



# Flexible Capacity Procurement Phase 1: Risk of Retirement

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Market and Infrastructure Policy  
Revised Draft Final Proposal

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# Draft Final Proposal

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## Summary of Changes

In this document, the ISO has made the following changes to the Draft Final Proposal:

- The cost-based compensation a resource would receive has been modified to no longer include a 10 percent cost adder.
- The treatment of market revenues has been modified to allow resources to retain 10 percent of net ISO market revenues.
- The long-term standby option has been removed.
- A stakeholder process and review period has been added to allow market participants to review the ISO's assessment of need, provide input, and provide them an opportunity to cure the situation prior to the ISO conducting backstop procurement.
- The method for handling CPM compensation has been changed so that it will count toward reducing the minimum revenue guarantee.
- A sunset provision has been added.
- Allowable project investment (i.e. major maintenance) costs have been revised and the process for documenting allowable costs has been clarified.

## 1 Introduction

The ISO's studies show that reliably operating the grid with a 33 percent Renewable Portfolio Standard (RPS), the potential retirement of 12,079 megawatts of once-through-cooled generation units, and the potential addition of 12,000 megawatts of distributed resources requires California to maintain a fleet of sufficient flexible and local capacity resources both now and into the future. The need for flexible capacity resources increases with the level of intermittent resources typically used to meet RPS requirements.

Currently, the California Public Utilities Commission (CPUC) is considering modifications to its Resource Adequacy (RA) program to incorporate flexible capacity procurement requirements and the ISO is conducting local reliability studies as part of the CPUC's 2012 LTPP proceeding. The ISO will continue working with the CPUC and other local regulatory authorities (LRAs) by providing the information required to incorporate flexible and local capacity needs into their respective resource adequacy and long-term procurement requirements. While the ISO expects that these efforts will result in LRA rule changes that address flexible and local capacity needs, ISO tariff changes are also needed to address forward flexible capacity procurement.

The ISO intends to address these tariff changes in two phases:

- In Phase 1, the ISO will pursue tariff changes that will ensure the ISO has sufficient backstop procurement authority to address capacity at risk of retirement that the

ISO identifies as needed up to five years in the future to maintain system flexibility or local reliability.

- In Phase 2, the ISO will consider further tariff changes, including:
  - Tariff changes needed in conjunction with the flexible capacity requirements that are being considered by the CPUC and other LRAs. These include defining the availability and must-offer requirements for flexible capacity and default flexible capacity requirements and generation counting rules for entities not covered by an LRA's flexible capacity rules.
  - Tariff changes that will allow the ISO to cure flexible capacity procurement shortfalls by load serving entities (LSEs).
  - Additional tariff changes to address potential longer-term capacity procurement requirements with horizon of up to five years into the future.

This draft final proposal details the ISO's proposal for Phase 1 of these tariff changes, which addresses ISO backstop procurement authority for capacity at risk of retirement that is needed in the future for system flexibility or local reliability. These tariff changes would supplement the ISO's existing authority under the current Capacity Procurement Mechanism (CPM) to procure capacity at risk of retirement that is need in the future for reliability. While the existing CPM tariff provisions for generation units at risk of retirement allow the ISO to procure capacity that is not under RA contract in the upcoming year, but will be needed for reliability in the subsequent year, the new risk of retirement backstop procurement mechanism the ISO is now proposing would allow the ISO to procure capacity as a backstop measure that is needed two to five years in the future.

Specifically, the ISO proposes that this new risk of retirement backstop procurement authority for capacity needed for system flexibility or local reliability two to five years in the future (referred to as the "Flexible Capacity Risk of Retirement" tariff provisions in the remainder of this paper) would be as follows:

- The ISO would only offer payments to capacity under the Flexible Capacity Risk of Retirement provisions if the resource owner has made attempts to bilaterally contract for RA capacity, has not been successful in entering into sufficient contracts, and has made a final decision to retire the resource because it is not economically viable without additional revenue. The resource owner will have to attest to these facts in a signed certification and submit supporting financial information.
- Subsequent to a resource owner notifying the ISO of its intent to retire a resource under the circumstances described below, the ISO would only exercise its backstop procurement authority under the Flexible Capacity Risk of Retirement provisions if the

ISO concludes that the resource is needed for system flexibility or local reliability two to five years in the future.

- Resources with more than one year left on their RA contract would not be eligible under the Flexible Capacity Risk of Retirement provisions.
- Resources would only be eligible under the Flexible Capacity Risk of Retirement provisions if the owner notifies the ISO of the planned retirement prior to October 31 of each year. Additionally, resources for which the notification of planned retirement is received after this date will not be considered.
- The ISO will notify all market participants of its tentative intent to issue a Flexible Capacity Risk of Retirement designation by November 31. Additionally, the ISO will host a stakeholder meeting by December 15 to discuss any assumptions used in the needs determination and solicit stakeholder input.
- The ISO will file at FERC by January 15 seeking approval for just and reasonable compensation for a resource issued a Flexible Capacity Risk of Retirement designation. However, initial compensation will commence starting January 1. Once FERC issues a final ruling on just and reasonable compensation, the ISO will true-up the outstanding balance.
- The ISO will determine if a resource is needed for system flexibility within the subsequent two to five years using methodologies similar to those used in the ISO's renewable integration studies or similar reliability based study. Likewise, the ISO will determine if a resource is needed for local reliability within the subsequent two to five years using methodologies similar to those used in the ISO's LCR studies or similar reliability based study.
- The ISO will use an existing reliability criterion such as one day loss of load in ten years. These criteria include meeting both peak demand and flexibility requirements.<sup>1</sup> For local need the ISO will use applicable NERC reliability criteria.
- The payment under the Flexible Capacity Risk of Retirement provisions will consist of a minimum revenue guarantee that covers a resource's going forward costs.<sup>2</sup>
- Resources designated to receive payments under the Flexible Capacity Risk of Retirement provisions will not have any performance or must-offer requirements in the ISO markets during the year of the award and may bid in all ISO markets.

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<sup>1</sup> The ISO may use stochastic modeling as a means to determine the threshold levels of need have been met.

<sup>2</sup> Going forward costs are defined as the costs required to operate a resource for a defined period of time.

- Resources receiving Flexible Capacity Risk of Retirement designation and compensated at going forward costs must, subject to the structural limitations, submit bids into all RA RFOs, monthly and annual, during the year of designation. Failure to submit a bid into an eligible RFO will result the resource being ineligible for the minimum revenue guarantee for a time period equal to the duration of the RA RFO.
- The maximum minimum revenue guarantee under Flexible Capacity Risk of Retirement designations will be equal to a resource's going forward costs. However, a resource will be permitted to retain 10% of all net ISO market revenues. The remaining 90 percent will be subtracted from the resource's going forward costs. Any capacity payments, including under the ISO's Capacity Procurement Mechanism (CPM) provisions, or bilateral payments, will reduce the minimum revenue guarantee on a dollar-for-dollar basis.
- A resource's going forward costs shall include, labor costs, administrative expenses, basic maintenance, variable expenses (excluding expenses recovered in the energy, AS, and RUC markets), taxes, fees (including environmental permitting), short term carrying charges, basic corporate level expenses, and project investment costs (not to exceed \$2 million per year).
- In order to be eligible for a Flexible Capacity Risk of Retirement designation, a resource must have participated in at least one RA request for offer (RFO) for the upcoming RA compliance year or provide sufficient justification why the ISO should evaluate the resource even though it did not respond to an RA request for offer. (In addition, as described above, a resource has an obligation to participate in all applicable RA RFOs once a resource receives a Flexible Capacity Risk of Retirement designation.)
- Resources receiving payments under the Flexible Capacity Risk of Retirement designation that enter into a partial RA contract may still be considered for renewal of a Risk of Retirement designation in the subsequent year if the RA contract does not fully cover the resource's going forward costs for the next year. Otherwise, partial resource procurement under the Flexible Capacity Risk of Retirement provisions will not be permitted.
- Resources receiving Flexible Capacity Risk of Retirement designation and compensated at going forward costs will be eligible for CPM designations by the ISO.
- If a resource at risk of retirement within the current RA Compliance Year, based on the ISO's initial assessment, will be needed after the calendar year following the current RA Compliance Year will only be eligible for Flexible Capacity Risk of Retirement designation. Only if the ISO's initial assessment of the resource shows the resource will

be needed by the end of the calendar year following the current RA Compliance Year will the CPM risk of retirement provisions apply.

- Resources will only be designated to receive payments under the Flexible Capacity Risk of Retirement provisions for one RA compliance year at a time. The designations will terminate at the end of the compliance year or when the resource enters into an RA contract that covers the resource's costs, whichever comes first.
- At the end of the year of designation, there will be no additional obligations unless the resource once again attests that it will retire in the upcoming year and is offered another Flexible Capacity Risk of Retirement designation by the ISO.
- The ISO can renew the Flexible Capacity Risk of Retirement designation for a subsequent year if the resource owner re-attests that it has continued to make attempts to bilaterally contract for RA capacity and has not been successful and will retire in the upcoming year. The ISO would again have to conclude that the resource is needed for system flexibility or local reliability within the subsequent five RA compliance years and conduct the associated process described above.
- Costs of Flexible Capacity Risk of Retirement procurements will be allocated to LSEs based on load ratio share.
- The Flexible Capacity Risk of Retirement mechanism will sunset after establishment and implementation of multi-year forward capacity procurement obligations for flexible and local resources for all LSE's within the ISO balancing authority and the mechanism has not been used during the 24 months after the implementation of these capacity procurement obligations.

## 2 Background

Integrating a 33 percent RPS, maintaining local reliability, and meeting other state energy policy goals such as the once-through-cooling mandate creates several operational challenges for the ISO. Among these challenges is ensuring that the ISO has sufficient flexible capacity to address the added variability and unpredictability created by variable energy resources. This challenge is magnified even further with the prospect of losing over 12,000 MW of flexible capacity resources to once-through-cooling mandates established by the State Water Resources Control Board. The ISO is working with the CPUC and other LRAs to resolve many of these challenges through modifications to RA programs and procurement requirements. However, the ISO must ensure that it has a robust backstop procurement authority to resolve capacity deficiencies that could degrade the ISO's ability to reliably operate the grid, when and where needed. Thus, the ISO has initiated this stakeholder process to augment the ISO's

current backstop capacity procurement authority to ensure there is a sufficient flexible and local capacity to reliably integrate a 33 percent RPS, address potential once-through cooling (OTC) retirements, and increases in the amount of distributed generation on the system.

Reliably operating the grid with a 33 percent RPS requires re-evaluating not only how resources are dispatched, but the operating capabilities of resources that LSEs procure as resource adequacy capacity. This section details the evidence and concerns the ISO must address to maintain grid reliability with a growing fleet of intermittent resources and with the potential loss of a large number of flexible and local resources. This section also summarizes the CPUC's RA and Long-Term Procurement Plan (LTPP) requirements and their relationship to maintaining sufficient flexible capacity. The challenges presented by the potential OTC retirements and increased levels distributed generation are discussed as well. Finally, this section summarizes related aspects of the ISO's existing Capacity Procurement Mechanism (CPM) tariff provisions and explains the reasons the ISO must have new authority for flexible capacity backstop procurement.

## 2.1 ISO Renewable Integration and Local Needs Studies

To ensure renewable resources are reliably integrated into the California electric grid and that local reliability is maintained as OTC resources begin to retire, the ISO has undertaken several comprehensive studies over the years, including:

- Integration of Renewable Resources: Transmission and operating issues and recommendations for integrating renewable resources on the California ISO-controlled Grid.<sup>3</sup> (November 2007)
- Report on Preliminary Renewable Transmission Plans.<sup>4</sup> (August 2008)
- Integration of Renewable Resources: Operational Requirements and Generation Fleet Capability at 20% RPS.<sup>5</sup> (August 2010)
- ISO studies conducted as part of the CPUC's 2010 LTPP proceeding.<sup>6</sup>
- ISO testimony in submitted as part of the CPUC's 2012 LTPP (R.12-03-014) and R.11-05-023 addressing Local Capacity Needs.<sup>7</sup>

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<sup>3</sup> <http://www.caiso.com/Documents//Integration-RenewableResourcesReport.pdf>

<sup>4</sup> <http://www.caiso.com/Documents/ReportonPreliminaryRenewableTransmissionPlans.pdf>

<sup>5</sup> <http://www.caiso.com/Documents//Integration-RenewableResources-OperationalRequirementsandGenerationFleetCapabilityAt20PercRPS.pdf>

<sup>6</sup>

[http://www.caiso.com/Documents/Summary\\_PreliminaryResults\\_33PercentRenewableIntegrationStudy\\_2010CPUCLongTermProcurementPlanDocketNo\\_R\\_10-05-006.pdf](http://www.caiso.com/Documents/Summary_PreliminaryResults_33PercentRenewableIntegrationStudy_2010CPUCLongTermProcurementPlanDocketNo_R_10-05-006.pdf).



The Integration of Renewable Resources: Operational Requirements and Generation Fleet Capability at 20 percent RPS (20 percent RPS Report) is a comprehensive study that examines the flexibility of the current ISO fleet to reliably operate under a 20 percent RPS. Some of the key findings of the 20 percent RPS Report include:

- With additional variable energy resource production, the *net* load-following requirement could increase substantially in certain hours due to both to the variability of wind and solar production and forecast uncertainty.
- There was a significant increase in the regulation capacity requirements in the summer season over time.
- The increased supply variability associated with the 20 percent RPS results in dispatched gas-fired generators starting-up and shutting down more frequently. Also, energy production from combined-cycle units decreased on an average, with greater reductions during off-peak hours when wind production is highest. This indicates the dispatchable fleet would be cycled more often.
- Lower capacity factors combined with reduced energy prices under the 20 percent RPS may result in a significant drop in energy market revenues for the gas-fired fleet.

Table 1 summarizes several relevant statistics that the RPS studies produced for conventional thermal generators under the 20 percent RPS as compared to the reference case. As Table 1 shows, combined-cycle units will start-up and shutdown more frequently while the other conventional thermal generators will be started-up less frequently. All three types of units will produce less energy, both on- and off-peak, and will receive less revenue.

**Table 1: Percent change 20 percent RPS, compared to Reference Case**

	Combined Cycle	Simple Cycle	Gas Fired Steam Turbine
<b>Number of starts</b>	<b>35 %</b>	<b>-21 %</b>	<b>-22 %</b>

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<sup>7</sup> [The ISO submitted testimony on May 23, 2012 and supplemental testimony on June 19, 2012 in R.12-03-014 regarding local reliability concerns in the SCE service territory. In R.11-05-023 the ISO submitted testimony on March 9, 2012, supplemental testimony on April 6, 2012, and rebuttal testimony on June 6, 2012 regarding local reliability concerns in the SDG&E service territory.](#)

<b>On-peak Energy (MWh)</b>	<b>-11 %</b>	<b>-39 %</b>	<b>-29 %</b>
<b>Off-peak Energy (MWh)</b>	<b>-16 %</b>	<b>-33 %</b>	<b>-18 %</b>
<b>Revenue (\$,000)</b>	<b>-16 %</b>	<b>-39 %</b>	<b>-29 %</b>

The 33 percent RPS will decrease the need for energy from many existing conventional gas-fired resources even further. While the energy production of these conventional resources is being displaced by intermittent resources, the ISO will need even more of the flexible capacity that many conventional resources provide in order to maintain grid reliability under the 33 percent RPS. Consequently, the need to ensure that a sufficient fleet of flexible resources is maintained will only increase.

In 2011, the ISO undertook a number of studies to quantify the flexible capacity needed to reliably integrate the 33 percent RPS. Using assumptions provided by the CPUC, the ISO analyzed if a projected future generation fleet will be able to reliably integrate a 33 percent RPS.<sup>8</sup> The study results indicate potential downward load following shortfalls in excess of 500 MWs in two of the CPUC's four priority scenarios.<sup>9</sup> Additionally, the ISO studies found a potential shortfall of 4,600 MW of upward load following in the "High Load, Trajectory Scenario." This "High Load, Trajectory Scenario" was constructed to demonstrate the implications of under-forecasting load by 10 percent and demand side management under-achieving the stated goals. Some of this system level shortfall could be reduced by addressing local needs as well. For example, introducing 3,100 MW of local resources reduces potential need for system resources from 4,600 MW to 1,200 MW in 2020.<sup>10</sup> The ISO believes that this scenario is the reasonably prudent scenario to use in planning operational capacity needs.<sup>11</sup> The ISO's studies are ongoing and considering the following:

- 1) The impact of local capacity requirements in meeting flexibility requirement that may be necessary as result of retirement of the once-through-cooled units;
- 2) Allowing for an updated review of underlying assumptions and
- 3) Considering alternative solutions for meeting the observed needs.<sup>12</sup>

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<sup>8</sup> The ISO assumed retirement of once-through-cooling plants and a certain amount of new generation.

<sup>9</sup> These are detailed in the ISO's July 1, 2011 filing (Testimony of Mark Rothleder) in the CPUC's Long-Term Procurement Plan Proceedings

<sup>10</sup> See testimony of Mark Rothleder in the CPUC's 2012 LTPP (R.12-03-014).

<sup>11</sup> Even for other LTPP scenarios, like the "High Load Trajectory" scenario, assumptions such as the amount incremental demand response, import level, and outage rates need to be evaluated.

<sup>12</sup> These follow-up studies and any associated system level needs will be addressed in track two of the 2012 LTPP.

Recognizing the operational need for flexibility, the ISO has also introduced additional operational constraints that ensure sufficient flexible ramping capability is maintained in the real-time market. This constraint is different from regulation or operating reserve in that it is available to absorb imbalance differences that may occur due to load and supply uncertainty and variability which may arise unrelated to a “contingency” event. The ISO is also currently conducting a stakeholder initiative for a flexible ramping market product that would replace the current flexible ramping capacity constraints.

In the 2012 LTPP (R.12-03-014) and SDG&E Power Purchase Tolling Agreements (A.11-05-023) dockets at the CPUC, the ISO has presented testimony regarding the results of its once through cooling (OTC) study, conducted in collaboration with the CEC and the CPUC during the 2011/2012 ISO transmission planning process. The OTC study has a 10 year planning horizon and evaluates the local capacity requirements (LCR) in areas where generation resources subject to the state requirements regarding the use of ocean and estuarine water for power plant cooling are likely to go offline to retire or retrofit. Using four renewable portfolio scenarios, the ISO evaluated LCR needs and determined that there will be local capacity deficiencies in the LA Basin, Big Creek/Ventura and greater San Diego local areas beginning in early 2018. The OTC studies are based on the LCR study methodology used by the ISO to conduct the annual local capacity technical studies for the Commission’s RA proceedings. The ISO also conducts a longer term study, usually with a five planning horizon, in each transmission planning process.

Track 1 of the current LTPP docket, R.12-03-014, is considering local capacity needs for the LA Basin and the Big Creek/Ventura local areas of the SCE service territory. The ISO’s OTC study did not identify local area needs for the PG&E service territory during the planning horizon. In both cases, the ISO has recommended that the Commission authorize SDG&E and SCE to procure local resources equal to the local area deficiencies identified in the base case renewable portfolio. Additionally, the ISO has recommended in its testimony that these resources should have flexibility characteristics in that they should have the ability to be dispatched and will respond to dispatches based on the resources registered ramp rate.

The ISO identified the local deficiencies the San Diego area for each of the four renewable portfolios in 2021, as shown in Table 2. The bottom row of Table 2 represents the range of local deficiencies for the most likely N-1-1 contingency. The low end of the range identified incremental resource needs assuming the power purchase agreements submitted by SDG&E are approved. Table 3 shows the local area deficiencies in the LA Basin sub-areas and Big Creek/Ventura area for 2021. The table depicts a range of replacement OTC generation needs, depending on the location of the generation.

Although the ISO continues to work with the CPUC to resolve these deficiencies, the ISO maintains that it is important that, as the system operator, the ISO should have backstop tariff authority to ensure that needed adequate local capacity does not prematurely retire.

Table 2: Local Deficiencies the San Diego Area for Four Renewable Portfolios in 2021

LCR Area	Contingency	Limiting Constraint	Traject (MW)	Env (MW)	ISO Base (MW)	Time (MW)
San Diego	G-1/N-2 (Assuming Load Shed)	800 Amp limit on P44	LCR=2,833**	LCR=2,854**	LCR=2,864**	LCR=2,856**
			OTC=531* - 950	OTC=231* - 650	OTC=231* - 650	OTC=421* - 840
		7800 Amp limit on P\$\$ (2.5% Margin)	LCR=2,939**	LCR=2,922**	LCR=2,930**	LCR=2,911**
			OTC=520* - 939	OTC=299* - 718	OTC=299* - 718	OTC=470* - 889
San Diego	N-1-1 (No load Shed)	800 Amp limit on P44	LCR=2,680**	LCR=2,625**	LCR=2,669**	LCR=2,633**
			OTC=318* - 737	OTC=0* - 402	OTC=218* - 637	OTC=201* - 620
		7800 Amp limit on P\$\$ (2.5% Margin)	LCR=2,735	LCR=2,702	LCR=2,694	LCR=2,691
			OTC=373* - 792	OTC=60* - 479	OTC=243* - 662	OTC=260* - 679
		Voltage Collapse (Accounting for 2.5% margin)	LCR=2,646	LCR=2,524	LCR=2,663	LCR=2,553
			OTC=311* - 730	OTC=0* - 300	OTC=211* - 630	OTC=121* - 540

Table 3: Local area deficiencies in the LA Basin sub-areas and Big Creek/Ventura area for 2021

Local Area	Local Area Requirements (MW)				Replacement OTC Generation Need (MW)			
	Trajectory	Environmentally Constrained	ISO Base Case	Time Constrained	Trajectory	Environmentally Constrained	ISO Base Case	Time Constrained
LA Basin (this area includes sub-area below)	10,743	11,246	11,010	12,165	2,370-3,741	1,870-2,884	2,424-3,834	2,460-3,896
Western LA Basin (sub-area of larger LA Basin)	7,797	7,564	7,517	7,397				
Big Creek/Ventura (BC/V) Area	2,371	2,604	2,438	2,653	(Need is for Moorpark only, a sub-area of the Big Creek/Ventura Local area)			
					430	430	430	430

## 2.2 CPUC's RA and Long-Term Procurement Plan (LTPP) Proceedings

The CPUC's LTPP and RA Proceedings are the primary mechanisms that ensure California's investor owned utilities (IOUs) and energy service providers (ESPs) have adequate generation capacity. The RA process requires load-serving entities to demonstrate that they have procured sufficient generation capacity to meet the upcoming year's forecast demand. The LTPP is the process by which the CPUC determines the three California IOUs' procurement needs for the next 10 years, including contracting for energy and constructing new generation, as well as authorization of the IOUs' procurement plans to serve their bundled customers.

The RA provisions require load-serving entities to demonstrate resource adequacy through annual and monthly RA showings.<sup>13</sup> The annual RA showing, which occurs in October of the year prior to the applicable year, requires that each load-serving entity demonstrate that it has procured at least 90 percent of 115 percent of its forecast peak load for the five summer months. In addition, there is an annual showing to demonstrate compliance with an annual local capacity requirement. Finally, load-serving entities make monthly showings to demonstrate that they have procured the remainder of the capacity needed to meet their forecast peak load. However, currently there is no requirement for load-serving entities to procure capacity from resources with specific flexibility attributes.

RA contracts provide capacity payments for resources, and in many cases, energy and ancillary service payments, which contribute toward a resource's overall cost recovery. The ISO proposed a flexible capacity requirement in the CPUC's 2012 RA proceeding to ensure that there is sufficient flexibility in the RA fleet to provide maximum continuous ramping, load following, and regulation.<sup>14</sup> As long as resource adequacy requirements remain at 115%, without an explicit flexible capacity requirement, the amount of RA capacity from conventional flexible resources will decrease as it is replaced by RA capacity from intermittent renewable resources. Consequently, the conventional flexible resources will receive less revenue and be at greater risk of retirement, even though the need for the flexible capacity they provide will continue to increase as more variable energy renewable resources are added to the system. While ISO agreed with many parties within the RA proceeding that additional time is needed to

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<sup>13</sup> The ISO tariff has RA provisions that mirror CPUC requirements for non-CPUC jurisdictional entities.

<sup>14</sup> Available at <http://docs.cpuc.ca.gov/efile/CM/157720.pdf>. In addition to the original proposal, the ISO has filed a supplemental proposal to address numerous questions posed by parties in the CPUC proceeding, available at <http://www.caiso.com/informed/Pages/StakeholderProcesses/FlexibleCapacityProcurement.aspx>. However, in the proposed decision issued by the CPUC on May 22, 2012, the CPUC declined to accept the ISO's proposed flexibility categories, instead proposing to open a new proceeding to establish flexibility requirements for 2014 compliance,

determine the appropriate level of flexible capacity procurement required, the ISO believes it is imperative to continue working to design flexibility capacity procurement requirements that will ensure the ISO is able to reliably operate the grid. Maintaining the availability of flexible resources is essential to grid reliability and the successful integration of renewable resources to meet the 33 percent RPS.

Uncertainty about keeping conventional flexible resources on-line remains under the existing LTPP provisions. While the CPUC looks out to a 10-year horizon in LTPP (with a particular focus on new capacity builds) and a single year ahead in RA, even with new provisions requiring IOUs to manage their net open position,<sup>15</sup> neither of these programs adequately address the flexible capacity needed in years two through nine. For example, while LTPP looks out ten years, with the exception of some anticipated generation retirements, it assumes that the existing generation fleet remains intact. The LTPP does not consider the economic decisions of resources without RA contracts. If a resource's power purchase agreement or RA contract expires in the middle of the LTPP outlook, there is no consideration in the LTPP process that retirement might be the best economic option for a resource. The ISO's ability to meet its future reliability needs will be reduced if key flexible resources retire. This is a key ISO concern and reason why the ISO needs a flexible capacity procurement mechanism.

In early 2012 the CPUC issued a final decision in the 2010 LTPP. In the decision, the CPUC determined that there is no need for new capacity at this time and closes the System Track of the 2010 LTPP proceeding. However, as noted above, using the "High Load, Trajectory Scenario," the ISO studies found a shortfall of 4,600 MW of upward load following. Because the CPUC did not consider this a core scenario, the CPUC did not authorize new capacity additions based on these findings. In fact, the CPUC has not issued a LTPP decision authorizing new conventional capacity additions since 2007 (to meet 2014 demand). While the ISO has supported the resources that have been procured based on prior needs determination,<sup>16</sup> the 2007 CPUC LTPP decision did not fully consider the ISO's needs for integrating large numbers of renewable resources because it was not within the scope of the LTPP proceeding.

Finally, while approximately 90 percent of the ISO load is CPUC jurisdictional and subject to the CPUC's RA requirements, there is still approximately 10 percent of the ISO's load that is not, including a Nevada utility cooperative, Valley Electric. Ensuring the ISO has sufficient access to flexible resources requires a larger effort that includes not just the CPUC, but also non-CPUC jurisdictional entities within the ISO balancing authority area. Therefore, although

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<sup>15</sup> Net open position refers to the amount of generation to meet an IOUs forecasted load that has not yet been procured.

<sup>16</sup> The ISO is still reviewing the resources proposed by SDG&E based on the 2007 needs determination.

the ISO will reach out to the other LRAs and work collaboratively with them to ensure that sufficient flexible and local capacity is available to the ISO, this underscores the need for the ISO to have backstop procurement provisions to address needed capacity at risk of retirement.

### **2.3 Once-Through-Cooling**

Thirteen important conventional thermal generators (representing about 17,500 MW) and California's nuclear generators must retrofit, repower, or retire by 2020 and 2024, respectively, to comply with the California's "once-through cooling" policy mandate that restricts the use of coastal waters for power plant cooling. Many of these generators are located in load centers and areas with transmission constraints, making them necessary to maintain local reliability. While the CPUC has authorized new generation that may replace a portion of these retirements, many of these congested regions that can ill afford retirements of resources inside the load pocket without compromising the ISO's ability to reliably operate the grid. Additionally, a number of these generators are flexible and dispatchable and can be started quickly. The ISO must ensure that sufficient flexible capacity is available as the state works to implement the once-through cooling policy mandate.

As demonstrated in Section 2.1, above, the ISO is concerned that OTC retirements will have consequences beyond the loss flexible resources. The OTC retirements also illuminate the need to ensure local capacity resources at risk of retirement are assessed to determine if the ISO is able to reliably operate the grid in locally constrained areas. In the 2012 LTPP, the ISO is working with the CPUC to ensure local reliability issues are adequately addressed. However, just as with flexible resource needs, it is prudent planning for the ISO to adequate backstop authority that ensures that local resources at risk of retirement that may be needed in five years for reliability purposes remain viable.

### **2.4 Distributed generation**

California is now examining policies to achieve 12,000 MW of distributed generation in California. Distributed generation is often behind the meter generation and the ISO cannot dispatch this generation and may not have visibility of the output of these resources. While increased levels of distributed generation may decrease system peaks, it may also increase what appears as load variability on the grid. For example, much of this distributed generation is expected to be photovoltaic installations, which could vary when cloud cover is intermittent, and which will start and stop production in unison as the sun rises and sets. Even with tools to improve the ISO's visibility of these resources, a large increase in distributed generation will likely increase the ISO's need for flexible capacity. Additionally, it is unclear, at this time, how much of this distributed generation will count towards meeting an LSE's resource adequacy requirements. To the extent that distributed generation counts towards resource adequacy



requirements and is not enhancing the flexibility of the system, additional flexible resources may be crowded out of RA contracts, exacerbating the issue identified in section 2.2, above.

## **2.5 Flexible Capacity**

The ISO continues to work with the LRAs and market participants define flexible capacity in the context of procurement and operational needs. However, generally speaking, the degree of flexibility of each resource is determined by the resource's:

- Ramping speed.
- Ability to sustain a ramp.
- Ability to change ramp directions.
- Ability to reduce output and not encounter emission limitations.
- Start Time.
- Ability to cycle on and off frequently.

## **2.6 Existing ISO Backstop Capacity Procurement Authority**

While the ISO relies on the resources provided to it under RA mechanisms, the ISO maintains several methods to ensure adequate capacity in various time frames. Among these mechanisms are the ISO's CPM tariff provisions. Quoting from section 43 of the ISO tariff, the CPM provisions provide for ISO procurement of generation capacity under several circumstances, including:

- 1) Insufficient Local Capacity Area Resources in an annual or monthly Resource Adequacy Plan;
- 2) Collective deficiency in local capacity areas;
- 3) Insufficient Resource Adequacy Resources in an LSE's annual or monthly RA Plan;
- 4) A CPM Significant Event.
- 5) A reliability or operational needs for an Exceptional Dispatch CPM.; and
- 6) Capacity at risk of retirement within the current RA Compliance Year that will be needed for reliability by the end of the calendar year following the current RA Compliance Year.

Capacity eligible for CPM under the risk of retirement clause is further defined in Section 43.2.6 in the ISO tariff:

The ISO shall have the authority to designate CPM Capacity to keep a resource in operation that is at risk of retirement during the current RA Compliance Year and that

will be needed for reliability by the end of the calendar year following the current RA Compliance Year.

Section 43.2.6 describes five criteria that must be met for the ISO to issue a CPM designation for resources at risk of retirement:

- 1) The resource was not contracted as RA Capacity nor listed as RA Capacity in any LSE's annual Resource Adequacy Plan during the current RA Compliance Year;
- 2) The ISO did not identify any deficiency, individual or collective, in an LSE's annual Resource Adequacy Plan for the current RA Compliance Year that resulted in a CPM designation for the resource in the current RA Compliance Year;
- 3) ISO technical assessments project that the resource will be needed for reliability purposes, either for its locational or operational characteristics, by the end of the calendar year following the current RA Compliance Year;
- 4) No new generation is projected by the ISO to be in operation by the start of the subsequent RA Compliance Year that will meet the identified reliability need; and
- 5) The resource owner submits to the ISO and DMM, at least 180 days prior to terminating the resource's PGA or removing the resource from PGA Schedule 1, a request for a CPM designation under this Section 43.2.6 and the affidavit of an executive officer of the company who has the legal authority to bind such entity, with the supporting financial information and documentation discussed in the BPM for Reliability Requirements, that attests that it will be uneconomic for the resource to remain in service in the current RA Compliance Year and that the decision to retire is definite unless CPM procurement occurs.

While the ISO is not proposing to expand the procurement authority of its existing CPM, it is reasonable to consider the terms and conditions of the CPM as a starting point. The existing CPM provides the ISO with the authority to use its backstop capacity procurement authority to procure capacity from a resource and ensure its availability if it is needed before the end of the second year. However, it does not allow the ISO to ensure sufficient flexible capacity will be available beyond two years. Therefore, similar to the gap in the CPUC's RA and LTPP programs, the ISO's backstop authority has a procurement gap that must be closed to avoid potential retirements of needed flexible resources.

### 2.6.1 *The Sutter Waiver Filing*

On December 12, 2011, the ISO issued a report entitled “Basis and Need for Capacity Procurement Mechanism Designation of Sutter Energy Center.”<sup>17</sup> In this report, the ISO determined that the Sutter Energy Center (Sutter) plant satisfied four of the five criteria established in Section 43.2.6 of the ISO tariff, failing to meet only the criteria that the plant is needed for reliability requirements in the immediately following year. Based on study results conducted as part of the CPUC’s LTPP proceeding, the ISO determined the Sutter plant will be needed in the 2017-2018 time frame.<sup>18</sup> Further, due to once-through cooling resource retirements, the ISO study results show shortages in the 2017-2018 time frame of over 3,500 MW even if the Sutter plant is available to the ISO. As a result of this assessment, on January 25, 2012 the ISO filed a waiver request at FERC (Docket No. ER12-897-000) in order to issue a CPM designation for Sutter for the remainder of 2012.<sup>19</sup> Ultimately, the IOUs, based on guidance from the CPUC, were able to reach an RA agreement with Sutter for the remainder of 2012. However, the deficiencies in both the CPUC’s and the ISO’s procurement mechanisms that lead to the ISO FERC filing still exist. In that FERC filing, the ISO committed to conduct a stakeholder process to modify its tariff and provide an appropriate backstop authority to use for protecting capacity at risk of retirement multiple years in a forward time horizon as well as flexible characteristics.

## 2.7 Summary

In summary, the ISO has the following critical concerns that justify allowing the ISO to have authority to procure capacity under Flexible Capacity Risk or Retirement Provisions that include capacity that is projected to be required up to five years in the future:

- As California moves toward higher RPS goals, flexible generators will likely receive less revenue from energy payments, while they will be subject to more cycling and more frequent ramping.

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<sup>17</sup> Available at

[http://www.caiso.com/Documents/Basis\\_Need\\_CapacityProcurementMechanismDesignation\\_SutterEnergyCenter.pdf](http://www.caiso.com/Documents/Basis_Need_CapacityProcurementMechanismDesignation_SutterEnergyCenter.pdf)

<sup>18</sup> This shortage was identified in the CPUC’s 33 Percent High Load (Trajectory) Scenario.

<sup>19</sup> Additionally, the CPUC, in Resolution E-4471 (filed February 16, 2012) proposes that PG&E, SCE, and SDG&E enter into negotiations to contract with Sutter. The proposed contract duration is through December 31, 2012. This resolution has not yet been approved by the CPUC. On May 4, 2012 PG&E, SCE, and SDG&E each filed advice letters with the CPUC stating that each had an agreement with Sutter that last through the end of 2012. These advice letters were approved by the CPUC on May 25, 2012.

- Given the current fleet and potential retirement of once-through-cooled units, additional flexible capacity will be needed to integrate 33 percent RPS, maintain local reliability, and meet other state policy objectives.
- Distributed generation resources create unique operational challenges because, currently, most distributed generation resources cannot be managed, dispatched, or seen by the ISO and consequently can create additional variability to the grid. The amount of current RA capacity having continuous ramping, load following, and regulation capabilities will shrink as more renewable and distributed resources are procured and receive RA credit.
- Because CPUC jurisdictional LSEs currently account for only about 90 percent of the ISO's load, there still may be a retirement risk for flexible resources needed to reliably integrate 33 percent RPS and increased levels of distributed generation even if the CPUC implements new flexible capacity procurement requirements.
- Currently, RA only covers the next year and LTPP covers year 10, but even with new provisions requiring IOUs to manage their net open position, neither fully ensures sufficient resources remain economically viable for years 2-9.
- Current ISO backstop authority allows the ISO to procure resources that do not have an RA contract in the current year but may be needed by the end of the following calendar year. Thus, the ISO does not have sufficient backstop authority for any period greater than two years.

### 3 Guiding Principles

In order to ensure capacity is available to provide adequate system flexibility and ensure the ISO is able to address each of the above issues, the ISO is:

- Actively participating in the CPUC's RA and LTPP proceedings and committed to work with other non-CPUC jurisdictional LRAs to establish requirements to ensure load-serving entities procure flexible capacity.
- Designing a backstop procurement mechanism, using a five-year forward assessment, by which resources at risk of retirement can be secured to prevent retirements that could exacerbate the challenges of reliably operating the grid.

The ISO proposes the following guidelines for developing the risk of retirement backstop capacity procurement authority described in this revised straw proposal:

- 1) This stakeholder process will set forth the ISO's authority and role to secure flexible and local resources at risk of retirement, where an LSE has not done so already under the auspices of its LRA.

The ISO does not have the role of primary capacity procurement; this is the load-serving entities role based on CPUC and other LRAs requirements.

The ISO will actively work with the CPUC, other LRAs, LSEs, and supply resources to ensure long-term resource adequacy.

- 2) The incentives/compensation provided by any backstop mechanism should be designed in such a way to make a less preferred option when compared to the primary procurement mechanism.
- 3) The need for procuring flexible and local capacity should be well defined and understandable.
- 4) LRAs should make an assessment of the need for new resource construction, including flexible capacity.
- 5) The ISO should seek to minimize the use of any backstop procurement mechanism, Risk of Retirement or otherwise.<sup>20</sup>
- 6) At a minimum, the Flexible Capacity Risk of Retirement backstop procurement mechanism must be able to ensure that the ISO has access to a portfolio of flexible and local resources that is sufficient to maintain grid reliability.
- 7) The Flexible Capacity Risk of Retirement backstop procurement mechanism must balance the need to ensure needed resources have sufficient capacity revenues to remain viable with the objective of minimizing the use and cost of this backstop mechanism.
- 8) Resources should not receive a double payment for providing the same capacity.<sup>21</sup>
- 9) To the extent possible, Flexible Capacity Risk of Retirement designations should be technology neutral.

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<sup>20</sup> The ISO is pursuing modifications to LRA RA program requirements to provide the needed flexible capacity.

<sup>21</sup> Currently, RA resources have a must offer obligation for energy and AS, but resources are permitted to additional revenues from the energy and AS markets. Payments for ancillary services in the ISO's market place are not considered duplicative payments.

#### 4 Proposed Timeline for the ISO Stakeholder Process

As noted above, the ISO will use a two-phased approach. The ISO anticipates completing Phase 1 by September 2012 and Phase 2 by July 2013, with filings at FERC to follow each phase. The ISO offers the following initial schedule for this stakeholder process:

<b>Date</b>	<b>Action</b>
January 25, 2012	Issue Paper Release
February 6, 2012	Stakeholder Meeting
February 16, 2012	Stakeholder comments due
March 7, 2012	Draft straw proposal
March 12, 2012	Stakeholder Meeting
March 22, 2012	Stakeholder Comments Due
June 7, 2012	Revised Draft straw proposal
June 14, 2012	Stakeholder call
June 26, 2012	Stakeholder Comments due
July 26, 2012	Draft final proposal
August 2, 2012	Stakeholder meeting
August 10, 2012	Comments due
August 17, 2012	Revised draft final proposal
August 21, 2012	Stakeholder call
August 28, 2012	Comments due
September 13-14, 2012	ISO Board meeting
End of September, 2012	File at FERC
October 2012	Issue Paper detailing outstanding issues to be resolved in Phase two
Mid-October 2012	Stakeholder Meeting

<b>Date</b>	<b>Action</b>
Late October, 2012	Comments due
Early November 2012	Draft Straw proposal
Mid-November 2012	Stakeholder Meeting
Early December 2012	Stakeholder Comments Due
January 2013	Revised Draft Straw proposal
February 2013	Stakeholder meeting
Late February 2013	Stakeholder Comments due
April 2013	Draft final Proposal
May 2013	Stakeholder meeting
Late May 2013	Comments due
July 2013	ISO Board meeting
End of July 2013	File at FERC

## 5 Flexible Capacity Risk of Retirement Designations

As revenues for conventional generation decrease and costs increase, the ISO is concerned that resources needed to provide system flexibility or local reliability capacity may elect to retire. As noted earlier in this straw proposal, the ISO tariff provides for the ISO to offer a CPM payment for resources that do not have an RA contract, the resource owner has made a definite decision to retire without additional payment, and when “CAISO technical assessments project that the resource will be needed for reliability purposes, either for its locational or operational characteristics, by the end of the calendar year following the current RA Compliance Year.” However, as demonstrated by the Sutter waiver filing, the ISO currently has no means of assuring flexible capacity resources will be available beyond the next RA compliance year. Additionally, the ISO must close a similar gap in its backstop authority for local capacity resources.

## **5.1 Defining the Need for Risk of Retirement Designations**

It can take several years to build new capacity in California, which results in asymmetric risk for reliable grid operations. For example, if a flexible resource needed four or five years in the future retires during the upcoming year, it can take several more years to replace that needed capacity, leaving reliable grid operations in jeopardy. The potential costs of having insufficient flexible or local capacity in the future could be far greater than the costs of implementing preventive measures and assuring that existing resources that are risk of retirement remain available to the system.

Therefore, the ISO proposes a mechanism that allows the ISO to use a five-year outlook to assess the ISO's need for resources at risk of retirement. Addressing flexible resources at risk of retirement beyond the existing CPM tariff provisions requires that the ISO create a new procurement mechanism and assess the most appropriate means and level for compensating the affected resources.

The ISO proposes a cost-based payment for resources that are at risk of retirement. The ISO would only offer payments under the Flexible Capacity Risk of Retirement provisions if the resource owner has made attempts to bilaterally contract for RA capacity, has not been successful in entering into sufficient RA contracts, and has made a final decision to retire the resource because it is not economically viable without additional revenue. The resource owner will have to attest to these facts in a signed certification and submit supporting financial information.

Subsequent to a resource owner notifying the ISO of intent to retire a resource under the circumstances described below, the ISO would only exercise its backstop procurement authority under the Flexible Capacity Risk of Retirement provisions if the ISO concludes that the resource is needed for system flexibility within the subsequent two to five years.

Any such notification to the ISO of a resource's intent to retire and the ISO's assessment of need will be publically noticed to ISO stakeholders.

### **5.1.1 Determination of Need**

The ISO will determine if a resource is needed under prudent planning assumptions that evaluate the ISO's need for system flexibility over the next five years. Given the asymmetric risk associated with a flexible capacity deficiency, the ISO will determine if a resource is needed within the subsequent two to five years while maintaining an existing reliability criterion such as the reliability criteria of one day loss of load in ten years. These criteria include meeting both



peak demand and flexibility requirements.<sup>22 23</sup> For local need the ISO will use applicable NERC reliability criteria. In order to make the determination of need, the ISO will examine whether the forecasted fleet (existing resources plus new additions minus retirements), minus the resource that is planned to be retired, is able to supply the relevant flexible capacity categories or local need such that forecasted load and associated ramps are covered.

### **5.1.2 Resource Eligibility**

Only resources that are not currently RA resources, in whole or in part, and resources that have RA contracts that expire at the end of the year in which the resource owner notifies the ISO that it plans to retire the unit will generally be eligible for payments under the Flexible Capacity Risk of Retirement tariff provisions. Any resource that has some portion of its capacity under an RA contract beyond the upcoming year will not be eligible for a Flexible Capacity Risk of Retirement assessment or designation. However, the ISO proposes one exemption to this rule so that a Flexible Capacity Risk of Retirement designation would still encourage resources to seek RA contracts going forward. A resource that had received a Flexible Capacity Risk of Retirement designation would presumably decline a partial RA contract if the award is not sufficient to cover its costs beyond the existing year and if it meant the resource will not be eligible for a Flexible Capacity Risk of Retirement designation the next year. Therefore, as a means to encourage resources under a Flexible Capacity Risk of Retirement designation to seek RA contracts, the ISO proposes resources under a Flexible Capacity Risk of Retirement designation that enter into a partial RA contract may still be considered for renewal of a Flexible Capacity Risk of Retirement designation if the RA contract does not fully cover the resource's going forward costs for the next year. However, partial RA resources that have not already received a Flexible Capacity Risk of Retirement designation will not be eligible.

The resource must demonstrate that it either solicited, at least once, a request for offer (RFO) to provide RA capacity or provide sufficient justification why the ISO should evaluate the resource even though it did not respond to an RA request for offer. Such justification could be that there was no RFO issued for the upcoming RA compliance year. Additionally, resources will know if they will be an RA resource for the upcoming RA compliance year by early October. Therefore, the ISO proposes that resources would only be eligible for Flexible Capacity Risk of Retirement designation if the notification of intent to retire is made prior to October 31. Requests received after this date will not be evaluated by the ISO. The ISO will notify any resource that submits its notice of intent to retire by the October 31 deadline and publically

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<sup>22</sup> Insufficient ramping capabilities may not lead to a loss of load, however, for the purposes of the ISO assessment, ramping deficiencies demonstrate a need for additional resources to avoid unacceptable levels of reliance on external balancing authorities in order to maintain system reliability.

<sup>23</sup> The ISO may use stochastic modeling as a means to determine the threshold levels of need have been met.

notice all stakeholders as to the whether it intends offer a designation to the unit under the Flexible Capacity Risk of Retirement provisions by November 30. Not more than 15 days after the ISO issues a public notice of intent to issues Risk of Retirement designation and prior to filing at FERC, the ISO would host a stakeholder meeting to discuss any assumptions used in the needs assessment, particularly in cases where these assumptions differ from those used in other capacity planning forums like LTPP. The ISO will file at FERC by January 15 seeking approval for just and reasonable compensation for going forward costs for a resource issued a Flexible Capacity Risk of Retirement designation. However, initial compensation will commence starting January 1. While the ISO is not proposing a formal “cure period,” LSEs and resource owners may negotiate agreements at any time. Additionally, there will be two months between the notice of resources at risk of retirement and the initiation of payments, including one month after the ISO notices market participants of its intent to issue a Flexible Capacity Risk of Retirement designation. Once FERC issues a final ruling on just and reasonable compensation, the ISO will true-up the outstanding balance. A complete timeline of the ISO’s proposed timeline is included as Attachment A of this proposal.

In order to be eligible for a Risk of Retirement designation a resource must certify that it is no longer economically viable<sup>24</sup> and will retire during the next year. Additionally, the resource will be subject to a financial showing to allow DMM to assess the financial viability of the resource. Additionally these financial showings will be used by the independent evaluator to determine reasonable costs for both placing a resource on long-term standby (including and the costs of returning the resource to service and maintaining all necessary permits) and going forward costs for the upcoming year. As part of this financial showing, the resource owner must make available to the DMM and the independent evaluator a showing of all expected costs and revenue streams as pursuant to the applicable Business Practice manual and any subsequent request made by the DMM or independent evaluator. This information must be submitted at the time the resource notifies the ISO of the intent to retire if the resource owner wishes to ensure compensation commence on January 1 (assuming the resource is determined to be needed). If the financial showing is not made at the time the request is submitted, then compensation may start after January 1 and costs incurred between January 1 and the start of compensation would not be covered as part of this proposal. Additional details regarding what costs and compensation are provided in section 5.1.3 below. The financial showing will be reviewed by an independent evaluator. The independent evaluator will make a recommendation to the ISO of the going forward costs. The ISO will use this recommendations part of its filing at FERC. The ISO will not make any counter proposals or attempts to negotiate

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<sup>24</sup> In order to be deemed no longer economically viable a resource must be projected to be unable to recover its short-term going-forward costs, at a minimum.

the compensation level with a resource owner prior to filing the independent evaluator's recommendation at FERC, for FERC's approval of the compensation amount. When determining if a resource is eligible for a Flexible Capacity Risk of Retirement designation, the ISO would apply the following criteria, which are the similar to the criteria used for selecting resources under CPM, in the order listed:

- 1) The effectiveness of the capacity at meeting the identified need.
- 2) The capacity costs associated with the capacity.
- 3) The quantity of a resource's available capacity, based on a resource's PMin, relative to the remaining amount of capacity needed.
- 4) The flexible operating characteristics of the resource.
- 5) Whether the resource is subject to restrictions as a use-limited resource.
- 6) The effectiveness of the capacity in meeting local constraints.

In the event that more than one resource notifies the ISO of intent to retire in the same year, it is possible that not all of these resources will be needed to maintain system reliability. Therefore, to determine the resources that are eligible for Flexible Capacity Risk of Retirement designation, the ISO will compile the lowest cost portfolio that ensures the ISO has adequate resources to maintain system reliability. For example, if two resources of equal size and operational capabilities notify the ISO of intent to retire and only one is needed, the ISO would offer a the Flexible Capacity Risk of Retirement designation to the lowest cost resource. However, if the lowest cost resource does not provide the ISO with the flexible attributes needed to reliably operate the grid, then the higher cost resource would be offered the Risk of Retirement designation. In other words, the ISO will offer payments under Flexible Capacity Risk of Retirement designations with the objective of minimizing costs subject to operational and reliability constraints.

Lastly, only inertia resources that are either dynamically scheduled or are pseudo-tie resources will be considered for Flexible Capacity Risk of Retirement designations. The flexibility characteristics of other inertia resources are limited because they have fixed hourly schedules.

### **5.1.3 Compensation for Resources at Risk of Retirement**

Resources receiving Flexible Capacity Risk of Retirement designations would receive an annual cost-based payment that covers its going forward costs. The cost-based compensation the ISO submits to FERC will be based on the recommendation of the independent evaluator.

The annual payment under Flexible Capacity Risk of Retirement will ensure that all reasonable going forward costs incurred by the resource for the next year will be covered.

As noted above these payments will commence starting January 1, will be made monthly, and will last through the end of the year or until the resource receives a contract that ensures any outstanding going forward costs are covered, whichever comes first.

The ISO included a “long-term standby” compensation option as part of previous drafts of this proposal. However, as part of the final proposal, the ISO has determined it will no longer pursue this option. While SCE argues that in some cases long-term standby compensation may result in a reduction in overall compensation and/or investment costs, others, such as WPTF and Calpine, as well as the DMM and MSC, believe the long-term standby option is not a viable solution. The ISO believes the added risks associated with environmental permitting and added complexities for cost assessment and litigation likely outweigh the potential compensation savings.

The ISO has reviewed other ISO’s risk of retirement provisions in order to determine the costs that should be reasonably included in Flexible Capacity Risk of Retirement compensation. While no other ISO has a provision that directly matches the assessments and needs addressed by the ISO’s Flexible Capacity Risk of Retirement provisions, PJM’s Deactivation Avoidable Cost Credit (DACC) reasonably establishes costs that should be included in a resource’s going forward costs.<sup>25</sup>

Therefore, the ISO proposes to use the formula used in PJM’s DACC as the foundation for compensation for going forward costs under the Flexible Capacity Risk of Retirement provisions. Going forward costs shall include:

- Labor for operations and maintenance
- Administrative expenses for employees at the unit
- Basic maintenance
- Variable expenses excluding variable costs recoverable in the energy market (These expenses should be recovered in the energy, AS, and RUC markets)
- Taxes, fees, and insurance (including environmental permitting)
- Short-term carrying charges for maintaining reasonable levels of inventories of fuel and spare parts
- Basic corporate level expenses

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<sup>25</sup> PJM’s DACC addresses capacity that would be retired but that is immediately needed for operational reasons in contrast to this proposal for capacity that is needed 2 to 5 years in the future. DACC was approved by FERC on January 25, 2005. See 110 FERC 61,053.

- Project investment costs (not to exceed \$2 million per year). These costs consist of major maintenance costs. The payment in any year will consist of the investment cost as it is accrued each year going forward.

While the formula the ISO is proposing differs slightly from the one used by PJM, the ISO has conducted research to estimate the costs of Flexible Capacity Risk of Retirement designations for various types of resources. The results of this assessment are shown in Table 4.

Table 4: Estimate of Costs of Flexible Capacity Procurement Designation

	Median "Annual Fixed Revenue Requirement" from 2006 RMR Procurement (\$/kW-yr) **	Median Going Forward Costs of PJM Fleet in 2011 (\$/kW-yr)
Combined Cycle - CCYC	*	\$25.69
Gas Turbine - GTUR	\$8.79	\$12.40
Steam Turbine - STUR	\$42.91	\$46.23

\* Too few data points to compute a meaningful value

\*\* Adjusted to 2011 using CPI

As part of this formula, the ISO proposes that ordinary day-to-day maintenance be covered under the maintenance item, while major maintenance, including any foregone maintenance, should be covered under project investment costs.

Additionally, the ISO proposes to allow the resource owner to keep 10 percent of net market revenues. The ISO proposes to calculate net market revenues as the LMP minus the resource's default energy bid (DEB). This is a modification to the ISO's previous proposal based on DMM and MSC recommendations. Allowing a resource owner to keep some portion of their revenue should provide a greater incentive to continue to bid into the market. By bidding into the market, the overall cost borne by LSE's will be reduced by the 90 percent of net market revenues the ISO will count against the minimum revenue guarantee. The ISO has selected the 10 percent margin as a compromise between providing a reasonable profit incentive for resources to bid into the market while minimizing any impact on any primary capacity procurement mechanism.

In previous drafts of this proposal, the ISO proposed the CPM and Flexible Capacity Risk of Retirement compensation be considered separately. However, based on input from the MSC, it the ISO has determined that it would be contradictory to count RA contract revenues as a dollar-for-dollar reduction to the Flexible Capacity Risk of Retirement compensation and not do the same for CPM compensation. The ISO proposes, as part of this proposal, to treat CPM and RA compensation consistently. Therefore, all CPM compensation will be netted against the Flexible Capacity Risk of Retirement compensation as a dollar-for-dollar reduction, after subtracting net ISO market revenues.

The proposed formula below details the ISO's proposed cost calculation, with details regarding costs categories included in each item in Table 5. Additional detail of specific costs that should be included or excluded will be addressed in the development of the associated business practice manuals. The ISO will calculate the total payment for the minimum revenue guarantee, on a monthly basis, as follows:

- The resource will receive a minimum revenue guarantee (i.e. Flexible Capacity Risk of Retirement payment) that is equal to one month worth of going forward costs.
- The minimum revenue guarantee will be reduced by:
  - 90 percent of the sum of net ISO market and ISO "out-of-market" revenues.
  - 100 percent of all capacity based payments (CPM and bilateral capacity payments).

Net market revenues are defined as ISO market revenue for energy, ancillary services, RUC capacity, and flexible ramping product revenues (when applicable) minus incremental operating costs. Total revenue streams from the ISO market and bilateral contracts will be used to net against all costs on a monthly basis. The resource will not be credited for any market operations at a loss. For example, if the resource is bid into the market at less than its default energy bid, then the SC will not be credited for the difference between the LMP and resource's default energy bid.

All operating cost calculations will be determined using a resource's default energy bid, default ancillary service bid prices<sup>26</sup>, and proxy cost calculations for minimum load and start-up costs. The resource may have a registered default energy bid with Potomac Economics, but a registered minimum load or start-up cost will be subject to review by the independent evaluator. Any default ancillary service bid prices not currently generated by SIBR or the ISO will be determined by the independent evaluator.

Any out-of-market payments, including but not limited to, bid cost recovery, exceptional dispatch energy payments, and ramping energy payments will subject to net revenue calculations based on the resource's estimated actual costs as determined by ISO and independent evaluator. Lastly, the ISO will provide a resource-specific net revenue formulation when offering the resource a risk of retirement designation.

The proposed formula below details the ISO's proposed cost calculation, with details regarding costs included in each item in Table 4.

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<sup>26</sup> Section 7.6.2 of the Market Instruments BPM mentions this, but we don't have to my knowledge proxy costs for all AS products- what is the resource's proxy mileage cost for example.



Table 5: Costs included in minimum revenue guarantee include:

Component of Rate	Going Forward
Labor for operations and maintenance	Both onsite and off site
Administrative expenses for employees at the unit	Employee expenses, environmental fees, safety and operator training, office supplies, communications, and annual plant test, inspection and analysis to keep plant operating for year of designation
Basic maintenance	Chemicals and materials and rented equipment required for plant operations
Variable expenses excluding variable costs recoverable in the energy market	water treatment chemicals and lubricants; water, gas, and electric service (not for power generation) and waste water treatment
Taxes, fees, and insurance	insurance, permits, and licensing fees, site security, and utilities for maintaining security at the site, and property taxes
Short-term carrying charges for maintaining reasonable levels of inventories of fuel and spare parts	Result from short-term operational unit decisions as measured by industry best practice standards
Basic corporate level expenses	Legal services, environmental reporting, and procurement expenses
Project Investment Costs	Amount required to enable a unit to continue operating beyond its flexible capacity risk of retirement designation should not exceed \$2 Million (includes major and deferred maintenance)

As noted above, the 90% of any net revenue for energy, ancillary services, and RUC capacity received over the year will be used to reduce the Flexible Capacity Risk of Retirement payment borne by LSEs.<sup>27</sup> This reduction would be calculated on an annual basis as follows:

<sup>27</sup> Net energy, ancillary services, and RUC capacity revenue is defined as ISO market and bilateral contract revenue for energy, ancillary services, and RUC capacity minus incremental operating costs. Resources receiving Flexible Capacity Risk of Retirement payments would be required to disclose bilateral revenues to the ISO.

- The resource will receive a minimum revenue guarantee (i.e. Flexible Capacity Risk of Retirement payment).
- The minimum revenue guarantee will be reduced by the amount that the sum of the minimum revenue guarantee and the net ISO market and “out-of-market” revenues is greater than the resource’s going forward costs.

For example, if a resource receives a Flexible Capacity Risk of Retirement designation to cover going forward costs totaling \$100 thousand and it had \$30 thousand dollars in net ISO market revenues, then the ISO will reduce the total payment for the Flexible Capacity Risk of Retirement by \$27 thousand (i.e. 90 percent of \$30 thousand) making the net payment \$73 thousand. If a resource fully covers their minimum revenue guarantee (i.e. actual payout for the minimum revenue guarantee equals zero), then the ISO imposed cap will be lifted and the resource may retain any additional market based revenues.

As noted above, the ISO will attempt to ensure the least cost Flexible Capacity Risk of Retirement designations. Based on stakeholder input, and noted above the ISO has modified its proposal to include options that have greater consideration of ISO markets and ISO market revenues. Some stakeholders have asserted that the ISO should include assumptions about energy market revenues. Because the ISO is not including a must-offer obligation, it is not reasonable to include assumptions about the resource’s level of participation in the ISO market. Further, it is not reasonable to offer compensation that is below going-forward costs with the goal of incentivizing participation in the ISO markets. Either of these compensation mechanisms implies a must-offer obligation on the resource.

#### **5.1.4 Performance and Offer Requirements**

The use of a cost-based payment, as opposed to an administratively set capacity price such as the price paid for CPM, is due to the difference in the performance and must-offer obligations and time at which the resource is determined to be needed. While CPM designated resources are subject to a must-offer obligation. Resources accepting a Flexible Capacity Risk of Retirement designation will not be subject to any must-offer obligations in the ISO’s energy, AS, or RUC markets. Further, these resources may still participate in energy, ancillary service, and RUC markets. Resources paid for long-term standby costs may elect to keep the unit operational. The ISO, for Flexible Capacity Risk of Retirement designations, is not buying the capacity of a resource and the associated obligation to bid the output into the ISO markets, but is instead providing financial support to a resource until the time when the resource may be needed to enhance the flexibility of the system. However, the objective of the Flexible Capacity Risk of Retirement designations is to ensure that resources without RA contracts that may be needed in the future remain economically viable. Therefore, the ISO believes it is appropriate



that resources receiving Flexible Capacity Risk of Retirement designations be available for as many opportunities to contract for RA as possible. Resources receiving Flexible Capacity Risk of Retirement designation must, subject to the structural limitations, submit bids into all applicable RA RFOs, monthly and annual, during the year of designation. Failure to submit a bid into an eligible RFO will result the resource being ineligible for the minimum revenue guarantee for a time period equal to the duration of the RA RFO.<sup>28</sup>

#### **5.1.5 Relationship with existing CPM Tariff**

Resources receiving Flexible Capacity Risk of Retirement designations covering going forward costs will still be eligible for CPM procurement and payments should the ISO need the resource for reliability needs within the year for the reliability reasons designated under the CPM tariff provisions. Flexible Capacity Risk of Retirement designated resources that are procured under the existing CPM tariff will receive the CPM payment for the duration of their CPM designation. However, as noted above, compensation received as part of CPM designation will be used to reduce the resources minimum revenue guarantee compensation, consistent with proposed treatment of other market revenues. For example, if a resource is under a cost-based Flexible Capacity Risk of Retirement designation and is offered a 90 day CPM designation, then the resource's compensation for the year would be the minimum revenue guarantee adjusted by the CPM payment. In addition, the payment would be further reduced by all net ISO market and "out-of-market" revenues received while under the 90 day CPM designation. The reason for this compensation is, as noted above, is based on the fact that the ISO needs to treat RA and CPM (both capacity mechanism) in a consistent manner.

If a resource at risk of retirement within the current RA Compliance Year, based on the ISO's initial assessment of the resource, is determined to be needed after the calendar year following the current RA Compliance Year, then the resources will only be eligible for Flexible Capacity Risk of Retirement designation in future years. Only if the ISO's initial assessment of the resource shows the resource will be needed by the end of the calendar year following the current RA Compliance Year will the CPM risk of retirement provisions apply. Once a resource has been assessed, it will not be eligible for a new initial assessment for five years. In other words, a resource cannot be assessed in year one, not in year two, and then assessed in year three and receive an initial assessment in year three.

#### **5.1.6 Conditions**

As with the ISO's CPM authority and detailed in section 43.2.6 of the ISO tariff, resources that are seeking a Flexible Capacity Risk of Retirement designation must submit a

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<sup>28</sup> The ISO will not place a mandate on the price at which a resource must offer into an RA RFO.

signed affidavit of an officer of the company, with the supporting financial information, that attests that it will be uneconomic for the resource to remain in service in the current RA Compliance Year and that the decision to retire is definite unless a Risk of Retirement designation occurs.

All Risk of Retirement designations would have a maximum term of one year. The ISO believes one-year contracts are appropriate to minimize the cost of Risk of Retirement and to avoid long-term capacity obligations based solely on backstop procurement. The ISO can renew the Flexible Capacity Risk of Retirement designation for a subsequent year if the resource owner re-attests that it has continued to make attempts to bilaterally contract for RA capacity and has not been successful. The ISO would again have to conclude that the resource is needed for system flexibility or local reliability within the subsequent five RA compliance years.

In comments, several stakeholders requested the ISO include a clause that requires a resource receiving a Flexible Capacity Risk of Retirement designation be available in the year of need. The ISO does not propose such a provision. Including such a provision would, in essence, require the ISO to procure the resource at the time of the needs determination is made through the time when the resource is shown to be needed. This would be a fundamental change to the ISO's role in backstop procurement. However, any resource receiving a Flexible Capacity Risk of Retirement designation will be required to forego any actions and filings needed for retirement for the year the resource is under a Flexible Capacity Risk of Retirement designation. The only exception to this rule is that the resource may submit notice to the ISO of intent to retire in the next year so the ISO can reassess whether or not the resource is still needed within the next five years. Additionally, by including an incentive mechanism that elicits resource bids into the market, LSE's will benefit from lower LMPs when the resource is economic while also lowering the total cost of the designation they bear for the obligation. Finally, if both the resource and the LSEs know that the ISO has determined the resource is needed in the future, both sides could benefit from negotiating a longer term capacity contract.<sup>29</sup>

Because the justification for the Flexible Capacity Risk of Retirement designations is to avoid plant retirement, all reasonable costs for the entire plant will be guaranteed. In other words, with the exception noted in section 5.1.2 there will be no partial resource consideration. Further, once a resource receives an RA contract for the full capacity of the resource, the ISO will ensure all costs prior to the RA contract are covered, and then no additional costs beyond the effective date of the RA contract will be covered. If a resource signs an RA contract for a portion of the resource's total capacity and the RA contract revenues exceed the remainder of

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<sup>29</sup> Resources would be able to profit from a contract that is more than cost based and LSE's would benefit by locking in the resource prior to the year of need when RA prices could increase with or without this mechanism.

minimum revenue guarantee the ISO will offer no additional compensation and the resource will be governed by the terms of the RA contract. However, if the RA contract revenues do not exceed the going forward costs of the resources the ISO will count RA revenues against the resource's going forward costs, but will guarantee the balance of these costs are covered.

Resources receiving a Flexible Capacity Risk of Retirement designation will be subject to payment clawback provisions should the resource choose to retire or take any actions or make any filings needed for retirements of the resource during the year for which the resource receives Flexible Capacity Risk of Retirement designation. As such, any resources receiving a designation will be required to post security consistent with ISO requirements to ensure the ISO and all other stakeholders are not responsible for the cost associated with Flexible Capacity Risk of Retirement designations if the resource retires during the year of designation. At the end of the year of designation there will be no additional obligations unless the resource once again attests that it will retire in the upcoming year and is offered another Flexible Capacity Risk of Retirement designation by the ISO.

#### **5.1.7 Relationship with Once-Through Cooling Retirements**

Risk of Retirement designations are cost based using going forward costs. These designations are not designed to provide additional revenue to facilitate repowering of OTC resources that are scheduled for retirement. However, if an OTC resource meets the conditions defined above, the ISO will conduct an assessment of the resource. If, through this assessment, the ISO determines that the OTC resource is not needed until after its scheduled retirement date, no Flexible Capacity Risk of Retirement designation will be made. If the resource is determined to be needed prior to its scheduled retirement date, the ISO may offer a Risk of Retirement designation. If a designation is made, the OTC resource will be subject to the same conditions as any other resource.

## **5.2 Cost Allocation**

The ISO believes that cost causation is a core component of any backstop procurement mechanism. The ISO will allocate costs of Flexible Capacity Risk of Retirement designations in accordance with ISO's "Cost Allocation Guiding Principles."<sup>30</sup> Currently, there are not existing flexibility procurement requirements, making determining cost causation for a Risk of Retirement designation challenging. However, as with CPM, the ISO proposes to allocate the costs of any Risk of Retirement designations to LSEs based on load ratio share. Risk of

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<sup>30</sup> The latest version of the ISO's Cost Allocation Guiding Principles can be found at <http://www.caiso.com/Documents/DraftFinalProposal-CostAllocationGuidingPrinciples.pdf>.

Retirement designations for local needs, however, will be allocated only to the LSEs serving the TAC area in which need has been identified.

### **5.3 Sunset Provision**

At the request of several stakeholders as well as the MSC, the ISO will include a sunset provision as part of this proposal. The Flexible Capacity Risk of Retirement mechanism will sunset after establishment for all LSE's within the ISO balancing authority and implementation of multi-year forward capacity procurement obligations for flexible and local resources and the mechanism has not been used during that 24 month after the implementation of these capacity procurement obligations. These two conditions are used to ensure a) that future needs are considered as part of capacity procurement obligations and b) that the requirements includes in these capacity procurement obligations are resolving the problem that lead to the need for the Flexible Capacity Risk of Retirement mechanism. For example, if the multi-year procurement obligation covers only two years or a small portion of the flexibility need it is not clear that the obligations resolves the need for the Flexible Capacity Risk of Retirement mechanism. Additionally, simply because the Flexible Capacity Risk of Retirement mechanism is not used for 24 months does not indicate there is no need for the mechanism. Thus, the ISO proposes both conditions be met.

## **6 Next Steps**

The ISO will host a stakeholder phone call on meeting on August 21, 2012 to discuss the contents of this revised draft final proposal. Stakeholder comments on this draft final proposal will be due August 28, 2012. The ISO anticipates seeking ISO Board approval at the September 2012 Board Meeting.

# 7 Attachment A: Proposed ISO Process Timeline

