

Flexible Capacity Procurement - Resource Adequacy Proceeding (Objectives and Plan)

Background

Grid reliability needs are changing over time due to a number of factors. The California Independent System Operator (ISO) has stated in this proceeding that it will require more resources that have the capability to ramp quickly to meet the operational needs of the grid, which arise from the unpredictability of both supply and of demand. There are a number of issues that parties have identified that will contribute to reliability concerns in the near future, including the integration of intermittent renewable resources and the retirement of generation resources that use once-through cooling (OTC). Parties have also discussed the need to modify RA rules to address market concerns like the potential for relatively new power plants without long term contracts to consider shutting down. Longer term, other issues, such as electric vehicles, may affect the grid.

In this phase of the Resource Adequacy (RA) proceeding, we are considering modifying the rules to address these types of flexibility issues. While we consider evolving the RA program structure, we would like to solicit feedback from parties about the problems we are trying to solve, the potential solutions, and the market and regulatory issues to take into account while developing a staff proposal.

Recent studies, including the Energy Division Staff (Staff) analysis of load shapes, indicate that as the level of intermittent resources increases to meet Renewable Procurement Standard (RPS) requirements, so too will the need for flexible generating resources to integrate these resources. For example, the wind ramps down in the morning (between 3AM and 7AM) at the same time load ramps up, thus creating a wide gap between load and supply. In addition, as the makeup of load and generation changes, reliability risk will likely increase during off-peak times and non-summer months. For example, the grid will face considerable stress in months like December, in the hours when Christmas lights are switched on. Similarly, stressed conditions on the grid are observed during April, when the grid has to absorb excess energy from the spring run-off, while wind and solar resources are simultaneously producing at a high output. These gaps between load and supply necessitate the need for adequate flexible resources in the generation fleet, which cannot be addressed by merely changing the levels of “generic capacity.” As a result, the grid may require capacity with special characteristics. Our aim through this proceeding is to develop a methodology where a megawatt of capacity with the appropriately defined characteristics is distinguished and valued differently from a megawatt of generic capacity.

Through our workshop(s) we will explore what constitutes flexibility and how to determine procurement levels that result in LSE capacity procurement obligations from resources capable

of providing flexible operating services within the construct of the monthly RA procurement and compliance program. The ISO will present its latest studies about the electric system's flexibility needs, which will further these discussions. Stakeholders will have numerous opportunities to ask questions, offer feedback, or suggest alternatives to manage capacity procurement that facilitates grid reliability.

Note: The ISO and Staff proposals regarding flexibility from 2013 RA proceeding are no longer current. This workshop is not meant to be an exercise in the refinement of either of those proposals; but would like to take a fresh look at the definition and needs for flexibility.

Goals

Because of the importance and complexity of the issues involved, it is important for parties to agree on the problems we are trying to solve and on how we can evaluate solutions to determine if they meet the RA program's and the market's needs. At the workshop, parties will be asked to comment on what characteristics the new RA rules regarding flexible resources should have to meet market and regulatory needs. These guiding principles will aid in the preparation of a staff proposal.

Objectives

Through the current RA proceeding, Staff is trying to create a proposal to incorporate flexibility needs in the RA program in a systematic and equitable fashion. Staff is attempting to develop the record through a workshop(s), party proposals, ISO studies, and discussions. The following are current objectives that must be achieved:

1. **Definition of flexibility-** The workshop will discuss a simple definition of flexibility that is translatable into procurement obligations and contractual terms.
2. **Needs Methodology** -The workshop will focus on validating and refining a methodology that will be used by the ISO to calculate the grid's flexibility needs in an identified timeframe. The methodology should be a transparent and understandable mechanism that the CPUC can rely on to determine RA flexible capacity procurement targets.
3. **Valuing Generator Capability** – The workshop will examine how flexibility is valued in a resource, the best way to recognize that value (e.g. as a capacity payment, through the CAISO Flexible Ramping Product, or a combination of both) and translate it into procurement obligations. The objective is to facilitate optimal quantity of flexible capacity availability, fair and reasonable returns, and optimal procurement levels at minimal cost.
4. **Allocation Methodology** – Once flexibility needs are established, stakeholders will inform the development of a process to allocate these procurement requirements among LSEs through future rulings and/or workshops. This may require local, and system requirements based on defined needs.
5. **Compliance Program-** Future rulings and/or workshops will address future compliance rules ensuring the process is simple, standardized, easily administered, and has clear responsibilities, reporting requirements, and equitable penalties. This will include the identification of flexibility targets and timetables required in the compliance program.

Resource Adequacy Workshop 1 - August 13, 2012

Purpose

At the first workshop, parties will be asked to comment on characteristics necessary for the rules which will govern the procurement of flexible resources within the RA program as well as to meet market and regulatory needs.

Based on the workshop discussion and subsequent comments, Staff will develop a proposal to implement a quantifiable and consistent program for RA procurement of “Flexible Capacity” within RA proceedings and that ultimately facilitates the ISO reliably operating the grid. Specifically in this workshop (August 13, 2012), Staff will facilitate discussion around these topics -

1. Definition of flexibility – One of the main objectives of the workshop is to solicit party feedback on the various approaches to defining “flexibility.” The definition of “flexibility” will inform procurement and CPUC regulatory proceedings.
2. Needs methodology – At the workshop, staff will solicit party perspectives on methods for developing a clear comprehensive methodology to calculate flexibility needs. The ISO will present its needs methodology and parties will have the opportunity to comment and ask questions about their assumptions and modeling.
3. Valuing Generator Capability – At the workshop, the ISO will present a method to value flexible attributes in a generator and parties will examine how flexibility is valued in a resource with the constraint that should be easily translatable into procurement obligations.
4. The other objectives will be discussed in subsequent workshops or rulings. The record will be developed about the incorporation of flexibility in the RA program, once the definition, needs requirements, and valuation methodology have been established.

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Questions for Parties to Consider in Advance of the Workshop

1. Definition of Flexibility

- What is flexibility?
 - Flexibility can be defined in a number of ways. If you believe one approach is better than another please explain which approach is better suited to the RA program and why.
 - Flexibility could be defined as a choice between different operational characteristics of a generator such as magnitude of ramp, speed of

response, ramp duration, start up time, operating state transition time, and availability.

- Flexibility could be defined as a combination of the above factors.
 - Flexibility could be defined as an aggregate measure over a portfolio of resources.
- How should ramp rate, minimum up/down-time, transition or start up time be described (e.g. as a single value, score, range, or threshold)?
 - Should flexibility of operational characteristics be based on a single, multiple, or within a series of operating states of a generator like ramp rate, state of transition, or startup time?
 - How can we focus and define the discussion of flexible characteristics over the complex range of operating conditions that the ISO encounters?
 - Which operating conditions are a concern and necessitate generation solutions?
 - Should a strict set of operational characteristics determine the threshold that would qualify a resource as flexible? For example should a minimum ramp rate, startup time be adopted as a threshold for a resource to be classified as flexible?
 - How should flexibility values vary - monthly or annually? Should this depend on when the flexibility is valuable to grid operations?
 - How would a locational or effectiveness value be incorporated into the flexibility definition?
 - How would all of this change if the CPUC would adopt a multi-year RA program?

2. Development of Needs Methodology

The ISO staff will be presenting their studies on flexibility needs and stakeholders will get the opportunity to question the assumptions and methods used by the ISO.

- What is the best way to develop a needs methodology?
 - What are the assumptions on which the needs should be based?
 - What input variables should be used to calculate needs?
 - How accurate do these input variables need to be?
 - Over what period should the grid's flexibility needs be assessed?
 - How can this process be automated or replicated annually?

- What period(s) should be considered (E.G. hourly, daily, peak hours, off-peak hours, peak month, off-peak months, annual) while calculating flexibility needs?
- Should flexibility needs be calculated for the entire generation fleet or should this be confined to specific flexibility characteristics of a subset of generators within the fleet? An analogy could be should we rely on an entire relay team or a few fast runners to win a race?
- Should there be a locational aspect to determining the flexibility needs and if so, should there be recognition of the value that that local flexible capacity provides (e.g. local versus system)?
- How important is it for the methodology used to determine the flexibility requirement in the CPUC RA program be consistent with the ISO backstop procurement of capacity?
- What criteria should be used to determine that the studies used by the ISO to determine needs are transparent?

3. Valuing Generator Capability Methodology

The workshop will examine how flexibility is valued in a resource with the constraint that it should be easily translatable into procurement obligations. The objective is to develop an accounting mechanism that helps count available flexibility attributes against needs and evaluate the relative value in relation to other resources during the procurement process.

- What are some of the ways generator capability can be valued to meet flexibility needs?
 - Should qualitative information be utilized to classify a resource as flexible or inflexible? (e.g. using qualitative classifications to determine eligibility like baseload, intermittent, or self-scheduled resources.)
 - How should generator flexibility be quantified (e.g. a binary choice between “flexible” or “non-flexible”, quantity of ramping MW over time, or getting scored over a continuum)?
 - Should a single aggregated value incorporating ramp rate, duration, PMax, and startup time into one score to represent the flexibility of that generation resource, or should discrete values represent each category of flexibility?
- What should be considered to develop a generator capability methodology?
 - Within the context of the current bucket categorization, what is the best way to recognize the capability of each type of generation in trying to meet the reliability

needs identified?

- How should a generator be differentiated from others, if at all (e.g. should it depend on which bucket it falls in, or type of plant configuration, or have different thresholds and methods by bucket)?
- What eligibility requirements should resources be subjected to?
- How should the methodology reflect technologically neutral criteria?
- How do confidentiality concerns affect the valuation of generator capability?
- How do confidentiality concerns affect reporting, transparency and acquisition of appropriate information within the RFO process?
- How would all of this change if the CPUC would adopt a multi-year RA program?

Proposed Timeline

The timeline is not definite. It is indicative and subject to change.

Procedure	Objective	Date
Agenda and questions sent to parties	Set the agenda for Workshop -1	August 7, 2012
Workshop-1	1. Definition of flexibility 2. Needs methodology 3. Generator capability methodology	August 13, 2012
ED staff workshop report	Creating a record for the workshop	September 4, 2012
Ruling	Post-workshop comments	September 4, 2012
Party Comments	Post-workshop comments	September 24, 2012
Party Reply Comments	Post-workshop comments	October 1, 2012
ED Proposal	1. Definition of flexibility 2. Needs methodology 3. Generator capability methodology 4. Allocation methodology 5. Compliance rules	October, 2012
Workshop 2 (if needed)	1. Allocation methodology 2. Compliance rules	November, 2012
Ruling	Post-workshop comments	December, 2012
Party Comments	Post-workshop comments	December, 2012
Party Reply Comments	Post-workshop comments	January, 2012
Proposed Decision	Adopting a mechanism for flexible capacity procurement	February, 2013
Decision	Adopting a mechanism for flexible capacity procurement	March, 2013