

**BEFORE THE  
PUBLIC UTILITIES COMMISSION  
OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to Consider	)	
Annual Revisions to Local Procurement	)	R.08-01-025
Obligations and Refinements to the	)	
Resource Adequacy Program	)	
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**PHASE II REPLY COMMENTS OF THE  
CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION**

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Pursuant to the Administrative Law Judge's October 30, 2008 ruling that established the procedural schedule for Phase II of the Resource Adequacy ("RA") proceeding, the California Independent System Operator Corporation ("CAISO") hereby submits the following reply comments on the Phase II issues. In these reply comments, the CAISO addresses the concerns and suggestions offered by other parties in their February 17, 2009 comments on Phase II issues that raise significant policy implications or operational considerations for the CAISO. Specifically, those issues are as follows:

- The RA Program and the CAISO's Resource Adequacy Standard Capacity Product ("SCP") Proposal
  - Retention of Existing Scheduled Outage Replacement Requirement
  - Maximum Cumulative Capacity Buckets
  - Application of SCP to RA Resources
  - SCP Implementation

- QC Counting Rule for Intermittent Resources
  - The Sole Purpose of the RA Counting Rules is to Support Reliability
  - The Commission Should Not Delay Changing the QC Counting Methodology for Intermittent Resources And Should Not Adopt an ELCC Methodology
  - Specific Objections to Use of an Exceedance Methodology are Without Merit
  - The Commission Should Not Aggregate the Value of Wind and Solar Resources

#### **I. THE RA PROGRAM AND THE CAISO'S RESOURCE ADEQUACY STANDARD CAPACITY PRODUCT PROPOSAL**

The parties' initial comments related to the CAISO's Standard Capacity Product proposal address the questions and concerns set forth in the Phase II Energy Division Workshop Report issued on February 6, 2009 ("Workshop Report"). As framed by the Workshop Report, the comments focus on the interrelationship of the CPUC's RA program and the CAISO's SCP proposal, and timing considerations for the CPUC's review and implementation of SCP in advance of compliance dates for the 2010 RA requirement. In this section of our reply comments, the CAISO will address the following issues related to the interrelationship of the RA program and SCP: the need to retain the existing scheduled outage replacement requirement and the Maximum Cumulative Capacity ("MCC") buckets in the RA program following the adoption of SCP, the applicability of SCP to RA resources, and the timing and coordination between the CPUC and the CAISO for SCP implementation.

**A. Retention of Existing Scheduled Outage Replacement Requirement**

Energy Division Staff and the Alliance for Retail Energy Markets (“AReM”) suggest that the scheduled outage counting criterion adopted in Section 3.1 of Decision 06-07-031 be discontinued for the 2010 RA compliance year in the event that SCP is implemented. Under these existing rules: a resource cannot be counted as RA capacity if its days of scheduled outage exceed 25 percent of days in a summer month (May through September) or extend longer than two weeks in a non-summer month (October through April); and a Load Serving Entity (“LSE”) that has contracted with a resource subject to such outage has an obligation to procure replacement RA capacity.

The CAISO agrees with Southern California Edison Company (“SCE”) and NRG Energy, Inc. (“NRG”), that the RA scheduled outage counting criterion and replacement requirement should be retained. The availability standard and incentives in the CAISO’s SCP proposal will neither duplicate nor supersede these existing measures. Further, as indicated in the CAISO’s initial comments, adoption of SCP does not in any way eliminate the need for the replacement rule. CAISO initial comments at 55-56. No party has shown that it does.

The availability standard in the CAISO’s SCP proposal is designed on the premise that a resource receiving payments for providing RA capacity is expected to make its full RA capacity available to the CAISO, unless the resource is on a forced equipment outage or derate that diminishes its ability to provide the full amount of its RA capacity. Under the SCP, each resource’s hourly availability (*i.e.*, its non-forced outage hours) will be tracked on a monthly

basis and compared against a single availability standard or target based on the historic performance of the RA resource fleet during the peak hours of each month of the previous three years. On a monthly basis, the CAISO will assess charges to resources whose availability falls short of the target due to forced outages, and will provide credit payments to resources whose availability exceeds the target. SCP will not impose charges on RA resources that are unavailable as the result of scheduled outages. The availability incentives in the CAISO's SCP proposal, which consider only *forced outages*, will complement the Commission's counting criterion and replacement obligation, which account for capacity subject to *scheduled outages*.

Pacific Gas and Electric Company ("PG&E") comments favor either the CAISO or the generator being responsible for replacing capacity associated with unanticipated scheduled outages. The Utility Reform Network ("TURN") also supports elimination of the scheduled outage counting convention. This approach, however, ignores the scheduling flexibility that the existing rules provide to the CAISO and the potential cost impact for ratepayers of eliminating the replacement obligation.

The scheduled outage counting criterion and replacement obligation provide flexibility to the CAISO in approving scheduled outages. They allow the CAISO to rely on replacement capacity being available for a unit on scheduled outage, which allows the CAISO to more easily accommodate unanticipated outages and reduces cancellations or other schedule modifications. These benefits to efficient resource maintenance should continue after SCP becomes

effective. It has been necessary for the CAISO to cancel some scheduled outages due to system reliability concerns, and elimination of the replacement requirement will only exacerbate this situation and lead to further scheduled outages being cancelled. As NRG observes, if LSEs do not take scheduled outages into account in their procurement of RA capacity, capacity shortfalls may result in the shoulder months when generators typically schedule outages. The SCP proposal does not contain a measure that will address or correct this potential capacity shortfall in the off-peak months.

With regard to the cost impact, it is possible that LSEs will have an incentive to fulfill their capacity obligations by procuring resources that have a CAISO approved outage scheduled in the upcoming RA month. Such capacity would clearly have an attractively low price, because it is not expected to provide the capacity service for the full RA month. If units counted for RA purposes are not available due to a scheduled outage, the CAISO could be required to use the Residual Unit Commitment Mechanism or Exceptional Dispatch to access non-RA units in order to maintain system reliability. The use of these measures will result in daily or monthly capacity payments to the non-RA units, which costs will be passed on to ratepayers in addition to the cost of the RA capacity that was on outage. This clearly creates an opportunity to shift the cost of RA capacity procurement to other LSEs that should not be promoted. Retention of the replacement requirement will help avoid these redundant costs and cost shift.

#### **B. Maximum Cumulative Capacity Buckets**

The CAISO disagrees with the recommendations of NRG, AReM, and the

Division of Ratepayer Advocates (“DRA”) to eliminate the MCC buckets. AReM is mistaken that the phase-out of liquidated damages contracts, submission of monthly plans by use-limited resources, and review of the Net Qualifying Capacity (“NQC”) counting conventions for intermittent resources justify the elimination of the MCC buckets. As SCE observed in its comments, the phase-out of liquidated damages contracts as RA resources has no impact on resources with physical use limitations. The monthly plans submitted by use-limited resources are informational. They do not prevent over-reliance on those resources that may not be available for lengthy off-peak intervals. Further, it would be premature to base the elimination of MCC buckets on the review of the NQC counting conventions for intermittent resources, which is in progress but not yet completed.

The Commission included the MCC buckets in the RA program as a means to ensure that LSEs would not rely on use-limited resources to such an extent that it would impair the CAISO’s ability to reliably operate the grid with RA resources. We agree with SCE that the fundamental concerns that prompted the Commission to establish the MCC buckets have not changed.

There is an ongoing need for a measure that will curb over-reliance by LSEs on use-limited resources that the CAISO cannot count on being available during significant intervals of time. SCE and Dynegy concur with this point. Dynegy’s comments suggest that under the top-down approach of the RA program, it is reasonable to expect that there will be some mechanism in place to ensure that energy-limited resources are not unjustifiably relied on to perform

when needed.

The MCC buckets function well as this mechanism. Contrary to the suggestions in comments by DRA and AReM that the MCC buckets are no longer useful, the MCC buckets serve a very necessary purpose for the CAISO -- they set the maximum cumulative percentage of an LSE's RA requirement that can be met with use limited resources and RA contracts for periods less than 24 hours a day, 7 days a week. The CAISO relies on the parameters in the CPUC's RA program to define MCC buckets and shape the LSE procurement resulting in an appropriate mix of use-limited resources in the RA portfolio.

In the event that the MCC buckets are eliminated, and not replaced with a comparable mechanism, the CAISO anticipates that its use of the Residual Unit Commitment Mechanism, Exceptional Dispatch, and the Interim Capacity Procurement Mechanism will be more frequent than it would have otherwise would have been in order to reliably operate the grid. If more frequent use of these mechanisms does occur, there will be cost consequences that continuation of the MCC buckets would not have occasioned.

The CAISO does not agree with the Workshop Report's interpretation that discontinuing the MCC buckets would result in an all-hours bidding requirement for RA resources that would, in turn, effectively exclude energy contracts from being RA resources. The CAISO Tariff provisions that will be in effect following implementation of the Market Design and Technology Upgrade ("MRTU") make clear that use-limited resources are not under an "all hours" must-offer obligation. Under CAISO MRTU Tariff Section 40.6.4.3.1, use-limited RA resources must

submit a bid or self-schedule for their RA capacity in the Day-Ahead Market only to the extent they are available in accordance with applicable operating criteria, and may include a daily energy limit as part of their Day-Ahead Market offer to enable the CAISO to schedule them for the period in which they are capable of providing energy. Accordingly, these provisions accommodate energy contracts as RA resources by allowing them to bid or self-schedule consistent with their contractual limitations. The CAISO MRTU Tariff does not require an RA resource to offer all hours. Further, under these provisions, LSEs are not required to ensure that the RA resources offer all hours. Thus, the MCC buckets are the only protection against an over reliance on energy limited or use-limited resources by LSEs meeting their RA obligations.

### **C. Application of SCP to RA Resources**

Dynegy's comments do not oppose the development of an SCP, but object to mandatory use of an SCP that doesn't apply uniformly to all types of resources providing RA capacity. Dynegy claims, without further explanation, that carving out some RA resources from the SCP, such as intermittent resources and demand response resources, will water down the requirement and reduce its effectiveness.

The CAISO supports a uniform SCP that will apply to all RA resources. However, in developing SCP, the CAISO has recognized substantive differences and/or data issues associated with certain intermittent and demand response RA resources that warrant temporary exclusion from SCP as a transition measure.

For example, the CAISO's SCP proposal provides that the availability



standard and incentives will not initially apply to RA resources whose QC value is calculated each year based on historical actual hourly output data that may include some outage hours that occur during the period during which actual output is measured. This means that application of the availability standard and incentives to wind, solar, and QF RA resources will be temporarily deferred while the CAISO coordinates with the CPUC and LRAs on changes needed to prevent double-counting of outages. The CAISO believes that temporarily deferring application of the availability provisions to intermittent resources in order to address the double-counting issue is necessary and not discriminatory.

Similarly, because some RA demand response resources have a CAISO Resource ID, but most neither have the Resource ID nor report outage data to the CAISO, the CAISO's SCP proposal contemplates deferring application of the availability standard and incentives to all RA demand resources until such time when dispatchable demand resource functionality is implemented after MRTU startup. Again, the deferral has reasonable basis and will be temporary.

The CAISO is also considering inclusion of a limited grandfathering provision that will allow holders of RA contracts executed prior to January 1, 2009 to obtain exemption from SCP requirements for the initial term of the contract. The CAISO believes that grandfathering pre-existing RA contracts will facilitate the transition to SCP and will not give rise to any discrimination.

#### **D. SCP Implementation**

In the Workshop Report, Energy Division staff posed four possible approaches for the timing of the Commission's consideration and implementation

of SCP. Not surprisingly, the initial comments of the parties reflect different preferences on how and when the Commission should proceed, and suggest additional alternative timeframes for Commission action. Although the CAISO did not submit comments on this specific topic, we have expressed our intent to present the SCP proposal to the CAISO Board of Governors at its meeting on March 26 and 27, 2009 and to submit the SCP tariff amendment to the Federal Energy Regulatory Commission (“FERC”) in April 2009 so that it will be in effect for the 2010 RA compliance year. The CAISO anticipates that this schedule could afford the Commission the opportunity to consider the FERC decision on the CAISO’s filing in advance of the CPUC’s final decision on Phase II issues, which is expected to be issued on June 18, 2009 under the current procedural schedule. However, regardless of how the timing of these proceedings plays out, the CAISO will coordinate implementation of SCP with the Commission and work toward expeditiously rolling out the SCP product to augment the RA program.

## **II. THE QC COUNTING RULE FOR INTERMITTENT RESOURCES**

### **A. The Sole Purpose of the RA Counting Rules is to Support Reliability**

Certain parties suggest that the purpose of the RA counting rules for intermittent resources is not only to support reliability, but to promote other policy goals as well. For example, TURN claims that the estimation of the NQC of intermittent resources will “greatly affect the achievement of two key, related state policy goals: the maintenance of reliable electric service and the achievement of Renewable Portfolio Standard (“RPS”) goals.” TURN Comments at 11. The Large-Scale Solar Association (“LSA”) suggests that there is an

inherent tension in determining the basis for the RA counting rules between the desire for reliability and the desire to meet other goals such as RPS and greenhouse gas (“GHG”). LSA Comments at 4.

In its initial comments, the CAISO recognized the importance of renewable resources, including wind and solar, in meeting the State’s environmental policy goals. However, the CAISO stressed that the RA program and the RA counting rules are not a vehicle for environmental policy development. The sole purpose of the RA program is to support reliability by ensuring that LSEs procure sufficient resources in a forward timeframe to meet monthly peak demand levels, plus reserve margin, and meet the CAISO’s operational needs.<sup>1</sup> Further, as the Commission recognized in Decision D.04-10-35 at 21, the purpose of the QC counting conventions is to determine the quantity of a resource’s capacity that satisfies the forward commitment obligation. Thus, contrary to the claims of TURN and LSA, the purpose of the RA program is not to implement or effectuate other State policy goals such as RPS and GHG. Even CalWEA recognizes this fact, stating that the “goal of the Commission’s resource adequacy program is to ensure the reliability of California’s electric system.” CalWEA Opening Comments at 2.

The Commission should not entertain requests to inappropriately expand the goals of the RA program to include matters unrelated to reliability. That would only undermine the reliability goals which are the fundamental purpose of RA. In fact, the RA program is a combination of key elements that work properly and

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<sup>1</sup> See pages 10-11 for a discussion of the Commission’s prior orders setting forth the purpose and goals of the RA program.

effectively together because they are all focused on achieving the same objective -- meeting peak demand plus a reserve margin.

TURN's argument that any decision on the counting methodology for wind and solar resources will "greatly affect achievement" of the State's RPS goals is misplaced. The counting rules for wind and solar resources have no bearing whatsoever on the achievement of RPS goals. The RPS goal is based on the amount of **energy** that is produced by renewable resources.<sup>2</sup> In other words, the RPS goals will be achieved by the production of a specified amount of **energy**. On the other hand, the RA product is a **capacity** product. As the Commission stressed in discussing the issue whether the RA requirement should be a capacity product or an energy product:

We clarify that these requirements are established for the purposes of including forward commitments with resources that are appropriate to satisfy a 15-17 benchmark for a summer peak capacity metric. Prospective restrictions on liquidated damages contracts, eligibility thresholds that exclude energy limited resources that cannot be available a minimum number of hours in a month, and other means by which capacity qualifies to cover loads and a 15-17% planning reserve margin are all part of creating a capacity-oriented resource adequacy requirement.

Decision 04-10-35 at 45 (Oct. 28, 2004). Further, the purpose of the QC counting conventions is to determine the quantity of a resource's capacity that satisfies the Commission's forward commitment obligation, *i.e.*, to have sufficient capacity available to meet monthly peak demands, plus a reserve margin.<sup>3</sup>

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<sup>2</sup> Under SB 107, a retail seller of electricity must purchase a specified minimum percentage of electricity generated by eligible renewable energy resources, which is defined in any given year as a specified percentage of total kilowatt hours sold to retail end use customers each calendar year. Thus, the RPS requirement is clearly an energy requirement not a capacity requirement.

<sup>3</sup> 2007 Resource Adequacy Report at 17 (April 15, 2008); *see also* D04-10-35 at 21.

It is critical that any counting convention focus on the capacity-based objectives of the RA program. How wind and solar capacity is counted for purposes of meeting RA capacity requirements is irrelevant to achievement of RPS goals, which are based on the amount of energy produced and purchased. Wind and solar resources necessarily must be built in order to meet state-mandated RPS goals. The specific RA counting rules adopted by the CPUC will not -- and can not -- change that fact. Stated differently, the need to purchase energy production from renewable resources in order to meet the 20% RPS standard will drive the development of renewable resources, not the nature of the CPUC's RA counting rules.

**B. The Commission Should Not Delay Changing The QC Counting Methodology For Intermittent Resources and Should Not Adopt An ELCC Methodology**

A few parties suggest that the Commission should simply retain the existing RA counting rules for intermittent resources until an Effective Load-Carrying Capacity ("ELCC") study or some other "best practices" method indicates that there is a need to change the rule. TURN Comments at 12; CalWEA Comments at 2. For example, TURN suggests that, since the most recent ELCC analysis yields results are similar to the current counting rule, the existing counting methodology should be maintained for 2010. TURN Comments at 12. TURN states that a "fully cooked" ELCC analysis should yield answers that the Commission can apply with more confidence than any of the proposals the parties have offered in this case. TURN Comments at 12-13. LSA argues that, given pending studies on renewable integration, it might be appropriate for solar

resources to remain governed by the existing counting rule in order to avoid year-by-year program changes that would impact new solar projects coming on line. LSA Comments at 3.

The CAISO disagrees with these suggestions. The Commission should not wait for the completion of an ELCC analysis or some other study to change the current counting rule for intermittent resources. Overwhelming evidence exists today that demonstrates (1) the current counting rule overstates the availability of wind resources during peak periods, (2) there is a negative correlation between wind production and loads on the CAISO Controlled Grid, and (3) wind production has extreme variability and is highly unpredictable.<sup>4</sup> Notably, the output of wind resources was less than 50% of the current QC level in 27 of 50 peak load hours. Doing nothing when it is clear that the current counting rule for intermittent resources is deficient should not be an option. Retention of the existing rule under such circumstances would not only result in intermittent resources being paid more than their actual value as an RA capacity resource (or essentially being paid for capacity services they are not providing), it will not promote reliability during the peak load hours and could result in significant increased costs to ratepayers.

It is during peak periods when demand is high and resource margins are

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<sup>4</sup> 2007 Resource Adequacy Report at 20-28, 30 (April 15, 2008) (“2007 RA Report”). The 2007 RA Report notes that during super-peak hours wind usually falls below NQC. For example, during the 20 highest load hours in 2007, wind production exceeded NQC in only one hour. *Id.* at 24. In the top 50 load hours, wind exceeded NQC in only 11 hours. Indeed, wind production exceeded half of NQC in only 23 of these hours. *Id.* The CAISO’s operational experience also shows that the (1) current counting rules overstate the availability of wind resources during peak load conditions, (2) there is negative correlation between wind production and load on the CAISO Controlled Grid, and (3) wind production is extremely variable. CAISO Initial Comments at 13-14, 24-27

tight that RA capacity is most needed to maintain reliability. Thus, the resources that qualify for the RA program must be able to provide this valuable capacity when and where needed.<sup>5</sup> If wind resources are allowed to count for RA even though they are less available than assumed during peak periods -- sometimes at levels far below their NQCs -- there is an increased risk that there could be a deficiency in available capacity to meet peak load. The Commission should neither accept that risk nor delay addressing it, especially given that the risk can be mitigated by adopting a counting rule that more accurately reflects dependable wind production during peak periods. In a prior RA order, the Commission stated that “[i]t makes no sense to discuss whether resources ought to be eligible to satisfy a planning reserve margin and a forward commitment obligation which have limited hours of operation unless we understand how those constraints match the load curve.” Decision 04-10-35 at 10 (Oct. 28, 2004). The same logic applies to intermittent resources that are not dispatchable.

Accordingly, the Commission should ensure that any intermittent resource counting rule it adopts measures the availability of resources in close relationship to the load curve. As demonstrated in the 2007 RA Report and the CAISO’s initial comments, the existing counting rule fails to achieve this goal as does any ELCC counting methodology that assesses production during every hour of every day.

Also, as the CAISO discussed in its initial comments, continuation of a counting methodology that results in the over-counting of intermittent resources will likely result in increased costs to ratepayers.<sup>6</sup> These costs will stem from the

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<sup>5</sup> See Decision 05-10-042 at 10 (Oct. 27, 2005).

<sup>6</sup> CAISO Initial Comments at 36-38.

backstop capacity procurement provisions under the CAISO Tariff. In that regard, under MRTU, which will be implemented effective April 1, 2009, if capacity from intermittent resources is not sufficient -- or is unavailable -- to serve load, the CAISO may need to procure capacity from non-RA resources through the Residual Unit Commitment process, the Exceptional Dispatch process, or the Interim Capacity Procurement Mechanism. Under Residual Unit Commitment, the CAISO will make daily availability (*i.e.*, capacity) payments to all non-RA resources committed in that process. In the event insufficient capacity is offered into the Residual Unit Commitment market, or if the CAISO needs to manually commit or dispatch a non-RA unit to meet increased loads or otherwise maintain grid reliability due to the non-availability of intermittent RA capacity on a given day, the CAISO would procure such non-RA capacity through its Exceptional Dispatch process. Pursuant to a FERC order issued on February 20, 2009, if the CAISO Exceptionally Dispatches capacity from a non-RA unit it must buy that capacity for an entire month.<sup>7</sup> This clearly leads to a double payment for capacity during the same RA month; a more accurate counting method could avoid such needless costs. Similarly, under the Interim Capacity Procurement Mechanism, if intermittent resources are not available during peak load periods at levels assumed under the RA program and the CAISO needs to rely on non-RA units to serve load, the CAISO may need to procure backstop capacity from non-RA resources and pay such resources a monthly capacity payment.

The use of the Residual Unit Commitment process, Exceptional Dispatch and the Interim Capacity Procurement Mechanism could have cost

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<sup>7</sup> *California Independent System Operator Corporation*, 126 FERC ¶61,150 (2009).



consequences for ratepayers. If intermittent RA capacity is not available to meet peak loads and the CAISO must procure non-RA capacity to serve load and maintain reliable grid operations, ratepayers will be charged redundant capacity payments -- an RA capacity payment for the intermittent resource and a daily or monthly capacity payment for the non-RA resource that the CAISO had to commit due to the non-availability of the intermittent resource. There is no reason that ratepayers should bear “duplicative” capacity charges. Unfortunately, that is the likely result if the Commission adopts the “stay the course” recommendation of TURN, LSA and CalWEA and leaves in place an intermittent counting methodology that overstates the availability of intermittent resources during peak periods. These adverse cost impacts can be mitigated by adopting a counting rule that more accurately “counts” the availability of wind resources during peak conditions.

Even assuming *arguendo* that the Commission decides that it wants to explore further an ELCC or some other methodology, there is no reason to retain, during the interim period, an existing methodology which is demonstrably inaccurate and which could have adverse reliability and cost impacts. The Commission may consider revisions and potential improvements to its RA program at any time. However, any such modifications should contribute to the objectives of the RA program. Indeed, CalWEA, LSA and TURN do not offer a single substantive justification for retaining the existing intermittent counting rule and do not even attempt to demonstrate how it is a just and reasonable approach for counting intermittent resources. The Commission should not retain such

methodology under these circumstances, even on an interim basis, when the CAISO, SCE, and SDG&E have proposed a specific, well designed and fully developed methodology that will improve the accuracy of counting intermittent resources for RA purposes.<sup>8</sup>

The Commission should also reject TURN's, CalWEA's and DRA's arguments because they are based on the flawed assumption that an ELCC approach is the correct method for counting intermittent capacity for RA purposes in California. TURN and CalWEA suggest that it is acceptable to retain the existing counting rule for another year because it purportedly produces results similar to those that an ELCC analysis would produce. TURN Comments at 12; CalWEA Comments at 2. This is unacceptable for several reasons.

First, by making the claim that an ELCC methodology produces results similar to the existing QC counting methodology, these parties have essentially prejudged the assumptions and modeling selections of any ELCC analysis even though these assumptions and modeling choices have not yet been vetted in the workshop process, let alone adopted by the Commission.

Second, it is indisputable that the current counting methodology results in

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<sup>8</sup> The CAISO also notes that the issue of intermittent resource counting has already been deferred once -- from Phase 1 to Phase 2 of this proceeding. Further, the problem with the existing intermittent resource counting methodology was identified in the 2007 RA Report as an issue that needed to be addressed. The Commission should not defer addressing this critical issue for another year, especially for purposes of considering implementation of a flawed ELCC study. Although there was discussion of ELCC methodologies in Phase 1 of this proceeding, neither TURN, CalWEA nor DRA have submitted fully developed ELCC proposals in this Phase 2 proceeding. The ELCC methodology supported by DRA and CalWEA requires a large number of assumptions and inputs, none of which have been fully presented by them. Further, none of these details have been vetted by the parties because the ELCC proposals that have been submitted are only conceptual in detail. These parties should not be permitted to benefit by again getting the QC counting issue deferred for consideration until a later day. On the other hand, the Joint Proposal submitted by the CAISO, SCE and SDG&E is complete and can be readily implemented.

an over-counting of the capacity of intermittent resources during peak periods. Given this fact alone, the Commission should not adopt an ELCC methodology that produces similarly overstated QC levels.

Third, an ELCC study that looks at performance every hour of every day of the year is not only inappropriate, it is fundamentally at odds with the basic purpose of the Commission's RA program -- to meet peak reliability needs. Moreover, it is fundamentally at odds with entire structure of the RA program. In that regard, the following elements of the RA program are all designed based on peak demand hours: local RA studies; deliverability; QC for thermal resources; Path 26 counting convention; import capacity; load forecasts; and transmission system availability.

The Commission has worked diligently over the past several years to develop a workable and effective RA framework that meets the reliability needs of its LSEs and the CAISO. An ELCC approach that assesses each and every hour of the day -- as opposed to peak and near-peak hours -- would turn the CPUC's RA paradigm upside down. Neither CalWEA nor DRA have offered one iota of evidence to demonstrate that the fundamental underpinnings of the Commission's RA program should be abandoned after the years of effort and thought that the Commission and parties have expended to develop the RA program.

An ELCC approach ignores the basic fact that the greatest reliability risk occurs during peak periods when demand is high and there may not be sufficient resources to serve load. On the other hand, there is less of a reliability risk

during off-peak conditions where demand is low and there is a greater surplus of available supply to serve the reduced load. While an ELCC approach may be appropriate in conjunction with determination of an appropriate PRM based on LOLE that establishes an aggregate annual procurement level, it is not the appropriate approach for an RA program that is based on meeting monthly peak demand conditions (plus reserve margin) and upon capacity being fully available to the CAISO during those conditions. In other words, an ELCC approach will not result in RA resources that the CAISO can rely on to be available to serve load during peak conditions. By looking at production during every hour of the year and not focusing on peak and near-peak hours, an ELCC approach ensures that intermittent resources will be ‘overcounted’ and therefore inappropriately over-relied on during peak load conditions. When these resources do not “show up” as available RA capacity, there will be reliability problems and the potential for significantly increased costs as the result of the necessary procurement of backstop capacity from non-RA resources.

On the other hand, an RA program and an intermittent QC counting methodology based on monthly system peaks should, by definition, ensure that reliability needs are satisfied in all hours other than the peak. Such an approach inherently addresses the issue of reliability in all hours, but unlike an ELCC, a peak load approach will better ensure that there is sufficient capacity to serve load during peak conditions. To the contrary, an RA program that counts resources based on their performance during all hours, including non-peak hours, creates the very real risk that there will be insufficient resources available

to serve load during peak hours. The Joint Proposal submitted by the CAISO, SCE and SDG&E prevents this result. Any counting proposal that is not based on the dependable performance of intermittent resources during peak periods creates the risk the RA program will fail to meet its objective.

Fourth, the claim that an ELCC approach constitutes a “best practice” for counting wind resources for resource adequacy programs such as the Commission’s is an overstatement. CalWEA’s comments discuss the wind counting methodologies used by seven regional transmission organizations -- CAISO, PJM, NYISO, ISO New England, MAPP, SPP and ERCOT. Significantly, ERCOT is the only one that uses an ELCC approach. In the CAISO’s opinion, use of a methodology by one such organization hardly constitutes a “best practice.” Further it appears that ERCOT intended to adopt the ELCC approach only until such time as a more accurate approach is developed. In that regard, ERCOT’s Generation Adequacy Task Force (“GATF”) “recommend[ed] that a change in methodology is warranted and that the ELCC methodology should be used until better (i.e., more) actual performance data becomes available an accurate determination of the true capacity value of wind in ERCOT.”<sup>9</sup> Thus, it does not appear that the ELCC was recommended for use in ERCOT because it was the best methodology, nor was it determined that ELCC was intended to be

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<sup>9</sup> See Generation Adequacy Task Force Report To TAC, *Recommended changes to the ERCOT Reserve margin Calculation Methodology*, March 7, 2007 which is available at the following link:  
[http://www.ercot.com/content/meetings/tac/keydocs/2007/0330/11\\_Draft\\_GATF\\_Report\\_to\\_TAC\\_-\\_Revision\\_2.doc](http://www.ercot.com/content/meetings/tac/keydocs/2007/0330/11_Draft_GATF_Report_to_TAC_-_Revision_2.doc)

See also WMS Report to TAC which can be found at the following link:  
[http://www.ercot.com/content/meetings/tac/keydocs/2007/0330/11.WMS\\_Report\\_To\\_April\\_07\\_TAC.ppt](http://www.ercot.com/content/meetings/tac/keydocs/2007/0330/11.WMS_Report_To_April_07_TAC.ppt)

adopted as a permanent approach for purposes of determining the capacity value of wind in ERCOT. Also, as indicated in Dynegy's initial comments and in the linked ERCOT presentation, ERCOT's ELCC study produced a value for intermittent resources equal to 8.7% of nameplate. That is significantly lower than the value of wind capacity as calculated under the Commission's existing intermittent resource counting methodology. Under these circumstances, ERCOT's decision to use ELCC on an interim basis cannot serve as a legitimate reason for the Commission to adopt an ELCC approach, especially given the following facts: (1) an ELCC approach is inconsistent with the Commission's fundamental approach to RA and the entire structure of the RA program;<sup>10</sup> (2) ERCOT has acknowledged it needs something better; and (3) the ERCOT ELCC results reflect wind capacity values of 8.7% versus the 26-29% QC values that CalWEA claims are appropriate for California. See Page 7 of CalWEA's Proposal Submitted on January 15, 2009.

There are a variety of approaches used by the various ISOs and RTOs to assess the capacity value of wind. Presumably each ISO and RTO has adopted a methodology that works well given the conditions they face. Likewise, the Commission should adopt an intermittent counting methodology that works best under its RA paradigm and given the conditions (operational and weather) that exist in California. As discussed above, the methodology that is most consistent with the RA goals and the operating conditions in California is the exceedance

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<sup>10</sup> The CAISO also notes that ERCOT has an Energy-only market. ERCOT does not have an RA capacity forward commitment requirement like that adopted by the Commission. ERCOT's ELCC approach is not used to determine monthly capacity needs and availability for dispatching by the system operator. The ELCC is simply a tool to inform regulators and market participants about the relative level of capacity that is installed and generally available to serve load. It does not have any operational or procurement impacts and does not drive construction.

methodology proposed by the CAISO, SCE and SDG&E. It is not an ELCC methodology that takes a look at availability every hour of every day, and it is not the existing counting methodology which significantly overstates the capacity value of wind resources during peak load conditions.

Finally, Sempra Generation suggests that the Commission should test various counting proposals in the Planning Reserve Margin proceeding in Docket No. R.08-04-012 before making any modifications to the existing counting rule. Sempra Generation Comments at 3. The Commission should reject Sempra's suggestion. This particular issue is not within the scope of the PRM proceeding which has been going on for some time now. Moreover, the Commission should consider each proposed QC counting rule for intermittent resources based on its own merits, not how it impacts the overall PRM. In other words, the appropriate consideration is whether the proposed counting rule accurately counts intermittent resource production during peak periods, not how the chosen counting methodology affects the ultimate PRM level. These are two separate and unrelated issues. Also, the decision in the PRM proceeding is scheduled to be issued after the decision in this proceeding. To the extent the Commission desires to test a QC counting rule in the PRM proceeding, it can make a decision regarding the appropriate counting rule in this proceeding and then test it in the PRM proceeding before issuing a final decision there. There is no valid reason to delay issuing a decision in this proceeding. Following Sempra's comments will only result in an unnecessary delay.

**C. Specific Objections To Use Of An Exceedance Methodology Are Without Merit**

CalWEA raises a number of objections to use of an exceedance methodology. First, CalWEA argues that an exceedance approach would derate wind capacity twice: first, by using the actual capacity factor of intermittent renewable generation over a peak period, and, second, by applying an exceedance factor that ignores all renewable energy that cannot be produced at the 70%-90% capacity factor of a conventional baseload plant. CalWEA Comments at 3 and 10. CalWEA states that this "double de-rating" of wind capacity in the exceedance method results in NQCs far below the ELCC value of wind.

CalWEA's claim is based on the flawed assumption that the ELCC value of wind is the correct value for purposes of RA counting. For the reasons discussed in the CAISO's initial comments (pages 42-43) and Section III.D *infra*, the CAISO does not believe that the ELCC is the correct value for purposes of counting intermittent resources for RA purposes.

CalWEA also claims that ERCOT abandoned an exceedance approach because of the concern with the double de-rating of wind resources. *Id.* However, the GATF Report cited above suggests that ERCOT abandoned its previous wind counting methodology for two different reasons -- neither of which applies to the Joint Proposal submitted by the CAISO, SCE and SDG&E. Under ERCOT's pre-existing methodology, the generation reserve margin calculation methodology for wind generation was based on actual historical performance during the hours ending 1600 through 1800 for weekdays during the months of



July and August adjusted by Equivalent Forced Outage Rate for a combustion turbine that was used in the last ERCOT loss of load probability study. Members of the GATF were concerned about applying an EFOR for a combustion turbine to the actual performance data of wind generation because the use of actual performance data already includes whatever EFOR wind generation would experience. GATF Report at 4. However, the specific issue identified with ERCOT's pre-existing methodology and in CalWEA's comments does not apply to the Joint Proposal. The Joint Proposal is based solely on actual wind production and does not use an EFOR for combustion turbines (or any other baseload resource) to further derate wind capacity. The Joint Proposal only looks at wind production and does not apply an exceedance factor to the production of a thermal baseload plant. In other words, the Joint Proposal does not apply an exceedance factor to production from a baseload plant, it applies an exceedance factor only to actual wind production. In any event, the specific the issue raised in ERCOT does not apply to the joint proposal.

In addition, the GATF was concerned that the existing methodology relied on relatively few data points. *Id.* This problem encountered in ERCOT likewise does not apply to the Joint Proposal. The Joint Proposal uses data for five hours from every day of every month. The Joint Proposal uses significantly more data points (# of hours, number of days, and number of months) than ERCOT's prior methodology. Thus, none of the flaws in ERCOT's preexisting methodology apply to the Joint Proposal.<sup>11</sup>

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<sup>11</sup> The CAISO also notes that the GATF Report noted that the geographic dispersion of wind generators is continuing to change, which is likely to improve the capacity value of wind in

Second, CalWEA claims that the exceedance approach discriminates against wind and solar resources vis-à-vis thermal resources. CalWEA Comments at 3. CalWEA states that an exceedance method would require wind and solar generators to absorb, in lower NQCs, most of the impact of ambient conditions on their output, while fossil-fueled generators would continue to enjoy NQCs that include no adjustments for ambient conditions or forced outages. *Id.*

Contrary to CalWEA's claims, the Joint Proposal would not result in undue discrimination against wind and solar resources. CalWEA ignores the fact that the CAISO's revised SCP proposal counts ambient derates due to temperature against the availability of thermal units. As a result, thermal units will be charged when an ambient derate causes their availability to drop below the target availability level. To avoid these potential charges, thermal unit owners will need to sell less RA capacity than otherwise would be the case. It should be noted that under the CAISO's SCP proposal, intermittent resources such as wind and solar will not be "hit" with an availability charge due to ambient derates. The Joint Proposal, in conjunction with SCP, recognizes that intermittent resources are not similarly situated to thermal units in this respect. In that regard, for RA purposes intermittent resources are counted based on the last three years operational experience. To the extent they face forced outages or derates due to ambient conditions, any resulting reduction in availability will be reflected in their QC values for the following RA compliance year. To avoid any type of "double charge" under SCP, the CAISO will not assess intermittent resources an

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future years. GATF Report at 4. The Joint Proposal addresses this issue by including a diversity benefit for all wind resources in the same wind area.

availability charge for forced outages and ambient derates. On the other hand, the QC of thermal resources is not counted based on historical performance. Thus, such resources do not receive a QC adjustment for the next compliance year based on their forced outages over the past three years. Instead, under SCP they will be assessed an availability charge from the CAISO to the extent ambient derates cause their availability to fall below the target availability level. Thus, wind and solar receive a QC adjustment based on their actual experience, and thermal resources are assessed a financial charge based on their actual experience. Because the two resources are not similarly situated for RA counting purposes, there is no undue discrimination in not adjusting QC levels for thermal resources as CalWEA contends. If that were to occur, thermal resources would be penalized twice for the same derate -- once in the form of a financial charge and again with a QC reduction in the following compliance year. Resources should only be “charge” once for a derate (either in the form of a financial charge or a QC adjustment depending on the methodology used to count their capacity value). Thus, both thermal resources and intermittent resources will be negatively impacted for ambient derates, albeit in different ways.

Third, CalWEA contends that the choice of an exceedance percentage is arbitrary. CalWEA Comments at 6. CalWEA asserts that the CAISO has made no effort to benchmark the NQCs that result from its exceedance approach to a more rigorous ELCC evaluation that assesses the contribution of intermittent resources to reliability in all hours. *Id.*

CalWEA’s argument is again based on the fact that the exceedance

methodology has not been benchmarked to an ELCC assessment. Thus, it is based on the flawed assumption that an ELCC study that looks at every hour of the year is the appropriate method to measure capacity for RA purposes. As discussed herein and in the CAISO's initial comments, an every-hour ELCC approach is not appropriate and is contrary to the fundamental underpinnings of the entire RA program.

The CAISO does not deny that there is some subjectivity in determining an ultimate exceedance level. On the other hand, there is some degree of subjectivity involved in every counting methodology for intermittent resources because they are not dispatchable, and their production is extremely variable and unpredictable. Even the ELCC approach requires a significant number of assumptions each requiring some subjective choices. In any event, the CAISO submits that there are a number of reasons why its proposal to start with a 70% exceedance level and transition to an ultimate level of 80% is both fair to intermittent resources and reasonable. By its own admission, CalWEA recognizes that a 50% exceedance level is essentially an averaging methodology. CalWEA Comments at 8. In its initial comments, the CAISO clearly delineated why an averaging approach is wholly inappropriate for wind resources whose production is extremely variable and unpredictable. CAISO Initial Comments at 23-25. Indeed, using a 50% exceedance level may be no more accurate than flipping a coin to determine whether the resource will be available or not to serve peak load. Reliability requires more than that. At the other end of the spectrum, Dynegy proposes to use a 96% exceedance factor, which is based

on the average thermal generating unit forced outage rate over the same three-year period. That approach arguably would put thermal resources and intermittent resources on the same reliability footing and address any discrimination claims.

The CAISO submits that a 70-80% exceedance level proposed in the Joint Proposal constitutes a reasonable middle ground between these two bookends. Importantly, an 80% exceedance level is essentially the same level used for hydro resources whose QC counting rule equates to the expectation that the resource will meet its RA capacity for a given month in four out of five years. CAISO Initial Comments at 25. For intermittent resources, the 80% exceedance factor equates to the expectation that the given resource will meet or exceed its RA capacity in four out of five peak load hours. There is no reason why intermittent resources should be treated more or less favorably than hydro resources for RA purposes given that the weather ultimately determines each of these resources' availability. An initial exceedance level of 70% recognizes that some transition may be appropriate to mitigate the impact of changing from an averaging approach to an exceedance approach. In any event, a 70-80% exceedance level provides significantly more certainty and reliability benefits than the averaging approach that is currently in place and which overstates the availability of intermittent resources during peak periods. Finally, the CAISO notes that SPP uses an 85% exceedance level. See CalWEA's Proposal filed on January 15 at page 9. An 80% exceedance level is not unreasonable under these circumstances.

Fourth, CalWEA states that by definition, under a method that uses a 70% or 80% exceedance approach, the renewable resource will produce above that level in 70% or 80% of the peak hours. However, the exceedance approach assumes that all of this above-NQC generation will make no contribution to system reliability even though it is occurring in peak hours. CalWEA Comments at 6.

CalWEA focuses on the wrong point. The fact is that even using a 70% exceedance level, an intermittent resource's capacity, by definition, will be insufficient to meet peak reliability needs 30% of the time. The Commission needs to ask the following question: is it sufficient for a unit be unavailable for purposes of meeting peak loads for this amount of time? The CAISO submits that a 30% risk is the maximum amount of risk that the Commission should accept, and that should only be for a transition period until the exceedance level is increased to 80%.

CalWEA's argument also misses the fundamental point of the RA program, which is to have sufficient capacity available to meet peak load conditions, plus maintain a reserve margin. Capacity is a product that LSEs and the CAISO should be able to depend on to be available to meet peak load conditions and CAISO system operational needs. As the 2007 RA Report stated, NQC "is intended to reflect the **expected** capacity value that will be available to the CAISO during periods of system peak demand." RA Report at 17 (emphasis added). If a resource cannot be expected to be available with a reasonable degree of certainty during peak periods, then it arguably is more of an energy

product than a capacity product that meets the requirements and goals of the RA program.

The undeniable fact is that intermittent resources are not dispatchable and their production is extremely variable and unpredictable. The fact that a wind resource may occasionally produce more than its QC is just that -- an occasional event. It is not an outcome that can be relied upon with any degree of certainty -- something which is required for a capacity product. As discussed in the CAISO's initial comments, an exceedance methodology assesses the level of capacity that reasonably can be relied upon to meet peak load conditions and support reliable grid operations. CAISO Initial Comments at 23-25. An exceedance approach provides a high level of confidence that resources required to serve California during peak system demand will be available. This high level of confidence not only serves to promote grid reliability, but also contributes to the likelihood that RA resources will be primarily relied upon to meet system needs under the peak demand conditions assumed by the RA program. Thus, an exceedance approach best measures the capacity value of an intermittent resource.

PG&E argues that exceedance approaches are not based on any well-defined theory of reliability and fails to account for the correlation between intermittent generation and load within the broad set of hours over which the proposed exceedance methodologies calculate exceedance. PG&E Comments at 12.

PG&E does not present an accurate portrayal of the exceedance methodology reflected in the Joint Proposal. In that regard, the Joint Proposal

specifically seeks to ensure a correlation between intermittent generation and load by assessing wind output during the five peak and near-peak load hours of each and every day. The CAISO's initial comments also explained why an exceedance approach is necessary from a reliability perspective. In that regard, an averaging approach, even if it only looks at peak generation output will fail to capture the extremely large variations (both positive and negative) between the average historical output and the actual output on a given day during peak periods when capacity is most needed to serve load. CAISO Initial Comments at 24. PG&E does not deny the extreme variability and predictability of wind resources. That extreme variability can have a significant adverse impact on system operations and reliability, particularly during peak load periods. Under these circumstances, average values can far exceed actual production. An exceedance approach accounts for these types of variance and produces a QC that is more closely related to the **expected** output of intermittent resource during peak periods. Thus, contrary to PG&E's claim, an exceedance approach supports reliability by increasing the likelihood that the actual output of an intermittent resource during peak hours will meet their QC consistent with the adopted exceedance level. Therefore, it achieves the purpose of a true capacity product.

LSA contends that some of the proposed changes to the NQC counting rules for intermittent resources focus only on super-peak hours, thus failing to recognize the capacity value that intermittent resources provide. LSA claims that the result of this narrow focus is to unduly raise costs of the RA program to



ratepayers by requiring over-procurement of dispatchable resources while discounting the RA value of non-dispatchable resources. LSA Comments at 4.

LSA does not define what super-peak hours are. The CAISO notes that the Joint Proposal looks at five hours from every day of the week during each and every month, *i.e.*, it includes weekend hours. Thus, the Joint Proposal assesses production in more than 20% of the hours.

To the extent LSA is arguing for an approach that assesses production during every hour of every day, such an approach is flawed for the reasons discussed previously. In particular, LSA fails to recognize that a counting rule that over counts intermittent resource capacity will result in the CAISO having to procure more backstop capacity, thereby increasing costs to ratepayers. In essence ratepayers will be forced to make capacity payments for redundant capacity, once to the RA resource that was not available and another capacity payment to the non-RA resource that the CAISO had to procure because the RA resource was not available. This problem can be addressed by a more accurate counting methodology that will limit the need to commit non-RA resources and allow only a single capacity payment to be made – to an RA resource.

**D. The Commission Should Not Aggregate The Value Of Wind And Solar Resources**

CalWEA states that the Commission should recognize that there are diversity benefits not only among projects of a single technology such as wind, but also between wind and solar generation, because these resources have complimentary profiles. Accordingly, CalWEA recommends that the Commission aggregate the values of such resources. CalWEA Comments at 9-12.

The CAISO submits that it is inappropriate to aggregate all wind and solar resources for QC counting purposes. First, CalWEA's proposal is unduly discriminatory. No other resources are aggregated for RA counting purposes. Each resource is counted on its own merits, and the LSEs benefit from any diversity benefit that might be received once the CAISO operates the fleet of resources.

Second, wind and solar resources are wholly separate resources. They are not operated as a single, integrated resource for RA purposes. The mere happenstance that these resources peak at different times does not mean that their respective QC values should be added together for counting purposes. This proposal is nothing more than an attempt to increase the QC numbers of wind and solar resources without justification. The attachment to CalWEA's comments implies that combining wind and solar resources creates significant improvements. In reality, the higher peak capacity outcome is achieved by combining a lower value capacity resource such as wind with a higher value capacity resource such as solar.

Third, wind and solar resources are generally not located in the same area. As the CAISO indicated in its initial comments (pages 29-30), the Commission should not adopt a diversification approach that extends diversification benefits across all wind areas because there are constraints across various congestion paths within the CAISO Controlled Grid and these resources may not be deliverable to load at the aggregated basis. This same

logic applies to aggregating wind and solar resources for purposes of calculating a diversification benefit.

Fourth, CalWEA is not proposing that individual wind and solar resources combine to function as a single RA resource that receives a single RA capacity payment. Rather, under CalWEA's proposal, it appears that the wind resource and the solar resource would each receive an RA capacity payment based on a capacity level that exceeds their separate QC levels, without any increased reliability benefits (because each of these units would already be RA units). In other words, CalWEA is essentially proposing to make two capacity payments for the job that one hypothetical combined wind/solar resource could provide. That is illogical and wholly unjustifiable. Indeed, the combined QC of these resources would be less than the QC of a single equivalent thermal unit; yet under CalWEA's hypothetical proposal the thermal unit would receive only one capacity payment, but the aggregated wind/solar resources with a lower capacity value would receive two capacity payments. There is no cost basis or reliability benefit resulting from this approach. If wind and solar units desire to "aggregate" for RA purposes and they can be aggregated from a deliverability perspective, then they should propose a specific aggregation that can be evaluated as a single RA resource -- and be paid a single RA capacity payment.

### III. CONCLUSION

For the foregoing reasons, the CAISO respectfully requests that the Presiding Administrative Law Judge prepare a proposed decision for Commission consideration that incorporates the proposals articulated herein and in the CAISO's initial comments.

Respectfully submitted,

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Date: February 27, 2009

## CERTIFICATE OF SERVICE

I hereby certify that on February 27, 2009, I served, by electronic mail and United States mail, a copy of these Phase II Reply Comments of the California Independent System Operator Corporation to each party in Docket No. R.08-01-025.

Executed on February 27, 2009 at Folsom, California

*/s/ Anna Pascuzzo //*

Anna Pascuzzo,  
An Employee of the California  
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