

The ISO received comments on the revisions to the ISO Transmission Planning Standards, June 4, 2014 Stakeholder Meeting from the following:

1. Bay Area Municipal Transmission group (BAMx)
2. California Public Utilities Commissions
3. Office of Ratepayers Advocates of the CPUC
4. Pacific Gas & Electric
5. Six Cities
6. Smart Wire Grid, Inc.
7. Southern California Edison

Copies of the comments submitted are located on the *Transmission planning standards* page at:  
<http://www.caiso.com/informed/Pages/StakeholderProcesses/TransmissionPlanningStandards.aspx> under the *Policy development* heading.

The following are the ISO's responses to the comments.

No	Comment Submitted	ISO Response
1	<b>Bay Area Municipal Transmission group (BAMx)</b> <b>Submitted by: Barry Flynn and Robert Jenkins</b>	
1a	<p><b>Non-consequential load dropping: Category C Contingencies</b></p> <p>In this revision, the CAISO has improved its definition of “high density urban areas” by placing filters that would cause it to consider population density, as well as overall population in the local area. The CAISO presents this information in the form of a map of California with the “high density urban areas” identified. While BAMx supports this improved definition that further limits the applicability of this proposed standard, BAMx recommends the following enhancements.</p> <ul style="list-style-type: none"> <li>• The text description of “high density urban area” is difficult to apply to a planning study on its own. BAMx requests that: <ol style="list-style-type: none"> <li>1. The map included in the straw proposal also be included in the Planning Standard, and</li> <li>2. The standard or associated supporting documents include a list of the currently identified local areas on the CAISO grid and which fall under this definition of “high density urban area”.</li> </ol> </li> <li>• As for the use of non-consequential load dropping for multiple contingencies outside of the “high density urban area,” the document identifies characteristics that will be considered in the decision as to whether to utilize load dropping in the solution. However, there is little guidance as to how a decision would be made. At a minimum, we would hope that more detail on the criteria to be used, based upon the listed elements, to approve a transmission project in areas that are not “high density urban areas.” Also the document is written such that the burden of proof falls on the planner to show that load shedding is viable. BAMx recommends that this perspective be switched to require the planner to show why load shedding under these circumstances in these areas is nonviable.</li> <li>• Most disappointing with respect to the CAISO’s latest proposal is the rejection of any consideration of cost being part of the criteria. Although it was a common theme by many Stakeholders, any mechanism to account for cost vs. value of a proposed transmission addition to refrain from load dropping was rejected. In its</li> </ul>	<p>Response to Item 1:</p> <p>The ISO will include the following link to the 2010 Census Urban Area Reference Maps:</p> <p><a href="http://www.census.gov/geo/maps-data/maps/2010ua.html">http://www.census.gov/geo/maps-data/maps/2010ua.html</a></p> <p>This site has diagrams of the following urbanized areas which contain over one million persons.</p> <p>Los Angeles--Long Beach--Anaheim, CA San Francisco--Oakland, CA San Diego, CA Riverside--San Bernardino, CA San Jose, CA</p> <p>Response to Item 2:</p> <p>We believe the criteria provides a valuable level of detail that supplements the NERC planning standards and can be applied to all areas of the ISO system. A more prescriptive criteria would likely not be applicable to all areas of the system. The fundamental objective of</p>

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	<p>earlier comments BAMx suggested a number of ways to approximate a cost vs. benefit metric, such as using a \$/MW threshold. We are disappointed in the CAISO's apparent indifference to cost considerations in its rejection of all suggestions to take cost vs. benefit of not dropping load into account, even in a simplified manner, in its latest proposal.</p>	<p>all transmission planning is to produce a cost effective transmission plan.</p>
1b	<p><u>San Francisco Peninsula Extreme Event Reliability Standard</u> BAMx still questions both the need and value for this proposed addition to the Planning Standards. The CAISO clearly recognizes its responsibility to study extreme events and the potential for the sustained loss of load. The critical issues are to determine what level of expenditure for transmission is justified to prevent massive extended loss of load for such events and to speed recovery of service. The proposal does little to resolve this question as it only requires consideration without a specific requirement. BAMx applauds the work being completed in this year's planning cycle to address these critical questions for the San Francisco Peninsula but we see no reason for the proposed change to the Planning Standards.</p>	<p>The ISO acknowledges that the assessment of extreme events are a part of the transmission planning studies; however based upon the identified unique characteristics of the San Francisco Peninsula it is important to clarify that potential mitigations will receive specific consideration and provide a sound basis to proceed if the detailed analysis subsequently supports approving a transmission solution.</p>
1c	<p><u>Changes in the NERC Transmission Planning Standards</u> BAMx appreciates the CAISO clarifying some of the confusing language concerning its interpretation of the NERC standards, but is disappointed in the lack of any progress in this draft of a coherent policy as to where capital expenditures are justified to improve reliability to customers. As we indicated before, such a coherent policy "would include whether to require continuity of service following single or multiple contingencies, whether the interruption was due to consequential or non-consequential action."</p>	<p>The ISO Planning Standards (as proposed in the Final Draft) will contain two chapters about justification to improve reliability to customers beyond the minimum NERC standards. In addition to the existing chapter "Planning for New Transmission versus Involuntary Load Interruption Standard", specifically addressing these issues, the new chapter "Planning for High Density Urban Load Area Standard" would also provide further clarity on reliability adequacy. ISO believes these are consistent and comprehensive standards regarding customer reliability.</p>

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2	California Public Utilities Commission Submitted by: Keith White	
2a	<p><b>1. “High Density Urban Areas” Where Controlled Nonconsequential Load Shedding is Proposed to be Precluded as a Mitigation for Category C Contingencies Should be Clearly Defined Electrically, and Load Shedding Should Still be Considered if Warranted by Case-Specific Circumstances.</b></p> <p>The CAISO proposes to formally preclude controlled nonconsequential load shedding for Category C (multiple outage) contingencies in “dense urban areas”. Those areas are defined as statistical <i>Urbanized Areas</i><sup>1</sup> (UA) having a population of at least one million (“large UA”), as illustrated by a map on page 6 of the May 28 revised draft proposal.</p> <p>How the definition of “dense urban areas” (large UA) for load shedding purposes would be applied <i>electrically</i> should be clarified, ultimately including more detailed maps. For example, must the load that would be dropped fall within a large UA, and would this be identified based on substations? How <i>much</i> of the dropped load needs to be within the large UA?</p> <p>How much of that load needs to be in a <i>CAISO member</i> service territory? Does it matter whether the transmission element(s) contributing outage contingency or overload/violation are located within the large UA? What if there are ways to control the load shedding that do not involve significant load in a large UA?</p> <p>As is clear when viewing the map on page 6 of the revised proposal, large UAs can encompass diverse electrical, socioeconomic and physical conditions. Controlled load shedding should not be categorically precluded for Category C contingencies in such “dense urban areas” without considering fundamental risk, impact, and mitigation cost factors, similar to what the CAISO describes as appropriate for other parts of the grid. This represents both fairness and cost-effectiveness. Risk- and impact-related information might clearly and even readily rule out load shedding</p>	<p>References and links to more detailed maps will be included in the ISO Planning Standards.</p> <p>If small amounts of load shedding would mitigate the problem, then small amounts of demand response, distributed generation, or storage would also mitigate the problem cost effectively.</p>

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	for Category C contingencies in an area meeting the “dense urban” definition, but this should not be prejudged.	
2b	<p><b>2. Justification of Unique Focus on the San Francisco Peninsula for Extreme Event Studies Should Include a Clear Internally Consistent and Generalizable (to Other Areas) Framework or Table Showing the Explicit Linkage of (Events/Probabilities → Electrical Outage → Outage Exacerbating Factors)... That in its Entirety Presents Unique Risk.</b></p> <p>In the May 28 Revised Draft of the CAISO’s <i>Revision to ISO Transmission Planning Standards</i>, the CAISO proposes to identify the San Francisco Peninsula as having “unique characteristics” that “form a credible basis for considering for approval corrective action plans to mitigate the risk of outages that are beyond the application of mitigation of extreme events in the reliability standards to the rest of the ISO controlled grid.” In confidential Appendix D to the 2013-2014 Transmission Plan and in the separate confidential document <i>San Francisco Peninsula Area Unique Characteristics and Risk of Extreme Events</i> the CAISO describes several types of credibly unique circumstances. It is presumably the <i>entirety</i> of these circumstances, including their <i>linkage</i> (they are causally connected and could reasonably all occur together) that creates the unique situation justifying special studies and consideration of mitigation measures.</p> <p>Thus, to the proposed justification of special status for the San Francisco Peninsula the CAISO should add a concise, structured presentation (such as a table) of the sequential causal chain: credible events and probabilities → credible electric outage (MW, locations) specifically arising from those events → exacerbating consequences credibly associated with those outages (such as long restoration times or heavy disruption of critical services). Such a synopsis might entail approximations or ranges, but it should be internally consistent. In other words, the presented outage levels (and their locations/probabilities) should be clearly consistent with the postulated causal events (and their probabilities), and the outage exacerbating factors such as restoration times or loss of critical services should be clearly consistent with the outages. This synopsis would support appreciation of how the San Francisco Peninsula rises above</p>	<p>The ISO has identified the unique characteristics of the San Francisco Peninsula area as indicated and consider that it is appropriate to identify this in the standard and clarify that mitigation may be required based upon, detailed assessment, that is beyond the minimum requirements of the NERC Reliability Standards – notwithstanding that the NERC reliability standards anticipate local considerations being taken into account.</p> <p>The analysis that you have identified is specific to the risks that have been identified in Appendix D of the 2013-2014 Transmission Plan and as indicated in the June 4, 2014 stakeholder presentation the continuation of the analysis in the 2014-2015 Transmission Planning Process. To address this comment more specifically, the ISO has made further additions to the supporting document provided on the secure Market Participant Portal.</p> <p>Further, within the 2014-2015 Transmission Planning Process the ISO will be conducting the assessment in two phases and will be included in the 2014-2015 TPP stakeholder process.</p> <p>Phase 1 – Development of an assessment methodology that evaluates risks and benefits of proposed mitigation strategies, and</p> <p>Phase 2 – Application of the methodology to evaluate risks and benefits of the proposed mitigation option.</p> <p>The study will consider various magnitudes of seismic events in the area of the San Francisco Peninsula and the potential impact of those seismic events on the electric to quantify the potential risks and benefits of identified capital projects as determined by the projects’ impact on system reliability following a seismic event.</p>

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	extreme event situations <i>elsewhere</i> on the grid. It should be suitable for translation to other parts of the grid, where it would presumably demonstrate lower need for “special status.” It could also provide foundation for a study methodology based on a broadly similar but more detailed causal chain.	

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3	<b>Office of Ratepayer Advocates of the California Public Utilities Commission</b> <b>Submitted by: Zita Kline and Traci Bone</b>	
3a	<p><b>I. INTRODUCTION</b></p> <p>On April 4, 2014, the California Independent System Operator Corporation (CAISO) posted its Straw Proposal Revision to ISO Transmission Planning Standards (Straw Proposal) for public comment. On April 11, 2014, the CAISO held a stakeholder meeting to discuss the Straw Proposal.<sup>1</sup> The Office of Ratepayer Advocates (ORA) filed comments on the April 4 Straw Proposal on April 25, 2014. On May 28, 2014 the CAISO issued a “Revised Draft Straw Proposal” to address parties’ comments on the initial Straw Proposal (May 28 Draft Proposal).</p> <p>Unfortunately, the May 28 Draft Proposal does not adequately address the issues raised by ORA in its April 25 Comments, which identified a number of technical deficiencies with the Straw Proposal, and provided detailed explanations. For ease of access, those April 25 Comments are attached to these comments. Most significantly, the May 28 Draft Proposal:</p> <ol style="list-style-type: none"> <li>1. Does not explain why the existing NERC reliability standards are not stringent enough to meet the state’s needs; and</li> <li>2. Does not provide any analysis to demonstrate that the costs of the CAISO’s more stringent standards are justified by the benefits they will provide to consumer.</li> </ol> <p>In addition to these substantive concerns, ORA has two procedural concerns with the CAISO’s adoption of the planning standards in the May 28 Draft Proposal.</p> <ol style="list-style-type: none"> <li>1. California Public Utilities Code § 345.5 requires the CAISO to reduce “to the extent possible, overall economic cost to the state’s consumers;” and</li> <li>2. The CAISO appears to be proceeding to adopt its own planning standards with Board Approval and no further review from the Federal Energy Regulatory Commission.<sup>2</sup></li> </ol> <p>Given the combination of these two factors – an obligation to reduce costs to California consumers combined with <i>de minimus</i> procedural protections afforded</p>	<p>The NERC Planning Standards are written so that category C contingencies are mitigated through transmission upgrades, resource</p>



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	<p>to those consumers – any CAISO-proposed planning standards exceeding NERC standards must meet the substantive requirements set forth above. The CAISO should demonstrate that (1) NERC’s standards are deficient; and (2) the benefits to California consumers justify the costs. The May 28 Draft Proposal fails on both counts.</p> <p>ORA recommends that the CAISO re-evaluate the recommendations made in ORA’s April 25 Comments, which are attached. Here, ORA offers the following limited and specific comments based upon some of the modifications included in the May 28 Draft Proposal.</p>	<p>additions, or if the risks and consequences are acceptable then load shedding is sometimes acceptable. The ISO Planning Standards supplement the NERC Planning standards, so that they can be consistently applied. The ISO’s FERC-approved tariff sets out the framework for the development of standards to address issues beyond the NERC minimum requirements, and in considering mitigations necessary to meet these additional standards, economics are an important consideration in the selection of the recommended mitigation.</p>
3b	<p><b>A. Cost Benefit Analysis Must Be A Primary Consideration In Considering CAISO Planning Standards That Exceed NERC Standards.</b></p> <p>While ORA appreciates the CAISO’s effort to address ORA’s April 25 Comments, the May 28 Draft Proposal does not reflect that effort. Most significantly from a consumer perspective, the CAISO’s May 28 Draft Proposal fails to accord sufficient importance to cost-benefit analysis. It expressly rejects cost-benefit analysis as the “main driver” for determining whether transmission upgrades or an acceptable level of load shedding to an area is justified, and finds that the role of cost-benefit analysis is merely to “provide additional information” in making these determinations:</p> <p>The ISO considers that [Benefit to Cost Ratio] type calculations may be provided as additional information when planning for non-consequential load loss in these type of events however this data may not be the main driver or sole justifier for decisions to move forwards with either SPS or transmission upgrades.</p> <p>The CAISO bases this determination on its conclusions that “existing modeling capabilities” cannot properly quantify the impact of load shedding for “large and complex networked transmission systems.”</p> <p>ORA respectfully disagrees with the CAISO regarding the role of cost-benefit analyses when it is considering reliability standards more stringent than NERC’s – such as the CAISO’s local area proposals to disallow the use of special</p>	<p>The ISO has identified a very narrow set of circumstances where load shedding should not be considered for the reasons described in the paper.</p> <p>NERC Standard TPL 003 states the following:</p> <p style="padding-left: 40px;">The Planning Authority and Transmission Planner shall each demonstrate through a valid assessment that its portion of the interconnected transmission systems is planned such that the network can be operated to supply projected customer demands and projected Firm (non-recallable reserved) Transmission Services, at all demand Levels over the range of forecast system demands, under the contingency conditions as defined in Category C of Table I.</p> <p>In Table I of TPL003 the following footnote is applied to all Category C contingencies listed.</p> <p style="padding-left: 40px;">Depending on system design and expected system impacts, the controlled interruption of electric supply to customers (load shedding), the planned removal from service of certain generators, and/or the curtailment of contracted Firm (non-recallable reserved) electric power transfers may be</p>



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	<p>protection schemes (SPS). As an initial matter, the CAISO must show that the NERC reliability standards are deficient in some way. Then, in proposing any solution to this identified deficiency, the CAISO must demonstrate that the benefits to consumers outweigh the costs involved in any new standard that exceeds NERC's.</p> <p>Neither state law nor state energy policy<sup>4</sup> permits the CAISO to treat cost-benefit analyses as merely "additional information" of secondary importance when considering whether to adopt more stringent reliability standards. Thus, if existing cost-benefit models are not sufficiently robust – which ORA does not necessarily agree with – then they should be improved, rather than relegating cost-benefit analysis to a secondary consideration.</p>	<p>necessary to maintain the overall reliability of the interconnected transmission systems.</p> <p>The intent of this NERC Standards language is that in some limited situations it may be acceptable to shed load for a category C contingency. A remote load area served by three long 115 kV transmission lines may would be one potential example of where load shedding of non-high density urban load may be acceptable for loss of two of the transmission lines. Therefore it is reasonable to perform a detailed evaluation to identify the appropriate transmission plan for the area, including the potential of shedding non-high density urban load in lieu of building transmission or resource upgrades. On the other hand, high density population areas are always served by a tightly meshed transmission network and loss of two transmission lines still results in multiple remaining transmission lines and resources to serve the load. Shedding high density urban load rather than building incremental transmission or resource additions is certainly not a reasonable option and it is not reasonable or feasible to perform a detailed analysis to accurately quantify the risks and cost exposure. Instead, the ISO practice is to deterministically acknowledge that the impacts of shedding the high density urban load over the long term are obviously unacceptable and efforts should be focused on evaluating the numerous mitigation options available that maintain the reliability of the system.</p>
3c	<p><b>B. Population Is Not An Appropriate Criterion For Determining Whether An Existing Special Protection Scheme Should Be Eliminated; The NERC Approach Based On Technical Parameters Is More Appropriate</b></p> <p>The CAISO's Straw Proposal of April 4 proposed to eliminate SPSs in major urban areas based on population density. Specifically, the April 4 Straw Proposal proposed that a threshold of 1,000 people/square mile would limit the application of the SPS standard to small portions of California with high population densities.<sup>5</sup></p> <p>ORA observed in its April 25 Comments that the CAISO's Straw Proposal failed</p>	<p>The ISO's Straw Proposal of April 4 stated that high density urban load is generally considered to refer to an area with population over 1,000 people per square mile. Diagram 1 of that paper shows nine counties with significant population densities and Diagram 2 shows the portions of San Diego County that would be included as a detailed example of one of the nine counties.</p>

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	<p>to specifically identify a problem requiring a solution or to provide any substantive analysis showing that its proposed standards eliminating SPSs in major urban areas would be a cost- effective means of solving the purported concerns.<sup>6</sup> ORA then noted that if the CAISO intended to move forward regardless of the lack of supporting analysis, its plan to eliminate SPSs based on population density was inappropriate because far more than 100 California cities easily met the CAISO's population density threshold.</p> <p>The CAISO's May 28 Draft Proposal appears to address ORA's concern by rejecting the initial proposal of 1,000 people/square mile in favor of the U.S. Census Bureau's definition of "Urbanized Area" as an area with a population of over one million people.<sup>7</sup></p> <p>This new proposal does not resolve the issues identified by ORA. As an initial matter, ORA provided many technical observations regarding why the CAISO's approach to eliminating SPSs was unsound. The CAISO's misuse of population density was only one of the problems. The CAISO's revised proposal to use a new threshold of population based on a Census definition of "Urbanized Area" is as flawed as the initial proposal. Among other things, using the gross number of one million people for an undefined geographic area does not reflect population density, or the load, transmission, and generation situation of an area.</p> <p>It is important to recognize that the recently adopted NERC TPL-001-4 regarding the implementation of SPSs does not use population as a criterion for whether an SPS is appropriate. The NERC standard is based on pure technical criteria including Bulk Electric System (BES) events, fault types, and BES voltage levels.<sup>8</sup> It was developed based on input from transmission planners, transmission operators, reliability coordinators, and professional engineers nation-wide. The NERC approach, based on pure technical parameters, is considered, appropriate, and equitable, and should not be abandoned without careful study justifying new standards.</p> <p>To reiterate ORA's initial observation, the CAISO needs to demonstrate why the NERC standards are not sufficient; it needs to succinctly identify a problem that</p>	<p>In response to stakeholder requests for more clarification, the ISO provided the clarified definition of high density urban load areas. However, the intent has not significantly changed.</p> <p>The Urbanized Areas are precisely defined geographically. Please see diagrams that will be referenced in a footnote of the ISO Planning Standards as described above.</p> <p>As described in the Revised Draft Revisions to the ISO Planning Standards, the ISO's approach of avoiding urban load shedding in high density areas is consistent with the general approaches of the other ISOs and RTOs. The ISO approach is also consistent with the NERC approach, and by no means abandons that approach.</p>

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	needs fixing. Then it needs to explain why its solution is the best and most economic way to fix the problem. The CAISO's May 28 Draft Proposal does not provide any of this analysis. Consequently, the CAISO's proposed changes to its planning standards should be rejected until such time as the reasoned analysis justifies their adoption.	

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<b>4</b>	<b>Pacific Gas and Electric</b> <b>Submitted by: Marco Rios</b>	
<b>4a</b>	<p><b>1. San Francisco Peninsula Extreme Event Reliability Standard</b></p> <p>PG&amp;E reaffirms its support of the CAISO's proposal to add to the CAISO planning standards a specific recognition of the unique characteristics of the San Francisco Peninsula and acknowledgement that this study area requires the consideration and approval of transmission solutions as mitigation for Extreme Events. PG&amp;E has reviewed the CAISO's draft language establishing the new reliability standard (Page 8 of the Planning Standards) and believes that the scope of the standard is appropriate and that the proposed language accurately reflects the CAISO's policy intent. Importantly, the standard explicitly identifies the unique set of circumstances affecting the SF Peninsula that distinguish it from other areas of the grid. In particular, PG&amp;E strongly supports the provision of the standard stating that "The unique characteristics of the San Francisco Peninsula form a credible basis for considering for approval correction action plans to mitigate the risk of outages...." The only change PG&amp;E recommends is minor. In the second full paragraph under Section 7, the first sentence should be modified as follows:</p> <p>"The requirements of NERC TPL-001-4 require Extreme Event contingencies to be assessed...."</p> <p>PG&amp;E notes that other sections of the planning standards do not include similar statements regarding TPL-001-4 superseding the existing NERC TPL standard. It is therefore unnecessary to include such language in Section 7.</p>	<p>The ISO has made modifications to the section to reflect the comment.</p>
<b>4b</b>	<p><b>2. Non-Consequential load dropping: Category C Contingencies</b></p> <p>In PG&amp;E's previous set of comments on this topic (submitted on April 25, 2014), PG&amp;E expressed its support of the CAISO's current and historical practice of not relying on high density urban load shedding as a long-term solution to Category C events in local area planning. However, PG&amp;E and a number of other stakeholders took issue with the CAISO's proposed criterion defining a "high density urban load area" (i.e., 1,000 people per square mile). Most commenters argued that the CAISO's population density metric was set too low and as a result</p>	

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	<p>the implementation of the restriction on load shedding would be overly broad. In response to comments, the CAISO has revised its definition of “high density urban load area” to reflect an “area with populations over one million persons.” PG&amp;E appreciates the CAISO’s reconsideration of this component of its initial proposal and generally supports the direction of the revised proposal. In PG&amp;E’s view, the revised criterion will result in the load shedding restriction applying to fewer geographic areas of the CAISO grid compared to the initial proposal while allowing the CAISO to consider load shedding on a case-by-case basis in more areas of the grid where minimal load shedding may prove to be appropriate mitigation for Category C events instead of new transmission or upgrades.</p> <p>PG&amp;E seeks clarification of the map presented on page 6 of the revised straw proposal. The legend on the map refers to “Large Urbanized Areas” whereas the proposed new standard (see page 7 of the Transmission Standards) uses the phrase “high density urban load area.” PG&amp;E seeks clarification as to whether these two terms are in alignment or if the map is depicting an alternative criterion to the one included in the proposed new standard.</p>	<p>As described in the ISO responses to ORA, the ISO has simply clarified and added more precision to the original proposal on what high density urban load areas are considered to be.</p> <p>The map put Urbanized Areas into three categories for illustration purposes. The ISO is not relying on the categories on the diagram for illustration purposes. Please see the ISO responses to BAMx regarding US Census Bureau maps and the list of high density urban areas.</p>
4c	<p><b>3. Changes to NERC Transmission Planning (TPL) Standards</b></p> <p>A. In Section VII. Interpretations of terms from NERC Reliability Standard and WECC Regional Criteria (page 18 of the Planning Standards), the CAISO is proposing to add a new interpretation -- “Footnote 12 of TPL-001-4 Interpretation and Applicable Timeline.” The addition includes an attempted restatement of Note 12 found in Table 1 of the TPL-001-4 standard and also includes a new footnote 6. Taken together, the CAISO’s proposal appears to restate NERC Notes 9 and 12 from Table 1 of the TPL standard. As currently drafted, it is not sufficiently clear what the CAISO’s intent is by adding the new “Footnote 12” interpretation and the embedded footnote 6. Moreover, PG&amp;E is concerned that these additions may introduce a potential conflict with the new NERC standard. For example, while footnote 6 of the CAISO standard states, “may no longer include curtailment of firm transmission service...”; Note 9 of Table 1 of the TPL standard states, “Curtailment of Firm Transmission Service is allowed....”.</p>	<p>ISO believes that planning for a robust transmission system implies non reliance on footnote 12 in long-term planning. This interpretation is not specific but implied in the NERC TPL-001-4 standard. Therefore ISO would like to keep the specific interpretation in the ISO standards.</p> <p>The confusion will be eliminated by changing ISO footnote 6 to: “Implementation and applicable timeline will remain the same as the “Effective Date :”(s) described in the NERC TPL-001-4 standard.”</p>

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	<p>PG&amp;E seeks clarification from CAISO as to how the interpretation differs from the NERC standard and the reason for the inclusion of the interpretation.</p> <p>In general, unless there is a need to interpret a term in the NERC standards, the CAISO should remove from its Planning Standards new provisions that attempt to restate TPL-001-4.</p>	
	<p>B. Section II - 6. Planning for High Density Urban Load Area Standard. The first bullet states:</p> <p>“In the near term during short-term planning, SPS which drops load, including high density urban load, may be used to bridge the gap between real-time operations and the time when system reinforcements are built.”</p> <p>Table 1 of the NERC Standard identifies a number of EHV contingencies (example, P2, Bus Section Fault) for which non-consequential load shedding is not allowed under any circumstances, including as a stop gap measure, after 1/1/2021.</p> <p>Since there is no sunset clause in the CAISO standard for EHV contingencies, the above change makes the CAISO standard less stringent than the NERC standard.</p> <p>Please clarify.</p>	<p>In order to clarify the ISO will change the language as follows:</p> <p>“In the near term during short-term planning, where allowed by NERC standards, SPS which drops load, including high density urban load, may be used to bridge the gap between real-time operations and the time when system reinforcements are built.”</p>

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<b>5</b>	<b>Six Cities</b> <b>Submitted by: Margaret E. McNaul</b>	
<b>5a</b>	<p><b>1. Non-Consequential Load Dropping – Category C Contingencies</b></p> <p>The ISO proposes to incorporate into the planning standards the principle that, with respect to local areas that represent high-density urban load, the ISO does not rely on load shedding as a long-term solution to address “Category C” contingencies. The revised straw proposal includes modified criteria for identifying high-density urban loads, and the ISO now proposes to define these areas as “Urbanized Area[s], as defined by the U.S. Census Bureau, with a population over 1 million persons.” (See Revised Straw Proposal at 5.) According to the U.S. Census Bureau, an Urbanized Area is a “statistical geographic entity consisting of a densely settled core created from census tracts or blocks and contiguous qualifying territory that together have a minimum population of at least 50,000 persons.” (<i>Id.</i> at n.2) Urbanized Areas within California that the U.S. Census Bureau has identified as such and include more than 1 million people are San Diego, Los Angeles-Long Beach-Santa Ana, Riverside-San Bernardino, San Jose, San Francisco-Oakland, and Sacramento. (See <i>id.</i> at 6.)</p> <p>As to such high-density urban loads, the ISO planning standards are proposed to state:</p> <p>For local area long-term planning, the ISO does not allow non-consequential load dropping in high density urban load areas in lieu of expanding transmission or local resource capability to mitigate NERC TPL-001-4 standard P1-P7 contingencies and impacts on the 115 kV or higher voltage systems.</p> <p>(See Revised Straw Proposal – Redline of Planning Standards at 7.)</p> <p>The Six Cities acknowledge the ISO’s view that historical planning practices within the ISO have excluded the use of planned load shedding as a long-term solution for Category C contingencies in high-density urban areas, and that this approach appears to be consistent with the practices of some other ISO and RTO regions. (See, e.g., Revised Straw Proposal at 3-5.) At the same time, the Six Cities urge</p>	



No	Comment Submitted	ISO Response
	<p>the ISO to consider incorporating into the Planning Standards the concept that a cost-to-benefit assessment may be relevant in evaluating appropriate mitigation measures for Category C contingencies, even for high-density urban areas. As illustrated in comments by Southern California Edison Company (“SCE”), mitigation of a Category C contingency could come at a substantial, even “impractical,” cost to transmission ratepayers, whereas planned load shedding could present a reasonable solution to some Category C contingency scenarios, even in high-density areas, that are “low likelihood events.” (See Stakeholder Comments Matrix at 29.) SCE explained that the “CAISO standard should include a provision to allow [Special Protection Systems] in urban areas where it is economically impractical to pursue transmission upgrades.” (<i>Id.</i>) SCE’s concerns have merit, and the Six Cities suggest that the ISO consider whether it should, as a planning principle, categorically rule out the use of load shedding as one of an array of potential mitigation tools for Category C contingencies in high-density urban areas, where transmission or resource expansion may be impractically expensive relative to the expected frequency of the event or its anticipated impact and duration.</p>	<p>There are many options for meeting this criterion in addition to new transmission upgrades. New preferred and conventional resources could also fill potential future needs triggered by this criterion including distributed generation, storage, demand response, or targeted energy efficiency.</p>
	<p><b>2. San Francisco-Peninsula Extreme Event Reliability Standard</b> The revised straw proposal continues to highlight the unique nature of the configuration and supply patterns for the San Francisco Peninsula and proposes that this area merits special consideration in the planning standards such that “Category D Extreme Events” should be mitigated for San Francisco even though such mitigation is not required under the relevant NERC Reliability Standards. In their previous comments, the Six Cities urged the ISO to exercise caution in considering whether to establish a categorical policy that may be construed to elevate the approval of transmission solutions to mitigate Category D Extreme Events for any one area of the ISO grid, especially without setting any parameters or objectives for mitigation, and observed that other areas may share some or all of the characteristics that caused the ISO single out San Francisco as unique. In response, the ISO stated that other areas would be considered for Extreme Event mitigation on a case-by-case basis. (See Stakeholder Comments Matrix at 23.) The Six Cities request that this concept be reflected in the transmission planning standards.</p>	<p>The ISO has made modifications to the section to reflect the comment.</p>

No	Comment Submitted	ISO Response
<b>6</b>	<b>Smart Wire Grid, Inc.</b> <b>Submitted by: Chifong Thomas</b>	
<b>6a</b>	<p>1. While SWG does not oppose to avoiding Non-Consequential Load shedding for high density urbanized local areas after a Category C contingency; however, the ISO's proposed changes to the planning standard needs clarification to avoid confusion in future applications. We suggest that the ISO provide some examples on how these Section II.6 would apply beyond the transmission plan in the current TPP for both the "high density urban loads" and for the "non-high density urban loads". Such examples would go a long way in furthering the understanding of the impacts of the proposed changes. Specifically,</p> <p>a. As written, the proposed changes in Attachment 1, Section II.6, would eliminate any benefit-cost assessment for high density urbanized loads. Therefore, the ISO could cause, say, a disproportionally large capital expenditure to avoid dropping a small amount of load within a high density urbanized area. An explanation on how this probability could be avoided will be helpful.</p> <p>b. In the response to SWG comments concerning LCR (on page 25 of the ISO's response to Stakeholder comments), the ISO stated that, "The ISO planning standards would not prevent the installation of SPS pursuant to the LCR methodology to avoid excessive contractual costs." This can produce confusion in the future. In a few years, it would be difficult to distinguish between an SPS installed to shed Non-Consequential Load to lower LCR, which is allowed, from the same SPS to shed the same Non-Consequential Load due to a NERC Category C Contingency, which is not allowed in this proposal.</p> <p>c. In the second bullet, same Section, the ISO states that "In considering if load shedding is a viable mitigation in either the short-term, or the long-term for local areas that would not call upon high density urban load, case-by-case assessments need to be considered." Even though the sentences that follow outline some considerations for the Assessment, a more detailed discussion of the process to ensure consistency in such evaluations across the CAISO Balancing Area will be helpful.</p>	<p>There are many options for meeting this criterion in addition to new transmission upgrades. New preferred and conventional resources could also fill potential future needs triggered by this criterion including distributed generation, storage, demand response, or targeted energy efficiency.</p> <p>In the transmission planning process studies, all local generation is assumed to be available for dispatch in the cases and contingencies are run on these cases with the generation pre-dispatched to a level to mitigate contingency overloads and voltage problems. SPS is designed to not activate if it is not needed, so the SPS is not modeled in the contingency files. If the installed local generation and transmission are not adequate without the SPS then this would be easily identified.</p> <p>We believe the criteria provides a valuable level of detail that supplements the NERC planning standards and can be applied to all areas of the ISO system. More prescriptive criteria would likely not be applicable to all areas of the system. One of the actively managed objectives of the ISO transmission planning process is that evaluations are consistent across the ISO system.</p>

No	Comment Submitted	ISO Response
6b	<p>2. In Attachment 1, Section VII, the reference to NERC Footnote 12, and Footnote 6 should be removed. This section should contain only the timelines for implementation of the NERC TPL-001-4.</p> <p>The CAISO's Footnote 6 states,</p> <p>"TPL-001-4 has an 84 month effective date for some of the requirements. With this, after Jan 1, 2021 the Corrective Action Plans may no longer include curtailment of firm transmission service or non-consequential load loss in excess of 75 MW or non-consequential load loss that does not meet the conditions specified in Attachment 1 of TPL-001-4 for the following categories of contingencies: P1-2 and P1-3 (for controlled interruption of electric supply to local networks customers connected to or supplied by the faulted element), P2 -1, P2-2 and P2-3 (above 300 kV), P3-1 through P3-5, P4-1 through P4-5 (above 300 kV) as well as P5 (above 300 kV)."</p> <p>a. The part that states, the "Corrective Action Plans may no longer include curtailment of firm transmission service" is in direct conflict with NERC Footnote 9, which states,</p> <p>"TPL-001-4 Footnote 9 states: "Curtailment of Firm Transmission Service is allowed both as a System adjustment (as identified in the column entitled 'Initial Condition') and a corrective action when achieved through the appropriate re-dispatch of resources obligated to re-dispatch, where it can be demonstrated that Facilities, internal and external to the Transmission Planner's planning region, remain within applicable Facility Ratings and the re-dispatch does not result in any Non-Consequential Load Loss."</p> <p>NERC Footnote 9 clearly allows curtailment of Firm Transmission Service if it can be achieved through "re-dispatching of resources obligated to re-dispatch" and such re-dispatch will not cause any transmission problems or result in Non-Consequential Load Loss. Examples, of resources obligated to re-dispatch can include resources that participate in reserve sharing, the resource under the ISO operational control, or available through contract for emergency support. Categorically disallowing curtailment of Firm Transmission Service is not justified.</p> <p>b. The remainder of the CAISO's Footnote 6 is a restatement of the requirements in NERC Table 1, not an interpretation because it has the same content as NERC Table 1.</p>	<p>ISO believes that planning for a robust transmission system implies non-reliance on footnote 12 in long-term planning. This interpretation is not specific but implied in the NERC TPL-001-4 standard. Therefore ISO would like to keep the specific interpretation in the ISO standards.</p> <p>The confusion will be eliminated by changing ISO footnote 6 to: "Implementation and applicable timeline will remain the same as the "Effective Date :"(s) described in the NERC TPL-001-4 standard."</p>

No	Comment Submitted	ISO Response
	To avoid confusion, please remove the paragraph on NERC Footnote 12 and the associated ISO Footnote 6.	

No	Comment Submitted	ISO Response
<b>7</b>	<b>Southern California Edison Submitted by: Ying He, Garry Chinn and Karen Shea</b>	
<b>7a</b>	<p>In summary, SCE comments recommend refinements to the CAISO's proposal regarding the use of load shedding Special Protection Schemes (SPSS) for Category C contingencies. The focus of SCE's comments is to provide clarification. Please see, in the Appendix to these comments, SCE's redline edits (shown in red text, with CAISO's language in blue) to the revised draft Transmission Planning Standards. To summarize, SCE proposes:</p> <ol style="list-style-type: none"> <li>1. To clarify what a local area is by adding its definition, as provided in the CAISO's proposal, to Section 6;</li> <li>2. To add Section 6.2 System Wide Long-Term Planning for further clarification;</li> <li>3. And to clarify that Section VI pertains to local areas only.</li> </ol> <p>At this time, SCE does not have any comments on the proposals regarding extreme event mitigation for the San Francisco Peninsula area and the incorporation of revised NERC Transmission Planning Standards.</p>	<p>The ISO concurs with these edits with one minor clarification as noted below.</p>
<b>7b</b>	<p><b>(Starting from page 7, Attachment 1: California ISO Planning Standards)</b></p> <p><b>6.1 Planning for High Density Urban Load Area Standard Local Area Long-Term Planning</b> A local area is characterized by relatively small geographical size, with limited transmission import capability and most often with scarce resources that usually can be procured at somewhat higher prices than system resources.<sup>1</sup> The local areas are planned to meet the minimum performance established in mandatory standards or other historically established requirements, but tend to have little additional flexibility beyond the planned-for requirements taking into account both local generation and transmission capacity. Increased reliance on load shedding to meet these needs would run counter to historical and current practices, resulting in general deterioration of service levels.</p> <p>For local area long-term planning, the ISO does not allow non-consequential load dropping in high density urban load areas in lieu of expanding transmission or local resource capability to mitigate NERC TPL-001-4 standard P1-P7 contingencies and impacts on the 115 kV or higher voltage systems.</p>	<p>We propose the following refinement to the footnote:</p> <p>A "local area" for purposes of this Planning Standard is not <u>necessarily</u> the same as a Local Capacity Area as defined in the CAISO Tariff.</p> <p>The ISO Tariff defines Local Capacity Area as follows:</p> <p>Transmission constrained area as defined in the study referenced in Section 40.3.1.</p> <p>Section 40.3.1 describes the ISO Local Capacity</p>

<sup>1</sup> A "local area" for purposes of this Planning Standard is not the same as a Local Capacity Area as defined in the CAISO Tariff.

No	Comment Submitted	ISO Response
	<ul style="list-style-type: none"> <li>In the near term during short-term planning, SPS which drops load, including high density urban load, may be used to bridge the gap between real-time operations and the time when system reinforcements are built.</li> <li>In considering if load shedding is a viable mitigation in either the short-term, or the long-term for local areas that would not call upon high density urban load, case-by-case assessments need to be considered. Assessments should take in consideration, but not limited to, risk assessment of the outage(s) that would activate the SPS including common right of way, common structures, history of fires, history of lightning, common substations, restoration time, coordination among parties required to operate pertinent part of the transmission system, number of resources in the area, outage history for resources in the area, retirement impacts, and outage data for the local area due to unrelated events.</li> </ul>	<p>Technical studies, and because these studies have a different objective there may be different constraints identified and therefore different area boundaries. However, in general the local load pocket areas are roughly the same regardless of the study process.</p>
7c	<p><b>6.2 System Wide Long-Term Planning</b> System planning is characterized by much broader geographical size, with greater transmission import capability and most often with plentiful resources that usually can be procured at somewhat lower prices than local area resources. Due to this fact more resources are available and are easier to find, procure and dispatch. Provided it is allowed under NERC reliability standards, the ISO will allow non-consequential load dropping system-wide SPS schemes that include some non-consequential load dropping to mitigate NERC TPL-001-4 standard P1-P7 contingencies and impacts on the 115 kV or higher voltage systems.</p>	
7d	<p><b>VI. Background behind Planning for High Density Urban Load Area Standard for Local Areas</b> A local area is characterized by relatively small geographical size, with limited transmission import capability and most often with scarce resources that usually can be procured at somewhat higher prices than system resources. These areas are planned to meet the minimum performance established in mandatory standards or other historically established requirements, but tend to have little additional flexibility beyond the planned-for requirements taking into account both local resource and transmission capacity. The need for system reinforcement in a number of local areas is expected to climb due to projected resource retirements, with single and double contingency conditions playing a material role in driving the need for reinforcement. Relying on load shedding on a broad basis to meet these emerging needs would run counter to historical and current practices, resulting in general deterioration of service levels. One of the fundamental ISO Tariff requirements is to maintain service reliability at pre-ISO levels, and it drives the need to codify the circumstances in which load shedding is not an acceptable long-term solution:</p>	

No	Comment Submitted	ISO Response
	<p>1. For local area long-term planning, the ISO does not allow non-consequential load dropping in high density urban load areas in lieu of expanding transmission or local resource capability to mitigate NERC TPL-001-4 standard P1-P7 contingencies and impacts on the 115 kV or higher voltage systems.</p> <p>This standard is intended to continue avoiding the need to drop load in high density urban load areas due to, among other reasons, high impacts to the community from hospitals and elevators to traffic lights and potential crime.</p> <p>2. In the near term during short-term planning, SPS which drops load, including high density urban load, may be used to bridge the gap between real-time operations and the time when system reinforcements are built.</p> <p>This standard is intended to insure that a reliable transition exists between the time when problems could arise until long-term transmission upgrades are placed in service.</p> <p>3. In considering if load shedding is a viable mitigation in either the short-term, or the long-term for local areas that would not call upon high density urban load, case-by-case assessments need to be considered. Assessments should take in consideration, but not limited to, risk assessment of the outage(s) that would activate the SPS including common right of way, common structures, history of fires, history of lightning, common substations, restoration time, coordination among parties required to operate pertinent part of the transmission system, number of resources in the area, outage history for resources in the area, retirement impacts, and outage data for the local area due to unrelated events.</p> <p>It is ISO's intention to thoroughly evaluate the risk of outages and their consequences any time a load shedding SPS is proposed regardless of population density.</p>	