California ISO

Stakeholder Comments Template

Resource Adequacy Enhancements

This template has been created for submission of stakeholder comments on the Resource Adequacy Enhancements fifth revised straw proposal that was published on July 7, 2020. The proposal, stakeholder meeting presentation, and other information related to this initiative may be found on the initiative webpage at: http://www.caiso.com/StakeholderProcesses/Resource-Adequacy-Enhancements

Upon completion of this template, please submit it to initiativecomments@caiso.com. Submissions are requested by close of business on **August 7, 2020**.

Submitted by	Organization	Date Submitted
Nuo Tang *ntang@sdge.com*	*San Diego Gas & Electric*	*August 7, 2020*

Please provide your organization's overall position on the RA Enhancements fifth revised straw proposal:

☐ Support
☐ Support w/ caveats
☒ Oppose
☐ Oppose w/ caveats
☐ No position

Please provide your organization's comments on the following issues and questions.

SDG&E appreciates the opportunity to comment on the 5th Revised Straw proposal. Proposing changes to the current RA structure is difficult because of the incredible amounts of issues that are interconnected with each other. SDG&E is highly concerned that the current iteration of the proposal still has many outstanding issues that are still unaddressed. Additionally, SDG&E believes the CAISO has not shown any additional reliability benefits that would be gained if this proposal were to be implemented. As the CASIO notes, the RA program has unique characteristics in California. Therefore, aspects of capacity programs from other ISO/RTOs may not fit well in California until various rules to the current program are changed. After carefully reviewing the proposal, SDG&E is unable to support the CAISO's proposal at this time. SDG&E believes simplier and more efficient methods could provide additional reliability benefits.

1. System Resource Adequacy

Please provide your organization's feedback on the System Resource Adequacy topic as described in section 4.1. Please explain your rationale and include examples if applicable.

a. Please provide your organization's feedback on the Determining System RA Requirements topic as described in section 4.1.1. Please explain your rationale and include examples if applicable.

The CAISO notes in its 5th revised straw proposal that this section has not changed since the 4th revised straw proposal, which also had not changed since the 3rd revised straw proposal issued in December 20, 2019. The CAISO has not shown the proposed framework to be more reliable and would not significantly increase costs to ratepayers. The CAISO has in fact shown that it is unnecessary to move towards the UCAP framework because it will assess system reliability by studying the fleet using NQC values in the assessment.

The CAISO has not explained why its initial minimum UCAP requirement is reasonable or supported by analysis. The CAISO has stated since its 3rd revised straw proposal that it

> *believes that the UCAP requirement should be set at a minimum of 110 percent of forecasted peak. This number accounts for forecast load, reserves and forecast error. The value used for the forecast error is derived from comparing the low, mid, and high load forecasts from the CEC's 2018 final Integrated Energy Policy Report (IEPR). The IEPR mid load forecast was approximately between one to three percent higher than the low load forecast. The high load forecast was between four and seven percent higher. To account for forecast error, the planning reserve margin likely would need an additional two to six percentage points. The CAISO has selected four percent as a reasonable starting point.*[1]

The CAISO is determining forecast error as the variance between the CEC's load forecast scenarios, rather than the difference between an adopted forecast and actual load, both weather adjusted and actual. It is unclear whether comparing three different forecast scenarios produced within the same forecasting cycle is reasonable compared to an analysis of the actual error between forecast and actuals.

SDG&E recommends the CAISO explain the results of the anticipated June RA showing assessment in the next iteration of the proposal. It is unclear how the results would "provide additional context about how UCAP requirements should be established."[2] If the CAISO intends to use a single data point to augment the System UCAP requirement, SDG&E requests that the CAISO explain how a

[1] CAISO 5th Revised Straw Proposal, p 13
[2] CAISO 5th Revised Straw Proposal, p 8

single data point is appropriate to apply to other months that were not studied. SDG&E requests the CAISO provide the inputs, especially the forced outage availability, that were used and indicate whether those are consistent with the CAISO's UCAP counting proposal.

b. Please provide your organization's feedback on the Unforced Capacity Evaluations topic as described in section 4.1.2. Please explain your rationale and include examples if applicable.

SDG&E does not support CAISO's proposed definition of that the tightest supply cushion hours are deemed to be defined as the 20th percentile of all calculated supply cushions.

SDG&E believes this measure should be defined by an actual supply cushion metric of tightness. The proposed 20th percentile does not establish such a metric as the supply cushion greatly varies across years. As the CAISO's table 2 shows the 20th percentile for the years 2018 through 2020 has an average supply cushion between 3,000 MW and to nearly 9,000 MW, after accounting for forced outages. This is a significant amount of supply that varies across the 20th percentile range.
This is why SDG&E has proposed that the definition of tightest supply cushion be that is based on a calculated threshold that is relative to demand. SDG&E believes the CAISO could augment SDG&E's formula by establishing a minimum threshold that would similarly account for the average forced outage rate of the fleet. For example, if the average forced outage rate is 6 percent., then the formula could be adjusted such that the (PRM – Average Forced Outage Rate) * Load > Daily Shown RA (excluding wind and solar) – Daily RA Planned Outages – Net Load. This would establish the surplus threshold the CAISO needs to maintain reliability and measure a resource's availability based on a defined metric relative to load rather than a variable metric that is not correlated to load at all.

SDG&E requests that the CAISO to explain how the term "Derates" would be included as part of the Hourly Unavailability Factor. Derates are included in addition to Forced and Urgent Outage Impacts as part of the formula. An issue that needs to be addressed is : would there be derates that are not reported as Forced or Urgent Outages in the same time frame?

$$\textbf{Hourly Unavailability Factor} = \frac{\textbf{Derates} + \textbf{Forced \& Urgent Outage Impacts}}{\textbf{NQC}}$$

SDG&E requests the CAISO to hold a workshop to better explain the existing Reliability Coordinator Outage Management function. The workshop can resurrect the defunct Reliability Requirements Customer Partnership Group. SDG&E believes the CAISO should provide responses to the following questions.

- How does the CAISO manage the RC outage reporting process for generators currently?
- How does the CAISO translate outage information submitted into WebOMS into information for RC Outage Coordination?
- How are Forced Outages defined in the RC0630 with regards to the current 7 day threshold in the current CAISO Tariff?
    - Will resources be required to submit into WebOMS for forced otuages that have a continuous duration of less than 30 minutes if CAISO's proposal is adopted?
- How are Urgent Outages defined in the RC0630 with regards to the current 7 day threshold in the current CAISO Tariff?
    - Required outage information under RC0630 notes Outage Type as being required, but the usage of outage flags as defined by WebOMS seems to also be acceptable, as well as optional. This would suggest the CAISO has not been submitting certain Forced Outages as Urgent Outages since that is not a defined outage type in WebOMS. Is this an accurate interpretation?
- The current planned outage threshold is 7 days prior to the start of the outage not including the day of the request and the day of the start of the outage. The planned outage defined by RC0630 has a minimum of 7 days but a maximum of 18 days prior to the start of an outage because all planned outages within one week are grouped together for the purposes of the short-range study. As shown in Figure 8 of the RC0630 operating procedures, an outage that starts on the 24th of June must be submitted effectively by midnight of the 6th to be considered as a Planned outage. If an outage is submitted past midnight of the 6th to start on the 24th, is this outage considered either an Urgent or Forced Outage?

Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
June 4	5	6	7	8	9	10
			Planned outages in yellow colored week should be submitted by 0001 on Thursday			
11	12	13	14	15	16	17
			Holiday	Holiday		
18	19	20	21	22	23	24
Planned outage start time (Monday)	Planned outage start time (Tuesday)	Planned outage start time (Wednesday)	Planned outage start time (Thursday)	Planned outage start time (Friday)	Planned outage start time (Saturday)	Planned outage start time (Sunday)

Figure 8: Short-Range Timelines (Thursday and Friday Holiday Example)

- Is the CAISO proposing to make these changes to the outage types for both generation as well as transmission outages to keep consistency as the CAISO had elected to do so when it adopted RAAIM?
- Would the Nature of Work change due to the newly proposed outage types? Specifically, would the Short Notice Opportunity Outage Nature of Work be available when there is an Opportunity Outage type?
- What Nature of Works that will be eligible for UCAP exemption?
- What is the scope of change that the CAISO is proposing to the outage submission process? Has the outage management customer partnership discussed these changes?

SDG&E opposes the CAISO's limited definition of UCAP exempt outages. SDG&E does not believe outages caused by factors outside of the generator's control should be included in the UCAP calculation. First, transmission-induced forced outages are currently exempt from the RAAIM calculation because generators cannot control the transmission network maintenance. This type of outage does not measure of how well a resource is maintained or its physical reliability. In fact, such outages are not even submitted or created in WebOMS by the resource owner, but rather by the CAISO itself. Penalizing a resource for the poor performance of the transmission system does not create incentives to improve the maintenance of the transmission system. SDG&E strongly urges the CAISO to include transmission-induced outages as UCAP exempt.

Second, CAISO's definition and limitation of UCAP-exempt outages are non-sensical. Assume a natural disaster such as an earthquake or a flood affecting a resource twice in three years for a duration longer than five consecutive days. It does not make sense that both outages would impact the UCAP calculation because they're considered as non-exempt, but then as the first event rolls off of the 3-year window, the second event is now exempt. The CAISO should not be defining exemptions based on time but rather the nature of an outage.

Finally, wildfires may be caused by various factors that are not predictable or able to be mitigated through exercise of Good Utility Practice. In the event wild fires risk the health and safety of the personel and potentially damage a resource physically, such events should not be counted against the resource's availability. Similarly PSPS events are transmission induced outages that the generator cannot control. The CAISO provides an example of equipment damage due to arson being eligible for UCAP exemption because "arson is unlikely to cause repeated unavailability year after year."[3] Yet arson could have started the wild fire which created the PSPS event that caused the resource to be taken offline even though it was able to function. PSPS events should be subject to UCAP exemption too just like arson as currently it's not possible to anticipate when a PSPS will occur or for how long it will last. The CAISO's criteria for UCAP does not accurately capture a resource's actual physical availability or its incentives to maintain the plan through good utility

[3] CAISO 5th Revised Straw Proposal, p 18

practice. SDG&E strongly recommends the CAISO to change it proposal on exempt outages.

i. Please provide your organization's feedback on whether the ISO should establish a dead band around a resource's UCAP value given the associated benefits and burdens, as described in section 4.1.2. Please explain your rationale and include examples if applicable.

SDG&E supports the concept of a dead band as it effectively maintains the status quo for NQC counting. As the CAISO noted in its proposal, "the estimated forced outage rate for RA resources was 4% to 6% of the 15% planning reserve margin."[4] SDG&E believes the PRM should be revisited to account for the new supply mix on the grid. In fact, the CPUC adopted the proposal to establish a working group to update the PRM through a Loss of Load Expectation study in Track 2 of the RA proceeding. SDG&E believes that with an updated PRM, the RA framework can remain utilizing the current NQC framework in conjunction with a proper mechanism to allow generators to procure substitute capacity for outages, both planned and forced. This would significantly simplify the changes and improve reliability.

ii. Please provide your organization's feedback on Option 1 and Option 2 for calculating UCAP for new resources without three full years of operating history, as described in section 4.1.2. Please explain your rationale and include examples if applicable.

SDG&E believes the CAISO should choose the option that's best supported by data. SDG&E recommends the CAISO to provide some analysis to see which "model" yields more accurate results after the 3rd year. The analysis should not be limited to energy storage because the data is sparse and the new resources option would be applicable to any technology type. However, the results should point to whether one option better forecasted actuals than another option statistically speaking. Without any analysis, it's difficult to judge which option is more appropriate.

iii. Please provide your organization's feedback on the ISO's approach to use the historical availability during the RAAIM hours for years prior to 2019 and the historical availability during the 20% tightest supply cushion hours in years 2019 and beyond for hydro resources, as described in section 4.1.2. Please explain whether this approach is necessary or preferred to the standard UCAP calculation to reflect hydro availability.

[4] CAISO 5th Revised Straw Proposal, p 9

SDG&E understands the CAISO proposes to compile data from the tightest 20% of supply cushion hours starting from three years prior to the implementation in 2022. For the other seven years of the ten year data set, the CAISO proposes to include availability data from the RAAIM assessment hours. It is unclear whether the proposed methodology is compatible with the RAAIM availability data or whether RAAIM compatible data is available. First, the RAAIM data does not account for fuel unavailability whereas the tight supply conditions would. Second, RAAIM became effective on November 1, 2016 but the CAISO had significant challenges which prevented it from being effective until April 1, 2017. Therefore, it is unclear to whether sufficient data exists for the CAISO to implement this methodology.

Finally, RAAIM's intent was to measure a resource's ability to meet its must offer obligations, including that of the Flexible MOO. To the extent the resource was physically available but submitted a self schedule rather than bid, the resource's availability would be affected. Therefore, the availability data would not accurately represent a resource's unforced capacity.

iv. Please provide your organization's feedback on the modifications for UCAP counting rules for storage resources as described in section 4.1.2. Please explain your rationale and include examples if applicable.

SDG&E does not support some components of the proposed counting methodology for energy storage. First, UCAP is supposed to measure a resource's mechanical availability to discharge. However, the counting methodology takes into consideration impacts to the charging capability of the energy storage resource. While these impacts may reduce the speed at which the resource can charge, they do not necessarily affect the discharge capability. SDG&E recommends that the CAISO to modify the counting methodology to only account for the resource's ability to discharge.

Second, the proposed methodology calculates availability on a rolling four hour basis based on the resource's constraint for the end of hour state of charge (EOH SOC). SDG&E believes this is inaccurate. To the extent the resource can provide its maximum discharge rate for the full hour, the CAISO should not derate the resource's availability as it's impossible for the resource to discharge beyond its physical capability. For example, if a +/- 25 MW, 100 MWh battery is 100% charged, submits an EOH SOC of 25 MWh. Under the CAISO's proposal, the resource has only made available 75 MWh (100 MWh – 25 MWh) available for the next four hours. The counting methodology would derate the effective availability to only 18.75 MW, even though the CAISO's market optimization dispatches the resource for a full 25 MWh in that single hour. This unfairly derates the actual contribution of the resource. While SDG&E understands the requirements for resources to qualify as RA resources is the ability discharge for four consecutive hours, the CAISO's UCAP counting methodology does not similarly discount other resource types' availability due to total available energy limitation. SDG&E believes the availability calculation proposed by the CAISO could be modified as follows to account for the energy limitation; however SDG&E is still unsure whether

that should impact the resource's availability because it is not a mechanical limitation of the resource.

$$Availability = min(Effective\ Max, Effective\ Energy)$$

This formula would only affect the UCAP when the resource is unable to provide the MW and MWh in a single hour. This is important because the CAISO's UCAP proposal takes into consideration the top 20 percentile of supply cushion hours. To the extent the energy storage provided its entire capability in that hour, its availability should not be impacted; only the hour in which the resource was unable to provide its full output should be matter.

The CAISO's proposal for UCAP counting methodology for Demand Response and Qualified Facilities lack sufficient details in the proposal. First, the CAISO notes that it will track the historical performance over a rolling 3 year period and compare the market dispatches to the actual performance during those periods to establish the availability for the UCAP value. It is unclear whether availability will consider all hours of dispatch or only the hours that associated with the CAISO's definition of tight supply cushion. Second, will the three year period also include a weighting factor similar to one that's used for conventional resources? Lastly, a scheduling coordinator does not influence the availability of the demand response resource and should not be penalized because it was contracted by a demand response provider (DRP). The CAISO's methodology would impact a scheduling coordinator's ability to attract new clients if it were unluckily affected by the performance of a single demand response resource. SDG&E suggests that the CAISO should first consider resource specific methodologies. Alternatively, the CAISO might wish to consider other methods that may be applicable to a DRP or the type of demand response resource.

SDG&E requests that the CAISO to include in its next iteration of the straw proposal the UCAP counting methodologies for all other resource types not yet discussed so that market participants can have a clear understanding of the CAISO's proposed UCAP methodology for each resource. A non-exhaustive list includes: Non-resource specific import RA resources, hybrid, nuclear, and geothermal resources.

c. Please provide your organization's feedback on the System RA Showing and Sufficiency Testing topic as described in section 4.1.3. Please explain your rationale and include examples if applicable.

As a threshold matter, SDG&E believes the production simulation should include both shown Resource Adequacy (RA) resources and all other generation that exists or is expected to be in-service during the period of time covered by the simulation. Excluding resources that are not included in an RA showing from the analysis may significantly overstate actual reliability risks. Additionally, excluding these resources will distort the production simulation since the commitment and dispatch of shown RA resources is significantly influenced by the availability and operating cost of all other resources. SDG&E notes that other processes such as

the CAISO's own Summer Assessment as well as the CPUC's IRP proceeding utilizes a portfolio with both deliverable resources and energy only resources and rely on all these resources to meet system reliability, energy sufficiency, and GHG targets. SDG&E believes the CAISO's proposed portfolio assessement should be consistent with both of those portfolio assessement metrics, otherwise it will create a system in which long-term resource planning (i.e. IRP) and short-term resource planning (i.e. RA) are inconsistent and result in significantly different measurement of reliability. SDG&E does not support the CAISO's proposal to only assess the shown RA fleet in the portfolio assessment.

To date, the CAISO has yet to define much of the specifics of the portfolio assessment. The CAISO states that the "model setup will be different from that of the Summer Asessment to align its functions with the objective of an RA portfolio assessment."[5] The CAISO notes a primary difference that the model will *only* utilize RA resources to be scheduled by the model whereas the Summer Assessment accounts for all resources available to meet peak summer loads. What other differences will there be?

- Will the forced outage rates differ between the sufficiency test and the Summer Assessment?
- What is the Loss of Load Expectation (LOLE) level both models trying to achieve?
- Does such a model work for non-summer months?

Additionally, how does this assessment inform the CAISO as to how much additional capacity would be needed if the assessment fails?

Many of these answers remain unknown as the initiative moves closer to the final iteration of the proposal. SDG&E is concerned that stakeholders have yet to fully understand and consider CAISO's proposal due to still outstanding questions and issues.

d. Please provide your organization's feedback on the Must Offer Obligation and Bid Insertion Modifications topic as described in section 4.1.4. Please explain your rationale and include examples if applicable.

SDG&E is concerned the CAISO is changing the must offer obligation (MOO) of RA resources to a day-ahead only MOO for several reasons. First retaining the real time must offer obligation, to which most RA resources are currently obligated to do through long term contracts, only improves reliability and reduces the likelihood of exceptional dispatch. Therefore, the success of the new market structure will rely heavily on the accuracy of CAISO's forecasts. Second, it is currently an unknown whether reliability will improve and costs will decrease for

[5] CAISO 5th Revised Straw proposal, p 41

ratepayers. The CAISO's expectation that RA market prices will decrease lacks evidence to support its expectation. Third, the creation of the new capacity products under the Day Ahead Market Enhancements (DAME) initiative procures the same capacity products that which load serving entities have already procured through their contracts. This seems to be procuring for the same resource capabilities and reliability needs. SDG&E believes the CAISO should reconsider how to mitigate this double payment issue in its next iteration of the proposal.

i. Please provide your organization's feedback on generally defining variations to the must offer obligations and bid insertion into the day-ahead market based on resources type, as described in Table 12 in section 4.1.4. Please explain your rationale and include examples if applicable.

SDG&E requests the CAISO to further explain the reasons for bid insertion for use-limited and conditionally-available resources. It is uncertain how the new outage types and the new day ahead market enhancements initiatives will impact the scheduling and bidding of use-limited and conditionally available resources at this time. As SDG&E noted earlier, the CAISO has not explained how Nature of Work outage cards will work with the four new outage types. At this time, SDG&E believes it may be more reasonable to not insert bids for these types of resources.

SDG&E requests the CAISO provide a more complete table that includes both day ahead and real time bid insertion. It would be helpful to understand which resources will have both real time bid insertion when there is a day-ahead award in addition to the proposed DA bid insertion.

e. Please provide your organization's feedback on the Planned Outage Process Enhancements topic as described in section 4.1.5. Please explain your rationale and include examples if applicable.

SDG&E does not support Option 1 for several reasons.

First, increasing the PRM in winter months increases overall costs to ratepayers because ratepayers must procure monthly RA products rather than the current process where generators procure substitute capacity on an as needed basis for a subset of days in the month. Second, LSEs must procure additional capacity in order to cover a generator outage where that generator is contracted to another LSE. This is inconsistent with the cost causation principles that the CAISO wishes to maintain in its backstop procurement proposal. Third, outages will be denied during the summer months or when outages exceed the planned outage buffer in the non-summer months. When this occurs and resources must still take the outage, then the outage will resurface as a planned-to-forced or planned-to-urgent outage. This does not resolve the issue at hand. Finally, in raising the PRM, LSEs may be faced with market power issues in the bilateral market because LSEs will need the capacity to meet their own increased obligations. This may cause deficient LSEs to rely on the CAISO's capacity procurement mechanism (CPM),

especially the proposed deficiency tool with its known fixed price, to minimize overall procurement costs.

The CAISO mentions that only short-term and off-peak opportunity outages would be allowed in June through October. This is inconsistent with the CAISO's UCAP counting rules that define May – September as summer. Why are these time frames different? SDG&E requests the CAISO to explain how the four different outage types proposed for the UCAP calculation would function under this structure. Effectively would there just be forced, urgent, and opportunity outages in the summer months? What are the differences between short-term opportunity outages and off-peak outages?

The CAISO notes that "it is not possible to declare a fixed number based on historic data."[6] Instead, the CAISO requests that stakeholders state their preferences on this matter because "the size of the planned outage reserve margin should be based on a balance of LSE costs and providing reasonable opportunities for resources to undertake needed maintenance."[7] SDG&E strongly believes that policies should be developed and supported by data. If a reserve margin cannot be determined by reviewing historical data, then the policy and implementation will be flawed and result in consequences both undesired and unintended.

The CAISO's reasons for rejecting Option 2 is flawed.

First, the CAISO notes that the "CAISO is uniquely situated…the CAISO's planned outage options are constrainted by the monthly nature of the RA program….[other] ISO/RTOs [can] include these planned outages in LOLE studies when conducting annual capacity procurement"[8] This is confusing. The CAISO is proposing to conduct its own LOLE studies on a monthly basis based *only* on RA resources shown even as the monthly nature of the RA program does not change. SDG&E does not understand the correlation between a market based procurement mechanism and the monthly RA construct and how they are incompatible. Second, costs to LSEs would be minimized as the generators only have to procure for the days in which substitution capacity is needed. Third, option 2 is consistent with cost causation principles that the CAISO advocates for in its own proposal. Finally, market power and other market related concerns exist regardless of a bilateral market or a market administered by the CAISO. The latter provides additional incentives and can actually protect buyers from market power. This is the reason the CAISO administers multiple competitive markets and why it is expanding products procured through its markets, *i.e.* DAME and new capacity products, while dealing with market power and other market issues.

Option 2 is clearly superior to the status quo and option 1. SDG&E believes the CAISO should seriously reconsider option 2 that was supported by CPUC staff, DMM and Public Advocates Office.

[6] CAISO 5th Revised Straw Proposal, p 53
[7] CAISO 5th Revised Straw Proposal, p 53
[8] CAISO 5th Revised Straw Proposal, p 49

Finally, the CAISO states that "should stakeholders reject Option 1, the CAISO will leave the existing process unchanged and eliminate this element of the overall proposal."[9] SDG&E believes this is a mistake because returning to the status quo does not resolve the planned-to-forced outage reporting issue in which CAISO Staff was directed to address.[10] Therefore, if Option 1 is rejected by stakeholders and the CAISO has another viable option available, SDG&E believes the CAISO has a responsibility to pursue the alternative option which would address the planned-to-forced outage reporting issue. Otherwise, SDG&E believes the CAISO Staff and stakeholders should update the Appeals Committee of CAISO's approach to not resolve the planned-to-forced outage reporting issue.

SDG&E believes if the Option 1 is rejected by parties and the CAISO is unwilling to accept Option 2, then it should start a separate initiative to seek for other solutions unless other options are proposed in stakeholder comments to the 5th revised straw proposal.

f. Please provide your organization's feedback on the RA Import Requirements topic as described in section 4.1.6. Please explain your rationale and include examples if applicable.

The availability of "firm" transmission outside the CAISO Balancing Authority should not be a pre-condition for RA import capacity. Such a pre-condition will significantly impede the ability of suppliers to provide RA import capacity to CAISO LSEs since a significant amount of transmission capability outside the CAISO Balancing Authority is not released until close to when day-ahead price/quantity offers are due to the CAISO. Additionally, where import RA is sourced from a pool of resources, the required contract paths may not be known far in advance of when offers are due to the CAISO; it would be inefficient and costly to lock-down multiple firm transmission paths far in advance of the CAISO's day-ahead market.

i. Please provide your organization's feedback on the issue of whether firm transmission service on the last line of interest to the CAISO BAA will ensure reliability and is feasible, or whether the CAISO should require point-to-point, source to sink firm transmission service as originally proposed, as described in section 4.1.6 page 68. Please explain your rationale and include examples if applicable.

SDG&E does not support the CAISO's proposal to require import RA resources to demonstrate they have acquired "firm" transmission service outside the CAISO Balancing Authority. However, if the CAISO decides to require firm transmission service on the entire line or the last line, then it should impose such a rule, as a future requirement, only on the scheduling coordinators that have failed to deliver

[9] CAISO 5th Revised Straw Proposal, p 50
[10] PRR 1122 – Appeals Committee Decision

the energy in real time after the scheduling coordinator has been found to violate the CAISO's requirements.

ii. Please provide your organization's feedback on other BAA's systems bordering the CAISO and whether such a "last line of interest" proposal is feasible and would effectively support RA import capacity dependability and deliverability, as described in section 4.1.6 page 68. Please explain your rationale and include examples if applicable.

See SDG&E's response to question f and f.i above has no comments at this time.

iii. Please provide your organization's feedback on whether a non-compliance penalty or other enforcement actions are necessary if delivery is not made under firm transmission service, as described in section 4.1.6 page 69. Please explain your rationale and include examples if applicable.

If the CAISO decides to impose a wishes to consider firm transmission service requirement on the entire line or the last line, then it should impose such a rule, as a future requirement, only on the scheduling coordinator that has failed to deliver the energy in real time after the scheduling coordinator has been found to violate the CAISO's requirements. The CAISO should not penalize and impose such a rule for those that already comply with the CAISO's standards.

SDG&E does not believe UCAP reduction is an appropriate penalty for non-performance for imports.

iv. Please provide your organization's feedback on how to convey the last line of interest, as described in section 4.1.6 page 69. Please explain your rationale and include examples if applicable.

If the CAISO decides to impose a wishes to consider firm transmission service requirement on the entire line or the last line, then it should impose such a rule, as a future requirement, only on the scheduling coordinator that has failed to deliver the energy in real time after the scheduling coordinator has been found to violate the CAISO's requirements. The CAISO should not penalize and impose such a rule for those that already comply with the CAISO's standards.

v. Please provide your organization's feedback on the options proposed in section 4.1.6 and any other potential mechanisms that would best ensure RA imports are dependable and deliverable if the CAISO were to adopt, as an alternative, a "last line of interest" firm transmission service requirement. Please explain your rationale and include examples if applicable.

See SDG&E's comments above. has no comments at this time As a general matter, SDG&E believes import RA resources may offer the same level of, if not better, reliability compared to in-state generators, as they can be sourced from a pool of resources rather than from specific resources. These resources have strong incentives to deliver in real-time when prices are high and grid reliability is most tenuous. Failure to deliver would result in costly imbalance charges.

SDG&E notes that unlike the eastern ISOs which operate centralized markets and are interconnected with each other, the CAISO is interconnected with Balancing Authorities that provide transmission access through contract-path based mechanisms and manual scheduling practices. Therefore some accommodation is needed in order to place import RA resources on a roughly comparable basis to internal RA resources.

g. Please provide your organization's feedback on the Operationalizing Storage Resources topic as described in section 4.1.7. Please explain your rationale and include examples if applicable.

SDG&E appreciates the discussion and consideration of storage resources in this initiative. As a threshold matter, SDG&E believes more holistic and substantive discussion is needed and the CAISO should consider spinning off this part of the initiative as its own initiative or combine it with DAME or the Energy Storage and Distributed Energy Resources (ESDER) Phase 4 initiative. Some of the discussion during the meeting highlighted the fact that the CAISO is considering operationalizing storage resources in multiple initiatives and may not have a consistent position across these initiatives. For example, the most recent iteration of DAME noted that the CAISO did not consider how energy storage resources would be able to participate in the new day ahead market structure and offer the new capacity products. The CAISO pointed stakeholders to the ESDER Phase 4 initiative. The ESDER Phase 4 initiative seems to be wrapping up with no discussion of this topic. ESDER Phase 4 introduced an EOH SOC tool for scheduling coordinators to specify the amount of energy that they wish to have retained in certain hours in the real time market. Under RA Enhancements, the CAISO proposes that if the scheduling coordinator uses the EOH SOC tool and constrains the amount of energy available to the CAISO, it would impact the energy storage's UCAP value. Finally, the CAISO is also introducing the minimum charge requirement (MCR) tool under RA Enhancements, to also limit and ensure the resource has sufficient SOC in real time to meet its day ahead awards. This may impact a resource's ability to respond to real time price spikes because the CAISO's market model would preserve a certain SOC regardless of the level of real-time prices.

Currently it's unclear how the EOH SOC will interact with the MCR in the new day ahead market. It's also unclear how the MCR will impact a resource's ability to provide the imbalance reserve products under DAME. Holding energy for the MCR throughout the day would be sub-optimal given the flexibility of energy storage resources. At this time, SDG&E does not support the proposed MCR constraint as it significantly reduces the energy storage device's ability to flexibly respond to the needs to meet load.

2. Flexible Resource Adequacy

Please provide your organization's feedback on the Flexible Resource Adequacy topic as described in section 4.2. Please explain your rationale and include examples if applicable.

SDG&E requests the CAISO to confirm that the effective flexible capacity (EFC) will remain based, or limited by net qualifying capacity (NQC) values rather than the UCAP. Additionally, SDG&E requests the CAISO to explain how the CAISO may enforce bidding rather than self-scheduling requirements when RAAIM is eliminated.

3. Local Resource Adequacy

Please provide your organization's feedback on the Local Resource Adequacy topic as described in section 4.3. Please explain your rationale and include examples if applicable.

a. Please provide your organization's feedback on the UCAP in Local RA Studies topic as described in section 4.3.1. Please explain your rationale and include examples if applicable.

As SDG&E has stated previously, SDG&E does not support the UCAP Local RA concept. The Local Capacity Requirement (LCR) studies are performed using 1-in-10 loads which are higher than the 1-in-2 loads used during system assessments. Furthermore, LCR requirements are determined by assuming that major equipment (e.g. multiple transmission lines, generators, etc.) are out of service. Further applying a UCAP requirement on LCR will lead to overprocurment. Most importantly, the CAISO notes that its transmission planning process (TPP) would not assess the CAISO's needs based on UCAP in the future, but remain on installed capacity, or NQC. Therefore, in order to create a UCAP like local RA requirement, the CAISO would have to convert its annual LCR result after the study process using a TAC wide value only for the LCR showing. The problem occurs when the CAISO converts the shown UCAP back to NQC using individual resource ratios that will be different than the TAC wide value. Using a TAC wide UCAP factor to calculate a UCAP LCR value will most likely lead to over procurement, especially when the CAISO is not measuring LCR based on UCAP itself. SDG&E has provided an example of this issue in its comments to the 3rd revised straw proposal.[11] It is confusing that the CAISO is still considering this approach and disagrees internally with this proposal.

4. Backstop Capacity Procurement Provisions

[11] http://www.caiso.com/InitiativeDocuments/SDGEComments-ResourceAdequacyEnhancements-ThirdRevisedStrawProposal.pdf

Please provide your organization's feedback on the Backstop Capacity Procurement Provisions topic as described in section 4.4. Please explain your rationale and include examples if applicable.

As noted earlier, SDG&E does not support modifying the current NQC construct to the new UCAP construct and therefore does not believe backstop capacity procurement modifications are necessary. SDG&E provides these comments on the specifics of the CAISO proposal.

a. Please provide your organization's feedback on the Capacity Procurement Mechanism Modifications topic as described in section 4.4.2. Please explain your rationale and include examples if applicable.

SDG&E believes that if the CAISO were to move forward with the UCAP framework and will not be administering the System RA deficiency based on NQC values, then the CAISO should eliminate its Tariff authority to backstop procure for System NQC deficiencies as this authority would be irrelevant.

b. Please provide your organization's feedback on the Making UCAP Designations topic as described in section 4.4.3. Please explain your rationale and include examples if applicable.

SDG&E believes this section requires additional information from the CAISO's portfolio assessment proposal. It is unclear how the portfolio assessment will determine the correct resource and/or megawatt volume that would be necessary for backstop. Today, the CAISO is supposed to backstop procure capacity based on numerous factors, including price. However, price is not the main determining factor as other attributes are of greater importantance. SDG&E believes the CAISO must further explain how it will select the appropriate resource to meet the deficiency.

c. Please provide your organization's feedback on the Reliability Must-Run Modifications topic as described in section 4.4.4. Please explain your rationale and include examples if applicable.

    i. Please provide your organization's feedback on an appropriate availability incentive design to apply to RMR resources after the removal of the RAAIM tool, as described in section 4.4.4. Please explain your rationale and include examples if applicable.

As SDG&E noted in its comments to the CAISO's RMR and CPM Enhancements Draft Final Proposal,[12] RAAIM is not appropriate for RMR resources. The penalty for RMR should be based on the actual capacity cost and actual performance over all hours as was in the previous Pro Forma RMR contract penalty. Nevertheless,

[12] http://www.caiso.com/InitiativeDocuments/SDGEComments-ReliabilityMust-RunandCapacityProcurementMechanismEnhancements-DraftFinalProposal.pdf

SDG&E does not agree with the CAISO's proposal to offer incentives to RMR resources because ratepayers are already paying for the cost of the RMR.

Additionally, SDG&E does not support a resource specific performance metric based on the resource's past performance. Doing so would not measure each resource equally and does not create an incentive for the resource to perform better maintenance. The CAISO must design a performance mechanism that is also aligned with the needs of the RMR such as voltage support or black start that have to be continuously available, not just during certain hours of the month. RMR contracts are effectively tolling contracts where the buyer, CAISO, receives all products and attributes, not just capacity. RMR covers the entire fixed revenue requirement and pays the resource its costs when dispatched. If a performance metric is to be developed, then it should be based on actual capacity cost and actual performance over all hours of the year.

d. Please provide your organization's feedback on the UCAP Deficiency Tool topic as described in section 4.4.5. Please explain your rationale and include examples if applicable.

SDG&E does not believe this tool is needed because the CAISO has not identified a problem. As a threshold matter, SDG&E always supports cost causation principles and minimizing leaning. However, this tool creates more issues than it solves and is inconsistent with other portions of the CAISO's proposal.

First, the CAISO does not propose to adopt cost causation principles for its planned outage substitution obligation process as the CAISO's preferred option is to increase the PRM and allow generators to lean on LSEs that must procure monthly RA in order to substitute for a subset of days of the month.

Second, if cost causation is a priority, how will this tool be used for Local and Flexible RA requirements? If not, why not?

Third, what incentive does this tool provide to the market when there is no financial mechanism, *i.e.* RAAIM, to penalize performance? Outages will impact a resource's UCAP value regardless of it being an RA resource. Selling LSEs may not want to sell below the $6.31/kW-month rate and buyers may not want to pay more than that rate because there is a potential to get an automatic payment through the CAISO.

Fourth, due to the inefficiencies of the bilateral market, an LSE may not reach all sellers of capacity and likewise a seller may not reach the purchasing LSE. If a seller submits an offer into the CAISO's Competitive Solicitation Process (CSP) that is lower than $6.31/kW-month, the most economic solution would be for the CAISO to procure the lower priced resource on behalf of the deficient LSE.

If the CAISO wishes to continue developing this tool, then it must also reconsider it's proposal on the planned outage substitution process.

5. Please provide your organization's feedback on the implementation plan, including the proposed phases, the order these policies must roll out, and the feasibility of the proposed implementation schedule, as described in section 5. Please explain your rationale and include examples if applicable.

It is difficult to provide a clear response because of the numerous issues that are still outstanding. SDG&E recommends the CAISO hold more workshops and meetings to respond to requests for data analysis to support its proposal. SDG&E believes the CAISO should discuss with stakeholders about the full scope of changes to the CAISO software applications after it finalizes its proposal. This will help market participants provide better feedback for the implementation schedule.

6. Please provide your organization's feedback on the proposed decisional classification for this initiative as described in section 6. Please explain your rationale and include examples if applicable.

As noted in SDG&E's comments to the 4th Revised Straw Proposal,[13] SDG&E believes that some of the changes to import RA requirements does impact real-time market rules because the CAISO is proposing to require real-time must offer requirements for import resources.

Additional comments

Please offer any other feedback your organization would like to provide on the Resource Adequacy Enhancements fifth revised straw proposal.

[13] http://www.caiso.com/InitiativeDocuments/SDGEComments-ResourceAdequacyEnhancements-FourthRevisedStrawProposal.pdf