an outage of the Goleta-Santa Clara 230 kV transmission lines, approximately 85,000 customers in the Santa Barbara/Goleta area would lose power and the entire system would immediately blackout.[18] If the Goleta-Santa Clara 230 kV transmission lines are not able to be reenergized, SCE's system operators would begin utilizing

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[16] Sierra Club Opening Brief at 5; 2HT Opening Brief at 4.
[17] SCE Opening Brief at 10.
[18] Exhibit SCE-11C, SCE's Phase 2 Opening Testimony, at 9; SCE, Chinn, Transcript, Vol. 5 at 797:15 (November 1, 2016).

the 66 kV lines to pick up load in the area within an hour.[19] During the energization of the 66 kV lines, SCE would restart Ellwood in order to provide adequate SCD and supply MW to meet demand.[20] Ellwood also provides the ability to operate for multiple days and/or extended continuous hours, which is important for the risk associated with the loss of transmission lines.

The arguments that load is greater than 180 MW only 25 percent of the year,[21] thereby eliminating the need for Ellwood, are incorrect as Ellwood is essential to: (1) provide 54 MW, and (2) supply a significant amount of SCD to decrease the time required to detect and isolate faults from the electric system.[22] Even though the MW from Ellwood may not be required during 75 percent of annual hours where demand is under the 180 MW, Ellwood is required to provide adequate SCD in order to safely utilize the 66 kV tie lines from Santa Clara to supply 180 MW to the Santa Barbara/Goleta area.[23] Therefore, Ellwood is required even if the load is below 180 MW at any time of year to enable and provide safe electrical service to the Santa Barbara/Goleta area.[24]

a) Ellwood is Critical in Helping to Meet the Shortfall in the Santa Barbara/Goleta Area in the Event of the Loss of the Transmission Lines

Sierra Club, ORA and World Business Academy ("WBA") recommend rejecting the Ellwood Refurbishment contract in favor of preferred resources that would be secured through a later request for offers ("RFO"),[25] presumably the Distributed Energy Resources ("DER") RFO for resources in the Santa Barbara/Goleta area that SCE will be issuing

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19 Exhibit SCE-11C, SCE's Phase 2 Opening Testimony, at 9.
20 SCE, Chinn, Transcript, Vol. 5 at 794:16-21 (November 1, 2016).
21 Sierra Club Opening Brief at 5; 2HT Opening Brief at 4.
22 Exhibit SCE-11C, SCE's Phase 2 Opening Testimony, at 12.
23 Exhibit SCE-12C, SCE's Phase 2 Rebuttal Testimony, at 4, 7.
24 SCE, Chinn, Transcript, Vol. 5 at 797:4-12 (November 1, 2016).
25 Sierra Club Opening Brief at 8-11; ORA Opening Brief at 10, 14; WBA Opening Brief at 6, 12, 16-17.

in Q1 2017.[26] Sierra Club goes so far as to assert that because there is no deadline to meet the 105 MW resiliency target, resiliency should be improved through continued procurement of preferred resources in the Santa Barbara/Goleta area.[27] SCE is not disputing the potential value of preferred resources, and in fact is committed to soliciting DERs as part of its strategy for addressing resiliency in the Santa Barbara/Goleta area. However, as previously explained in testimony and briefing, in order to prepare for the emergency scenario in which the Goleta-Santa Clara transmission lines are lost, SCE developed an integrated mitigation strategy to provide for resiliency in the Santa Barbara/Goleta area of which Ellwood is the cornerstone for a multitude of compelling reasons.

The parties' recommendations to reject Ellwood and rely solely on preferred resources do not take into consideration the fact that there is a current need for existing resources in the Santa Barbara/Goleta area, and that need will be even greater when the current Ellwood contract expires in May 2018.[28] The DERs that SCE hopes to solicit through its upcoming RFO most likely will not be available in 2018 and do not provide as much certainty as Ellwood. For example, there is uncertainty on what DER offers SCE will receive through its DER solicitation for the Santa Barbara/Goleta area, the cost of those offers, their electrical characteristics, when the projects can be online, etc.[29] Ellwood is essential to addressing the unique issues in the Santa Barbara/Goleta area because it is an existing resource that, upon approval of the Ellwood Refurbishment contract, will be immediately, economically, and reliably available to meet the needs in the Santa Barbara/Goleta area in 2018 ensuring that over half of the 105 MW shortfall in the area will be met.

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

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[26] Exhibit Sierra Club-2, SCE Responses to Data Requests, at 23.
[27] Sierra Club Opening Brief at 8.
[28] *See* Exhibit SCE-11C, SCE's Phase 2 Opening Testimony, at 3.
[29] Exhibit SCE-12C, SCE's Phase 2 Rebuttal Testimony, at 6-7.

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. Thus, Ellwood provides the certainty, at a reasonable cost, that is needed in the area while SCE pursues DERs.[30]

b) Short Circuit Duty is Crucial to Maintaining Safe Operation of the Electric System

Sierra Club and ORA argue that because there is no "requirement or standard" for SCD that SCD levels are "more of an informal goal," and thus, cannot be used as support for approval of the Ellwood Refurbishment contract.[31] SCE has acknowledged that there is no CPUC or non-CPUC requirement or standard for SCD,[32] however, 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. Moreover, as SCE has explained in testimony, data request responses and at the evidentiary hearing, and contrary to ORA's claim that "SCE fails to define and provide evidence on the appropriate level of SCD,"[33] SCD is not an "informal goal" for SCE; SCE has minimum design guidelines for SCD. For example, SCE witness and transmission expert Garry Chinn provided the following minimum design guidelines for SCD:

> 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

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30 *Id*. at 7.

31 Sierra Club Opening Brief at 7; ORA Opening Brief at 5.

32 Exhibit SCE-12C, SCE's Phase 2 Rebuttal Testimony, at 4. *See also* SCE, Chinn, Transcript, Vol. 5 at 815:15-22 (November 1, 2016) ("So the issue we're trying to address is not specific to…NERC or [CA]ISO standards in that NERC and [CA]ISO standards don't provide a restoration time. So those standards allow for the loss of the transmission system, and basically the systems allow the blackout that is permitted under the -- both NERC and [CA]ISO standards.").

33 ORA Opening Brief at 5.

> guidelines, in practice SCE prefers ratios on the order of 4.0 to 5.0 for single line to ground fault conditions.[34]

Additionally, SCE has analyzed SCD in the Santa Barbara/Goleta as explained by Mr. Chinn.

> A. If Ellwood was not present, and all we had were 66 kV tie lines, the clearing time would be many, many seconds. It could be well beyond probably 5 seconds, and that would vary depending on how close you were to the 66 kV lines. So you could have a range of different clearing lines throughout the Goleta system.
>
> Q. And what analysis have you done to support the range of times that you're asserting today?
>
> A. We run something called a short circuit duty analysis to determine the amount of duty at each location. And…our protection department looks at that clearing time. And there [are] devices that detect this duty and they would provide settings to declare faults at basically all locations in the system. So there is a combination of a short circuit duty analysis, plus a relay analysis to determine those clearing times.[35]

As discussed, in the event of the loss of the Goleta-Santa Clara transmission lines, without Ellwood the level of SCD would be reduced resulting in longer clearing times for faults, and "[h]aving a system which is unable to clear faults,…[is] an immediate issue to the public safety and having a very slow or non-clearing of faults, would jeopardize the public."[36] Mr. Chinn elaborated on the risks of low SCD:

> As soon as a line is in contact with the ground, there's going to be an immediate threat to public safety. It is something that as an electrical engineer we take pretty seriously. We want to clear faults quickly and not have live wires on the ground. So there is a significant increased risk of electrocution the longer time it takes to clear that line.

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[34] Exhibit ORA-7, Data Request Responses from SCE, at 28.
[35] SCE, Chinn, Transcript, Vol. 5 at 799:1-21 (November 1, 2016).
[36] SCE, Chinn, Transcript, Vol. 5 at 798:14-18 (November 1, 2016).

> So it is a concern to have a duty that is sufficiently high to quickly clear faults.[37]

Thus, under the circumstances at issue, 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 an N-2 contingency.[38]

(1) The Role of Asynchronous Generation in Providing Short Circuit Duty in the Santa Barbara/Goleta Area

WBA asserts that "a more reasonable strategy would be for SCE to invest in utility-scale energy storage facilities that can…serve as a source of synchronous generation (when properly configured)."[39] Similarly, Sierra Club claims, without citing to the record or any other evidence, that "[p]referred resources can also be configured to provide additional SCD should it be needed."[40] SCE welcomes participation of utility-scale energy storage projects and preferred resources in its DER solicitation for the Santa Barbara/Goleta area but would like to clarify the role energy storage and preferred resources can play in the SCD 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.[41] Battery storage is therefore an asynchronous resource and though it can provide MW it generally is not as effective in providing SCD as compared to a synchronous machine such as Ellwood.[42] Once the N-2 contingency occurs, the primary source

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37 *Id.* at 889.
38 Exhibit ORA-7, Data Request Responses from SCE, at 28.
39 WBA Opening Brief at 6.
40 Sierra Club Opening Brief at 8.
41 Exhibit SCE-12C, SCE's Phase 2 Rebuttal Testimony, at 7.
42 *Id.*

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.[43] Thus, during an N-2 event, batteries will be available to provide energy and limited SCD only to the extent that they are charged and have a way to periodically recharge throughout the duration of the event.

Preferred resources, mainly consisting of asynchronous inverter-based generation, have not demonstrated an ability to provide SCD as effectively as synchronous generation. Recent data provided by generation owners that desire to interconnect to SCE's system shows that synchronous generation provides on average three times or more SCD as compared to asynchronous generation on a per unit basis.[44] Though it is potentially possible for inverter-based generation to provide more SCD, it would likely require additional or larger sized equipment and increase its cost.[45] Additionally, when asked by Sierra Club if SCE could state a preference for high SCD resources in its RFOs to address some of the needs in the Goleta area, SCE witness Ranbir Sekhon explained that SCE will probably do this, but then there would be a need for a viability screen, and the showing of demonstrated implementations of such technologies because it is incumbent on the bidders to demonstrate their resources can provide adequate SCD, which SCE would then use in its evaluation of the resource.[46]

c) The Operation of Ellwood in the Event of the Loss of the Goleta-Santa Clara Transmission Lines

2HT argues that "relying on a facility to meet the identified need that will exceed its annual limitation on hours of operation at the air district raises Clean Air Act and CEQA compliance issues which must be resolved by the Commission."[47] First, it is not certain

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[43] *Id.* at 8.
[44] Exhibit Sierra Club-2, Data Request Responses from SCE, at 17-18.
[45] SCE, Chinn, Transcript, Vol. 6 at 1005:7-18 (November 2, 2016).
[46] SCE, Chinn, Transcript, Vol. 5 at 987:11-28 (November 1, 2016).
[47] 2HT Opening Brief at 6.

that Ellwood will need to be run beyond its run-hour limitations; since a several-week outage is a worst-case scenario. However, even in the event that Ellwood is anticipated to exceed its run-hour limitation, public health and safety will be taken into consideration when an emergency variance is requested to enable electrical service to the Santa Barbara/Goleta area. The Santa Barbara County Air Pollution Control District ("SBCAPCD") is the agency that will decide whether to grant an emergency variance to allow Ellwood to operate per the emergency variance procedures established by the SBCAPCD.[48] The procedures involve submitting a Petition for Variance to the SBCAPCD, which reviews the petition and schedules a hearing within a day or two of submittal to rule on the petition, and if good cause is shown, a variance for up to 30 days may be granted.[49] Thus, per the SBCAPCD procedures, and contrary to 2HT's argument, the SBCAPCD is the agency that needs to weigh in on the potential health and safety risks of granting an emergency variance since they are the body that is responsible for granting such a variance. Ultimately, Ellwood will operate in conformance with applicable rules and requirements.

B. The Ellwood Refurbishment and IFOM Energy Storage Contracts are Cost Effective and Reasonable

Sierra Club and 2HT both compare the Ellwood Refurbishment contract to the current Ellwood resource adequacy ("RA") contract, implying that the refurbishment contract is unreasonable simply because the price is higher.[50] Aside from the fact that the comparison being made is between two different products, a toll versus an RA Tag, the idea that a new contract which extends the life and increases the reliability of an aging asset should be capped near a price that reflects minimal ongoing maintenance of the same resource is without merit. Simply put, the Ellwood refurbishment requires a substantial financial commitment and subjects

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[48] Joint Exhibit SCE/NRG-1 at 2.
[49] *Id.*
[50] Sierra Club Opening Brief at 12; 2HT Opening Brief at 7.

the asset owner to large operational and reliability risks, while short-term RA contracts do not necessitate the same level of commitment to the maintenance of the facility as the operational and reliability risks are much smaller.

Sierra Club also calls SCE's logic into question stating that "the Ellwood contract does not reflect the costs of refurbishment" and that "[t]hese costs are unknown."[51] 2HT also claims that the Ellwood contract is unreasonable because "SCE is asking ratepayers to pay to extend the Ellwood Projects useful life by 30 years…even though the contract for the Ellwood Facility is for only 10 years."[52] SCE's valuation of the Ellwood facility is based on the price offered by NRG, with costs and benefits accruing over the ten-year term. The valuation results are therefore explicitly those for the offered product, including all costs and benefits that are forecasted to accrue under the contract. The cost of the refurbishment would not change SCE's evaluation of the offer, and the term of the asset's useful life is merely a qualitative consideration that suggests that the resource can be operated beyond the term of the LCR contract. Ellwood's economic evaluation is based on the product and price offered to SCE, over the term of the contract, without regard for the costs and risks incurred by the project owner, as is the case for all offer valuations.

1. Contracting for Ellwood Capacity on a Short-Term Basis is Not a Reasonable Solution

WBA asserts that "continued operation of the Ellwood Plant should be procured on an annual basis or other short-term basis through the Commission's annual Resource Adequacy procurement process."[53] Since there is no way to force NRG to keep Ellwood operational so they can potentially receive contract awards in future RA RFOs, SCE views this option as the equivalent of ignoring the Santa Barbara/Goleta resiliency need and betting on an

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51 Sierra Club Opening Brief at 12.
52 2HT Opening Brief at 7.
53 WBA Opening Brief at 18. ORA also makes a similar argument. *See* ORA Opening Brief at 11-12.

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 in addition to increasing its reliability. SCE's quantitative analysis concluded that the combined Ellwood refurbishment and energy storage offer was 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.[54] 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.

2. The Costs to Operate Ellwood During an Emergency Event

2HT states that the Ellwood contract is problematic because "SCE has not negotiated a price with NRG for the Ellwood facility should it be called upon to exceed the hours specified in the contract."[55] While worst-case scenarios have been contemplated that may require SCE to ask for this exception, it is not certain that Ellwood will need to be run beyond its run-hour limitations. However, in the event that this scenario does arise, SCE would enter into good-faith negotiations with NRG to ensure that any costs associated with these run-hour exceptions are fair. NRG, a long time counterparty to SCE, would unlikely abuse its "very strong bargaining position"[56] for such a small quantity of energy, with correspondingly minor dollar amounts, and jeopardize its reputation in the market and standing in the community. Additionally, it is unreasonable to expect a buyer – such as SCE – to negotiate prices and terms in advance of a potential exceedance of contract constraints because the extent and magnitude of such variances cannot be known or planned for.

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[54] Exhibit CO-05C, SCE's Workpapers, at 164-166.
[55] 2HT Opening Brief at 6.
[56] *Id*. at 7.

C. The Commission Ordered the Linked IFOM Energy Storage Contract Be Considered in This Proceeding

Sierra Club argues that "[i]n deferring consideration of the Ellwood refurbishment contract, D.16-05-050 left open the question of the legitimacy of the 0.5 MW of energy storage…that was paired with Ellwood in a mutually exclusive bid" and because the "storage offer was combined with an offer from the existing Ellwood facility, it runs afoul of Commission procurement rules and must be rejected."[57] In support of its argument, Sierra Club cites to D.14-02-040, issued on February 27, 2014 in Track 3 of the LTPP, which found that only "incremental capacity of existing plants or repowered plants [can] participate in long-term RFOs."[58] Yet, the Track 1 decision already ordered that resources selected through the LCR RFO needed to be incremental,[59] which is why SCE asked the Commission for authority to enter into the Ellwood Refurbishment contract in its Application.[60] Citing to a decision that came out months after the LCR RFO was launched on September 12, 2013 and approximately a year after the Track 1 decision, which established requirements for the LCR RFO, was issued is not relevant. Especially considering that the Commission in D.16-05-050 discussed the finding in D.14-02-040 and then subsequent to that discussion found that it was "appropriate to consider the Ellwood contract in this proceeding,"[61] and ultimately ordered that Ellwood and the linked IFOM energy storage contract "will be considered in a subsequent decision in this docket."[62] Thus, the Commission granted the request for authority to enter into the Ellwood Refurbishment contract, and by default the IFOM energy storage contract since it is an incremental resource and the two contracts are linked and one cannot be considered without the other.[63]

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57 Sierra Club Opening Brief at 13.
58 D.14-02-040 at 28.
59 D.13-02-015 at 131-132 (Ordering Paragraph ("OP") 4.b).
60 Exhibit SCE-1C, SCE's Opening Testimony, at 3, 57.
61 D.16-05-050 at 30.
62 *Id*. at 39 (OP 1).
63 *See* SCE Phase 2 Opening Brief at 7-8 for a more thorough discussion regarding why the Commission found it appropriate to consider the Ellwood Refurbishment and linked IFOM energy storage contracts in this proceeding.

III.

SCE'S PLANNED DISTRIBUTED ENERGY RESOURCES RFO WILL IDENTIFY THE ABILITY OF DISTRIUTED ENERGY RESOURCES TO COST EFFECTIVELY ADDRESS THE RESILIENCY NEED IN THE SANTA BARBARA/GOLETA AREA

Consistent with SCE's integrated mitigation strategy, SCE plans to launch one or more solicitations, the first one to be launched in Q1 2017, to potentially acquire a portfolio of cost effective DERs that will help address the resiliency need in the Santa Barbara/Goleta area.[64] Based on the parties' Phase 2 testimony and briefing,[65] if the Commission determines that need has been established in the Santa Barbara/Goleta area, it appears that there is general agreement that an RFO should be issued to identify the ability of DERs to cost effectively address the shortfall in the Santa Barbara/Goleta area.

A. Ellwood Will Not Prevent the Development of New DERs

Sierra Club argues that "[e]ven if the Commission finds Ellwood is potentially needed…its approval prior to the results of SCE's Goleta RFPO creates significant risk Ellwood would displace procurement of viable and more cost-effective clean energy alternatives."[66] Similarly, WBA asserts that "SCE unnecessarily limits its discussion of solutions to 'GFG resources,' when it should be taking a proactive approach in developing clean, non-GHG – emitting DERs that will provide continuous benefits."[67] These arguments are misplaced. SCE has communicated, in this proceeding and to the public, that it will issue a DER RFO for the Santa Barbara/Goleta area in Q1 2017.[68] Accordingly, there should be no question that SCE has

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64 Exhibit SCE-11C, SCE's Phase 2 Opening Testimony, at 14. If DERs are procured through a RFO, SCE will seek Commission approval of those RFO results. Pending the Commission's findings in the decision on the Phase 2 issues, SCE may submit any RFO results for approval through this proceeding.

65 ORA Phase 2 Testimony at 5; WBA Phase 2 Testimony at 12; Sierra Club Opening Brief at 8; ORA Opening Brief at 10-11; WBA Opening Brief at 15-18.

66 Sierra Club Opening Brief at 2.

67 WBA Opening Brief at 5.

68 Exhibit Sierra Club-2, SCE Responses to Data Requests, at 23.

committed to soliciting DERs for the Santa Barbara/Goleta area. However, the solicitation of DERs is only one aspect of SCE's integrated mitigation strategy for the Santa Barbara/Goleta area for a reason; Ellwood is the cornerstone of the strategy because of its MW capacity, its contribution to SCD and its immediate availability when needed in 2018. As explained above, the resources solicited through the DER RFO may not provide enough MW capacity or SCD, and they will certainly not be available in June 2018 because after final offer selection, probably not before Fall 2017, SCE needs to submit its application and complete the regulatory approval process for the resources which can only begin to be built after SCE receives final and unappealable Commission approval. Moreover, as discussed, Ellwood will also allow SCE time to evaluate how effective any DERs procured in the area are at addressing the area's needs. As SCE witness Ranbir Sekhon stated:

> [W]e are still assessing the viability of DERs to provide the types of grid services that are needed by SCE. … I think we've got to a point where we're comfortable that from a megawatt perspective they can provide the megawatts…. But other characteristics that we're looking for in terms of distribution and deferral mitigation or even transmission issues or subtransmission issues, we haven't fully tested the viability of DERs to provide those types of services, which is one of the reasons that we launched the PRP RFO. So it's very much still a demonstration in a pilot program.[69]

Thus, Ellwood is not intended to nor will it displace preferred resources or DERs, Ellwood will aid with the deployment and development of DERs solicited and procured through the DER RFO by providing for a safe and reliable system to operate these resources.

1. A New RFO Does Not Necessarily Guarantee Cost-Competitive Offers

Sierra Club suggests that "preferred resources may offer superior value to Ellwood."[70] In support of this assertion, Sierra Club compares the net present value ("NPV") of Ellwood to the NPV of contracts selected through the Preferred Resources Pilot ("PRP") 2 RFO

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[69] SCE, Sekhon, Transcript, Vol. 5 at 952:13-15, 17-19, 23-28 – 953 1-4 (November 1, 2016).
[70] Sierra Club Opening Brief at 9-10.

and claims that "18 of the 19 preferred resource bids…have a superior NPV than the proposed Ellwood contract."[71] This argument is flawed for several reasons. First, the NPV from one solicitation is not directly comparable to another since the market forecasts used to calculate the offer benefits are almost always different. SCE uses its most recent market forecasts for energy, natural gas, GHG, and resource adequacy values in each solicitation. This means that even if two identical offers were compared across RFOs, the NPVs could be different since the benefit streams would be calculated using different market price forecasts. SCE concedes, however, that this difference in market forecasts between the PRP 2 and LCR RFOs is likely to cause only minor differences in the NPVs, and a comparison of the NPVs can provide value. In order to perform this comparison, the NPVs need to be normalized in such a way that an apples to apples assessment can be made. In the LCR RFO, SCE was able to compare offers with different technology types and sizes by dividing each offer's market premium (*i.e.,* negative NPV) by its forecasted incremental August 2021 RA quantity (referred to as the LCR capacity), resulting in a metric that SCE referred to as the "Discounted Premium / LCR RA kW ($/kW)."[72] In the table cited by Sierra Club,[73] [redacted]. Ignoring this fact and assuming that the DG-ES hybrid products produce the [redacted] whereas the Ellwood facility's metric, assuming that the 54 MW is incremental, would be less than [redacted]. This means that the most cost effective PRP 2 offer is [redacted] as the Ellwood refurbishment offer when compared apples to apples. ORA also suggests that a new RFO may result in cheaper preferred resources given that SCE's 2014 and 2015 Renewable Portfolio Standard ("RPS") RFOs' most cost-effective bid prices were [redacted]

[71] *Id.* at 10.
[72] *See* Exhibit SCE-1C, SCE's Opening Testimony, at 41-42.
[73] Sierra Club Opening Brief at 10.

[redacted] respectively.[74] 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.[75] 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.

Finally, Ellwood provides a significant contribution to the SCD needs identified in the Santa Barbara/Goleta area, a characteristic that was not sought in the PRP 2 and RPS solicitations. The provision of SCD through invertor-based technologies as discussed above will necessarily increase costs.

2. Renewable Resource Penetration in the Santa Barbara/Goleta Area

WBA states that it "is confident that a sufficient amount of renewable energy can be installed on existing government and commercial rooftops and parking lots, and that utility-scale storage facilities can be sited either on-site (i.e., adjacent to new DER installations) or at existing substations within the Santa Barbara ENA in a manner that will insure reliability both on a short and long-term basis."[76] However, SCE's witness Ranbir Sekhon disagrees with WBA and WBA's witness Robert Perry's testimony that it is feasible for 280 MW of solar and storage resources to be sited within the load pocket.[77]

> Mr. Perry talked about…the PRP RFO…[a]nd…about…us[ing] a study very similar to the Clean Coalition study that [SCE] used for the Orange County area. In that study, [SCE] identified up to 90 megawatts of solar -- feasible technical potential in solar on

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74 ORA Opening Brief at 10 (citing Exhibit ORA-5C at 5).
75 Exhibit SCE-12C, SCE's Phase 2 Rebuttal Testimony, at 10.
76 WBA Opening Brief at 11.
77 SCE, Sekhon, Transcript, Vol. 5 at 941:9-12, 942:11-12 (November 1, 2016); WBA, Perry, Transcript, Vol. 5 at 924:4-22 (November 1, 2016).

> household roofs. [SCE] identified an additional 50 to 60 megawatts on car parks and multi-story car parks and just regular car parks through that technical study. When [SCE] actually ran the first PRP RFO, DG RFO soliciting bids, we received all of 5 megawatts in terms bids. Because of the feasibility of those, [the] potential wasn't there. There's a lot more analysis that needs to go into…attain[ing] the real feasibility of solar on rooftops.[78]

Mr. Sekhon also went on to explain that technical potential, similar to the type of solar and storage potential WBA identified in the Santa Barbara/Goleta area, and what is actually feasible, especially through an RFO, are very different.[79] Thus, the technical potential for solar and storage identified by WBA in the Santa Barbara/Goleta area is likely overstated.

IV.

CONCLUSION

For all of the foregoing reasons, the Commission should approve the Ellwood Refurbishment contract and linked IFOM energy storage contract, and should authorize CAM treatment for both contracts.

Respectfully submitted,

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[78] SCE, Sekhon, Transcript, Vol. 5 at 942:17-28 – 943:1-6 (November 1, 2016).
[79] *Id*. at 944:16-23.

Exhibit D

BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

STATE OF CALIFORNIA

Application of Southern California Edison Company (U 338-E) for Approval of the Results of Its 2013 Local Capacity Requirements Request for Offers for the Moorpark Sub-Area.	A.14-11-016 (Filed November 26, 2014)

SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) MOTION TO STRIKE THE CITY OF OXNARD'S REPLY COMMENTS

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SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E)
MOTION TO STRIKE THE CITY OF OXNARD'S REPLY COMMENTS

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BEFORE THE PUBLIC UTILITIES COMMISSION OF THE

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SOUTHERN CALIFORNIA EDISON COMPANY'S (U 338-E) MOTION TO STRIKE THE CITY OF OXNARD'S REPLY COMMENTS

I.

INTRODUCTION

Pursuant to Rule 11.1 of the Rules of Practice and Procedure of the California Public Utilities Commission ("Commission" or "CPUC"), Southern California Edison Company ("SCE") respectfully moves to strike the City of Oxnard's Reply Comments to SCE's Opening Comments on the Phase 2 Decision ("Oxnard's Reply Comments") and the Supplemental Testimony of James H. Caldwell submitted in the California Energy Commission's ("CEC") certification proceeding for the Puente Power Project ("CEC Supplemental Testimony"), attached to and incorporated in Oxnard's Reply Comments, on the grounds that these materials are outside of the scope of this proceeding and do not comply with Rule 14.3(d) of the CPUC Rules of Practice and Procedure. Specifically, the Second Assigned Commissioner's Ruling and Scoping Memo ("Phase 2 Scoping Memo"), dated August 18, 2016, clearly defined the scope of Phase 2 of this proceeding; and meeting local capacity requirement ("LCR") needs in the Moorpark sub-area in the event the CEC does not approve the certification for the Puente Power Project is not among the scoped issues. Accordingly, Oxnard's Reply Comments and its CEC Supplemental Testimony are beyond the Commission-adopted scope for Phase 2. Moreover, Oxnard's Reply Comments, including Exhibit A (its CEC Supplemental Testimony),

do not comply with Rule 14.3(d), which applies to reply comments on proposed decisions, because the Reply Comments do not identify, nor are they limited to, "misrepresentations of law, fact or condition of the record contained in the comments of other parties." Either or both of these reasons provide sufficient grounds to strike the Reply Comments, including the CEC Supplemental Testimony.

II.

THE COMMISSION SHOULD STRIKE OXNARD'S REPLY COMMENTS AND ITS CEC SUPPLEMENTAL TESTIMONY BECAUSE THEY DO NOT COMPLY WITH CPUC RULE 14.3(D) AND ARE OUTSIDE OF THE SCOPE OF THIS PROCEEDING

A. Oxnard's Materials Do Not Comply With Rule 14.3(d)

CPUC Rule of Practice and Procedure 14.3(d) states that replies to comments "shall be limited to identifying misrepresentations of law, fact or condition of the record contained in the comments of other parties." This rule ensures that the Commission's final decision is based on the record evidence, and that no new evidence is sought to be introduced after the record closes.[1] Oxnard's Reply Comments, including its CEC Supplemental Testimony, flies in the face of this rule, as it does not identify or discuss any misrepresentations of law, fact or condition of the record in SCE's opening comments on ALJ DeAngelis' Proposed Decision (although other parties filed opening comments on the Proposed Decision, Oxnard intentionally limited its reply comments to SCE's opening comments). Further, Oxnard's Reply Comments and CEC Supplemental Testimony are not limited to "misrepresentations of law, fact or condition of the record;" Oxnard's filing goes beyond this limitation by attempting to add irrelevant and out of scope information to the record of Phase 2 of this proceeding. Oxnard's materials do not comply with CPUC Rule 14.3(d) and should be stricken from the record on that basis.

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[1] *See* CPUC Rule of Practice and Procedure 13.14(a); the evidentiary record in this proceeding closed upon submission of reply briefs.

B. Oxnard's Materials are Outside the Scope of Phase 2 of This Proceeding

Oxnard's filing does not address issues in the Phase 2 Scoping Memo. The Phase 2 Scoping Memo set forth two issues to be addressed in Phase 2 of this proceeding: the first issue is whether the Ellwood Refurbishment contract is reasonable, and the second issue is whether the linked 0.5 MW in-front-of-the-meter energy storage contract is reasonable.[2] In Decision ("D.") 16-05-050, the decision that established Phase 2 of this proceeding, the Commission also found that this proceeding is the most efficient way to establish whether there is a separate need in the Santa Barbara/Goleta area, "given that the identified Moorpark sub-area need identified in D.13-02-105 has been filled."[3] The Commission then went on to explain that if it determined there is an additional need in the Santa Barbara/Goleta area that needs to be filled, it would consider whether Ellwood is the best resource to fill the need.[4] Thus, Phase 2 of this proceeding was intended to "solely address the 54 MW Ellwood Refurbishment contract (447021) and the related energy storage contract (447030)"[5] and whether they are appropriate resources to meet the unique electric system needs in the Santa Barbara/Goleta area.

Oxnard's Reply Comments and its CEC Supplemental Testimony are focused on how to meet LCR needs in the Moorpark sub-area "in the event the [CEC] does not approve the certification for the Puente Power Project."[6] The two sections in the comments primarily argue that it is possible to meet LCR needs in the Moorpark sub-area without the Puente project, and that SCE should procure Preferred Resources to meet said LCR need (despite the fact that the LCR procurement authorization in the Moorpark sub-area has already been satisfied). The CEC Supplemental Testimony is limited to presenting Oxnard's "Preferred Resource Alternative" to the Puente project.

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2 Phase 2 Scoping Memo at 4.
3 D.16-05-050 at 31.
4 *Id*. at 31-32.
5 Phase 2 Scoping Memo at 4.
6 Oxnard's Reply Comments at 1.

In D.16-05-050, the Commission decided that the 215 to 290 MW LCR need in the Moorpark sub-area will be met with the LCR contracts approved in this proceeding, totaling 272 MW.[7] Therefore, pursuant to D.16-05-050 there is not currently an active need for LCR resources in the Moorpark sub-area. Oxnard's filing, which focuses on meeting LCR needs in the Moorpark sub-area, is not only outside of the scope of Phase 2 of this proceeding, but is irrelevant and moot because the Commission has already approved resources to fill the LCR need in the Moorpark sub-area.

C. The Validity of Oxnard's CEC Supplemental Testimony is Suspect

In addition to not complying with CPUC Rule 14.3(d) and being outside of the scope of Phase 2 of this proceeding, the CEC Supplemental Testimony attached to Oxnard's Reply Comments also contains some inaccuracies or misunderstandings regarding SCE's current activities that should not be part of the record in this proceeding, including, but not limited to, the following examples:

- "Southern California Edison conducted an LCR [Request for Offers] in Orange County called the 'Preferred Resource Pilot 2.'"[8]
  - In fact, SCE's Second Preferred Resources Pilot Request for Offers ("RFO") was not an LCR RFO; the 2013 LCR RFO is the only RFO SCE has run to date that was directed at soliciting resources to meet the LCR procurement authorizations in the Long Term Procurement Plan proceeding Track 1 and 4 decisions, D.13-02-015 and D.14-03-004 respectively.[9]
- "On March 3, 2017, Southern California Edison issued an LCR RFO for up to 55 MW of distributed resources in the 'Goleta' sub-area to mitigate an N-2 contingency

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7 D.16-05-050 at 2. As noted, Ellwood would not count towards SCE's LCR MW authorization because it is not an incremental resource.

8 CEC Supplemental Testimony at 8.

9 *See* Exhibit SCE-1C, SCE's Opening Testimony, at 1.

for the transmission corridor into Santa Barbara…. Any resources acquired through this RFO would count against the Moorpark LCR need as well as the Goleta LCR need."[10]

- Again, SCE has not issued an LCR RFO since 2013. The reference above is to SCE's Goleta Area RFO, issued on March 3, 2017, the purpose of which is to meet resiliency needs in Santa Barbara/Goleta area in the event of an N-2 contingency.[11] Moreover, as discussed above, there is currently no outstanding LCR need in the Moorpark sub-area as the 215-290 MW procurement target has been satisfied.[12] Also, Goleta is not a sub-area with its own LCR needs.

- "As part of its 2014 Energy Storage RFO, Southern California Edison signed contracts for 15 MW/60 MWH of LCR capacity with a 20 MW/80 MWH battery storage facility at the Wakefield substation in Santa Paula. 5 MW of this installation has already been energized and cost recovery approved under the Aliso Canyon Resolution to mitigate that gas reliability need. This installation not only counts towards filling the Moorpark LCR need, but also supplies 20 MVAR of dynamic voltage support to the region that raises the reactive margin and additionally reduces the LCR need."[13]
  - The referenced energy storage contracts have been terminated, thus, the referenced 5 MW installation has not been "energized."
- "There are 45 MW of so called 'slow response' [demand response] in the Moorpark region. This existing resource currently does not count towards mitigation of the LCR need because it takes longer than 20 minutes to activate. This activation time, along with the 10 minutes required to dispatch the resource following the contingency

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[10] CEC Supplemental Testimony at 8-9.
[11] *See* Exhibit SCE-11C, SCE's Phase 2 Opening Testimony, at 14 and Exhibit Sierra Club-2, SCE Response to Data Requests, at 23.
[12] D.16-05-050 at 2
[13] CEC Supplemental Testimony at 9.

event, means that the resource is not available in time to meet the NERC/WECC/CAISO reliability standard of returning the system to a secure state within 30 minutes of the N-1 event. Therefore, it cannot be counted as mitigation of the LCR need. However, the EGT package retrofitted to the McGrath peaker has sufficient battery storage to be used to bridge that 10-30 minutes of time to activate the slow start demand response. Together the EGT package and the slow response DR add 45 MW of LCR mitigation that neither alone can provide."[14]

- The McGrath peaker, and its net qualifying capacity of 47.2 MW, is already counted as an available resource for the Moorpark sub-area LCR.[15] McGrath is assumed to be available and operating during peak load for the area. Utilizing McGrath to bridge the time gap to permit "slow response" demand response to appear faster does not enable this type of demand response to decrease any LCR need in the Moorpark sub-area.

- "A very inexpensive and proven short term solution to the loss of synchronous generation is readily available and consistent with the transition to any permanent plan— the immediate retirement of Mandalay 1 & 2 and conversion of these now retired gas fired facilities to duty as synchronous condensers." And "[c]onversion to synchronous condenser operation at Mandalay would directly cost less than $1M…."[16]

  - The conversion of conventional power plants, such as Mandalay 1 & 2, to synchronous condensers would not cost less than $1 million. It is SCE's understanding that the cost of conversion would be, at a minimum, over $10 million.

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[14] *Id*. at 9-10.
[15] SCE's LCR RFO Moorpark Reply Brief, dated August 5, 2015, at 30.
[16] *Id*. at 13.

III.

CONCLUSION

For the reasons set forth above, SCE respectfully requests that the Commission strike Oxnard's Reply Comments and its CEC Supplemental Testimony in their entirety.

Respectfully submitted,

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