BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA

In the Matter of the Application of San Diego Gas & Electric Company (U902E) for a Certificate of Public Convenience and Necessity for the South Orange County Reliability Enhancement Project.	Application 12-05-020

REPLY BRIEF OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

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Table of Contents

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Pursuant to the Administrative Law Judge's direction, the parties to this proceeding established a common briefing outline to address the issues presented in San Diego Gas & Electric Company's (SDG&E) application for a certificate of public convenience and necessity (CPCN) for the South Orange County Reliability Enhancement Project (SOCRE Project). The procedural schedule established February 1, 2016 as the due date for reply briefs. Consistent with this schedule, the California Independent System Operator Corporation (CAISO) submits its reply brief.

I. Introduction

The Office of Ratepayer Advocate (ORA) and Forest Residents Opposing New Transmission Lines (Frontlines) argue that the Commission should reject SDG&E's request for a CPCN primarily on the grounds that (1) no project is needed to ensure the reliability of the South Orange County 138 kilovolt (kV) transmission system or (2) alternatives to the SOCRE Project are superior. The City of San Juan Capistrano (SJC) argues that the Commission select its modified Alternative F or, in the alternative, a modified Alternative J to address the identified reliability concerns.

ORA and Frontlines' claims that no project is needed to address South Orange County reliability issues are incorrect.[1] These claims are based on erroneous interpretations of the North American Electric Reliability Corporation (NERC) and CAISO planning standards. The planning

[1] SJC also argues that the South Orange County 138 kV system is a "local area network" and not subject to certain NERC planning requirements.

standards are binding on the CAISO and SDG&E as the NERC-defined Planning Coordinator and Transmission Planner, respectively. As the entities subject to the NERC planning standards and penalties for non-compliance, both the CAISO and SDG&E agree that the NERC planning standards apply to the South Orange County 138 kV system and the system as currently configured fails to meet those planning standards.

The alternatives to the SOCRE Project presented by Frontlines, ORA and SJC do not solve the reliability issues identified by the CAISO. They also provide inferior service when compared to the SOCRE Project because they either fail to provide a second 230 kV transmission source or reduce transfer capability on 230 kV transmission system that connects the Southern California Edison Company (SCE) and SDG&E high voltage transmission systems Further, the CAISO would need to study the alternatives in detail, particularly the alternatives that connect the SCE and SDG&E transmission systems, to determine their full impact on the CAISO system. Initial studies have revealed that these alternatives, in addition to failing to resolve fully the reliability needs identified by the CAISO, cause critical problems in certain contingency events. A full study would uncover additional concerns.

II. Project Need

A. NERC Transmission Planning Standards Apply to the South Orange County 138 kV System and Require Mitigation to Address Identified Category C Thermal Overloads.

ORA and Frontlines assert either that the NERC transmission planning standards do not apply to the South Orange County 138 kV system or that the South Orange County system is exempt from certain requirements.[2] The CAISO addressed this issue in detail in its Opening Brief, and neither ORA nor Frontlines have raised new arguments. The CAISO fully addressed the substance of these arguments in its Opening Brief (pp. 4-8), and does not reiterate those arguments in this brief. However, several clarifications are necessary to address the representations made by Frontlines and ORA.

[2] Frontlines Opening Brief, p.4-5 (Frontlines argues that Section A.5 of TPL-001-4 allows load shedding on "local networks like South Orange County for at least the next [five] years."); ORA Opening Brief, p. 7-11.

i. Frontlines Incorrectly Asserts that Load Shedding is Permitted in South Orange County Following a Category B Contingency.

Frontlines asserts that load shedding is allowed in some circumstances following a Category B event. The CAISO thoroughly addressed this claim in its Opening Brief, noting that the limited circumstances in which NERC standards allow load shedding after a first contingency are not applicable here because such mitigation can only be used in the short-term planning horizon and if vetted through a stakeholder process.[3] Frontlines also fails to note that NERC Standard TPL-001-4 specifically provides that any such non-consequential load shedding must not exceed 75 megawatts (MW), far less than the load shedding that would be required here absent the SOCRE Project.[4] The CAISO's analysis indicated two Category B contingencies that would result in non-consequential load shedding up to 446 MW under maintenance conditions at the Talega Substation.[5] NERC standards do not allow this level of load shedding under TPL-001-4.

ii. SOCRE is Necessary to Address NERC Standards.

Frontlines also asserts that the SOCRE Project is not necessary because load shedding is allowed in Category C and Category D contingencies.[6] Although load shedding is allowed after the second contingency in Category C contingency events, Frontlines suggests that load shedding can occur in an almost unlimited number of scenarios.[7] Such load shedding would need to occur through an automated special protection scheme (SPS) because load cannot be shed after the first contingency in preparation for a second contingency in a Category C event.[8] As stated in the CAISO's direct testimony, the SPS would be extremely complex and not permitted by the CAISO's Planning Standards.[9] Frontlines' assertion shows a failure to understand that this load shedding would require an excessively complex SPS and a disregard for the reliability concerns that such a complex SPS would create.

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[3] CAISO Opening Brief, p. 7-8.
[4] Exhibit ORA-211, p. 12.
[5] Exhibit CAISO-502, p. 5-6.
[6] Frontlines Opening Brief, p. 5.
[7] Frontlines Opening Brief, p. 5.
[8] CAISO Opening Brief, p. 4-8.
[9] Exhibit CAISO-500, p. 11-12.

ORA additionally asserts that in the event the NERC standards apply to South Orange County, no project is needed to avoid NERC violations. ORA apparently bases this on the fact that NERC TPL-001-4 allows for certain non-consequential load shedding in limited circumstances.[10] However, ORA does not explain whether, or how, it concludes that those limited circumstances apply in this case.[11] Contrary to ORA's claims, as shown above and in the CAISO's Opening Brief, in the South Orange County system, non-consequential load shedding is not allowed after the first contingency event.

iii. This CPCN Proceeding is an Improper Forum to Address the CAISO's Application of NERC Standards.

The NERC standards are approved by the Federal Energy Regulatory Commission (FERC) and are binding on the CAISO as a Planning Coordinator. If the CAISO fails to plan the system according to NERC standards, the CAISO is at risk of non-compliance. Stakeholders had an opportunity to challenge the CAISO's application of the NERC standards to the South Orange County system in its transmission planning process. If a stakeholder disagrees with CAISO's application of the NERC standards, they can challenge that designation at FERC. FERC adopted the standards, and has the ultimate authority to enforce them.

FERC's recent decision considering whether certain SCE facilities should be excluded from the bulk-electric system because they constituted a local network area is instructive in this case. In that decision, FERC noted as follows:

> there may be some rare instances that present a factual question as to whether a facility that remains in the bulk electric system after applying the "core" definition and the four exclusions should nonetheless be excluded because it is used in local distribution. [FERC] determined that, in such instances, [FERC] itself should resolve the factual question of whether the facilities are used in local distribution. Thus, entities must apply to [FERC] for a determination of whether an element is used in local distribution. Further, [FERC] concluded that it would make jurisdictional determinations on a case-by-case basis and would apply the seven factor test as set forth in Order No. 888 to make such determinations.[12]

Consistent with that decision, to the extent that there is a factual question regarding the applicability of the NERC standards here, the proper forum to address the question is at FERC. ORA never sought FERC review of the CAISO's planning decision.

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[10] ORA Opening Brief, p. 17.
[11] ORA Opening Brief, p. 17-19.
[12] 153 FERC ¶ 61,384, Order on Local Distribution Determination (December 31, 2015).

III. Project Alternatives

A. The Trabuco Alternatives are Not Feasible.

Both Frontlines and ORA suggest an alternative to the SOCRE Project that interconnects SDGE's 138 kV transmission system with SCE's 220 kV transmission system at Trabuco Substation.[13] Both of these alternatives suffer from similar problems, resulting in reliability concerns on both the SDG&E and SCE systems. The CAISO discussed these issues, in detail, in the CAISO's Opening Brief at pages 16-19 and will not repeat the entire discussion here. This Reply Brief addresses specific errors identified in the Opening Briefs of ORA and Frontlines.

i. The CAISO-Identified Overload Concerns for the Trabuco Alternative Cannot be Addressed by an SPS.

The CAISO identified numerous transmission system element overloads under the Trabuco alternatives.[14] Both ORA and Frontlines are aware of these numerous overloads based on the CAISO's responses to their data requests this proceeding.[15] Frontlines submits, without any support, that CAISO-identified overload concerns can be addressed by disconnecting the South Orange County system from the SCE 220 kV system.[16] This claim is incorrect, as proved by CAISO analysis and confirmed in CAISO testimony on cross-examination.[17]

In addition to being disproven, this claim is also irresponsible because, without conducting a power flow analysis, Frontlines has no basis to determine how the transmission system would be affected by its proposed solution. Based on the limited analysis the CAISO was able to conduct in this proceeding and as discussed in greater detail below, the SPS suggested by Frontlines would violate the CAISO's planning standards.[18] As a result, the overloading concerns caused by the Trabuco alternatives would need to be addressed by reconfiguring the South Orange County 138 kV system and potential upgrades to the SCE system.[19]

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[13] Frontlines Opening Brief, p. 47-48; ORA Opening Brief, p. 28-29.
[14] Exhibit CAISO-505, p. 8; Exhibit Frontlines-436, p. 6 and accompanying attachment, p. 7-10.
[15] *See* Exhibit FRONTLINES-436 p. 6, which includes tables from "the most recent ISO data response to ORA." These tables show the numerous elements that are overloaded in the event a second transformer is added at the Trabuco substation.
[16] Frontlines Opening Brief, p. 17.
[17] Tr. (Sparks) at 336:23-26 ("Q: Does that approach [using an SPS] mitigate the overloading concern?
A No, because we found that that solution was not feasible to be implemented and still meet the ISO SPS guidelines or grid planning standards.")
[18] *Id*.
[19] Exhibit CAISO-505, p. 6.

ii. Frontlines Misinterprets the CAISO SPS Guidelines.

In its Opening Brief, Frontlines attempts to interpret the CAISO SPS guidelines. Frontlines correctly notes that an SPS must not monitor more than four system elements and that there should be no more than six local contingencies that would trigger operation of the SPS.[20] Frontlines then states that "These are constraints placed on the consequences of, and factors that trigger, an SPS; they do not limit where an SPS is placed, nor how many SPSs can be implemented in an area."[21] Frontlines provides no legal or factual support for this incorrect interpretation of the SPS guidelines. The SPS guidelines are designed to ensure reliability of transmission system. Frontlines' interpretation would decrease reliability and circumvent the guidelines by allowing the CAISO to add several small SPSs within the same electrical area to avoid exceeding the six local contingencies and four monitored elements. The SPS guidelines should not be (mis)interpreted to decrease reliability of the transmission system.

iii. Frontlines Misunderstands the Minimum Scope of Work Required to Construct Trabuco Substation to Industry Standards.

Frontlines acknowledges that the Trabuco Substation must be reconfigured to industry standards if the Commission selects the Trabuco alternative.[22] However, Frontlines fails to understand that both the 230 kV and 138 kV buses at the Trabuco Substation will need modification to meet industry standards.[23] Frontlines' recommended alternative fails to reconfigure the 138 kV bus and therefore does not meet industry standards. Taking into account the costs of reconfiguring the 138 kV bus, the costs of the Trabuco alternative would be greater than SOCRE Project.

iv. The Trabuco Alternative Would Have a Substantial Negative Impact on Incremental Resource Requirements.

Frontlines continues to misunderstand the incremental negative effect the Trabuco alternative will have on the SCE transmission system. As indicated in the CAISO's testimony and acknowledged in Frontlines Opening Brief, the Trabuco alternatives increase loading on the SCE Santiago-Ellis and Santiago-Johanna lines by approximately two percent when compared to

[20] Frontlines Opening Brief, p. 20.
[21] Frontlines Opening Brief, p. 20.
[22] Frontlines Opening Brief, p. 30.
[23] Exhibit CAISO-505, p. 7.

the SOCRE Project.[24] Frontlines refers to this as an "infinitesimal" difference.[25] To put this in the proper context, however, addressing this incremental overloading through new generation would require approximately 100 MW of new resources in the immediate area to address the two percent differential.[26] A solution that causes a relative need for new generation in the area is not "infinitesimal." Frontlines fails to identify any potential new resources in this area that would address the problem.

v. CAISO Studies Assessing the Trabuco Alternatives were Based on Reasonable Assumptions.

Frontlines and ORA take issue with the study assumptions the CAISO used to assess the Trabuco alternative.[27] Frontlines particularly questions the CAISO modeling of 1800 MW of northbound flow on the San Onofre Nuclear Generating Station (SONGS) transmission path.[28] The CAISO notes that this transmission path has already experienced northbound flows greater than 1400 MW and that it is capable of accommodating 2400 MW.[29] The CAISO also noted specific events, such as the retirement of once-through-cooling generation and increases in renewable resource penetration, that will make the 1800 MW northward flow "highly plausible" by 2019.[30]

ORA suggests that because the CAISO did not "know whether that assumption would be proved true for 2016, 2017, 2018 or 2019,"[31] it should be discounted. It is true that neither CAISO nor any other entity can predict with absolute certainty the specific flows across particular transmission lines years in advance. However, the CAISO, as a NERC Planning Coordinator, must conduct a planning assessment that varies planning assumptions "by a significant amount to stress the System within a range of credible conditions."[32] ORA suggests that the Commission should ignore a system condition that CAISO has identified as "highly plausible" within the next three to four years. Discounting this condition would be contrary to

[24] Exhibit CAISO-505, p. 9-11.
[25] Frontlines Opening Brief, p. 32.
[26] Tr. (Sparks), p. 392:22-28.
[27] Frontlines Opening Brief, p. 31; ORA Opening Brief, p. 40-42.
[28] ORA Opening Brief, p. 41.
[29] Tr. (Sparks) at 323:2-7.
[30] Tr. (Sparks) at 326:19-327:16.
[31] ORA Opening Brief, p. 41.
[32] Exhibit ORA-211, p. 2.

the mandatory NERC planning standards and inconsistent with industry standard transmission planning practices.

ORA also claims that the CAISO's analysis was "not as thorough as it could have been."[33] This is a puzzling contention because ORA conducted no power flow analysis during the course of this proceeding and objected to CAISO's attempts to include a full recitation of identified-reliability concerns at hearing.[34] The Trabuco alternative was first identified in the Recirculated Draft Environmental Impact Report (RDEIR) issued on August 10, 2015. Intervenor testimony on the RDEIR was served on October 2, 2015. The CAISO acknowledges that less than two months is not sufficient time to fully review a new project alternative when the usual transmission planning process takes a full year to develop study assumptions, identify reliability issues, and vet necessary transmission solutions. Despite the limited time for review, the CAISO did conduct studies on the Trabuco alternative and identified a host of shortcomings. The CAISO identified more shortcomings after it submitted its Supplemental Testimony on October 2, 2015.[35] A more thorough analysis will not result in the CAISO identifying fewer problems; it can only result in the CAISO finding even more problems than it already has identified.

At hearing, ORA specifically asked witness Robert Sparks if the CAISO had considered temporarily disconnecting the Santiago-Trabuco line (thereby disconnecting the SDG&E and SCE systems). The exchange reveals that ORA was not interested in determining the reliability issues that exist with its proposed solution:

> MR. MOLDAVSKY: Q You testified that you did consider temporarily disconnecting the Santiago-Trabuco line, but now you are saying that it is not allowable to do so under the standards. So if the standards weren't a concern, would temporarily disconnecting the Santiago-Trabuco line automatically solve the overloading issue?
>
> A. It could potentially solve that problem at the expense of creating another problems.
>
> Q. List each other problem that it creates.

[33] ORA Opening Brief, p. 42.
[34] Tr. at 407:26-27.
[35] Tr. (Sparks) at 340:1-7.

In response to ORA's broad question, Mr. Sparks proceeded to list all of the other problems ORA's proposed solution would create and the specific planning assumptions under which the problems were identified. After hearing only a portion of the additional reliability concerns the CAISO witness identified regarding ORA's proposed solution, ORA proceeded to cut off the witness.[36] However, the witness stated that the CAISO identified "a large number of other concerns/problems with the implementation of an SPS to open the Trabuco-Santiago line as a solution to the transformer overload because it introduces a large number of other problems."[37] ORA was not interested in having each and every reliability concern with the Trabuco solution identified on the record, and it fails to address the reliability concerns associated with such alternative. Rather, ORA recommends that the Commission accept this alternative based on its conclusory statements and analytically unsupported testimony.[38]

vi. ORA Does not Understand Potential Impacts on the SCE-SDG&E Transmission Path.

ORA recommends that the Commission "not overvalue the CAISO's attempt to discredit the Trabuco Alternative, based on unproven impacts on the transmission path."[39] The CAISO studied the Trabuco alternative as it was presented in the RDEIR and as subsequently modified by parties in this proceeding. The Trabuco alternatives resulted in overloads based on power flow analysis.[40] ORA did not provide any evidence to contradict this analysis, but instead implies that the CAISO's assertions are contradictory based on testimony by CAISO witness Neil Millar that indicated that certain "far more expensive technologies" could limit material impact on the SCE-SDG&E transmission corridor.[41] Mr. Millar specifically represented that a "back-to-back [HVDC][42] converter" could be used to mitigate such material impacts. However, no alternative identified in this proceeding included an HVDC converter or similar equipment, which is not surprising given that such technology is extremely expensive. Mr. Millar's cross-examination testimony is fully consistent with his earlier direct testimony which states "At a high

[36] Tr. (Moldavsky) at 338:23-28.
[37] Tr. (Sparks) at 340:1-7.
[38] ORA Opening Brief, p. 40.
[39] ORA Opening Brief, p. 45.
[40] Exhibit CAISO-505 (Sparks), p. 8; See also, Exhibit FRONTLINES-436, p. 6.
[41] Tr. (Millar) at 433:1-8.
[42] Both the transcript and ORA's brief refer to this as an "HBDC" converter. ORA did not point out the typographical error in its brief. For clarity, HVDC is an acronym for high-voltage direct current.

level, [the DEIR alternatives that interconnect the SCE and SDG&E system] negatively affect transfer capabilities because they would parallel the existing 230 kV corridor between San Diego and the Los Angeles basin with the 138 kV network."[43] The mere existence of prohibitively expensive technological solutions that could address the CAISO's concerns regarding transfer capability does not contradict this basic conclusion.

vii. The SOCRE Project Allows the Capistrano Substation To Be Supplied with Voltage Support in the Event Talega Substation is Lost.

Frontlines suggests that its Trabuco alternative is superior to the SOCRE Project because it allows the Trabuco Substation to be supplied with voltage support in the event the Talega Substation is lost. The concern regarding the need for additional voltage support is largely "manufactured" by Frontlines because the CAISO's power flow analyses did not identify any reliability concerns resulting from voltage concerns. In any event, to the extent such a concern exists, Frontlines is incorrect in asserting that the Trabuco alternative would be preferable to the SOCRE Project in supporting voltage. To the contrary, with the SOCRE Project, the new Capistrano Substation could access necessary voltage support through synchronous condensers to be installed at the SONGS 230 kV substation.

B. The Reconductoring Alternative is Not Feasible.

The CAISO's Opening Brief addressed the reasons why reconductoring the South Orange County 138 kV system is not a feasible alternative to SOCRE Project.[44] In summary, this alternative would require both extensive reconductoring of the 138 kV system and extensive upgrades and rebuilding at the Talega Substation.[45] The Reconductoring Alternative also fails to address the identified reliability concerns that would exist during the rebuilding, reconfiguration, and standardization of the Talega substation absent SDG&E putting in place costly temporary facilities during the construction process.[46] This alternative also fails to provide a new transmission source to the South Orange County system.

[43] Exhibit CAISO-500 (Millar), p. 11:27-29.
[44] CAISO Opening Brief, p. 11-12.
[45] *Id*.
[46] Exhibit-CAISO-502 (Sparks), p. 16.

C. The SJC Alternative F is Not Feasible.

SJC made modifications to Alternative F as presented in the Environmental Impact Report. The CAISO studied Alternative F as modified by SJC. As provided in the CAISO's Opening Brief, this variation to Alternative F addressed some reliability concerns in the South Orange County area, but created additional concerns including five Category C thermal overloads and one Category D load drop for the entire South Orange County area.[47] In its SJC's Opening Brief, it concludes that the Category C overloads would (1) either only occur infrequently[48] or (2) could be eliminated with yet additional modifications.[49]

With regard to the former contention, SJC disregards the fact that NERC standards do not address the frequency or probability of an event happening. As discussed above, if an overload is identified based on a NERC prescribed contingency, the CAISO's mitigation plan must address the event.

SJC's contention that additional modifications to Alternative J could address some of the Category C overloads identified by CAISO is out of place. The CAISO studied Alternative J both as proposed in the Environmental Impact Report and as originally modified by SJC. SJC now states that additional modifications can address the issues identified by the CAISO, but SJC fails to provide any support for this finding.[50] Without any actual evidentiary support, SJC cannot reasonably claim that its additional modifications will address the reliability issues.

Furthermore, even if SJC's additional modifications address the CAISO-identified reliability issues, the CAISO conducted a long-range sensitivity that shows the short-sightedness of Alternative F. In its long-range sensitivity, the CAISO looked at the South Orange County system through 2030 with conservative load growth assumptions (8.6% total load growth from 2024 to 2030). As can be seen in the CAISO analysis, even with this level of conservative load growth, there will be a total of nine thermal overload concerns with the SJC-modified Alternative F which would require either more network upgrade projects or an excessively complex SPS that violates the CAISO planning standards.[51] The SOCRE Project will result in no overloads in the

[47] Exhibit-CAISO-504 (Sparks), p. 5-7.
[48] SJC Opening Brief, p. 15.
[49] SJC Opening Brief, p. 15-16.
[50] SJC's Opening Brief cites the transcript in order to argue that the additional modifications would address the CAISO-identified reliability concerns. However, the CAISO witness was unable to assess whether those issues would be addressed without additional power flow analysis. (Tr. (Sparks) at p. 385:8.)
[51] Exhibit CAISO-504 (Sparks), p. 7-11.

same time period. This shows that the SJC-modified Alternative F is a poor long-term solution to South Orange County reliability issues, especially when compared with the SOCRE Project.

IV. Many of the Issues Raised by ORA and Frontlines Are Irrelevant to this Proceeding.

ORA and Frontlines' briefs, raise numerous issues that are completely irrelevant to this proceeding. In this section, the CAISO briefly addresses these arguments and explains why each is irrelevant to the need for the SOCRE Project.

A. Frontlines Incorrectly Argues that Approval of the SOCRE Project Will Cause other Utilities to Strengthen Distribution Infrastructure.

Frontlines argues that approval of the SOCRE Project will "open the door" for other utilities to seek transmission improvements to strengthen their distribution systems. Contrary to Frontlines' suggestion, the South Orange County system is not a distribution system, and no party to this proceeding has made such an argument. Frontlines points to SCE's Antelope Valley distribution systems as similar to the South Orange County system. This is inaccurate. Unlike the South Orange County 138 kV system, SCE's Antelope Valley distribution systems are not part of the CAISO Controlled Grid. The CAISO does not operate the Antelope Valley distribution systems, does not conduct any NERC transmission planning analysis on these systems, and does not recommend improvements on these systems.

Although the Antelope Valley system referenced by Frontlines is not configured similarly to the South Orange County system, it does present an interesting contrast. Unlike South Orange County, the Antelope Valley loads are regularly served by four separate 220 kV transmission sources and significant amounts of local renewable generation sources connected to the distribution system. In many situations, these four transmission sources can be utilized as backup sources to each other by transferring distribution customers from one source to the other. South Orange County does not have a similar alternative source that can be utilized as a backup.

B. ORA Incorrectly States that Load is Decreasing in South Orange County.

ORA states that load levels are decreasing in the South Orange County area.[52] This statement contradicts every available load forecast presented in this proceeding. The CAISO's load forecast is based on demand forecast prepared by the California Energy Commission, which

[52] ORA Opening Brief, p. 1 ("Load is decreasing in the South Orange County area.")

has consistently been relied upon by the CAISO and the Commission in planning new transmission and generation projects.[53] This forecast projects South Orange County system peak load to increase to 453 MW by 2025 *after* subtracting for additional achievable energy efficiency, demand response, distributed generation and energy storage.[54] Based on this forecast, the CAISO found numerous reliability concerns in the South Orange County area.[55]

C. ORA Incorrectly Focuses on Past Outages Rather than NERC Requirements.

ORA concludes that testimony regarding outages does not support the SOCRE Project.[56] ORA misses the point with this discussion because the purpose of the SOCRE Project is to address studied and identified NERC mandated reliability issues, not the occurrence of past outages. Whether the SOCRE Project would have prevented past outages is a straw man argument concocted by ORA, and is wholly irrelevant to what steps the CAISO is required to take to comply with NERC reliability standards. Nevertheless, the CAISO points out that ORA fails to recognize that the SOCRE Project would indeed have prevented a loss of all load in the July 18, 2013 outage ORA references.[57] Although the cause of the outage was related to equipment miscommunication, as ORA points out, the SOCRE Project would have prevented the loss of all load because of second 230 kV transmission source at Capistrano Substation.

D. ORA Confuses NERC-Defined Contingency Events with Planning Assumptions.

ORA states that "risk, or the probability of events, is taken into consideration in transmission planning."[58] ORA uses this premise to conclude that "if SDG&E does not consider the actual probability of outages in its transmission planning…that would result in costly and unnecessary projects."[59] This conclusion shows a misunderstanding of the NERC transmission planning standards. The NERC planning standards specify that Planning Coordinators such as the CAISO must undertake a planning assessment in a variety of stressed system conditions

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[53] *See*, for example, Assigned Commissioner's Ruling On Updates to the Planning Assumptions and Scenarios for Use in the 2014 Long-Term Procurement Plan and California Independent System Operator's 2015-16 Transmission Planning Process, issued March 4, 2015.
[54] Exhibit CAISO-505 (Sparks), Appendix A, p. 14.
[55] Exhibit CAISO-502 (Sparks), p. 4, Table 1.
[56] ORA Opening Brief, p. 4-6.
[57] Tr. (Johntry) at 93:24-28.
[58] ORA Opening Brief, p. 15.
[59] ORA Opening Brief, p. 16.

within a range of credible conditions.[60] The NERC planning standard goes on to require the Planning Coordinator to model ***specific*** contingency events, such as loss of generator or loss of a transmission circuit, to test whether the system can maintain reliability under these stressed conditions.[61] If the system cannot maintain Applicable Facility Ratings during contingency events (formerly referred to as Category B or Category C contingencies), the Planning Coordinator must address how the performance requirements will be met in a corrective action plan.[62] There is no discretion with regard to the "risk" of the defined contingency events because they are pre-defined in the NERC standards. Likewise, there is no discretion regarding the probability of outages caused by such contingency events; if the Applicable Facility Ratings are not maintained, there must be a mitigation plan.

ORA indicates that the 1-in-10 load forecast used in the transmission planning studies somehow contradicts this conclusion. The load forecast is an assumption used to represent a "reasonable range of credible conditions."[63] Using a ***probability based study assumption*** to represent a reasonable range of credible conditions in no way supports ORA's argument that the "***probability of outages***" should be considered when complying with the NERC standards.

E. Frontlines Incorrectly States that the CAISO's Load Forecast Shows SOCRE is not Needed.

Frontlines indicates that the CAISO's load forecast shows that the SOCRE Project is not needed.[64] This claim is nonsensical. The CAISO's analysis, based on load forecasts updated for this proceeding, found 26 thermal overloads based on eight distinct facilities based on 13 unique Category C contingencies, resulting in a total of 57 reliability events that would result in an uncontrolled interruption of service when a maintenance outage at the Talega Substation is followed by a contingency event.[65]

[60] Exhibit ORA-211, p. 2.
[61] Exhibit ORA-211, p. 8-9.
[62] Exhibit ORA-211, p. 4.
[63] Exhibit ORA-211, p. 2.
[64] Frontlines Opening Brief, p. 8.
[65] Exhibit CAISO-502, p. 4.

F. Frontlines and ORA Address Catastrophic Events in Excess of NERC Category D Contingencies.

Frontlines and ORA seek to undermine the SOCRE Project by indicating that it would not serve all South Orange County load under certain catastrophic events that go beyond Category D contingencies defined by NERC. This claim has no basis in actual transmission planning requirements and strains credibility given that ORA and Frontlines argue elsewhere that there is either no need to plan the South Orange County system to meet mandatory NERC and CAISO planning standards or no need for any project to meet NERC standards. The CAISO did not plan the SOCRE Project to address all possible contingencies that exceed NERC planning standards. Rather, the SOCRE Project is designed to meet all Category C contingencies, which NERC requires be mitigated. It is also designed to provide a second transmission source, which addresses the two CAISO-identified Category D area black-out events and provides general redundancy to the South Orange County system.

In addition, these extreme event scenarios proposed by ORA and Frontlines are often inaccurate, in large part because they did not conduct any actual power flow analysis. For example, Frontlines states that

> The power lines that are proposed to serve Capistrano substation under the SOCRE Project rely upon the existing 230 kV transmission lines currently terminating at Talega. Therefore they are just as susceptible to failures as the lines that currently serve Talega.[66]

This claim is incorrect because the proposed new line from San Onofre Substation to Capistrano Substation bypasses the Talega Substation.[67] Therefore, electrical faults or equipment failures at Talega, or even extreme events that take the Talega Substation out-of-service, would not take the Capistrano Substation out-of-service. Because the new line is not physically connected to the Talega Substation, it would not be tripped by such events.

V. Conclusion

The Evidence presented in this proceeding supports the need for the SOCRE Project and the inability of the proposed alternatives to meet that need. Based on the foregoing, the Commission should approve SDG&E's request for a certificate of public convenience and

[66] Frontlines Opening Brief, p. 11.
[67] Exhibit CAISO-502, Appendix A, p. 9.

necessity for the SOCRE Project as necessary and prudent to meet reliability concerns in South Orange County.

Respectfully submitted

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