Response to Follow Up Questions

Q1: Please reconcile the ISO's "N-1" contingency used in the CPUC's Sunrise Powerlink transmission case and the "N-1-1" contingency used in setting the bounds of local capacity requirements. Please address whether the ISO's studies presented in the Sunrise case "N-1-1" and identified load shedding risk ... Sunrise corridor that was ultimately approved.

Response:

As we indicated in the meeting, ISO testimony discussed in the Sunrise case the increased reliability associated with the route that was ultimately approved compared to the route that was originally proposed ... The approved corridor still provided significant benefits ... MW of load shedding. Attachment 1 is the ISO testimony ... Below is an ...

"Q. ... 1 ... 0. . 1 z ... 0 ... A ... 1 ... A EN ...

A. Power flow thermal loading, transient and post-transient stability analysis was performed on ASPEN10 at the 3500 MW ... import level. With the exception of the common mode outage of the 500 kV lines west of Imperial Valley substation, the performance ... found to be equivalent to that of the Sunrise ... SDG&E. ***For the common mode outage of 500 kV lines west of Imperial Valley substation, the CAISO found that a Special Protection Scheme ... needed that would shed up to 500 to 1000 MW of load in ...*** (emphasis added) ... 1000 to 2000 MW of generation ... Imperial Valley Substation."

The testimony clearly indicates that contingencies ... contingencies were studied, and ... load shedding of 500 to 1000 MW of ... San Diego was also identified ... preferred corridor had an advantage over the approved corridor in this regard, the ... significant benefits ... ISO supported the Sunrise project in either configuration.

Q2: Please explain the 1000 MW local capacity benefit provided by the Sunrise ... contingency and why this criteria ... local capacity benefit of the Sunrise project.

Response:

Local capacity requirements are based on the consequences of ... studied, and then using the largest result to establish the ... isolate the local capacity benefit provided by the Sunrise ...

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requirements within and without the [overlapping text] context, below is an
the "ISO's ... 2014 Local Capacity Study," October 2012 ...

There are several components of the underlying reliability the Technical
Study. Consistent with mandatory nature of the NERC Planning
under a statutory obligation to ensure and reliable operation
transmission grid consistent with the NERC Planning Standards,
ISO is further under an obligation, pursuant to its
Agreement, to secure compliance with all "Applicable Reliab
Reliability Criteria consists of the NERC Planning as well as Loc
Criteria, which the Criteria unique to the transmission
participating transmission Owners ("PTOs").

Pursuant to its tariff authority, the ISO, after consultation
stakeholders, has adopted Grid Planning Standards intended to,
interpret NERC Planning standards circumstances in which the
apply standards more stringent ... Together, adopted ... pre
established criteria form Reliability Criteria to be followed
performance of the ISO Controlled Grid under Contingency
The NERC Planning Standards define reliability on interconnected
using the terms "adequacy" and "security." "Adequacy" is the ability of
systems to supply the aggregate electrical demand requirements of
customers at all times, taking into account ... physical cha
system such as transmission ratings and scheduled and
unscheduled outages of system elements. "Security" is the al
to withstand disturbances such as electric short circuits or
system elements. The NERC Planning Standards are organized by Performance
Categories. For instance, one category ... cooperation requires ...
ensure grid integrity is maintained under certain adverse
security, but also that all customers continue to receive
e.g., adequacy ... case, grid reliability and service reliability
4).

Before the construction of Sunrise:

With everything else, ... comparable if the Sunrise project had not
Category B contingency ... is the Otay Mesa ... followed by the
1 loss of the Imperial Valley 500 kV ... Southwest Power Link

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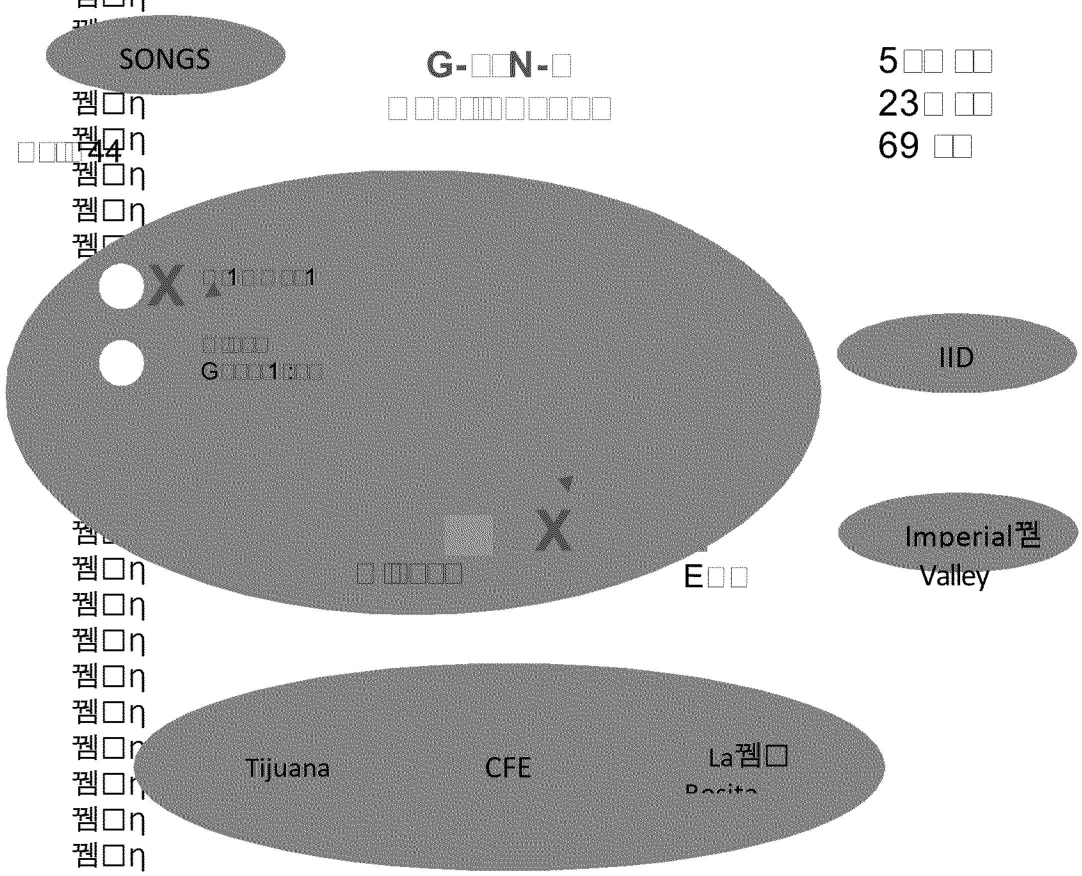
Figure 1:

G-1, N-1 Contingency



Under these circumstances, the import level into the San could be subtracted from the peak load to determine the the Otay Mesa generator added capacity to the load capacity requireme for the outage of this unit overlapping with the 500

The results, for all of these 2012 studies, are shown in Table 1 below

Table 1: LCR Area before Sunrise - San Diego

	2021
Study Result	4 A- ( )
1 in 10 Peak Lo[ad] Area)	5,749
Import Capability without	-2500
Loss of Otay	+605
L G-/N-	3854

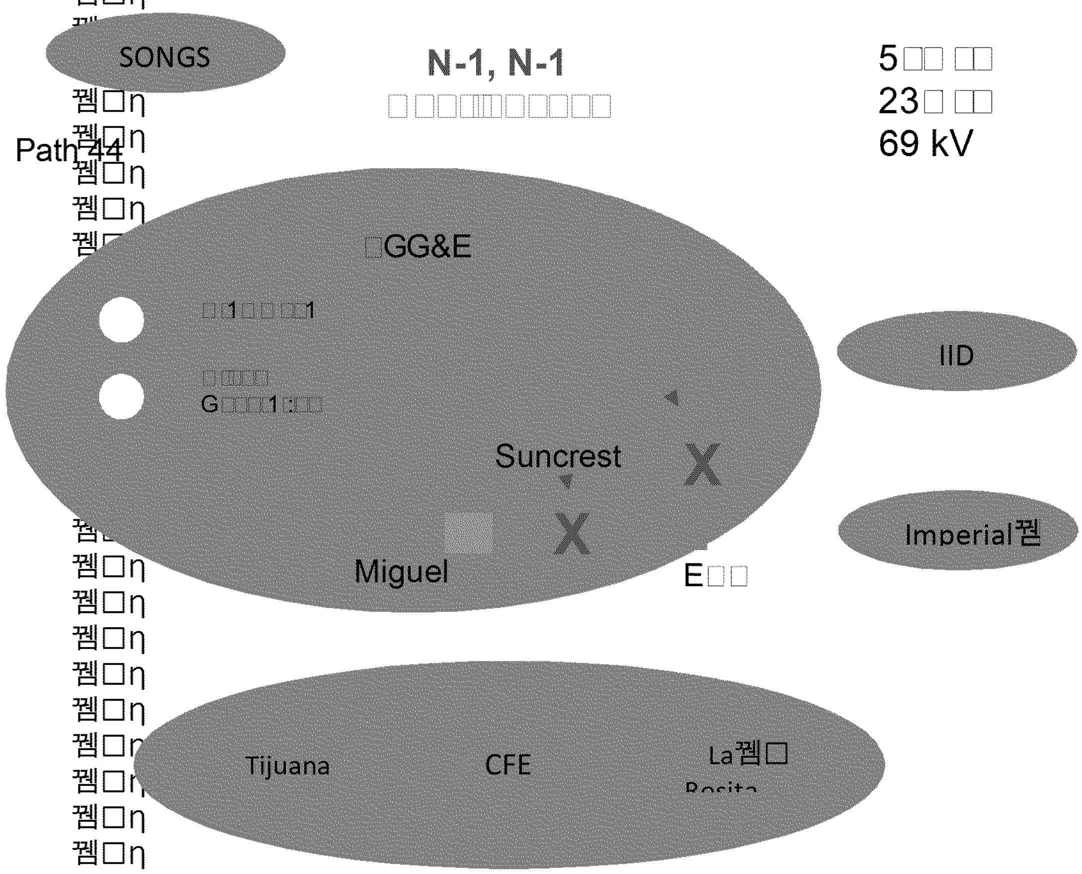
As explained previously, the most severe the constraint local capacity based requirement. Before the N-1, Sunrise, contingency described above is more severe N-1, contingency N-1, contingency the loss of a single 230 the Path 44 transfer path followed by the SONGS loss of the Miguel kV 500 circuit Because the loss of the Otay Mesa generator than a single 230 outage results in higher local capa than the N-1 outage the N-1 outage was not relevant in es capacity requirement Before Sunrise was the system operating limit bas on thermal limits were the limiting conditions, before voltage instability limits were encountered.

After the construction of N-1 Sunrise:

Following the construction of the Sunrise, N-1 Project, Category B most contingency remains the same as described above, it contingency the loss of one 500 kV circuit (Sunrise or S 500 kV circuit. That is because each line is capable produced by Otay N-1, contingency described in Figure 2 below.

Figure 2:

N-1, N-1 Contingency



The ISO performed the detailed analysis of each scenario
Page 3 of the supplemental testimony
In this analysis, voltage stability/collapse limits are the limiting

Table 2: LCR Needs for San Diego area

Study Result	2021
1 in 10 Peak Load Area)	5,749
Imports Achievable	3086
LCR N-1/N-1	2 524 – 2 663

Comparing the results in [illegible] more than 1,900 MW [illegible] these results indicate, the Sunrise [illegible] over 1000 MW of reduced local capacity requirement in [illegible] benefits of enabling [illegible] generation [illegible] San

A significant portion of these local benefits are [illegible] system benefits from the Otay [illegible] need for [illegible] outside of the [illegible] through its voltage control/excitation [illegible] configurations and additions the 230 kV system in San Diego that were [illegible] support benefits. [illegible] it must [illegible] phenomena [illegible] linear equations, and the contributions of different sources to [illegible] cannot always simply be summed [illegible] arithmetically.

The table below [illegible] system [illegible] available under the [illegible]

	Before Sunrise, 1,[illegible] Analysis	After Sunrise, 1,[illegible] Analysis
Sunrise 500 [illegible] kV [illegible]	No	No
Sunrise related 230 reinforcements	No	**YES**
SWPL (Imperial [illegible] 500 kV [illegible] line)	No	No
Otay Mesa generati MW)	No	**Yes**
Otay Mesa voltage (functioning voltage	No	**Yes**
Limiting condition for studied contingencies	N-1 thermal limit employed for Path Sunrise system	**Voltage collapse**

Q3: Please list the ISO planning standards and NERC plannin...

Response:

Reliability assessment results are measured against the applicable ... determine if system performance criteria have been met accor... Planning Standards, the WECC Transmission Planning and System Perfor... Planning Standards. The ISO planning standards are developed ... approved by the ISO Board. The current version of ... stakeholder comments for the latest version that the ISO Board ... and approved on July, 2011 is available at:

http://www.caiso.com/informed/Pages/StakeholderProcesses/CompletedStakeholderProcesses/TransmissionPlanningStandards.aspx

A link to the NERC TPL-001, TPL-002, TPL-003, TPL-004 standards is provided below:

Reliability Standards

The relevant WECC criterion - TPL-(001-WECC-CRT-1), is available at:

http://www.wecc.biz/library/Documentation%20Categorization%20Files/Forms/AllItems.aspx?RootFolder=%2flibrary%2fDocumentation%20Categorization%20Files%2fRegional%20Criteria&FolderCTID=&View=%7bAD6002B2%2d0E39%2d48DD%2dB4B5%2d9AFC9F8A8DB3%7d

Q4: Why ... Palomar ... power trains ... single power plant ... gas turbines ... turbines be considered separate outages instead ... single "plant" outage?

Response:

First, this question ... ISO ... contingency ... instead ... outage. As the ... outage ... considered in establishing local capacity needs ... the most signific... excessive and unacceptable load shedding.

Setting this aside, the ISO has reviewed ... Palomar to see if ... the gas turbines ... turbines as separate outages ... the ISO's criteria established ... The criteria require that ... for three ... years, except for the period immediately following the commissionin... two years is insufficient.

The ISO cannot release the actual data due to generator ... summarize the results ... (Generator performance data is confidential ... the facility owner, therefore, we cannot provide this informatio... request the information directly from the owner ... outages, the ... identified:

- 14 full plant trips of Otay Mesa between Sept 2009
- 2 full plant trips of Palomar between July 2009 to

Based on this review, the data does not support treating separate generators, continuing the treatment as single generators for continge analysis.

Q5: A question was raised about the profile assumptions whether the ISO considered all solar generation to use

Response:

The ISO has not assumed all solar an extensive process for developing production profiles for solar resources in 2020 based on the expected portfolios profiles accounted for different solar technologies 5,258MW of (2,464, Thin Film Fixed, 1,045MW fixed small solar, 1,749 geographically distributed), 1,560MW tracking and 3939MW solar

Please refer to the Exhibit 2, 05-006 CPUC 2011 Testimo
http://www.caiso.com/Documents/2011-07-01_R10-05-006_Testimony.pdf

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