

The ISO received comments on the topics discussed at the December 15, 2022 stakeholder call from the following:

- a. AES Clean Energy
- b. San Diego Gas & Electric

Copies of the comments submitted are located on the Planning Standards – Remedial Action Scheme Guideline Update stakeholder initiative page at:

<https://stakeholdercenter.caiso.com/Comments/AllComments/c36dd6bb-4e13-48d2-99ba-ab7f14137591>

The following are the ISO’s responses to the comments to the following:

- 1. Please provide a summary of your organization’s comments on the Planning Standards – Remedial Action Scheme (RAS) guidelines update draft final proposal, draft ISO Planning Standards (with RAS guideline updates), and December 15, 2022 stakeholder call discussion:.....2
- 2. Provide any additional comments on the Planning Standards – RAS guidelines update draft final proposal, draft ISO Planning Standards and December 15, 2022 stakeholder call discussion:3
- 3. Provide any additional comments on the Planning Standards – RAS guidelines update draft final proposal, draft ISO Planning Standards and December 15, 2022 stakeholder call discussion.:5

1. Please provide a summary of your organization’s comments on the Planning Standards – Remedial Action Scheme (RAS) guidelines update draft final proposal, draft ISO Planning Standards (with RAS guideline updates), and December 15, 2022 stakeholder call discussion. :

No	Submitting Organization	Comment Submitted	CAISO Response
1a	AES Clean Energy	<p>AES Clean Energy appreciates the CAISO revisiting the RAS guidelines. AES Clean Energy largely supports the revisions that eliminate redundancy with NERC PRC-012-1 standards and refine existing RAS guidelines as long as they are not applied to Centralized RAS systems. Moreover, AES Clean Energy requests further clarification on the proposed ISO G-RAS4E as it is overly restrictive when combined with the proposed ISO G-RAS 3B. Finally, AES Clean Energy requests CAISO to provide further information on implementing these guidelines as generation in the queue may be impacted. More importantly, it is unclear to AES Clean if the proposed guidelines apply to Centralized RAS systems.</p>	See responses below.
1b	San Diego Gas & Electric	<p>San Diego Gas & Electric Company (SDG&E) appreciates the opportunity to provide comments on the California Independent System Operator (CAISO) “Planning Standard - Remedial Action Scheme (RAS) Guidelines Updates” draft final proposal.</p> <p>SDG&E is generally supportive of some of the updates proposed by the CAISO. SDG&E believes that most of these updates (1) align and complement the North American Electric Reliability Corporation (NERC) Reliability Standards (2) will make RASs less complex to design and operate, (3) and will also make RAS design criteria more transparent to stakeholders. SDG&E would like to also commend the CAISO for refining its latest proposal with the inclusion of “monitoring facilities no more than one substation beyond the first point of interconnection” as well as the inclusion of the “maximum interconnection service capacity”.</p> <p>However, SDG&E notes that the proposal is still missing key aspects that are making it challenging for SDG&E to support the approval of the proposal by the CAISO Board of Governors. SDG&E offers the following specific comments to help CAISO further refine its latest proposal and gain broader support from stakeholders and the Board:</p>	The comment is noted.

2. Provide any additional comments on the Planning Standards – RAS guidelines update draft final proposal, draft ISO Planning Standards and December 15, 2022 stakeholder call discussion:

No	Submitting Organization	Comment Submitted	CAISO Response
2a	AES Clean Energy	<p>AES Clean Energy's comments focus on the proposed revisions to existing guidelines and implementation for RAS systems. The CAISO should provide further justification for the proposed ISO G-RAS4E that only allows RAS to monitor facilities no more than 1 substation beyond the first point of interconnection. During the December 15, 2022 stakeholder call, CAISO staff stated that the driving factor for this guideline is based on simplicity and communication. However, AES Clean Energy believes that as the proposal reads, this proposed guideline is limiting and may substantially and unnecessarily increase network upgrades for interconnection projects. The draft final proposal also proposes ISO G-RAS 3B that establishes a 10% effectiveness factor requirement for the RAS to trip load and/or resources. Since ISO G-RAS 3B already proposes guidelines for what the RAS should monitor, adding an additional requirement is overly restrictive.</p> <p>AES Clean Energy also requests further detail on the implementation of the proposed guidelines. For example, what happens when there are more than 6 contingencies? The draft final proposal states that during the transition period, the CAISO may relax the RAS requirements to bridge long term system reinforcement. However, it is not clear how these proposed guidelines would apply to both existing RAS and new RAS in the interconnection process. Specifically, if CAISO moves forward with ISO G-RAS4E, the CAISO should clarify if the guidelines will limit the expansion of existing RAS schemes. AES Clean Energy continues to be concerned with the rising costs of area delivery network upgrades assigned to cluster projects. Given that the new RAS guidelines will likely impact interconnection projects, AES Clean Energy respectfully requests the CAISO to conduct an analysis of the expected impacts of the new RAS guidelines on interconnection and delivery network upgrade costs. The results of the analysis should be presented to the stakeholders for feedback before</p>	<p>The ISO has provided the following clarification to this guideline based on stakeholder comments:</p> <p>E. The RAS should only monitor overloading facilities no more than 1 substation beyond the first point of interconnection for generating facility, or bulk transmission substation where loading concerns are identified. The impact of generation or load dropping on a remote facility tends to be ineffective due to the electrical distance within the network between the generation or load to be dropped and the remote facility. Remote monitoring of facilities may also add substantial complexity to system operation and should be avoided. <u>Exception to this guideline may include facility that is found to provide effective system loading relief and if it does not add substantial complexity to RAS implementation and system operation.</u></p> <p>The new standards will be applied going forward in future planning and interconnection processes. Existing RAS will be managed with the tools available and with some refinements to existing functionality. Phasing out of existing RAS will occur through the annual transmission planning process on a case by case basis to meet reliability and state policy requirements.</p> <p>ISO G-RAS4E was carried over from this guideline that is in the existing ISO RAS guidelines.</p> <p><i>Generally, the SPS should only monitor facilities that are connected to the plant or to the first point of interconnection with the grid. Monitoring remote facilities may add substantial complexity to system operation and should be avoided. [Existing ISO SPS6]</i></p> <p>Since it is basically an existing RAS guideline, stakeholders should not be concerned about the risk of this guideline causing the removal</p>

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		<p>CAISO brings the final proposal for Board approval in February 2023.</p> <p>Importantly, the CAISO should clarify whether these guidelines would apply to Centralized RAS (CRAS) in addition to RAS. AES Clean Energy strongly opposes applying the proposed guidelines to CRAS as its design and function are different from a RAS system. The proposed guidelines when applied to CRAS systems would result in different consequences than RAS systems. For example, applying the proposed rule that states, “A RAS should not include logics to dynamically arm and trip various generation levels to achieve transmission facility flow objectives¹,” would directly go against the CRAS principle of being a “smart” system that mitigates a problem at a single central processor, rather than within the relays of individual RAS systems. Instead, the CAISO should articulate the trigger point for CRAS conversion from RAS within this initiative. The CAISO should then initiate a new policy initiative to discuss CRAS implementation and potential guideline updates.</p> <p>1. Draft Final Proposal, p. 8</p>	<p>of existing RAS. However, expanding an existing RAS would need a careful review under the existing or the updated RAS guidelines.</p> <p>As described in the issue paper, the CAISO system already utilizes more RAS than any other ISO/RTOs. Continuing to add more RAS at the rate that it has been added in the past would exacerbate the problems that were described in the issue paper.</p> <p>Most new RAS have the capability to dynamically arm and trip generation, but as explained in the Issue Paper this dynamic arming cannot be modeled in the security constrained economic dispatch (i.e. market system).</p> <p>Centralized RAS often combine several RAS within one system. For example a hypothetical West of Colorado River CRAS addresses Red Bluff transformer contingencies as well as Red Bluff-Devers line contingencies. This could have been two separate RAS systems that do not have overlapping contingencies or monitored lines. This nuance would need to be considered in applying the limit on the number contingencies and monitored lines in the RAS guidelines. More specifically, it could be thought of as two separate RAS during the RAS guideline review of this CRAS.</p> <p>The PTOs have documentation that they follow for determining when an existing RAS should be converted to a CRAS.</p>
2b	San Diego Gas & Electric	<p>1. CAISO needs a RAS Standard and not Guidelines. CAISO asserts that RAS guidelines G-RAS3, G-RAS4, and G-RAS6 need to remain guidelines because “RAS implementation is a complex process that requires consideration of many factors, thus designating those as standards is not appropriate at this time”. SDG&E finds CAISO’s response to stakeholders’ feedback here to be unclear and concerning. First, CAISO’s</p>	<p>Stakeholders have raised concerns about the impacts of new RAS guidelines on existing RAS, the need for immediate generation development, and transmission costs. Other stakeholders have raised the concerns about the impacts of overly complex and growth of RAS on the reliability and operability of the system. These two opposing concerns can only be addressed by updated guidelines, and careful application of those guidelines. The updates to the</p>

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		proposal can only become meaningful if the CAISO makes guidelines G-RAS3, G-RAS4, and G-RAS6 standards. The reason some of the current RASs in service in the CAISO system do not follow CAISO's previously established guidelines is because they were guidelines and not standards. Second, SDG&E believes that the CAISO has had robust technical discussions, over the past 18 months, with stakeholders and has built enough record in the public space that warrants the change of the proposed guidelines to standards as it is customary in other technical forums such as NERC or IEEE. In other words, SDG&E is not aware at this stage of critical unknowns that should prevent the proposed guidelines from becoming standards. As such, SDG&E encourages the CAISO to further vet SDG&E's recommendation as part of its final proposal to move G-RAS3, G-RAS4, and G-RAS6 to standards. Finally, to the extent the CAISO and stakeholders find it necessary to deviate from the standard on rare occasions, the CAISO will have broad authority under G-RAS7 to make exceptions when needed.	guidelines are intended to limit the use of RAS to applications where it will not exacerbate reliability and operability concerns, but will reduce transmission costs. Adding these additional limitations to the RAS guidelines and also classifying them as standards would not be the appropriate way to address the opposing concerns described above.

3. Provide any additional comments on the Planning Standards – RAS guidelines update draft final proposal, draft ISO Planning Standards and December 15, 2022 stakeholder call discussion.:

No	Submitting Organization	Comment Submitted	CAISO Response
3a	AES Clean Energy	AES Clean Energy has no further comments.	
3b	San Diego Gas & Electric	<p>2. A list of RASs that do not meet current and future CAISO requirements should be published annually. CAISO should maintain a tracking system of which RAS, both Pre and Post standard update, meet the Standards and Guidelines. This list will help CAISO and stakeholders ensure that requirements are applied in a consistent fashion across the CAISO footprint, and it will also help identify if future enhancements to the Standard are needed.</p> <p>3. G-RAS 7 should include a defined timeline. G-RAS7 should have language added which instates a timeline for relaxing the RAS requirements. As an example, relaxing of the RAS requirements as a "bridge" to system reinforcements should have a defined timeline. The timeline should meet a reasonable project schedule to reinforce the transmission system, but shall not exceed 10 years. This will ensure that</p>	The CAISO supports SDG&E's suggestion of creating and maintaining a tracking system of the RASs that do not align with the new guidelines and standards as well as rationale for deviations from the guidelines. This will be applied primarily to future RASs that are created after the Board approval of the RAS guidelines and standards. For the existing RASs, the CAISO will evaluate whether these RASs are still effective, or having any identified concerns, in the reliability assessments as part of annual transmission planning process or as part of the ISO's PRC-012 annual RAS review process in its five-year review cycle. The CAISO can discuss this suggestion further with all of the PTOs to determine the logistics of creating and maintaining RAS tracking.

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		<p>interim measures do not inadvertently become permanent solutions.</p> <p>4. G-RAS 4 number of contingencies should be further reduced.</p> <p>SDG&E would also like to see the acceptable amount of monitored contingencies (P1-P7) reduced from 6 down to 4, which would coincide with the allowable number of system elements. To date the CAISO has been unclear on why more elements (6) is better than (4) elements when the goal is to make RASs less complex. Furthermore, if more contingencies are needed, under G-RAS7 the CAISO will have broad authority to recommend more elements on a case-by-case basis.</p> <p>5. A grandfather clause should be included in the CAISO Planning Standard.</p> <p>SDG&E continues to suggest that the CAISO includes a grandfather exemption for existing RASs as part of the Standard. This will make it clear to stakeholders that the new or updated requirements will only apply to new RASs moving forward.</p>	<p>The language in G-RAS7 for the use of RAS as a temporary “bridge” provided that there is a long-term transmission plan that is under development. When a transmission project is approved by the ISO an in-service date is specified that usually is as soon as the project can be completed. That in-service date would be the time limit.</p> <p>This comment does not include any objective information that supports the claim that the contingency limit in the existing guideline is excessive. Without any new information, it is reasonable to leave the existing contingency limit as-is.</p> <p>The new standards will be applied going forward in future planning and interconnection processes. Existing RAS will be managed with the tools available and with some refinements to existing functionality. Phasing out of existing RAS will occur through the annual transmission planning process on a case by case basis to meet reliability and state policy requirements.</p>