California Independent
System Operator Corporation

December 12, 2012

The Honorable Kimberly D. Bose
Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Re: California Independent System Operator Corporation
Docket No. ER13-____- 000-
Flexible Capacity and Local Reliability Resource Retention Proposal

Dear Secretary Bose:

The California Independent System Operator Corporation ("ISO") hereby submits for filing the attached amendments to its Fifth Replacement FERC Electric Tariff.[1] The proposed tariff amendments implement a Flexible Capacity and Local Reliability Resource Retention ("FLRR") mechanism to provide an incentive for a resource that is uneconomic and at risk of retirement to remain available because it will be needed for flexible capacity or local reliability at some time during the following two to five-year period, but not in the next year. If the ISO, through a transparent stakeholder process, determines that the resource is required during that period, the ISO will provide the unit with an FLRR designation. The resource will receive compensation that supplements any revenues it receives from capacity contracts and participation in ISO markets such that the resource is provided recovery of its annual going-forward costs as calculated by the independent evaluator and approved by the Commission. The proposed amendment allocates the costs of the FLRR payments made to the designated resource to load-serving entities in the TAC area or areas affected by the designated need, based on load ratio share.

The ISO's FLRR proposal is an interim measure. It is intended to prevent the retirement of resources that are necessary for reliability while the ISO works with the California Public Utilities Commission ("CPUC"), other local regulatory authorities, and stakeholders toward the implementation of multi-year forward capacity procurement obligations for flexible and local resources for all load serving entities within the ISO balancing authority area. Accordingly, the proposal includes a sunset provision keyed to the earlier of the implementation of such obligations or five years.

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[1] The ISO makes this filing pursuant to section 205 of the Federal Power Act, 16 U.S.C. § 825d (2006) and 18 C.F.R. Part 35 (2012).

The ISO proposes an effective date for the amendments proposed in this filing of April 1, 2013 and requests that the Commission grant parties until January 23, 2013 to file their comments and motions to intervene in order to accommodate holiday schedules.

I. SUMMARY

The California electric grid is undergoing a significant transformation. As the Commission is aware, the State has adopted renewable portfolio standards for electric utilities of 20 percent by 2013 and 33 percent by 2020. In addition, 12,079 megawatts of coastal generation resources will likely cease operating over the next eight years as a result of environmental regulations that would otherwise require those plants to phase out their once-through-cooling systems and convert to the best technology available for minimizing adverse environmental impact. Further, California is currently examining policies to achieve 12,000 MW of distributed generation.

These changes will create significant impediments to the reliable operation of the ISO grid in the future. The influx of large quantities of variable energy resources and distributed generation will increase supply and load variability and unpredictability. The ISO anticipates that the retirement of the once-through-cooling resources will create a capacity gap of more than 3,500 megawatts needed to serve load in the ISO's balancing authority area as early as the end of 2017, and the ISO projects this capacity gap will grow to 4,600 megawatts by 2020. ISO studies have shown that the need for flexible resources and local capacity will increase as large amounts of variable energy resources and distributed generation resources come on-line and once-through-cooling units retire, while the once-through-cooling retirements will reduce the number of existing resources that are available to meet local reliability needs and to provide the flexibility necessary to maintain day-to-day reliability.

As the system operator for most of the state, the ISO is keenly aware of its responsibility for maintaining reliability as cost-effectively as possible, particularly in light of the significant transformation of the electricity grid that is underway. Nothing will undermine achievement of the State's energy policy goals more quickly than a negative effect on grid reliability, operational difficulties from integrating renewable resources, or significant adverse cost impacts. Ensuring that adequate flexible resources and local capacity are available on the system will enable the ISO to avoid reliability and operational issues and to mitigate cost impacts.

This proposed tariff amendment is indicative of the urgency that the ISO brings to meeting its obligation to maintain system reliability and enable successful implementation of the State's policy goals. The threat to reliability is imminent. In order to address this issue effectively, the ISO must ensure that existing resources with the necessary flexible capacity remain available while the ISO and its stakeholders develop longer-term procurement mechanisms to address the risk of retirement of necessary

flexible generation capacity. The ISO cannot achieve these objectives through existing procurement mechanisms.

The proposed tariff modifications allow a resource owner to request an FLRR designation for a resource on the verge of retirement and for the ISO to issue the designation if it determines that the resource meets specified eligibility criteria and will be needed for system flexibility or local reliability requirements within the two to five-year forward period, or in the year following the requested designation if the resource already has an FLRR designation. The ISO will retain an independent evaluator to assess the economic viability of the resource. The ISO will follow a multi-step transparent process which will include posting the assumptions to be used for forecasting the system flexibility and local reliability requirements, stakeholder review and input on the assumptions, posting a report on the forecast and advisory estimates of these requirements, stakeholder review and input on the ISO's proposed estimates, posting assumptions used for FLRR designation assessments before the studies are performed and additional stakeholder review and input on the report of the study results after the FLRR assessment has been conducted. The ISO will determine the need for the resource by examining whether the forecasted fleet of resources, absent the resource requesting the FLRR designation, is able to supply the forecasted system flexibility requirement or local reliability requirement. If either requirement cannot be met, the resource is eligible to receive an FLRR designation.

After the ISO identifies the resource or resources it proposes to designate under the FLRR mechanism, stakeholders will have the opportunity to review and propose alternative solutions. The ISO's final recommendation is subject to approval by the ISO Board of Governors ("Board"). If the Board approves it, the ISO will issue the FLRR designation to the selected resource, contingent on the resource's acceptance of the designation, posting of the required security, and waiver of any right to seek a capacity procurement mechanism risk of retirement designation for the year immediately following the FLRR designation year. The term of the designation coincides with the calendar year.

The resource will receive compensation that supplements revenues it receives from capacity contracts and participation in ISO markets such that the resource is provided recovery of its annual going-forward costs as calculated by the independent evaluator and approved by the Commission. The proposed amendment allocates the costs of the FLRR payments made to the designated resource to load-serving entities in the TAC area or areas affected by the designated need, based on load ratio share.

The ISO's proposal creates a just and reasonable mechanism for the ISO to provide a financial incentive for a resource that is at risk of retirement to remain in service if it will be needed for system flexibility or local reliability within the FLRR forward period. The FLRR mechanism essentially offers a financial lifeline to an uneconomic resource that will cover its going-forward costs and enable the resource to remain viable during the designation year, and in successive one-year designation

increments (assuming eligibility criteria continue to be met), until the year in which it is expected to be procured as resource adequacy capacity, based on ISO studies that show an identified operational need will not be met absent the resource.

Approval of the proposed tariff amendment will provide the ISO with sufficient backstop authority to provide the necessary financial incentive for needed resources to remain available as the ISO continues to assess the long-term needs of its balancing authority area. Failure to grant the instant tariff amendment could lead to the premature retirement of these resources and could result in significant adverse consequences for achievement of the State's policy goals, as well as for grid reliability. The lack of available flexible capacity could lead to electricity outages and reliability criteria violations. The Commission should not leave the ISO without the tools it needs to maintain future grid reliability.

The proposed amendment will benefit customers in California by ensuring that needed resources remain available, while limiting potential adverse impacts on ratepayers. The ISO's proposal limits any such potential adverse impacts through the following provisions: (1) the only resources that may be designated are those that the ISO finds to be needed for system flexibility or local reliability after conducting a robust stakeholder process and obtaining ISO Board approval of any designation, (2) the term of an FLRR designation is limited to one year, (3) compensation for the designation is limited to going-forward costs (and some other costs) that are necessary to keep an uneconomic resource available beyond its expected retirement date, (4) the recoverable total plant investment cost is capped at $2 million per designation year, and (5) the designated resource must return all of its market and bi-lateral contract revenues earned during the designation year in excess of the annual going-forward costs plus 10 percent of the net market revenues, which minimizes the total payments made to FLRR resources. The payment under the ISO's FLRR is based in large part on PJM Interconnection's deactivation avoidable cost credit and reliability-related products, which PJM Interconnection implemented to defer the retirement of resources needed for reliability while transmission expansions are underway (as well as on other relevant Commission precedent regarding other risk of retirement) and includes some enhancements based on the specific problems the FLRR is intended to address.

In the course of developing the FLRR mechanism, the ISO considered alternatives to its proposal that would keep resources online that are needed in the future, but concluded that the alternatives were not feasible or justifiable. In particular, the ISO considered a "mothballing" option, where the resource would be taken out of service and receive some level of compensation until returning to service when the need arises. The ISO, however, rejected that option, based on opinions from its Market Surveillance Committee, Department of Market Monitoring, and a broad range of stakeholders critical of the approach. Stakeholders stressed that in California it would be extremely difficult to mothball a resource for a year or more and then return the unit to service without encountering problems with environmental permitting and new source

review requirements. The ISO shares these concerns. As discussed below in Section III. H, the ISO's analysis shows that the reactivation risks are real. The reactivation policy injects delays and uncertainty, and may present insurmountable hurdles to later resumption of operation of resources that cannot meet the new technology or offsetting requirements. The ISO's proposal avoids this significant risk and potential litigation with a less complex and likely more cost effective approach.

The ISO recognizes that the primary mechanisms for securing sufficient generating capacity in California are the CPUC resource adequacy program and the long-term procurement and planning programs and similar requirements of other local regulatory authorities. In designing the FLRR program, the ISO has been mindful that these programs have the primary role in capacity procurement. The ISO has been working closely with the CPUC to incorporate multi-year forward flexible and local capacity requirements into both the resource adequacy and long-term procurement requirements. Indeed, the ISO will very soon initiate a stakeholder process to examine establishing flexible capacity requirements for the upcoming resource adequacy year on the part of load serving entities. The ISO is also actively participating in the CPUC proceeding that will address the matter.[2] The ISO expects that these efforts will result in resource adequacy program rule changes that begin to address longer-term flexible and local capacity needs.

In any event, the ISO, as system operator, must have sufficient backstop authority to ensure system reliability. Therefore, in developing the FLRR mechanism, the ISO has strived to develop an approach to preserve flexible and local capacity needed to maintain reliable grid operations in the future while not undermining the resource adequacy program as the primary mechanism for capacity procurement. Only when the resource adequacy program does not lead to procurement of capacity from resources identified as needed to operate the system reliably in the future will the ISO utilize its backstop authority and step in to designate a resource without a capacity contract as necessary to ensure the ISO has sufficient capacity to meet the changing demands of maintaining grid reliably in future years. In that regard, the ISO will not actually designate any FLRR resource until after annual resource adequacy showings have been made, and the ISO determines there is a need to procure such resources, and load serving entities have not procured the resource prior to Board approval of the designation.

The ISO emphasizes that the FLRR mechanism is an interim measure with a sunset provision. The Commission's approval of this proposal will not impede the development of a more robust market-based approach to addressing these needs. To the contrary, the proposed tariff amendments encourage the development of a robust

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[2] Order Instituting Rulemaking to Oversee the Resource Adequacy Program, Consider Program Refinements, and Establish Annual Local Procurement Obligations, Docket R.11-10-023.

market solution. The ISO believes that including a sunset provision in this proposal demonstrates that the interim nature of this solution and creates an incentive for the ISO and other stakeholders to continue to pursue a long-term market based solution to address resources at risk of retirement.

II. BACKGROUND

A. The Need to Backstop for System Flexibility and Local Reliability

1. Integrating the Resources Required to Achieve California's Renewable Portfolio Standard Creates an Increased Need for Flexible Capacity Resources.

As the Commission is aware, California has adopted a renewable standards portfolio requirement of 33 percent by 2020. The ISO has undertaken a number of initiatives to meet the challenge of integrating the renewable resources necessary to achieve this standard, including location-constrained resource interconnection procedures, the participating intermittent resource program, and major revisions to the transmission planning process. Among the outstanding challenges is the need to maintain sufficient flexible capacity to address the added variability and unpredictability created by variable energy resources.

In 2007, the ISO undertook a study to evaluate the flexibility of the ISO's generation fleet to operate reliably under the 20 percent renewable portfolio standard that California initially adopted.[3] The study concluded that the variability of wind and solar production and forecast uncertainty of the additional resources necessary to meet the standard would increase the ISO's net load-following requirement substantially in certain hours. It also found that these factors would significantly increase regulation capacity requirements in the summer season over time.

The current 33 percent renewable portfolio standard exacerbates these circumstances. Studies the ISO conducted in 2011 quantified the flexible capacity needed to reliably integrate the 33 percent renewable portfolio standard. Using assumptions provided by the CPUC, the ISO analyzed whether a projected future

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[3] Integration of Renewable Resources: Transmission and operating issues and recommendations for integrating renewable resources on the California ISO-controlled Grid (November 2007) available at http://www.caiso.com/Documents//Integration-RenewableResourcesReport.pdf. The ISO has conducted numerous other studies regarding the impact of the integration of renewable resources. *See, e.g.*, http://www.caiso.com/Documents//Integration-RenewableResources-OperationalRequirementsandGenerationFleetCapabilityAt20PercRPS.pdf; ISO studies conducted as part of the CPUC's 2010 Long Term Planning Process proceeding, at http://www.caiso.com/Documents/Summary_PreliminaryResults_33PercentRenewableIntegrationStudy_2010CPUCLongTermProcurementPlanDocketNo_R_10-05-006.pdf.

generation fleet will be able to reliably integrate a 33 percent standard. The studies demonstrated potential downward load-following shortfalls in excess of 500 MWs in two of the CPUC's four priority scenarios. Additionally, the ISO studies found a potential shortfall of 4,600 MW of upward load-following in the "High Load, Trajectory Scenario."[4] This "High Load, Trajectory Scenario" was constructed to demonstrate the implications of under-forecasting load by 10 percent or demand side management under-achieving the stated goals. In evaluating the increasing challenges that the ISO must meet, it is important to recognize that the required quantity of renewable resources for load serving entities will not simply jump from 20 percent in 2013 to 33 percent in 2020. Rather, they will transition to that level over the course of a few years, which highlights the need for the ISO to implement appropriate tariff measures prior to that time.

Recognizing the operational need for flexibility, the ISO has 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.[5]

The ISO is also currently conducting a stakeholder initiative for a flexible ramping market product that would replace the current flexible ramping capacity constraints. These mechanisms, however, cannot address the potential that the necessary flexible capacity will not be available in the future.

2. The Implementation of the California Water Resources Board's Once-Through Cooling Regulations Will Increase the Risk of a Flexible Capacity or Local Capacity Shortfall.

On May 4, 2010, the State Water Board adopted the "Policy on the Use of Coastal and Estuarine Waters for Power Plant Cooling" which went into effect October 1, 2010. The once-through-cooling policy applies to the 19 existing power plants (including two nuclear plants) that withdraw water from California's oceans and bays for use in a single-pass cooling system, also known as once-through cooling. The once-through-cooling policy requires these plants to phase out their once-through-cooling technology and implement closed-cycle wet cooling or another equally effective system

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[4] *See* Track I Direct Testimony of Mark Rothleder on Behalf of the California Independent System Operator Corporation, July 1, 2011, CPUC Rulemaking 10-05-006, available at http://www.caiso.com/Documents/2011-07-01_R10-05-006_Testimony.pdf. The ISO assumed retirement of once-through-cooling plants and a certain amount of new generation. 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. *See* testimony of Mark Rothleder in the CPUC's 2012 Long Term Procurement Process Proceeding (R.12-03-014).

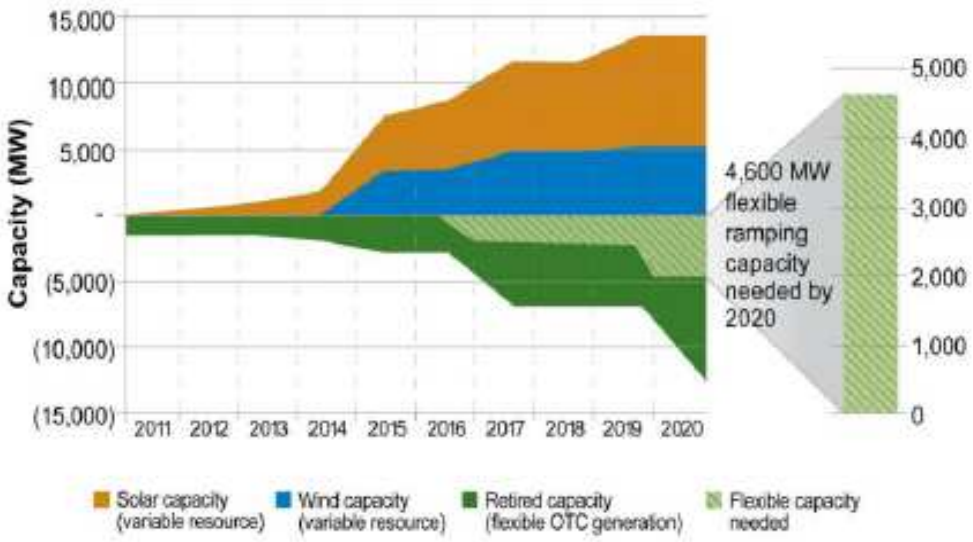
[5] *See Cal. Indep. Sys. Operator Corp.*, 137 FERC ¶ 61,191 (2011).

to reduce intake flow and velocity or impacts on aquatic life.[6]

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 once-through cooling policy. A number of these generators are flexible and dispatchable and can be started quickly. The unavailability of these resources – either temporary or permanent – will significantly interfere with the ISO's access to the flexible capacity necessary to integrate renewable resources reliably.

As shown in Figure 1, below, the ISO estimates retirement of once-through cooling resources will create a capacity gap of more than 3,500 megawatts needed to serve load in the ISO's balancing authority area as early as the end of 2017, and the ISO projects this capacity gap will grow to 4,600 megawatts by 2020. The ISO's analyses identifying this capacity gap take into account new capacity additions, most of which will be variable energy resources.

Figure 1[7]



The ISO is also concerned that these retirements or retrofits will have consequences beyond the loss of flexible resources. As part of the 2011/2012 transmission planning process, the ISO, in collaboration with the CPUC and the

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6 *See* http://www.swrcb.ca.gov/water_issues/programs/ocean/cwa316/policy.html.

7 2013 Flexible Capacity Procurement Requirement, March 2, 2012, included as Attachment C and available at http://www.caiso.com/Documents/2013FlexibleCapacityProcurementRequirementProposalSupplement.pdf.

California Energy Commission, conducted a study of the impact of the once-through cooling policy on the ability of the ISO to operate the grid in locally constrained areas. The study had a 10-year planning horizon and evaluated the local capacity requirements in areas where generation resources subject to the once-through cooling requirements are likely to go offline, either for retirement or retrofitting.[8] Using four renewable portfolio scenarios, the ISO's evaluation 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 once-through cooling studies were based on the local capacity requirement study methodology that the ISO uses for determining local annual resource adequacy requirements.[9] The ISO also conducts a longer term study, usually with a five-year planning horizon, in each transmission planning process.[10]

The ISO has recommended that the CPUC authorize San Diego Gas & Electric Company and Southern California Edison 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 the resources to be procured should have flexibility characteristics in that they should have the ability to be dispatched and respond to dispatches based on the resources' registered ramp rate.[11]

3. Increased Reliance on Distributed Generation May Complicate the Task of Ensuring Adequate Flexible Capacity.

California is now examining policies to achieve 12,000 MW of distributed generation in California. Distributed generation is often behind the meter generation. The ISO cannot dispatch this generation and may not have visibility of the output of these resources. While an increase in 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

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8 2011/2012 ISO Transmission Plan, March 23, 2012, available at http://www.caiso.com/Documents/Board-approvedISO2011-2012-TransmissionPlan.pdf.

9 *Id.* at 215-51.

10 *See* Local Capacity Technical Study, available at http://www.caiso.com/Documents/Local%20capacity%20technical%20analysis/Final2012LCTStudyReportApr29_2011.pdf.

11 *See* Opening Brief of the California Independent System Operator Corp., *CPUC Rulemaking* 12-03-014, September 24, 2012, available at http://www.caiso.com/Documents/September242012OpeningBrief-DocketNoR12-03-014.pdf.

generation will count towards meeting an LSE's resource adequacy requirements, discussed below. 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 resource adequacy contracts, exacerbating shortfalls in flexible capacity.

4. The Economic Consequences of Increased Reliance on Renewable Resources Will Increase the Risk of a Flexible Capacity or Local Capacity Shortfall.

The ISO's 2007 study of the impact of the 20 percent renewable standards portfolio also examined the economic impact on gas-fired generation. It concluded that, depending on the configuration of each gas generator, the increased supply variability would lead to increased start-ups and shut-downs by generators of between 21 percent and 35 percent. Energy production from gas-fired units would decrease from 11 percent to 39 percent, dependent on the type of unit and whether one considers off-peak or on-peak production.[12]

The study projected that these lower capacity factors, combined with reduced energy prices under the 20 percent renewable portfolio standard, could result in a significant drop in energy market revenues for the gas-fired fleet from between 16 and 39 percent.[13]

Under the 33 percent renewable portfolio standard, the ISO will need even more of the flexible capacity that many conventional resources provide in order to maintain grid reliability. Yet the same developments will decrease the total need for energy from many existing gas-fired resources even further than the 20 percent standard, placing additional economic pressure on these units and calling their continued economic viability into question. Successful integration of the renewable portfolio therefore requires mechanisms to ensure that flexible resources receive appropriate compensation for the critical capacity that they provide, in order to avoid their retirement.

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[12] Integration of Renewable Resources: Operational Requirements and Generation Fleet Capability at 20% RPS (August 2010) at 87, http://www.caiso.com/Documents//Integration-RenewableResources-OperationalRequirementsandGenerationFleetCapabilityAt20PercRPS.pdf.

[13] *Id.*

5. The ISO Cannot Rely on Existing CPUC Mechanisms To Ensure the Availability of Adequate Flexible Capacity or Local Capacity Shortfall.

The CPUC's long term procurement plan process and resource adequacy proceedings are the primary mechanisms that ensure California's investor owned utilities and energy service providers have adequate generation capacity. Through the long term procurement plan process, the CPUC determines the three California investor-owned utilities' procurement needs for the next 10 years, including contracting for energy and constructing new generation, as well as authorization of the utilities' procurement plans to serve their bundled customers. The resource adequacy process requires load-serving entities under the CPUC's jurisdiction to demonstrate that they have procured sufficient generation capacity to meet the upcoming year's forecast demand.

The existing long term procurement plan process provisions do not resolve uncertainty about maintaining sufficient conventional flexible capacity. While the CPUC looks out to a10-year horizon in long term procurement plan process (with a particular focus on new capacity builds), even with new provisions requiring investor-owned utilities to manage their net open position,[14] it does not adequately address the flexible capacity needed during that period. For example, although the long term procurement plan process looks ahead ten years, it assumes that the existing generation fleet remains intact, with the exception of some anticipated generation retirements. It does not consider the economic decisions of resources without resource adequacy contracts. The process does not take into account that retirement might be the most economic option for a resource whose power purchase agreement or resource adequacy contract expires in the middle of the 10-year period.

In early 2012, the CPUC issued a final decision in the 2010 long term procurement plan process.[15] In that decision, the CPUC determined that there is no need for new capacity at this time. As discussed above, however, using the "High Load, Trajectory Scenario," the ISO studies found a shortfall of 4,600 MW of upward load following capability. 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

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[14] Net open position refers to the amount of generation to meet an IOU's forecasted load that has not yet been procured.

[15] Order Instituting Rulemaking to Integrate and Refine Procurement Policies and Consider Long-Term Procurement Plans, D.12-04-046 (April 19, 2012).

since 2007 (to meet 2014 demand).[16] There is no certainty if, when, or how the ISO's needs for integrating large numbers of renewable resources will be addressed through the long term procurement plan process proceeding. The proposed backstop authority is necessary to mitigate this interim risk.

The resource adequacy provisions require load-serving entities to demonstrate resource adequacy through annual and monthly showings.[17] The annual showing, which occurs in October of the year prior to the resource adequacy compliance 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. In addition, during the resource adequacy compliance year, load-serving entities must make monthly showings to demonstrate that they have procured the remainder of the capacity needed to meet their forecast peak load. Currently, however, the CPUC has not adopted a requirement for load-serving entities to procure capacity from resources with specific flexibility attributes.

Resource adequacy contracts provide capacity payments for resources, which, in conjunction with energy and ancillary service payments, contribute toward a resource's overall cost recovery. The ISO proposed a flexible capacity requirement in the CPUC's 2012 resource adequacy proceeding to ensure that there would be sufficient flexibility in the resource adequacy fleet to provide maximum continuous ramping, load following, and regulation.[18] This proposal recognized that as long as resource adequacy requirements remain at 115 percent of forecast peak demand, without an explicit flexible capacity requirement, the amount of resource adequacy capacity from conventional flexible resources will decrease as it is replaced by resource adequacy capacity from intermittent renewable resources. Consequently, the crux of the problem that the ISO is facing is that 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

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16 Most recently, the CPUC issued a proposed decision in Docket No. A.11-05-023 that denied a request by San Diego Gas and Electric Company to fulfill it open identified need, available at http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M031/K723/31723058.PDF. Even the proposed alternate decision would only authorize San Diego Gas & Electric to fill a portion of it identified need. http://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M031/K743/31743685.PDF.

17 The ISO tariff has resource adequacy provisions that mirror CPUC requirements for non-CPUC jurisdictional entities.

18 Available at http://docs.cpuc.ca.gov/efile/CM/157720.pdf. The ISO 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. 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.

continue to increase as more variable energy renewable resources are added to the system.

The ISO must in the interim maintain the flexible capacity necessary to ensure grid reliability and successfully integrate the renewable resources to meet the 33 percent RPS. 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 have backstop tariff authority to ensure that the flexible and local capacity that will soon be necessary does not prematurely retire.

Finally, while approximately 90 percent of the ISO load is CPUC-jurisdictional and subject to the CPUC's resource adequacy requirements, there is still approximately 10 percent of the ISO's load that is not, including a Nevada utility cooperative, Valley Electric Association, Inc., which joins the ISO as a new participating transmission owner, utility distribution company, and load serving entity in January 2013. 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 the ISO will reach out to the other local regulatory authorities and work collaboratively with them to ensure that sufficient flexible and local capacity is available to the ISO, the ISO can have no assurance that these efforts will provide the necessary flexible capacity.

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 as a backstop procurement to address needed capacity at risk of retirement.

6. The ISO's Current Capacity Procurement Mechanism Does Not Address the Impact of Imminent Retirements on Capacity Needs More than One Year Out.

While the ISO relies on the CPUC resource adequacy program to provide resource adequacy capacity to the ISO "when and where needed", the ISO also may use its capacity procurement mechanism provisions under ISO tariff section 43 as a backstop to obtain adequate capacity when needed. Section 43 provides for ISO procurement of generation capacity under several circumstances, one of which addresses risk of retirement concerns that capacity will be needed for reliability by the end of the calendar year following the year in which the resource announces its intent to retire. This provision, however, does not allow the ISO to ensure sufficient flexible capacity will be available beyond two years. The one-year forward outlook of the existing capacity procurement mechanism risk of retirement provision to determine if the resource will be needed for reliability in the next year differs from the proposed multi-year forward determination, which covers the second through fifth years after the requested FLRR designation year.

Therefore, the ISO designed the proposed tariff modifications so as not to conflict with the existing capacity procurement mechanism provisions and to fill the gap in the ISO's backstop authority between the resource adequacy program and capacity procurement mechanism risk of retirement designation, which have a year-ahead horizon and the long term transmission planning process, which has a 10-year outlook. This coverage gap must be closed to avoid potential retirements of needed flexible and local resources.

Closing the gap will also avoid the need for one-off filings similar to the waiver request the ISO filed with the Commission on January 25, 2012 in order to issue a capacity procurement mechanism designation for Sutter Energy Center for the remainder of 2012.[19] This gap had prompted an ISO filing earlier this year to protect against the retirement of a needed flexible resource. In a December 6, 2011, report,[20] the ISO determined that the Sutter Energy Center 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 long term procurement plan process proceeding, the ISO determined the Sutter plant will be needed in the 2017-2018 time frame. Indeed, the ISO study showed shortages in the 2017-2018 time frame, because of once-through cooling resource retirements of over 3,500 MW, even if the Sutter plant were available to the ISO. As a result of this assessment, on January 25, 2012, the ISO filed a waiver request with the Commission in order to issue a capacity procurement mechanism designation for Sutter for the remainder of 2012.[21] Ultimately, the IOUs, based on guidance from the CPUC, were able to reach an RA agreement with Sutter for the remainder of 2012. As described above, however, the deficiencies in both the CPUC's and the ISO's procurement mechanisms that lead to the ISO's filing still exist. In the filing, the ISO recognized that tariff waivers were not the appropriate vehicle to address the need for a mechanism to provide incentives to avoid the procurement of resources that will be needed beyond one year in the future. The ISO therefore 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 beyond the one-year horizon. This proceeding is the result of that process.

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19 Docket No. ER12-897-000.

20 Basis and Need for Capacity Procurement Mechanism Designation of Sutter Energy Center, available at http://www.caiso.com/Documents/Basis_Need_CapacityProcurementMechanismDesignation_SutterEnergyCenter.pdf.

21 Docket No. ER12-897-000.

B. Stakeholder Process and Board Consideration

The ISO conducted an extensive stakeholder process to develop and finalize the tariff amendments proposed in this filing. These amendments, however, represent only the first phase of the ISO's development of mechanisms to ensure the availability of the amounts of flexible and local capacity necessary to ensure the reliability of the ISO controlled grid.

The stakeholder process provided numerous opportunities for input. Starting in January 2012, the ISO issued an issue paper, followed by five revisions to its proposal. The ISO accepted comments and conducted stakeholder meetings and web conferences regarding each of these documents.[22]

On September 13, 2012, ISO management presented the Risk of Retirement Capacity Backstop Proposal to its Board. The Board approved the filing of a tariff amendment to implement the proposal subject to the following two modifications: (1) the Board required that it must approve any risk-of-retirement designation before it can become effective; and (2) made modifications to the sunset provisions based on a recommendation from the ISO's Market Surveillance Committee.[23]

On November 1, 2012, the ISO posted draft tariff language. The ISO received comments from nine parties. Based on the input from stakeholders, the ISO on November 14, 2012 posted revised draft tariff language and discussed it in a stakeholder web conference. On November 20, 2012, the ISO posted further revised draft tariff language and received comments from five stakeholders on the revisions on November 30, 2012. The ISO discussed the tariff language and stakeholder comments in a stakeholder web conference on December 4, 2012.

C. Recommendations of the ISO's Department of Market Monitoring and Market Surveillance Committee.

In addition to stakeholder comments and discussion, the ISO received input from both the ISO's Department of Market Monitoring and the ISO's Market Surveillance Committee. The ISO's Department of Market Monitoring provided comments on the

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[22] The complete record of the stakeholder process (including the issue paper, straw proposal, draft final proposals, presentations, stakeholder comments, and draft tariff language can be found at http://www.caiso.com/informed/Pages/StakeholderProcesses/FlexibleCapacityProcurement.aspx.

[23] The materials presented to the ISO Board regarding the risk of retirement capacity backstop proposal stakeholder initiative are provided as Attachment D to this filing.

ISO's revised final proposal on August 2, 2012.[24] The Department of Market Monitoring compared the backstop procurement proposal and the payment of going-forward costs with a proposal to pay standby and re-energization costs (i.e. the mothballing option), and recommended the payment of going-forward costs. The Department of Market Monitoring also recommended allowing resources designated under the program to retain a portion of market revenues it earns during the FLRR designation year, which the ISO's proposal provides. In its August 28, 2012 comments on the Revised Final Draft Proposal, the Department of Market Monitoring supported the revisions that (1) eliminated the long-term stand-by mechanism, (2) included a cure period and sunset date, and (3) removed the incentive for the resource not to participate in the market in favor of a revenue sharing compensation structure.[25]

The Market Surveillance Committee held a number of open meetings in which it discussed the ISO's need for flexible capacity. On September 7, 2012, the Market Surveillance Committee adopted an Opinion endorsing the ISO's proposed FLRR backstop mechanism.[26] The Opinion acknowledged the numerous problems underlying the need for a backstop risk of retirement mechanism at this time.[27] In particular, the Market Surveillance Committee noted that the environmental restrictions on once-through cooling plants could potentially lead to the retirement of a large amount of capacity, and a high degree of uncertainty about market conditions and reliability needs in the ISO system, over the next half-decade.[28] The Market Surveillance Committee stated that the "objective of a [backstop risk of retirement] policy should be to prevent such units from exiting the market prior to the time that important uncertainties in the market such as [once-through cooling] retirements, have been resolved." It concluded that, to the extent that the market environment and the current resource adequacy design are leading to outcomes that the ISO can demonstrate threaten reliability, it was reasonable for the ISO to take steps that mitigate those threats. In particular, the Opinion noted that if the capacity provided by retiring plants would be needed in a few years, it would be far more expensive for ratepayers to replace the units with new capacity rather than simply keep the existing capacity available or in operation.[29] The Opinion did, however, recommend that the backstop authority be subject to a time-based sunset date, such as five years, in order to protect against unforeseen impacts on the markets. The proposal adopts a sunset date. As indicated above, the ISO

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24 Written comments provided by the ISO's Department of Market Monitoring on June 21, 2012, August 1, 2012, and August 28, 2012, as well as their slide presentation at the August 2, 2012 stakeholder meeting, are included in Attachments E-H, respectively.

25 Attachment G at 1.

26 The Market Surveillance Committee Opinion is included with this filing as Attachment I.

27 *Id.* at 2-3.

28 *Id.* at 2.

29 *Id.* at 2.

Board revised the proposed sunset date to account for the Market Surveillance Committee's recommendation.[30]

III. DESCRIPTION OF TARIFF AMENDMENTS

A. General Overview

In response to the issues discussed above, the ISO is proposing a backstop procurement mechanism to avoid the imminent retirement of resources that the ISO concludes it will need to provide system flexibility or local reliability in two to five years after the requested designation, but, except in the case of a resource that already has an FLRR designation, not in the next year. Under the proposed tariff modifications, a resource owner may submit a request to the ISO for an FLRR designation for a resource on the verge of retirement and the ISO may issue the designation if it determines that the resource meets specified eligibility criteria and will be needed for system flexibility and local reliability requirements within the two to five-year forward period, but, except in the case of a resource that already has an FLRR designation, not before that period.

Following receipt of a request, the ISO will retain an independent evaluator to assess the economic viability of the resource. The ISO will follow a multi-step process to forecast the system flexibility and local reliability requirements that includes stakeholder review and input on the ISO's proposed assumptions before the studies are performed and additional stakeholder review and input on the report of the study results. The ISO will determine the need for the resource by examining whether the forecasted fleet of resources, absent the resource requesting the FLRR designation, is able to supply the forecasted system flexibility requirement or local reliability requirement. If either requirement cannot be met, the resource is eligible to receive an FLRR designation.

After the ISO identifies the resource or resources it proposes to designate under the FLRR mechanism, the recommendation will be reviewed with stakeholders and be subject to approval by the Board. If approved, the ISO will issue the FLRR designation to the selected resource, contingent on the resource's acceptance of the designation, compliance with the applicable creditworthiness provisions, and a waiver of any right to seek a capacity procurement mechanism risk of retirement designation for the year immediately following the FLRR designation year. The following figure illustrates the timeline.

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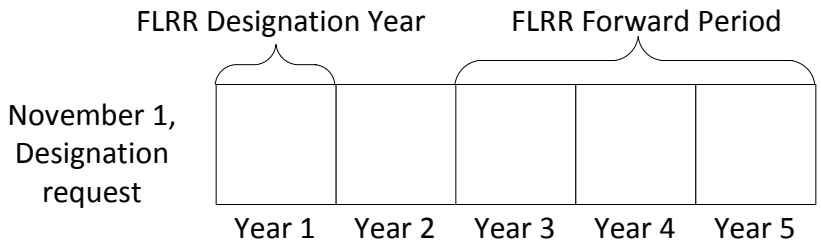
30 *Id.* at 1-2.

Figure 2



Under the proposal, the designation has the following elements:

1. **Cost-based payments.** The ISO will compensate the unit for its going-forward costs for the year of the designation. The resource owner will file the calculated going-forward costs of the resource with the Commission for approval.

2. **Payment reduced for capacity revenues and 90 percent of market revenues.** The ISO will calculate the compensation as the resource's going-forward costs less all bilateral capacity contract and capacity procurement mechanism revenues that the resource receives, and less 90 percent of the net revenue that the resource receives from providing energy and ancillary services in the ISO markets. The resource can retain 10% of net market revenues as an incentive to participate in the CAISO markets.

3. **Offer requirements.** Because the ISO is providing only a limited financial lifeline and not procuring a capacity product, resources will not have any performance or must-offer requirements in the ISO markets. The resource must, however, submit bids in response to any request for offers for capacity issued under resource adequacy and long-term procurement planning requirements for which it is eligible.

4. **No obligations at end of designation.** Resources receiving an FLRR designation will be under no additional obligations following the conclusion of the designation year. The resource may request an FLRR designation for the following year if it meets the eligibility criteria.

5. **Costs allocated to load.** The ISO will allocate the costs of the FLRR payments made to the designated resource to load-serving entities in the TAC area or areas affected by the designated need, based on load ratio share.

The ISO's proposed process for determining system flexibility and local reliability requirements during the FLRR forward period and for determining whether the resource

requesting the designation must be available to meet those requirements is closely modeled on the ISO's transmission planning process under ISO tariff section 24, which the Commission has already found to be just and reasonable, open, and transparent. In addition, the proposed process applies Order No. 890's transmission planning principles for purposes of making any risk of retirement decisions. The proposed process is also consistent with the ISO's process for determining local capacity requirements as set forth in ISO tariff section 40. Further, the ISO's process tracks comparable steps in the transmission planning process.

Although some parties may argue that forward procurement should be handled within the CPUC long term procurement plan process, it is import to note that the ISO is *not* proposing a capacity procurement program. The sole purpose of an FLRR designation is to ensure that resources the ISO determines are needed to meet certain reliability needs within the FLRR forward period and that are otherwise at risk of retirement will remain available for another year and do not retire. Under the FLRR mechanism, the ISO is neither reserving nor paying for capacity. It is not procuring capacity to remedy a load serving entity's deficiency in meeting its resource adequacy obligations or imposing a must offer obligation on resources that receive a FLRR designation. Procurement of a resource under an FLRR designation will remain entirely under the control of load serving entities and their jurisdictional authorities.

Moreover, issuance of an FLRR designation is pursuant to the ISO's independent responsibility as a transmission provider subject to federal jurisdiction to ensure grid reliability. The Commission has expressly recognized that the ISO is in a unique position to determine if resources are sufficient to meet applicable reliability criteria and determine when sufficient capacity has been procured to maintain reliable operations.[31] California law also charges the ISO with a responsibility, separate and distinct from that of state authorities such as the CPUC, for maintaining operational reliability of the grid.[32] In fulfilling its responsibilities, the ISO must be able to rely upon its own experience and expertise, as well as the input of its stakeholders. To the extent that the ISO determines that actions are necessary to ensure the reliability of the grid, the ISO cannot abdicate its responsibilities to state and local authorities.

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[31] *See Cal. Indep. Sys. Operator Corp.*, 134 FERC ¶ 61,211 at P 124 (2011) ("[ISO] is responsible for ensuring the reliable operation of the transmission system, it must have adequate resources. . .[including] resources at risk of retirement"); *Cal. Indep. Sys. Operator Corp.*, 141 FERC ¶ 61,135 at P 38 (2012) (It is appropriate for a balancing area authority to guard against potential reliability problems, especially reliability problems that occur unexpectedly).

[32] *See, e.g.,* Cal. Pub. Util. Code § 345.5.

The Commission has approved similar mechanisms for both the PJM Interconnection and the Midwest Independent Transmission System Operator.[33] Unlike in the Midwest Independent Transmission System Operator mechanism, however, the decision to accept an FLRR designation is strictly voluntary. The FLRR mechanism provides an incentive for resources not to retire, but it does not prevent them from doing so unless they accept the incentive.

B. Determining Flexible Capacity and Local Reliability Needs

Under proposed tariff section 44.3.1, in order to determine the system flexibility requirements for the next five years, the ISO will undertake a system flexibility study each spring, in accordance with the schedule set forth in the Business Practice Manual. Prior to issuing the system flexibility study, the ISO will post the assumptions to be used in the study, including explanations of any material differences in key planning assumptions from the most recent CPUC long-term procurement plan process, and provide stakeholders with an opportunity to comment on these assumptions. Then, the ISO will post a report discussing the results of its study, provide an opportunity for stakeholders to comment on the report, and host a stakeholder meeting or conference call to discuss the report and comments. Following review of the comments and the stakeholder meeting the ISO will issue its final report, including any revisions made based on stakeholder feedback. These requirements are advisory and designed to inform the load serving entities' procurement. The ISO will not evaluate the need to make a FLRR designation, however, until it receives notice that a particular resource will retire in the following year.

For the system flexibility study, the ISO will conduct fleet flexibility assessments, considering the most recent CPUC standard planning assumptions used for the long term procurement plan process, subject to any adjustment based on the ISO's own assessments. Some stakeholders argued that the ISO should not be permitted to over-ride the planning and procurement assumptions of the CPUC and local regulatory authorities. The ISO's adjustment of any such assumptions, however, does not "override" any other authority. The FLRR designation process does not require any procurement or otherwise interfere with state and local decision-making. Rather, the ISO is taking necessary actions to preserve grid reliability pursuant to the ISO's own independent responsibility, as discussed above.

In the late spring of each year, the ISO will post its proposed assumptions for use in assessing the need for a resource requesting FLRR designations in the fall (i.e. the assumptions will be established prior to receiving any FLRR designation requests) and issue a market notice that stakeholders have an opportunity to submit written comments on the assumptions. Following review of the comments, the ISO will post any revisions

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[33] *See Midwest Indep. Transmission Sys. Operator, Inc*., 140 FERC ¶ 61,237 (2012); *PJM Interconnection, LLC,* 110 FERC ¶ 61,053, *order on reh'g,* 112 FERC ¶ 61,031 (2005).

to the assumptions in response to the comments and will conduct a stakeholder meeting or conference call to discuss the assumptions and comments. This step is comparable to the development of the study plan and unified planning assumptions under ISO tariff section 24.3 for the transmission planning process.

Next, if the ISO receives a request for FLRR designation, the ISO will perform additional studies in the fall and post a report detailing the finding of the FLRR assessment, including any need that has been identified and the resource(s) selected to fill the identified need. The ISO will provide the opportunity for comments and will host a stakeholder meeting or conference call to discuss the report. Following review of the comments, the ISO will post any revisions to its report, provide the opportunity for comments, and again conduct a meeting or conference call with stakeholders to discuss the report and comments. Following this meeting or conference call, the ISO will issue its final report.

During the stakeholder process, several stakeholders argued that the ISO must clearly state and define its planning assumptions and studies, including sufficient detail to validate results. Stakeholders also expressed concern regarding the potential for unnecessary procurement or over-procurement, and some sought more oversight and controls over the ISO's decision making. The ISO has developed the process described above in response to those comments.

Under proposed tariff section 44.3.2, the ISO will undertake a process using the same steps to determine local reliability requirements for the next five years. In this instance, however, the ISO will use the model and base data consistent with that used for the local capacity technical studies for local resource adequacy requirements in tariff section 40.3, again subject to any adjustment based on the ISO's own assessments.

C. FLRR Designations

1. Resource Eligibility

Proposed tariff section 44.2.1 sets forth the eligibility requirement for FLRR designations. Only resources that do not have a contract for capacity under the RA program for the upcoming year, or part of the upcoming year, for which the resource owner notifies the ISO that it plans to retire the unit will generally be eligible to receive an FLRR designation. Any resource that has some portion of its capacity under an RA contract during any year subsequent to that in which it provides notice of retirement will not be eligible for a FLRR assessment or designation. However, the ISO proposes one exemption to this rule so that a FLRR designation would still encourage resources to seek RA contracts. A resource that has received an FLRR designation would presumably decline a partial RA contract if the award is not sufficient to cover its costs beyond the existing year and it meant the resource will not be eligible for a FLRR designation the next year. Therefore, as a means to encourage resources under a FLRR designation to seek RA contracts, the ISO proposes that resources under a

FLRR designation that enter into a partial RA contract may still be considered for renewal of a FLRR designation if the RA contract does not fully cover the resource's going forward costs for the next year. The resource will have to meet all other eligibility requirements. RA resources that have a contract for part of their capacity for the upcoming year and that have not already received a FLRR designation are not subject to this exception and will not be eligible.

A resource seeking an FLRR designation must also be unable to recover its going-forward costs during the requested FLRR designation year such that it would be uneconomic for the resource to remain in service through the requested FLRR designation year. In addition, the resource must demonstrate that it submitted a conforming offer to at least one request for offer to provide RA capacity for which it was eligible and was not successful. Alternatively, if the resource did not submit a conforming offer in response to a request for offer, it must provide sufficient justification why the ISO should evaluate the resource even though it did not submit a conforming offer in response to a request for offer.

In order for the resource to be eligible for designation, the ISO's technical assessments must project that the ISO will need the resource for system flexibility or local reliability during any year within the FLRR forward period, but not in the first year after the notice, *i.e.,* the year for which it requested designation (except in the case of a resource that already has an FLRR). In addition, the ISO must not have projected that a new resource or transmission facilities that will meet the identified need will be in operation by the start of the year in which the ISO will need the resource seeking designation. Finally, if the resource is an intertie resource, it must be either dynamically scheduled or a pseudo-tie resource.

2. Request for Designation

Under proposed tariff section 44.2.2, except for the 2013 FLRR designation year, the owner of a resource that wishes the ISO to consider the resource for an FLRR designation must notify the ISO by November 1 of the year before the requested FLRR designation year that it intends to terminate the resource's participating generator agreement (or remove the resource from Schedule 1 of the participating generator agreement, which identified the affected generating units) before the end of the year following the year in which it gives notice. The ISO chose this date because resources will know if they will be a resource adequacy resource for the upcoming year by the end of RA contracting activity in October.

The resource owner must provide sworn evidence by an appropriate officer of the company, with the supporting financial information and documentation, that demonstrates that it will be unable to recover its going-forward costs during the requested designation year and that it will retire during the requested FLRR designation

year because it will be uneconomic for the resource to remain in service.[34] As part of this financial showing, the resource owner must make available to the Department of Market Monitoring and an independent evaluator retained by the ISO evidence of all expected costs and revenue streams for the resource pursuant to the business practice manual and any subsequent request for information or documentation made by the Department of Market Monitoring or the independent evaluator. The officer of the company must also attest to the resource's compliance with those eligibility criteria for a FLRR designation that are under the resource's control.

For a designation in 2013, the owner of the resource must provide notice of the intention to retire within 30 days of a Commission order approving these tariff provisions. Compensation will include only costs attributable to the period between the effective date of these amendments and the end of 2013.

Under proposed tariff section 44.2.3, the resource owner must submit the financial information and documentation specified in the business practice manual at the time the resource owner notifies the ISO of the intent to retire. Failure to abide by this schedule may delay evaluation of the request and subject the resource owner to penalties under the ISO tariff.

3. Designation Process

Under proposed tariff section 44.4, following the request and submittal of financial information, the ISO will engage an independent evaluator and provide such information and documentation to the independent evaluator. According to the schedule in the business practice manual, the independent evaluator will examine whether the resource will be uneconomic to operate in the FLRR designation year and the ISO will evaluate whether the resource meets the eligibility criteria, and determine that it is needed for system flexibility or local reliability during the FLRR forward period. If both of these determinations are positive, the independent evaluator will proceed to evaluate the resource's going-forward costs.

Proposed tariff section 44.5 governs the ISO's determination of whether the resource is first needed for flexible capacity or local reliability requirement during the FLRR forward period. The ISO will use the assumptions on which it based the initial studies and applicable reliability criteria, according to the business practice manual. In order to make the determination of need, the ISO will examine whether the forecasted fleet (existing resources plus new additions minus retirements), absent the resource that seeks an FLRR designation, is able to fulfill the relevant system flexible or local reliability need such that forecasted load, operating reserve, and ramping requirements for system energy are addressed. The ISO makes a comparable evaluation of

[34] These financial showings will also be used by the independent evaluator to determine reasonable going forward costs for the upcoming year, as discussed below.

alternatives when determining necessary transmission upgrades and expansions in Phase 2 of the transmission planning process under tariff section 24.4 of the ISO tariff.

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 for system flexibility or local reliability. Under proposed tariff section 44.6, in selecting the resources to receive the FLRR designation from multiple eligible candidates, the ISO will compile the lowest cost portfolio that ensures the ISO has adequate resources to maintain system reliability. The ISO will apply the following criteria, which are similar to the criteria used for selecting resources under the capacity procurement mechanism, in the order listed:

1) the effectiveness of the capacity at meeting the identified flexibility or local reliability need;

2) the net costs of compensating the resource under tariff section 44;

3) the quantity of the resource's available capacity, based on a resource's PMin, relative to the remaining amount of capacity needed;

4) the operating characteristics of the resource;

5) whether the resource is subject to restrictions as a use-limited resource; and

6) the effectiveness of the capacity in meeting other system conditions.

For example, if two resources of equal size and operational capabilities notify the ISO of an intent to retire and only one is needed, the ISO would offer the FLRR designation to the lowest cost resource based on the independent evaluator's financial conclusions. If, however, the lowest cost resource does not provide the ISO with the flexible attributes needed to reliably operate the grid, then the ISO would offer the designation to the higher cost resource. In other words, the ISO will offer designations with the objective of minimizing costs subject to operational and reliability constraints.

Under proposed tariff section 44.7, if the ISO determines the resource is needed, the ISO will post a report that describes the need, the eligibility of the resource, and the details of the proposed designation. The ISO will issue a market notice that it has reached a tentative decision to issue an FLRR designation and provide an opportunity for stakeholders to comment and suggest alternatives. The ISO will then host a stakeholder meeting or conference call to discuss the assessment report and the comments on the proposed designation and alternative solutions to the proposed designation. Following review of the comments and alternatives, the ISO will issue a market notice informing stakeholders of its final intent to issue an FLRR designation or pursue other alternatives or, if it modifies the proposed designation, repeat the comment and meeting process. These steps are comparable to the development of the draft and

final annual transmission plans in the ISO's transmission planning process under tariff sections 24.4.9 and 24.4.10.

When the ISO decides to make a designation, it will present the proposed designation to the Board for consideration and approval. The Board specifically added this requirement at its September 2012 meeting to provide additional protections and opportunity for input from stakeholders and to ensure that before any payments are made there is a formal determination that the designation of FLRR capacity is necessary. This requirement is comparable to the Board's approval of the final transmission plan under tariff section 24.4.10.

Under proposed tariff section 44.8, upon approval, the ISO may issue the designation to the resource and obtain written confirmation that the resource accepts the designation. At that point, the resource must post security to ensure that the ISO and other market participants will recover any payments to the resource during the FLRR designation year if the resource nonetheless retires during the year. The resource must also waive any right to seek a capacity procurement mechanism risk of retirement designation for the year immediately following the FLRR designation year.

Some parties argued that the Commission should approve the FLRR designation. The ISO believes that this would extend the length of the process and delay the initiation of payments, which would create so much uncertainty for the resource receiving the designation that the process would become infeasible. This why the ISO has modeled the approval of an FLRR designation after other processes which the Commission has found just and reasonable, while not requiring the Commission to authorize final approval of outcome of the process.

Designations require approval of the Board, with stakeholders having the ability to appear and comment, even after ISO management makes its final decision. In addition, the criteria set forth in the proposed tariff provision are sufficiently specific to prevent inappropriate designations. To the extent that any party believes that the ISO has not complied with the criteria and process, it can seek relief through the ISO's dispute resolution procedures or file a complaint directly with the Commission. These protections should be sufficient without requiring Commission approval of the designation. The Commission has expressly found that these dispute resolution options satisfied the requirements of Order No. 890 with regard to transmission planning process disputes.

The fact that designations involve evaluation of long term needs is not enough to necessitate Commission review and is not reason to find these protections insufficient. For example, decisions regarding transmission additions and expansions involve consideration of longer range needs and entail much greater costs, but the Commission does not become involved in that approval process. The ISO determines its transmission needs based on assumptions that look out five and ten years into the future. The costs of the transmission projects that the ISO approves to meet anticipated

five-and-ten year needs exponentially outweigh the cost that the ISO will incur to make in a one-year FLRR designation. Also, transmission planning decisions typically have an impact for 30-plus years, while an FLRR designation is in effect for only one year. As noted above, the Commission found the ISO's dispute resolution process sufficient for disputes arising under the transmission planning process. In light of the Board approval requirement, the stakeholder process, and the Order No. 890-compliant dispute resolution process, there is no legitimate reason why the FLRR designation should necessitate a formal approval process above and beyond the approval requirements applicable to the ISO's transmission planning process. For transmission expansions, rather than ruling on the transmission plan, the Commission rules on the inclusion of the costs in rates. As discussed below, the Commission will similarly rule on the compensation for FLRR designation. That should suffice.[35]

In addition, some parties proposed a formal "cure" period, in which parties could seek alternative solutions. The ISO believes a formal period is unnecessary because parties will have ample time and opportunity to pursue alternatives. There will be three months between the notice of resources at risk of retirement and the final designation decision. Load-serving entities and resource owners may negotiate agreements at any time during that period. An additional formal cure period would create unnecessary delay.

4. Term and Obligations

Under proposed tariff section 44.9, an FLRR designation will be effective from the date of Board approval through the end of that calendar year (although the resource will receive compensation based on the full year). Some stakeholders suggested that the ISO focus on establishing multi-year obligations. The ISO, however, concluded that one-year contracts are appropriate to minimize the cost of FLRR and to avoid long-term capacity obligations based solely on backstop procurement. A resource may be eligible

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[35] Even though PJM's process for determining whether a resource is entitled to a deactivation avoidable cost credit is less robust than the process the ISO is proposing for FLRR designations, the Commission does not require Commission approval of the determination to compensate the unit if it delays retirement of suspension of operation. Under PJM's tariff, a resource must provide notice that it intends either to mothball or retire and provide an estimate of any investment that would be needed to keep the unit operational. Within thirty days thereafter, PJM will notify the unit owner that the unit is needed for reliability and for how long the unit must remain available. Within 90 days after the generator owner's notice, PJM will post on its website the upgrades that would be necessary to permit the resource to deactivate. Unlike the ISO's proposal, there is no stakeholder process. The Commission does not review and approve the reliability need determination. If the unit owner accepts payment of the formula rate deactivation cost credit, the unit owner simply submits an informational rate filing to the Commission indicating the deactivation avoidable cost rate of the unit and providing cost support. *See* PJM Interconnection Tariff § 113; *see also PJM Interconnection, LLC,* 110 FERC ¶ 61,053 at PP 123, 128, 136 (2005).

for an FLRR designation for the subsequent year if the resource owner again notifies the ISO of its intent to retire the resource and the resource meets the applicable eligibility criteria.

Under proposed tariff section 44.10, the resource under the designation is obligated to respond to all requests for offers of resource adequacy capacity during the year of the designation for which the resource is eligible.[36] If the unit fails to do so, the resource will forfeit FLRR compensation for the period equal to the longest contract term offered by a request for offers for which it was eligible but did not participate. The resource owner is also required to forego any actions and filings that will enable the resource to retire during the designation year.

In comments, several stakeholders requested that the ISO include a clause that requires a resource receiving an FLRR designation to remain in service and be available in the year of need. Although the owner of the resource may not retire the resource during the FLRR designation year, the ISO does not propose a provision that it be available in the year of need. Including such a provision would, in essence, require the ISO to procure the resource from 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 a backstop mechanism to prevent the imminent retirement of needed generation. Furthermore it would be impractical to implement. For example, if the ISO had the right to unilaterally renew the FLRR designation for additional years, then the resource would likely seek compensation for this option value at additional cost. However, the option value would be difficult to determine and contentious.

The Market Surveillance Committee specifically advised against long-term procurement using the FLRR mechanism. It noted that "any requirements for, or options to renew, the obligations beyond the payment year raise questions of how to appropriately value (and assign costs to) these options",[37] which could "significantly lengthen the process for determining a just and reasonable level of compensation and raises the risk that the level of compensation could be out of proportion with the benefits provided."[38] The Market Surveillance Committee Opinion concluded that the ISO's approach constituted a reasonable balance between the level of security provided by the process and the potential cost of designation, both in terms of dollars and time.[39] Finally, the Market Surveillance Committee stated that "as explained above, the difficulty of administratively pricing the option value and supplier risk in [such a] contract

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[36] The ISO does not propose to direct the price at which a resource must bid into a request for offers.

[37] Attachment I at 9.

[38] *Id*.

[39] *Id*.

with future obligation may outweigh the benefits of such an approach, so we opt for a simple backstop solution."[40]

As discussed below, one of the reasons that the ISO did not adopt the mothballing option what the potential cost of meeting environmental regulatory requirement when the unit was brought back into service. The advantage of the FLRR mechanism in this regard would be nullified if a resource with an FLRR designation allowed its air permits to lapse. Therefore, the owner of a resource with an FLRR designation undertake all reasonable actions necessary to maintain its air permits and meet other regulatory requirements during the FLRR designation year.

The resource has no obligation to offer energy or capacity in the ISO markets, although the resource is free to do so. The resource is also eligible to receive a capacity procurement mechanism designation, but not a capacity procurement mechanism designation for risk of retirement. At the end of the designation year, there will be no additional obligations.

D. Compensation

1. Total Compensation from Designation and Market

Under proposed tariff section 44.11, the resource will receive compensation that supplements its revenues from ISO markets and capacity contracts such that the resource is provided recovery of its going-forward costs as approved by the Commission. The independent evaluator that the ISO engages will evaluate the financial information provided by the Scheduling Coordinator for the resource that receives an FLRR designation in order to establish the maximum going-forward costs for which the resource may receive compensation and which the resource owner will file with the Commission.

Some stakeholders recommended that the ISO adopt an administrative price or objective formula for determining an administrative price rather than basing price on each individual unit's going-forward costs. Such stakeholders questioned whether the ISO's proposal provides sufficient revenues to prevent units from retiring. One variation proposed was adapting the capacity procurement mechanism risk of retirement provision to longer term flexible capacity requirements by simply expanding the horizon for evaluating need to avoid retirement. In contrast, other stakeholders argued that going-forward costs should not exceed the payment under the capacity procurement mechanism.

The ISO concluded that the use of a cost-based payment for an FLRR designation, as opposed to an administratively set capacity price such as the payment under the capacity procurement mechanism risk of retirement provision, is appropriate

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40 *Id.* at 9-10.

because under the FLRR mechanism the ISO is not purchasing generic capacity, but rather ensuring that specific units earn sufficient revenues to cover their costs so that they will remain available for another year. While resources designated under the capacity procurement mechanism risk of retirement provision are subject to a must-offer obligation, resources accepting a FLRR designation have no such obligation in the ISO's energy, ancillary services, or residual unit capacity markets. As discussed below, these resources may participate in energy, ancillary service, and residual unit capacity markets and retain 10 percent of net market revenues. In making an FLRR designation, the ISO is not buying the capacity of a resource and mandating an 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. The provision of going-forward costs and the opportunity to earn a portion of market revenues is sufficient for this purpose.

For this same reason, capping the going-forward cost recovery at the payment under the capacity procurement mechanism risk of retirement provision is not reasonable. If that payment is less than actual going-forward costs, it would not provide an incentive for the resource to remain in operation.

Further, as discussed below, using going-forward costs rather than a single administrative price is consistent with relevant Commission precedent. The Commission has recognized that recovery of going-forward costs is a just and reasonable mechanism to ensure that units at risk of deactivation remain available. That is all that is necessary under the Federal Power Act.[41]

In order to determine the scope of the costs that should be reasonably included in FLRR compensation, the ISO reviewed other independent system operators' and regional transmission organizations' risk of retirement provisions. While none had a provision that directly matches the assessments and needs addressed by the ISO's proposal, PJM deactivation avoidable cost credit offered a useful model.[42] The ISO's

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[41] *See New England Power Co.*, 52 FERC ¶ 61,090 at 61,336 (1990), *reh'g denied*, 54 FERC ¶ 61,055, *aff'd Town of Norwood v. FERC*, 962 F.2d 20 (D.C.Cir. 1992); citing *City of Bethany v. FERC*, 727 F.2d 1131, 1136 (D.C.Cir. 1984), *cert. denied*, 469 U.S. 917 (1984) (utility need establish that its proposed rate design is reasonable, not that it is superior to alternatives).

[42] PJM pays a deactivation avoidable cost credit to resources that it needs to maintain in operation to preserve reliability pending the completion of transmission upgrades. *See PJM Interconnection LLC,* 110 FERC ¶ 61,053, *order on reh'g,* 112 FERC ¶ 61,031 (2005).

proposed definition of going-forward costs under proposed tariff section 44.11.1 is largely consistent with that model and will include the following:[43]

- labor for operations and maintenance;
- administrative expenses for employees at the unit;
- basic maintenance (excluding variable operations and maintenance costs included in default energy bids);
- variable cost, excluding variable costs included in the default energy bid;
- 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;
- major maintenance project investment costs as amortized annually (not to exceed $2 million per year) for projects initiated after the FLRR designation;
- that portion of interest on debt occurred prior to designation and in the year of designation that could have been avoided by retirement of the unit;
- the annualized cost for the FLRR Designation Year of variable operating costs included in multi-year contracts for the resource, and
- such other costs that the independent evaluator determines are costs that would not be incurred if the resource were retired.

Under this formula, a resource would recover ordinary day-to-day maintenance under the maintenance item, while it would recover major maintenance, including any foregone maintenance, under project investment costs. The ISO will cover up to $2 million in investment costs per year. For example, if a resource owner makes a $10 million dollar investment with a five-year life for needed maintenance in the first year of

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[43] The Midwest Independent Transmission System Operator also pays units needed for reliability that are at risk of deactivation based on their going forward costs. *See* Midwest Independent Transmission System Operator Tariff § 38.2.7. The payment is negotiated and is based on (i) fixed operating and maintenance costs; (ii) applicable state, federal or property taxes; and (iii) costs of repairs or upgrades needed to meet applicable environmental regulations or local operating permit requirements. Any compensation to the SSR Unit will be, reduced by certain debits and expected market payments. *See also Midwest Indep. Transmission Sys. Operator, Inc.*, 140 FERC ¶ 61,237 (2012).

a designation, the minimum revenue guarantee will cover costs for $2 million dollars and the associated annual interest on the $10 million.

During the stakeholder initiative, certain stakeholders contended that the going-forward cost calculation should exclude investment costs. Others suggested that the cap on consideration of investment costs be scaled according to the size of the resource. For both PJM Interconnection's deactivation provisions and the Midwest Independent Transmission System Operator's System Support Resources mechanism, the Commission recognized the need to include capital investment costs.[44] In connection with the PJM Interconnection mechanism, the Commission stated that it was appropriate for resources to recover their going-forward costs needed to operate beyond the deactivation date, including limited investment costs.[45] With respect to Midwest Independent Transmission System Operator's program, the Commission found that it was appropriate for resources to recover capital costs associated with their continued operation and extended service, subject to a refund provision that requires system support resources returning to service to refund all costs of, less depreciation of repairs or capital expenditures needed to meet all applicable environmental requirements.[46] The Commission concluded that "it is reasonable to allocate the costs resulting from their continued operations to the load-serving entities that necessitated the . . . designation."[47]

Because the FLRR is limited to maintenance projects, it only captures investments necessary for continued operations of the plant that would not otherwise be incurred if the plant were to retire. It is consistent with the general principles enunciated by the Commission with regard to these other programs. The ISO concluded, however, that PJM Interconnection's approach would be preferable because it is less complex, easier to administer, and does not involve potential refunds and the burdens associated with that process. Also, a cap such as that proposed by the ISO avoids concerns that the resource owner will attempt to impose on load-serving entities the costs of major investments designed to increase the profitability of operations under the guise of maintenance investment. In particular, because an FLRR designation only has a term of one-year and a resource is not obligated to renew the request in a subsequent year, it would be inappropriate to require ratepayers to pay for significant capital investments. In light of the wide variety of potential required maintenance, however, the ISO concluded that attempting to scale the cap to resource size could result in arbitrary exclusions of necessary costs.

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44 *See Midwest Indep. Transmission Sys. Operator, Inc.,* 140 FERC ¶ 61,237 at P 136 (2012); *PJM Interconnection, LLC,* 110 FERC ¶ 61,053 at P 146, *order on reh'g,* 112 FERC ¶ 61,031 (2005).

45 *PJM Interconnection, LLC,* 110 FERC ¶ 61,053 at P 147.

46 *Midwest Indep. Transmission Sys. Operator, Inc.,* 140 FERC ¶ 61,237 at P 138.

47 *Id.* at P 136.

Consideration of appropriate avoidable costs also includes some portion of interest on debt incurred prior to the FLRR designation as well as interest on debt incurred during the year of the designation. For example, if a resource has debt of $5 million and a salvage value of $4 million, then the independent evaluator could determine that interest on $4 million of debt is avoidable and should be covered by the minimum revenue guarantee.

Some stakeholders disagreed with the inclusion of debt interest expense in the calculation of going-forward costs. Although this item goes beyond the costs included in PJM's deactivation avoidable cost credit, the ISO concluded that, because the purpose of the FLRR designation is to provide incentives to avoid retirement, it would be counter-productive to exclude any expenses properly allocated to the unit. In that regard, debt service costs are fixed costs that a resource is obligated to pay its creditors to maintain operation of the plant and avoid foreclosure and potential plant closure.[48] In particular, for resources that are primarily debt-financed, debt service costs are costs that must be paid to avoid foreclosure and keep the unit in service. If a resource defaults on its debt payments and debt holders foreclose and take the facility out of service, it will be the job of the independent evaluator to determine the degree to which such expenses should be part of the FLRR compensation. Finally, the ISO's inclusion of debt interest in the FLRR payment supports a larger portion of net market revenues being retained by the ISO in order to offset FLRR payments.

A couple of stakeholders objected to the inclusion of corporate salaries and expenses. There is no legitimate basis for this. As indicated above, PJM Interconnection's deactivation avoidable cost credit mechanism provides for the recovery of these costs, and these are the types of costs that will necessarily be incurred in connection with keeping a resource in operation beyond its proposed retirement date.[49] The Midwest Independent System Operator also permits the recovery of both fixed and variable operating and maintenance costs under its mechanism for system support resources.[50] In general, corporate level costs are a

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[48] *See Consol. Edison Energy Mass., Inc.,* 116 FERC ¶ 61,180 at P 42 (2006), *Berkshire Power Co., LLC,* 112 FERC ¶ 61,253 at P 25 (2005), *order on reh'g,* 114 FERC ¶ 61,099 at P 7 (2006).

[49] For example, the Commission has indicated in NYISO that cost incurred to comply with pollution control requirements are appropriate going forward costs. *New York Indep. Sys. Operator, Inc.,* 122 FERC ¶ 61,211 at P 80 (2008).

[50] The Commission has also recognized elsewhere that administrative and general costs, as a component of operation and maintenance costs, are recoverable and are recovered by suppliers providing reliability services using some type of cost-based rate. For example, the Commission has found that administrative and general costs are costs ordinarily necessary to keep a facility available. *Bridgeport Energy*, *LLC,* 112 FERC ¶ 61,077 at P 35 (2005). The Commission has also found that administrative and general costs includes, inter alia, executive and officer salaries not directly chargeable to a particular operating function, outside services

component of operating and maintenance costs, and the Commission's Uniform System of Accounts recognizes that an allocation may be necessary to determine a public utility's operations and maintenance costs.[51]

Finally, some stakeholders argued for a different pricing regime, including a price based on cost of new entry or inclusion of a return on equity on going-forward costs. Such pricing schemes are inappropriate in light of the nature of the product involved. As discussed above, the ISO is not procuring generic capacity or providing an incentive for new generation. It is only seeking to ensure that certain specifically identified units needed to meet future reliability needs do not retire during the next resource adequacy compliance year. The FLRR payment provides the resource with assurance that it can continue to operate without incurring losses; this provides the unit with the opportunity to participate in markets and resource adequacy programs. It is through those opportunities that the resource can seek a return. The Commission rejected inclusion of a return on equity in PJM Interconnection's deactivation avoidable cost credit mechanism because the resources had other compensation options available.[52] Although the FLRR mechanism does not offer alternative compensation options, unlike the PJM Interconnection mechanism, it does allow retention of a portion of market revenues. This factor weighs against the need for a return on equity in the same manner as the options under the PJM Interconnection mechanism.

The ISO also notes that even in cases involving capacity procurement, such as the ISO's transitional capacity procurement mechanism and interim capacity procurement mechanism, the Commission rejected cost of new entry pricing and for backstop procurement.[53] If these payment options are not appropriate in a capacity procurement instance, where the resource has a must-offer obligation and is currently or in the very near term needed for reliability, there can be no supportable basis for concluding that the failure to include the option in the FLRR is not just and reasonable. Indeed, in ruling on PJM Interconnection's deactivation avoidable cost credit proposal, the Commission found that compensation should not be based on cost of new entry

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(including legal services), and maintenance of general plant, under Uniform System of Accounts Sections 920-935. *Milford Power Co.*, 112 FERC ¶ 61,154 at P 21 (2005)

[51] *See, e.g.*, 18 C.F.R. Part 108, General Instructions (classification of costs initially charged to a clearing account, to various utility operating functions and to non-utility operations,) Electric Plant Instructions (includes allocable overhead and construction costs), Operating Expense Instructions (contemplates that allocation of such costs, including overhead, may be necessary), and Account No. 920 (officer/executive salaries chargeable to utility operation and not directly chargeable to particular operating functions.

[52] *See PJM Interconnection, LLC*, 112 FERC ¶ 61,031 at P 21 (2005).

[53] *Cal. Indep. Sys. Operator Corp.*, 125 FERC ¶ 61,053 at PP 41-44 (2008); *Cal. Indep. Sys. Operator Corp.*, 123 FERC ¶ 61,229 at P 76 (2008).

because that would not reflect the least cost solution to address reliability concerns.[54] The Commission stressed that the goal was to support reliability needs by fully compensating a resource for all going-forward costs for the period it delays its exit.[55] The same reasoning underlying the pricing decisions in these orders applies with equal force here. Also, the Commission stated that PJM Interconnection's proposal was not intended to promote entry of any particular generator type or support additional generation as the sole solution to the reliability concern.[56] The same is true for the FLRR mechanism.

2. Market and Capacity Revenues

Because the purpose of FLRR designations is solely to avoid retirement of necessary resources, and units receiving designations are able to participate in ISO markets, the proposal nets certain market and capacity revenues against total going-forward costs in order to prevent double recovery. Consistent with this premise, the ISO initially proposed to reduce the payment in connection with the designation dollar-for-dollar by net market revenues. Based on recommendations of the Department of Market Monitoring and the Market Surveillance Committee, however, the ISO revised its proposal and proposes herein to allow the resource owner to retain 10 percent of net ISO market revenues.[57] Allowing a resource owner to keep some portion of its market revenues, while not necessary to cover a resource's going-forward costs, should provide a greater incentive for a resource to continue to bid into the market, which in turn should result in the resource providing energy when its marginal costs are equal to or less than the locational marginal price, thereby benefitting load. Additionally, the remaining 90 percent of net market revenues will offset the cost of FLRR designation that is allocated to load.

The ISO selected the 10 percent revenue retention level as a reasonable balance between providing some profit incentive for resources to bid into the market while minimizing any adverse impact on primary capacity procurement mechanisms such as resource adequacy. As previously indicated, the sole purpose of the FLRR backstop is to enable existing resources at risk of retirement to remain available by providing them with a lifeline payment. Paying such resources their full going-forward costs, while permitting them to retain a large portion of their market revenues, would be inconsistent

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54 *PJM Interconnection, LLC,* 110 FERC ¶ 61,053 at P 147.

55 *Id.*

56 *PJM Interconnection, LLC,* 112 FERC ¶ 61,031 at P 15.

57 The ISO also notes that PJM's deactivation avoidable cost credit mechanism and MISO's system support resources mechanism both contain provisions to deduct revenues earned in the markets and through certain bi-lateral contracts from the payment made to resources. *Midwest Indep. Transmission Sys. Operator, Inc.,* 140 FERC ¶ 61,237 (2012) at P 141; *PJM Interconnection, LLC,* 110 FERC ¶ 61,053 at P 127.

with this purpose. Also, because resources would essentially be receiving a one-year contract that covers all of their costs and allows it to retain all or most of the market revenues, resources would have an incentive to hold out for an FLRR designation rather than execute a resource adequacy contract, even if offered a resource adequacy contract with reasonable compensation. This incentive would interfere with the goals and effectiveness of the resource adequacy program. The instant proposal provides a reasonable balance between competing objectives.

As noted above, for similar reasons, the Market Surveillance Committee supports the ISO's proposal on retention of market revenues. The Market Surveillance Committee Opinion explains that if net FLRR payments exceed resource adequacy payments, then resources might prefer the FLRR and could accordingly request higher resource adequacy payments from load serving entities in the resource adequacy market.[58] The Opinion concludes that the ISO's approach is a reasonable means of balancing the conflicting concerns of (1) incenting load and supply to execute deals outside of the FLRR process, and (2) encouraging FLRR resources to participate in the markets and operate efficiently.[59]

The ISO's Department of Market Monitoring also supports the ISO's net revenue sharing compensation mechanism.[60] Indeed, during the stakeholder process, the Department of Market Monitoring strongly recommended revising the proposal to allow a resource with a FLRR designation to retain a portion of market revenues. The Department of Market Monitoring stated that this approach would result in more efficient market outcomes, and reduce costs of FLRR designations. The Department of Market Monitoring also argued that allowing retention of revenues would make the FLRR mechanism less expensive than the standby or "mothballing" option, which is discussed below.[61]

The proposal defines net market revenues as ISO market revenue for energy, ancillary services, residual unit capacity, flexible ramping constraint, and bid cost recovery, minus variable operating costs. Under proposed tariff section 44.11.3, the ISO will calculate variable operating costs based on the resource's default energy bid, costs for providing ancillary services that the resource negotiates with the independent entity responsible for establishing default energy bids, and the ISO's proxy cost

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58 Attachment I at 6.

59 *Id.* at 10.

60 August 28 Comments, Attachment G at 1.

61 June 21 Comments, Attachment E, at 5-7; *see also,* August 1 Comments, Attachment F at 4-5. In its presentation at the August 2, 2012 stakeholder meeting, for the reasons previously mentioned, the Department of Market Monitoring reiterated its support for a proposal that pays a resource its going-forward costs while applying a portion of market revenues to offset the resource's minimum revenue guarantee under the FLRR mechanism. Attachment H.

calculations of minimum load and start-up costs, excluding variable operating costs for sales outside the ISO's balancing authority area. The default energy bid costs used will be the costs under the negotiated default energy bid option, under tariff section 39.7.1.3, if costs have been established under that option; otherwise, the ISO will use the costs under the cost-based default energy bid option. The resource owner may negotiate a different minimum load or start-up cost with the independent entity responsible for establishing default energy bids. In the absence of any negotiated default ancillary services bids, the ISO will use a zero bid to calculate ISO net market revenues. The ISO will use zero costs for providing residual unit commitment capacity.

Because a resource's capacity contracts do not have a beneficial impact on the locational marginal price comparable to participation in the ISO markets, the proposal reduces FLRR payments by 100 percent of such capacity payments. In addition, unlike market revenues, the ISO does not have access to information about such capacity revenues. Therefore, a resource receiving a flexible capacity risk of the retirement designation therefore will have an obligation to report these revenues to the ISO.

The ISO notes that PJM's deactivation avoidable cost credit and MISO's system support resource mechanism both provide for the deduction of revenues earned in the markets and through bilateral contracts from the total payment made to suppliers.[62] MISO's provisions provide that compensation to suppliers will be reduced by payments under the resource adequacy program, by infra-marginal rents for energy and operating reserve transactions, and by any other compensation paid under the market or via contract.[63] Unlike PJM and MISO, the ISO proposes to compensate resources for their debt services costs. This difference supports the ISO's proposed revenue claw-back approach, as does the fact that the resources under the PJM and MISO provisions are needed for reliability now, whereas the FLRR designation is a lifeline for resources not needed until several years down the road.

During the stakeholder process, the ISO initially proposed that the capacity procurement mechanism compensation and the FLRR compensation be considered separately. Based on input from the ISO's Market Surveillance Committee,[64] however, the ISO has concluded that allowing resources to receive compensation from both programs would be inconsistent with the dollar-for-dollar reduction in the FLRR for resource adequacy payments. The ISO therefore proposes to net all capacity procurement mechanism compensation against the FLRR compensation in addition to the adjustment for net ISO market revenues.

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62 PJM Interconnection Tariff § 114; Midwest Independent System Operator Tariff § 38.2.7(g)(iii).

63 Midwest Independent System Operator Tariff § 38.2.7(h)(ii).

64 Market Surveillance Committee Opinion, Attachment I at 10.

3. Payment

Except as provided in tariff section 44.2.2.1 for 2013, for each month of the designation year, a resource is entitled to payment equivalent to one twelfth of the annual going-forward costs approved by FERC less (1) any monthly capacity procurement mechanism or bilateral contractual capacity revenues and (2) 90 percent of monthly net market revenues. There will be monthly and an end-of-year true-up. If the sum of 90 percent of net market revenues and 100 percent of monthly capacity revenues exceeds one twelfth of the annual going-forward costs, the ISO will include the excess revenues in the calculation of compensation for the remaining months of the year. The ISO will begin payments within the month following approval of the designation by the Board. For the months in the FLRR Designation Year prior to ISO Board approval of the designation, the ISO will defer the monthly FLRR payments and pay them on the next regularly schedule monthly invoice for such each deferred Trading Month following ISO Board approval. If, in the final month of the designation, the sum of all calculated monthly payments, as trued up, exceeds the annual going-forward costs of the resource plus 10 percent of net market revenues for the year, the resource owner must return the amount of the excess, with interest, to the ISO. Interest will be calculated on the excess amount on a pro rata for each month in proportion to the monthly payments, at the rate of interest calculated as set forth in Section 11.29.10.2. After the Commission decision approving the going-forward costs for the resource becomes final and non-appealable, the ISO will adjust all monthly payments to conform to Commission-approved going-forward costs and will recover any excess payments previously made to the resource through the monthly true-up process or from the posted security if necessary. If the Commission decision is not final and non-appealable by the end of the designation, the ISO will retain the posted security in an amount equivalent to the difference between the amounts paid and the amounts to which the resource would be entitled under the Commission decision, and will finally adjust the payments when the Commission decision becomes final and non-appealable.

E. Allocation of Costs

Under tariff section 44.12, the ISO proposes to allocate the costs of any FLRR designations to load serving entities in the TAC area or areas affected by the designated need, based on load ratio share.

The ISO's analysis of flexibility requirements is a system-wide analysis and at the time of the identification – and the need to make a designation – the needs must be considered system-wide needs. It is not possible to predict which, if any, entities might receive the benefit of having the capacity available in two to five years. Accordingly, under the proposed allocation approach, the ISO would allocate the costs of an FLRR designation for system flexibility to load-serving entities in all TAC areas, which is most consistent with cost-causation.

The proposal allocates the costs of designations for a local reliability need will be made using the same approach – to the load serving entities in the TAC area or areas affected by the designated need. This is consistent with allocation of costs for capacity procurement mechanism designations for collective deficiencies in local capacity resources under existing tariff section 43.1.2. Because it is not possible to predict in the two-to-five year analysis which load-serving entity might be unable to meet its local capacity resource requirement, the ISO concluded that it would be most consistent with cost causation to consider the designation analogous to a designation under tariff section 43.1.2.

One stakeholder argued that the ISO should allocate the costs, at least in part, to intermittent resources. The ISO concluded that this would inappropriately trap costs for intermittent resources with existing resource adequacy contracts, which would be unable to pass the costs through to load, and exempting such resources would place the costs disproportionately on intermittent resources without such contracts. Because generators will ultimately pass any such cost onto load, and because it is load-serving entities that are responsible for fulfilling renewable portfolio standard requirements, the ISO believes that allocating the costs to load-serving entities based on the location of the need is more equitable.

F. Termination

The FLRR designation ceases at the end of the FLRR designation year. If the resource retires during the FLRR designation year, it will forfeit all payments for the designation, including those made prior to the retirement. The ISO will collect the past payments, with interest, through the posted security.

If the resource receives a resource adequacy contract for all or a portion of the FLRR designation year and the contract does not fully compensate the resource for its going-forward costs, the FLRR designation will not terminate but the compensation received under the contract will be netted against the FLRR compensation under proposed tariff section 44.11. If the resource adequacy contract provides compensation equal to or in excess of the resources going-forward costs determined under proposed tariff section 44.11.1, the FLRR designation will terminate immediately upon the date the contract becomes effective.

G. Sunset Date

During the stakeholder process and before the Board, the ISO recommended that the FLRR provisions would sunset upon the implementation of multi-year forward capacity procurement obligations for flexible and local resources for all load serving entities within the ISO balancing authority area if the FLRR mechanism has not been used during the 24 month period after implementation. The Market Surveillance Committee, however, recommended a provision that would sunset the FLRR provisions

after five years in order to avoid potential long-term impacts on the market.[65] The Market Surveillance Committee noted that, although the ISO had attempted to limit any potential negative impacts of an FLRR mechanism, it was impossible to predict all of the possible consequences of implementing such backstop mechanism and some market impact was likely.[66] In addition, some stakeholders expressed concern that excessive use of the backstop would lead to distortions in the resource adequacy and energy markets and that the existence of the backstop mechanism might distract the ISO from pursuing a permanent, primary, capacity procurement mechanism.

Based on the statements of the Market Surveillance Committee representative at the September 2012 Board meeting, the ISO Board voted that the proposal filed with the Commission should also contain a five-year sunset provision. In response, the ISO is proposing that the FLRR mechanism expire on the earlier of (1) midnight on March 31, 2018, or (2) implementation of multi-year forward capacity procurement obligations for flexible and local resources for all load serving entities within the ISO Balancing Authority Area, provided that the mechanism has not been used during the 24 months after implementation of these obligations.

H. Long-Term Standby, or "Mothballing," Alternative

The ISO included a "long-term standby" or "mothballing" compensation option in its initial draft proposal. After considering the comments of stakeholders and the recommendations of the Department of Market Monitoring, the ISO decided to omit this option from the proposal. The ISO concluded that a mechanism to avoid the retirement of needed resources would be more cost-efficient without the mothballing option and would also avoid environmental issues presented by new source review under the Clean Air Act, as discussed below.

The ISO's decision was strongly supported by the Market Surveillance Committee in its September 7 Opinion. Only one stakeholder opposed the removal of the standby option. The remaining stakeholders either affirmatively supported the removal or did not oppose it.

The ISO's Department of Market Monitoring concluded that, because of the ability to receive market revenues under an FLRR designation, and taking into account the costs of re-energization, the standby option would likely be more costly.[67] Indeed,

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65 Market Surveillance Committee Opinion, Attachment I at 1-2.

66 *Id.* at 1, 11.

67 August 1 Comments, Attachment F, at 2-6. In its presentation at the August 2, 2012 stakeholder meeting, the Department of Market Monitoring stressed that applying a portion of market revenues to the minimum revenue guarantee payment would serve to reduce the out-of-market payments made by load serving entities in connection with FLRR designations. Attachment H.

the Department of Market Monitoring concluded that "it is unrealistic that the long-term standby costs would ever be less expensive than the ISO's going forward cost proposal (including the market revenue claw back).[68] The Department of Market Monitoring hypothesized mothball costs of $20/kW-yr, going-forward costs of $25/kW-yr, and net market revenues (if the unit operates) of $10/kW-yr. Under this scenario, the net cost of keeping the plant on-line would be $15/kW-yr ($25/kW - $10/kW), while the cost of mothballing the unit would be $20/KW-yr. Thus, if the resource can receive net revenues, it is most profitable for the resource owner and less costly for the ISO to keep the plant on-line and run it when it is economic.[69]

The Department of Market Monitoring also concluded that preventing a resource from participating in the market would artificially increase LMPs for certain resources and conversely that allowing FLRR resources to participate in the markets would likely lower LMPs during periods when it is economic for the generator to produce electricity.[70]

Finally, the Department of Market Monitoring stated that eliminating the long-term standby option would significantly simplify the independent evaluator's compensation recommendation for eligible resources,[71] as well as prevent unnecessary complexity and consulting fees.[72] In conclusion, the Department of Market Monitoring found that the approach ultimately adopted by the ISO would increase efficiency and reduce the total cost of FLRR designations, thereby rendering a long-term standby option much less likely to be relevant.

The ISO Market Surveillance Committee also strongly recommended against inclusion of a long-term standby, *i.e.,* the mothballing, option. The Market Surveillance Committee Opinion noted that eliminating the long-term standby option would limit the complexity of the process of cost determination.[73] Specifically, the Opinion stated that eliminating a long-term standby option would assist in addressing concerns that the process would be slow and inefficient, causing generators to reach the "wrong" decision either to retire their unit despite the designation or not retire in the expectation of higher revenues given uncertain outcomes.[74]

The ISO agrees that with the conclusion that the payment of going-forward costs net of 90% of market revenues is more cost-effective than a standby option. As

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68 August 1 Comments, Attachment F at 3.

69 *Id.* at 6.

70 *Id.* at 5.

71 August 28 Comments, Attachment G at 1.

72 *Id.* at 3.

73 Market Surveillance Committee Opinion, Attachment I at 7.

74 *Id*.

indicated above, the ISO's retention of 90% of market revenues will offset any minimum revenue guarantee payments to FLRR resources. In addition, as mentioned above, the participation of the resource in the ISO's markets – which is not possible with a mothballed resource – can have a significant beneficial impact on market prices. For example, as part of the Sutter proceeding, discussed above, the ISO determined that total market cost reduction of energy and ancillary services costs to load due to having the Sutter Plant available in the July-December 2012 period was approximately $44 million.[75]

The opposing stakeholder argued that the standby option may save nominal costs, delay de-mothballing costs until the resource's need is certain, defer maintenance decisions, and avoid ongoing operations. As discussed above, however, the option is more likely to increase costs. De-mothballing costs will never be incurred. Any concerns about the certainty of the need are allayed by the proposed one-year term of the designation and the complete reassessment of need prior to a designation for another term.

The ISO also agrees with the conclusions of the Department of Market Monitoring and the Market Surveillance Committee that a standby option would add unnecessary complexity and litigation risk. The supporting stakeholders shared these observations. The one opposing stakeholder argued that these concerns are insufficient to eliminate the standby option. Regarding complexity, it contends that the financial review already involves estimation of costs and it is unreasonable to conclude that planning and estimation for mothballing are excessively difficult. The estimation of going-forward costs, on the one hand, and mothballing and de-mothballing costs, on the other, are fundamentally different. The independent evaluator will determine going-forward costs based on historical costs. However, there is no historical data for a unit's mothballing and de-mothballing costs. The evaluation of such costs requires a different sort of expertise, including knowledge about the individual unit's characteristics and the potential legal and environmental costs that may be implicated. The stakeholder pointed out that generators plan out costs and staffing for complex multiyear projects routinely, but the proposal calls for an independent evaluation of costs, such that the independent evaluator would need to confirm independently each of the assumptions used by the generator in its estimate. The stakeholder further claims that the layer of complexity would significantly delay the approval of necessary designations and could not be justified absent evidence of likely cost savings – which, as discussed above, is not present.

The stakeholder also asserted that the ISO has provided insufficient explanation of its concerns for litigation risk and that such risks can be part of the individual financial

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[75] Answer to Motions to Intervene and Comments, Motion to File Answer, and Answer to Protests of the California Independent System Operator Corporation, Docket No. ER12-897, at 10-11(filed Feb. 24, 2012).

evaluation. The litigation risks, however, are directly related to the complexity. In litigation regarding the going-forward costs, the historic data is easily verifiable. Litigation regarding mothballing and de-mothballing costs, or regarding whether a mothballing or FLRR designation is appropriate, would involve evaluating hypothetical scenarios and weighing the testimony of various expert witnesses. The simplicity of the FLRR designation avoids this potential.

Moreover, the ISO has concluded that even if there were a potential compensation savings from the standby option and issues of complexity and litigation were absent, the added cost and risks associated with new source review would likely outweigh any benefits. As one stakeholder noted, to the extent that the ISO could determine that long-term standby costs are lower than going-forward costs, it is unlikely that suppliers would be willing either to (a) continue to operate and receive compensation below their going-forward costs or (b) cease operations indefinitely and consequently expose themselves to the risks of being subject to new source review compliance.

Conventional gas-fired generation is subject to a variety of federal, state and local air quality permitting and technology requirements. Among other things, this regime typically includes a combination of new source review pre-construction permitting through the non-attainment new source review program and/or the Prevention of Significant Deterioration program for areas that have attained the federal ambient air quality standards.[76] Under nonattainment new source review, new emissions must be offset with emission reduction credits or other approved emission reduction strategies. In addition, both permit programs require the latest, most stringent air emission controls by mandating either the lowest achievable emission rate or best available control technology, respectively. Stringent emission limits also may be imposed by the federal New Source Performance Standards.

On their face, each of these programs applies only to new major sources of air pollutants or major modifications of existing sources. However, over the years the Environmental Protection Agency ("EPA") has developed a "reactivation policy" that can result in treating dormant facilities as new sources when they propose to resume operations. Under the reactivation policy, EPA presumes that a facility that has not operated for two or more years has been permanently shut down. Then, at the time the facility proposes to resume operations, either it is treated as a new source, or the change in state from dormant to operational is treated as a modification. Either way, where EPA has applied the policy, the owner/operator of the source has been required

[76] In California, the nonattainment new source review permit is issued by the local air pollution control or air quality management district. The Prevention of Significant Deterioration permit program may be administered by either the federal EPA or the local air district, dependent upon whether EPA has approved the local program through the state implementation plan process or a delegation of authority.

to go through a new air permitting process – with all its attendant offsetting and technology requirements – before the facility is allowed to resume operations.

The reactivation policy has been applied to a variety of operations, including specifically to generation resources that had been shut down but held in reserve to meet potential future electrical demand.[77] In that matter, Entergy Louisiana determined that it would not need three generating units for three to five years, and so placed the units in "reserve shutdown." The shutdown eventually extended to eleven years, during which time the company conduct some limited inspection and maintenance activities, and maintained relevant environmental permits. However, when the company applied for an operating permit to resume operations, a community group protested the issuance of the permit as contrary to the reactivation policy. The EPA Administrator concurred, requiring a new Prevention of Serious Deterioration of Air Quality review before the operating permit could be issued.[78]

Moreover, if the mothballing option is motivated by the desire to avoid continuing maintenance costs, this only exacerbates the difficulty of avoiding application of the reactivation policy. In assessing whether the owner/operator can overcome the presumption of permanent shutdown, EPA takes into account the cost and time required to reactivate the facility, which necessarily will be greater if maintenance has been deferred.[79]

Moreover, EPA has usually stated its view of applicability of the policy only at or just prior to the time of proposed restart, not at the time operations were suspended. Thus, at best, the reactivation policy injects delays and uncertainty; at worst, it presents insurmountable hurdles to later resumption of operation of resources that cannot meet the new technology or offsetting requirements.

The FLRR is intended to address facilities that would otherwise retire in the two to five year window, which coincides with the two-year presumption of the reactivation policy. Thus, a mothballing option that encourages or requires resources to be completely out of operation would carry the greatest risk of triggering the reactivation policy, thereby undermining the very purpose of the FLRR, which is to reduce uncertainty and address long term reliability issues.

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77 See, e.g., *In the Matter of Monroe Electric Generating Plant,* Petition No. 6-99-2 before the U.S. EPA Administrator, Order Partially Granting and Partially Denying Petition for Objection to Permit, June 15, 1999.

78 *Id.* at 27.

79 *Id.* at 9, 18-19.

IV. EFFECTIVE DATE AND REQUEST FOR WAIVERS

The ISO requests an effective date of April 1, 2013. The ISO requests that the Commission grant parties until January 23, 2013 to file motions to intervene, comments and protests in order to accommodate holiday schedules.

V. COMMUNICATIONS

Communications regarding this filing should be addressed to the following individuals, whose names should be placed on the official service list established by the Secretary with respect to this submittal:

Michael E. Ward
Alston & Bird LLP
The Atlantic Building
950 F Street, NW
Washington, DC 20004
Tel: (202) 239-3300
Fax: (202) 654-4875
michael.ward@alston.com

Anthony J. Ivancovich
Deputy General Counsel, Regulatory
Beth Ann Burns
Senior Counsel
California Independent System
Operator Corporation
151 Blue Ravine Road
Folsom, CA 95630
Tel: (916) 608-7135
Fax: (916) 608-7296
bburns@caiso.com

VI. SERVICE

The ISO has served copies of this transmittal letter, and all attachments, on the CPUC, the California Energy Commission, and all parties with effective Scheduling Coordinator Service Agreements under the ISO tariff. In addition, the ISO is posting this transmittal letter and all attachments on the ISO website.

VII. ATTACHMENTS

The following documents, in addition to this transmittal letter, support the instant filing:

Attachment A	Revised ISO Tariff Sheets – Clean
Attachment B	Revised ISO Tariff Sheets – Marked
Attachment C	2013 Flexible Capacity Procurement Requirement – Supplemental Information to Proposal, March 2, 2012
Attachment D	Flexible Capacity Procurement: Risk of Retirement – ISO Market Design & Infrastructure Policy. Presented to the ISO Board, September 13, 2012

Attachment E	ISO's Department of Market Monitoring Comments on the Revised Straw Proposal for Flexible Capacity Procurement, June 21, 2012
Attachment F	ISO's Department of Market Monitoring Comments on the Final Draft Proposal for Flexible Capacity Procurement, August 1, 2012
Attachment G	ISO's Department of Market Monitoring Comments on the Revised Final Draft Proposal for Flexible Capacity Procurement, August 28, 2012
Attachment H	ISO's Department of Market Monitoring Presentation - Comments on Flexible Capacity Procurement: Risk of Retirement, August 2, 2012
Attachment I	ISO's Market Surveillance Committee Opinion on Flexible Capacity Procurement: Risk of Retirement, September 7, 2012

VIII. CONCLUSION

For the reasons set forth above, the ISO respectfully requests that the Commission approve the tariff modifications in Attachments A and B, effective as of April 1, 2013.

Respectfully submitted,

By: */s/Beth Ann Burns*

Michael E. Ward
Alston & Bird LLP
The Atlantic Building
950 F Street, NW
Washington, DC 20004
Tel: (202) 239-3300
Fax: (202) 654-4875

Nancy Saracino
General Counsel
Anthony J. Ivancovich
Deputy General Counsel
Beth Ann Burns
Senior Counsel
California Independent System
Operator Corporation
151 Blue Ravine Road
Folsom, CA 95630
Tel: (916) 608-7135
Fax: (916) 608-7296
Counsel for the
California Independent System
Operator Corporation

Dated: December 12, 2012

Attachment A – Clean Tariff

Flexible Capacity and Local Reliability Resource Retention Amendment Filing

California Independent System Operator

Fifth Replacement FERC Electric Tariff

December 12, 2012

44. FLRR Mechanism

44.1 FLRR Expiration

The FLRR Mechanism in Section 44, as well as changes made to other Sections to implement the FLRR Mechanism, expire on the earlier of (i) midnight on February 28, 2018, or (ii) implementation of a multi-year forward capacity procurement obligation for flexible and local resources for all load serving entities within the CAISO Balancing Authority Area, and an FLRR designation has not been issued during 24 consecutive months after its implementation. FLRR designations in existence on the expiration date shall continue in effect and remain subject to the FLRR Mechanism, including the provisions concerning compensation, cost allocation and Settlement, until such time as the FLRR resources have been finally compensated for a designation received prior to the termination of the FLRR provisions, and the CAISO has finally allocated and recovered the costs associated with such FLRR compensation.

44.2 Designation Authority

The CAISO shall have the authority to issue an FLRR designation to compensate a resource that is at risk of retirement during the FLRR Designation Year and that the ISO forecasts will be needed for system flexibility or local reliability during any year within the FLRR Forward Period but not before the FLRR Forward Period, except in the case of a resource that has an FLRR designation at the time it submits a request for an FLRR designation under section 44.2.2.2. In the case of a resource that has an FLRR designation at the time it submits a request for an FLRR designation under section 44.2.2.2, the CAISO shall have the authority to issue an FLRR designation to compensate a resource that is at risk of retirement during the FLRR Designation Year and that the ISO forecasts will be needed for system flexibility or local reliability during the year following the FLRR Designation Year. In determining the system flexibility need, the ISO will consider multi-hour ramping, load-following, and regulation capabilities and any additional flexibility attributes as the ISO considers appropriate.

44.2.1 Eligibility for FLRR Designation

A resource is eligible for an FLRR designation if it meets the following criteria:

(1) At the time the owner of the resource submits a request for an FLRR designation, the resource is not under contract to provide all or a portion of its Capacity as RA Capacity, nor listed as RA Capacity in any LSE's annual Resource Adequacy Plan, for all or part of

the requested FLRR Designation Year or a subsequent year; except that, if the resource has a current FLRR designation and enters into a contract for partial RA capacity during the FLRR Designation Year for the following year, the resource may be eligible to receive a designation for the following year but must submit a request and meet the criteria in Section 44.2.1(2) through Section 44.2.1(6).

(2) CAISO technical assessments project that the resource will first be needed for system flexibility or for local reliability during any year within the FLRR Forward Period; or only in the case of a resource that has an FLRR designation at the time it submits a request for an FLRR designation under section 44.2.2.2, CAISO technical assessments project that the resource will first be needed for system flexibility or for local reliability during the year following the FLRR Designation Year;

(3) The resource is projected to be unable to recover its going-forward costs during the requested FLRR Designation Year, as calculated pursuant to Section 44.11.1, and it will retire during the requested FLRR Designation Year because it will be uneconomic for the resource to remain in service;

(4) No new resource or transmission facility is projected by the CAISO to be in operation by the start of the year in which the resource will be needed that will meet the identified flexible capacity or local reliability need;

(5) The resource either (i) submitted a conforming offer in at least one request for offers for RA Capacity, for which it was eligible, during the current calendar year for the requested FLRR Designation Year and was unsuccessful in obtaining an RA contract or (ii) provides sufficient justification why the CAISO should evaluate the resource for a designation even though it did not submit a conforming offer in response to an RA request for offer; and

(6) If the resource is an intertie resource, it is either dynamically scheduled or is a pseudo-tie resource.

44.2.2 Request for FLRR Designation

44.2.2.1 FLRR Designation Year 2013

The owner of a resource seeking an FLRR designation for FLRR Designation Year 2013 must submit the required notice and affidavit, including the supporting financial information and documentation, to the CAISO and DMM within 30 days of the effective date of this Section 44. For 2013, the ISO and independent evaluator engaged under Section 44.4 will conduct all eligibility studies, consistent with Section 44.4, in accordance with the schedule set forth in the Business Practice Manual. For resources receiving an FLRR designation for 2013, the CAISO will consider all going-forward costs and CAISO Net Market Revenues from the effective date of this Section 44 through December 31, 2013.

44.2.2.2 FLRR Designation Year 2014 and Subsequent Years

For each FLRR Designation Year after 2013, the owner of a resource seeking an FLRR designation must (a) submit notice to the CAISO and DMM, by November 1 of the calendar year before the requested FLRR Designation Year, that it intends to terminate the resource's PGA or remove the resource from PGA Schedule 1 before the end of the requested FLRR Designation Year and (b) request that the CAISO issue an FLRR designation for the requested FLRR Designation Year under this Section 44. The request must be accompanied by an affidavit of an executive officer of the company who has the legal authority to bind such entity, with the supporting financial information and documentation as set forth in in the Business Practice Manual, that attests to the following :

(1) The resource complies with the requirements in Section 44.2.1 (1), (3), (5), and (6) as applicable;

(2) The resource owner projects that the resource will be unable to recover its going-forward costs during the requested FLRR Designation Year, when calculated as set forth in Section 44.11.1, and that it will be uneconomic for the resource to remain in service through the requested FLRR Designation Year;

(3) The resource owner's decision to retire is definite unless the resource receives an FLRR designation;

(4) If the resource receives an FLRR designation, the owner of the resource commits that:

(a) it will provide to the ISO financial information regarding all revenues the resource receives during the FLRR Designation Year for capacity provided under bilateral contracts outside of CAISO Markets; and

(b) it will file with FERC, if the resource receives an FLRR designation, the resource's annual going-forward costs for the FLRR Designation Year (except as provided in Section 44.2.2.1, not to exceed the amount determined by the independent evaluator under Section 44.11.1.

44.2.3 Financial Information Requirement

The owner of the resource must submit with its request for an FLRR designation all of the supporting information and documentation required by Section 44.2.2 in order to receive the FLRR compensation for the full FLRR Designation Year. If all of the required financial information and documentation listed in the BPM is not provided with the request, the ISO's evaluation of the request and commencement of payment may be delayed, and penalties may be applied under ISO Tariff Section 37. In addition to the supporting information and documentation required by Section 44.2.2, the owner of a resource seeking an FLRR designation must make available to the DMM, the CAISO, and the independent evaluator engaged under Section 44.4 financial information regarding the expected going-forward costs and revenue streams for the resource pursuant to the applicable Business Practice Manual and any subsequent information or documentation requested by the DMM, the CAISO, or the independent evaluator.

44.3 Determination of Requirements in FLRR Forward Period

44.3.1 Determination of System Flexibility Requirements

In order to determine the advisory system flexibility requirements for the FLRR Forward Period, the CAISO will use the following process each year, in accordance with the schedule set forth in the Business Practice Manual:

(1) The CAISO will conduct fleet flexibility assessments each spring, considering the most recent CPUC standard planning assumptions used for the long term procurement plan process. For purposes of determining the advisory FLRR requirements, the CAISO may adjust the assumptions in the models and studies for load forecast, energy efficiency, and

demand response programs based on its own assessments and may perform additional studies as it deems necessary or appropriate.

(2) The CAISO will post the proposed assumptions for determining the advisory system flexibility requirements, including explanations of any material differences in key planning assumptions from the most recent CPUC long-term procurement plan process, and provide market notice that stakeholders have an opportunity to submit written comments on the assumptions. Following review of the comments, the CAISO will post any revisions to its assumptions. The CAISO will provide market notice of, and will conduct, a meeting or conference call with stakeholders to discuss the assumptions and comments.

(3) The CAISO will perform its studies and post a report detailing forecasted system flexibility requirements for the next five years. The CAISO will provide market notice that stakeholders have an opportunity to submit written comments on the report. Following review of the comments, the CAISO will post any revisions to its report. The CAISO will provide market notice of, and will conduct, a meeting or conference call with stakeholders to discuss the report and comments.

44.3.2 Determination of Advisory Local Reliability Requirements

In order to determine the advisory local reliability requirements for the FLRR Forward Period, the CAISO will use the following process each year, in accordance with the schedule set forth in the Business Practice Manual:

(1) The CAISO will use the model and base data consistent with that used for Local Capacity Technical Studies performed in accordance with Section 40.3. For purposes of determining the advisory FLRR requirements, the CAISO may adjust the assumptions in these models and studies for load forecast, energy efficiency, and demand response programs based on its own assessments, and may perform additional studies as it deems necessary or appropriate.

(2) The CAISO will post the proposed assumptions for determining the advisory local reliability requirements, including explanations of any material differences in key planning assumptions from the most recent ISO local capacity technical study, and provide market

notice that stakeholders have an opportunity to submit written comments on the assumptions. Following review of the comments, the CAISO will post any revisions to its assumptions. The CAISO will provide market notice of, and will conduct, a meeting or conference call with stakeholders to discuss the assumptions and comments.

(3) The CAISO will perform its studies and post a report detailing the advisory local reliability requirements for the next five years. The CAISO will provide market notice that stakeholders have an opportunity to submit written comments on the report. Following review of the comments, the CAISO will post any revisions to its report. The CAISO will provide market notice of, and will conduct, a meeting or conference call with stakeholders to discuss the report and comments.

44.4 Evaluation of FLRR Request

Upon receipt of a request for an FLRR designation, the CAISO will determine whether the resource is eligible to receive a designation under the criteria set forth in Section 44.2.1. A resource will be determined eligible for an FLRR designation based on the following assessment process:

(1) The CAISO will post the proposed assumptions that will be used for FLRR assessment to determine if the resource is needed for flexible or local capacity requirements under Sections 44.5 and 44.6 prior to receiving any requests for FLRR designations according to the schedule set forth in the Business Practice Manual and provide market notice that stakeholders have an opportunity to submit written comments on the assumptions. Following review of the comments, the CAISO will post any revisions to its assumptions. The CAISO will provide market notice of, and will conduct, a meeting or conference call with stakeholders to discuss the assumptions and comments.

(2) After receiving required information and documentation from a resource owner notifying the ISO that the resource is no longer economically viable and that the resource owner intends to retire the resource, the CAISO will engage an independent evaluator and provide such information and documentation to the independent evaluator;

(3) In accordance with the schedule in the Business Practice Manual, the independent evaluator will assess the economic viability of the resource and the CAISO will conduct

an assessment, to determine if the resource is needed for flexible or local capacity requirements under Sections 44.5 and 44.6.

(4) If the independent evaluator determines that the resource will not be economically viable and the CAISO determines the resource is needed for flexible or local reliability requirements under Section 44.5 or 44.6, then the resource will be deemed eligible for an FLRR designation.

(5) If a resource is deemed eligible for an FLRR designation, the independent evaluator will establish the going-forward costs for the resource in accordance with Section 44.11.1 and the Business Practice Manual.

44.5 Determination of FLRR Designation

The CAISO will determine whether the resource requesting an FLRR designation is necessary in order to meet the identified requirements for system flexibility or local reliability during the FLRR Forward Period, and not earlier than the FLRR Forward Period. The CAISO will determine if a resource is needed using the assumptions established in Sections 44.3.1 and 44.3.2 and the Business Practice Manual to evaluate the ISO's need for system flexibility and local reliability during the FLRR Forward Period using Applicable 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), absent the resource that seeks an FLRR designation, is able to supply the relevant system flexibility requirement or local requirement such that forecasted load, operating reserve, and ramping requirements for system energy, as discussed in the BPM, are addressed..

44.6 FLRR Designation Resource Selection

If the CAISO determines that more than one resource is eligible to receive an FLRR designation for a given FLRR Designation Year and the combined capacity of the resources is greater than the system flexibility and/or local reliability requirement, the CAISO will select the resource or resources to receive an FLRR designation, based on the following criteria in the order listed:

(1) The effectiveness of the capacity at meeting the identified system flexibility and/or local reliability requirement;

(2) The net costs of compensating the resource under this Section 44.6;

(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 operating characteristics of the resource;

(5) Whether the resource is subject to restrictions as a use-limited resource; and

(6) The effectiveness of the capacity in meeting other system conditions.

44.7 Proposed FLRR Designation

After the CAISO identifies the resource or resources it proposes to designate under the FLRR Mechanism, the CAISO will use the following process, in accordance with the schedule set forth in the Business Practice Manual:

(1) The CAISO will prepare and post a designation report on the CAISO Website that contains the following information:

(a) The system flexibility and/or local reliability requirement that is forecast to occur within the FLRR Forward Period based on the studies performed under Section 44.3;

(b) The eligibility of the identified resource or resources to receive an FLRR designation;

(c) The elements of the proposed designation, including the name of the resource or resources, the amount of capacity designated, an explanation why each resource was identified to receive a designation, the calculation and amount of the going-forward costs that will be compensated, and the beginning and end dates for the designation; and

(d) Such other information as the CAISO determines is appropriate.

(2) The CAISO will provide a market notice that it has reached a tentative decision to issue an FLRR designation, that the designation report is posted on the CAISO Website, and that stakeholders have an opportunity to submit written comments on the proposed designation or suggest alternatives to meet the identified system flexibility or local reliability requirement. The CAISO will also provide market notice of, and will conduct, a meeting or conference call with stakeholders to discuss the proposed designation and

any comments on the designation report and any suggested alternatives to the proposed designation.

(3) If the CAISO modifies its tentative designation, the CAISO will review the modified proposal with stakeholders in accordance with the process set forth in this Section 44.7(2).

(4) The CAISO will present its proposed designation to the Board of Governors for consideration and approval.

44.8 Issuance of Designation

If the Board of Governors approves the CAISO's proposed designation, the CAISO will contact the identified resource or resources to provide notice of the FLRR designation and obtain written confirmation that the resource owner accepts the FLRR designation. Resources receiving an FLRR designation must post security consistent with CAISO requirements to ensure that the CAISO and other Market Participants may recover any compensation paid for the FLRR designation if the resource retires during the FLRR Designation Year and must waive any right to seek a CPM risk of retirement designation for the year following the FLRR Designation Year.

44.9 Term of FLRR Designation

An FLRR designation under this Section 44 shall become effective upon approval by the ISO Board and shall terminate at midnight on December 31 of the FLRR Designation Year. Except for 2013, compensation will be based on the entire FLRR Designation Year, as described in Sections 44.11 and 44.12. The resource may request designation for an additional one-year term under Section 44.2.2.

44.10 Obligations of a Resource With an FLRR Designation

A resource with an FLRR designation must submit bids in response to all requests for offers of RA Capacity during the FLRR Designation Year for which the resource is eligible to bid. Failure to submit a bid in response to a request for offers for which the resource is eligible shall render the resource ineligible for compensation under Section 44.11 for the duration of the longest term of the contract that was the subject of the Request for Offers that the resource missed, except as provided in Section 44.2.1(5). A resource with an FLRR designation may participate in all aspects of the CAISO markets for which it is otherwise eligible, and is eligible for CPM designation under Section 43. Any resource receiving an FLRR

designation must forego taking any actions and submitting any filings that will enable the resource to retire during the FLRR Designation Year (except it may during the designation year submit a request for an FLRR designation for the next year) and must undertake all reasonable actions necessary to maintain its air permits and meet other regulatory requirements during the FLRR Designation Year.

44.11 Compensation for Resources With an FLRR Designation

As set forth in this Section 44.11, a resource with an FLRR designation will receive a payment that supplements its revenues from CAISO markets and capacity contracts such that the resource is provided recovery of its annual going-forward costs as approved by FERC, except for 2013 as provided in Section 44.2.2, and not to exceed the amount determined by the independent evaluator under Section 44.11.1.

44.11.1 Determination of Going-Forward Costs

The CAISO will retain an independent evaluator to evaluate financial information provided by the owner of the resource requesting an FLRR designation in order to establish the maximum going-forward costs for which the resource may receive compensation. A resource's going-forward costs shall be the sum of the following costs, as they are appropriately accrued on a pro rata basis for the FLRR Designation Year, as described in the Business Practice Manual:

(1) Annual labor costs for operations and maintenance;

(2) Administrative expenses for employees at the resource;

(3) Basic maintenance costs (excluding variable operations and maintenance costs included in Default Energy Bids or in negotiated variable costs of providing Ancillary Services);

(4) Variable costs (excluding variable operating costs included in the Default Energy Bids or in negotiated variable costs of providing Ancillary Services);

(5) Taxes, fees (including environmental permitting), and insurance;

(6) Short-term carrying changes for maintaining reasonable levels of inventories and spare parts;

(7) Basic corporate administrative and general expenses that are directly attributable to the resource;

(8) Major maintenance project costs, as amortized annually and not to exceed $2 million per year, for projects initiated during the FLRR Designation Year;

(9) Any interest on debt incurred prior to or during the FLRR Designation Year that could have been avoided by retirement of the unit;

(10) The annualized cost for the FLRR Designation Year of variable operating costs included in multi-year contracts for the resource, and

(11) Such other costs that the independent evaluator determines are costs that would not otherwise be incurred if the resource were retired.

The CAISO will accept the independent evaluator's determination of going-forward costs without modification. The resource owner will use the going-forward costs determined by the independent evaluator as part of the filing for FERC approval of the compensation amount and will not request approval of a higher amount.

44.11.2 Monthly FLRR Designation Payment

For each month of the FLRR Designation Year, a resource with an FLRR designation will be entitled to payment equivalent to one twelfth of the annual going-forward costs approved by FERC less (1) any monthly CPM or bilateral contractual capacity revenues and (2) 90 percent of monthly CAISO Net Market Revenues, subject to monthly and annual true-ups. In the event that the sum of 90 percent of CAISO Net Market Revenues and 100 percent of monthly CPM and bilateral contractual capacity revenues exceeds one twelfth of the annual going-forward costs, then the excess revenues will be included in the calculation of compensation under this Section for the remaining months in the FLRR designation. Payments will commence in the Trading Month following approval of the designation by the CAISO Board. For the months in the FLRR Designation Year prior to CAISO Board approval of the designation, the CAISO will defer the monthly FLRR payments and pay them on the next regularly scheduled monthly invoice for each deferred Trading Month following CAISO Board approval. If, in the final month of the designation, the sum of all calculated monthly payments for the FLRR Designation Year, as trued up, exceeds the annual going-forward costs for the FLRR Designation Year plus 10 percent of CAISO Net Market Revenues for the FLRR Designation Year, then the resource owner shall return the amount of the excess, with interest, to the CAISO. Interest will be calculated on the excess amount on a pro rata basis for each month in proportion to the monthly payments at the rate of interest calculated as set forth in Section 11.29.10.2. After the FERC decision approving the going-forward costs for the resource becomes final

and non-appealable, the CAISO will adjust all monthly payments to conform to the FERC-approved going-forward costs and will recover any excess payments previously made to the resource through the monthly true-up process or from the posted security if necessary. If the FERC decision is not final and non-appealable by the end of the FLRR Designation Year, the CAISO will retain the posted security in an amount equivalent to the difference between the amounts paid and the amounts to which the resource would be entitled under the FERC decision and will finally adjust the payments when the FERC decision becomes final and non-appealable.

44.11.3 Calculation of CAISO Net Market Revenues

The resource owner will report to the CAISO on a monthly basis the information necessary for the CAISO to determine bilateral contractual capacity revenues on the schedule specified in, and consistent with the requirements of, the applicable Business Practice Manual. The CAISO will not credit the resource for any market operations at a loss over a Trading Month. The CAISO will calculate variable operating costs (excluding variable operating costs for sales outside of the CAISO Balancing Authority Area that are not reflected in CAISO market Schedules) based on the resource's Default Energy Bid, costs for providing Ancillary Services that the resource negotiates with the independent entity responsible for establishing Default Energy Bids, and the CAISO's proxy cost calculations of minimum load and start-up costs. The Default Energy Bid costs used will be the costs under the Negotiated Default Energy Bid option if costs have been established under this option, otherwise, the costs under the Cost-Based Default Energy Bid option, will be used. The resource owner may negotiate a different minimum load or start-up cost with the independent entity responsible for establishing Default Energy Bids. In the absence of any negotiated default Ancillary Services bids, the CAISO will use a zero bid to calculate CAISO Net Market Revenues. The CAISO will use zero costs for providing RUC Capacity.

44.12 Allocation of FLRR Designation Payment Costs

For each month of the FLRR Designation Year, the CAISO shall allocate the costs of the FLRR payments to all Scheduling Coordinators for LSEs that serve Load in the TAC Area(s) in which the need for the FLRR designation arose based on the ratio of Metered Demand of each LSE represented by the Scheduling Coordinator in the TAC Area(s) to total Metered Demand in the TAC Area(s) as recorded in the CAISO Settlement system for the actual days during the Settlement month. If the resource receives

an FLRR designation for both a system flexibility requirement and a local reliability requirement, then the FLRR payments will be allocated to all TAC areas.

44.13 Termination of FLRR Designation

The FLRR designation, and the resource's obligations under the FLRR designation, cease at the end of the FLRR Designation Year. Any resource with an FLRR designation that retires during the FLRR Designation Year will forfeit all payments for the designation, past and future, and the resource will forfeit the posted security in an amount equal to the sum of payments made during the FLRR designation period with interest. If, during the term of an FLRR designation, the resource receives an RA contract for that year and the contract does not fully compensate the resource for its going-forward costs as determined under Section 44.11.1, the FLRR designation will not terminate but the compensation received under the contract will be netted against the FLRR compensation. If during the term of an FLRR designation, the resource receives an RA contract for the remainder of the designation year that provides compensation equal to or in excess of its going-forward costs determined under Section 44.11.1, the FLRR designation will terminate immediately upon the date the contract becomes effective.

*** * * ***

Appendix A

Master Definition Supplement

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CAISO Net Market Revenues – As used in Section 44, the revenues a resource receives from the CAISO for Energy, Ancillary Services, RUC Capacity, Flexible Ramping Constraint, and Bid Cost Recovery, minus variable operating costs.

*** * * ***

FLRR – Flexible Capacity and Local Reliability Resource Retention.

*** * * ***

FLRR Designation Year – The calendar year for which a resource requests an FLRR designation or for which the CAISO issues an FLRR designation to a resource, as applicable. Except for 2013, the FLRR Designation Year is the first calendar year after the calendar year in which the resource owner submits its request under Section 44.2.2.

*** * * ***

FLRR Forward Period – The period for which the CAISO will determine the system flexibility and local reliability requirements for purposes of the FLRR. The period begins on January 1 of the second calendar year after the requested FLRR Designation Year and ends on December 31 of the fourth calendar year after the requested FLRR Designation Year.

*** * * ***

FLRR Mechanism – The Flexible Capacity and Local Reliability Resource Retention Mechanism.

*** * * ***

Attachment B – Marked Tariff

Flexible Capacity and Local Reliability Resource Retention Amendment Filing

California Independent System Operator

Fifth Replacement FERC Electric Tariff

December 12, 2012

44. FLRR Mechanism

44.1 FLRR Expiration

The FLRR Mechanism in Section 44, as well as changes made to other Sections to implement the FLRR Mechanism, expire on the earlier of (i) midnight on February 28, 2018, or (ii) implementation of a multi-year forward capacity procurement obligation for flexible and local resources for all load serving entities within the CAISO Balancing Authority Area, and an FLRR designation has not been issued during 24 consecutive months after its implementation. FLRR designations in existence on the expiration date shall continue in effect and remain subject to the FLRR Mechanism, including the provisions concerning compensation, cost allocation and Settlement, until such time as the FLRR resources have been finally compensated for a designation received prior to the termination of the FLRR provisions, and the CAISO has finally allocated and recovered the costs associated with such FLRR compensation.

44.2 Designation Authority

The CAISO shall have the authority to issue an FLRR designation to compensate a resource that is at risk of retirement during the FLRR Designation Year and that the ISO forecasts will be needed for system flexibility or local reliability during any year within the FLRR Forward Period but not before the FLRR Forward Period, except in the case of a resource that has an FLRR designation at the time it submits a request for an FLRR designation under section 44.2.2.2. In the case of a resource that has an FLRR designation at the time it submits a request for an FLRR designation under section 44.2.2.2, the CAISO shall have the authority to issue an FLRR designation to compensate a resource that is at risk of retirement during the FLRR Designation Year and that the ISO forecasts will be needed for system flexibility or local reliability during the year following the FLRR Designation Year. In determining the system flexibility need, the ISO will consider multi-hour ramping, load-following , and regulation capabilities and any additional flexibility attributes as the ISO considers appropriate.

44.2.1 Eligibility for FLRR Designation

A resource is eligible for an FLRR designation if it meets the following criteria:

(1) At the time the owner of the resource submits a request for an FLRR designation, the resource is not under contract to provide all or a portion of its Capacity as RA Capacity, nor listed as RA Capacity in any LSE's annual Resource Adequacy Plan, for all or part of

the requested FLRR Designation Year or a subsequent year; except that, if the resource has a current FLRR designation and enters into a contract for partial RA capacity during the FLRR Designation Year for the following year, the resource may be eligible to receive a designation for the following year but must submit a request and meet the criteria in Section 44.2.1(2) through Section 44.2.1(6).

(2) CAISO technical assessments project that the resource will first be needed for system flexibility or for local reliability during any year within the FLRR Forward Period; or only in the case of a resource that has an FLRR designation at the time it submits a request for an FLRR designation under section 44.2.2.2, CAISO technical assessments project that the resource will first be needed for system flexibility or for local reliability during the year following the FLRR Designation Year;

(3) The resource is projected to be unable to recover its going-forward costs during the requested FLRR Designation Year, as calculated pursuant to Section 44.11.1, and it will retire during the requested FLRR Designation Year because it will be uneconomic for the resource to remain in service;

(4) No new resource or transmission facility is projected by the CAISO to be in operation by the start of the year in which the resource will be needed that will meet the identified flexible capacity or local reliability need;

(5) The resource either (i) submitted a conforming offer in at least one request for offers for RA Capacity, for which it was eligible, during the current calendar year for the requested FLRR Designation Year and was unsuccessful in obtaining an RA contract or (ii) provides sufficient justification why the CAISO should evaluate the resource for a designation even though it did not submit a conforming offer in response to an RA request for offer; and

(6) If the resource is an intertie resource, it is either dynamically scheduled or is a pseudo-tie resource.

44.2.2 Request for FLRR Designation

44.2.2.1 FLRR Designation Year 2013

The owner of a resource seeking an FLRR designation for FLRR Designation Year 2013 must submit the required notice and affidavit, including the supporting financial information and documentation, to the CAISO and DMM within 30 days of the effective date of this Section 44. For 2013, the ISO and independent evaluator engaged under Section 44.4 will conduct all eligibility studies, consistent with Section 44.4, in accordance with the schedule set forth in the Business Practice Manual. For resources receiving an FLRR designation for 2013, the CAISO will consider all going-forward costs and CAISO Net Market Revenues from the effective date of this Section 44 through December 31, 2013.

44.2.2.2 FLRR Designation Year 2014 and Subsequent Years

For each FLRR Designation Year after 2013, the owner of a resource seeking an FLRR designation must (a) submit notice to the CAISO and DMM, by November 1 of the calendar year before the requested FLRR Designation Year, that it intends to terminate the resource's PGA or remove the resource from PGA Schedule 1 before the end of the requested FLRR Designation Year and (b) request that the CAISO issue an FLRR designation for the requested FLRR Designation Year under this Section 44. The request must be accompanied by an affidavit of an executive officer of the company who has the legal authority to bind such entity, with the supporting financial information and documentation as set forth in in the Business Practice Manual, that attests to the following :

(1) The resource complies with the requirements in Section 44.2.1 (1), (3), (5), and (6) as applicable;

(2) The resource owner projects that the resource will be unable to recover its going-forward costs during the requested FLRR Designation Year, when calculated as set forth in Section 44.11.1, and that it will be uneconomic for the resource to remain in service through the requested FLRR Designation Year;

(3) The resource owner's decision to retire is definite unless the resource receives an FLRR designation;

(4) If the resource receives an FLRR designation, the owner of the resource commits that:

(a) it will provide to the ISO financial information regarding all revenues the resource receives during the FLRR Designation Year for capacity provided under bilateral contracts outside of CAISO Markets; and

(b) it will file with FERC, if the resource receives an FLRR designation, the resource's annual going-forward costs for the FLRR Designation Year (except as provided in Section 44.2.2.1, not to exceed the amount determined by the independent evaluator under Section 44.11.1.

44.2.3 Financial Information Requirement

The owner of the resource must submit with its request for an FLRR designation all of the supporting information and documentation required by Section 44.2.2 in order to receive the FLRR compensation for the full FLRR Designation Year. If all of the required financial information and documentation listed in the BPM is not provided with the request, the ISO's evaluation of the request and commencement of payment may be delayed, and penalties may be applied under ISO Tariff Section 37. In addition to the supporting information and documentation required by Section 44.2.2, the owner of a resource seeking an FLRR designation must make available to the DMM, the CAISO, and the independent evaluator engaged under Section 44.4 financial information regarding the expected going-forward costs and revenue streams for the resource pursuant to the applicable Business Practice Manual and any subsequent information or documentation requested by the DMM, the CAISO, or the independent evaluator.

44.3 Determination of Requirements in FLRR Forward Period

44.3.1 Determination of System Flexibility Requirements

In order to determine the advisory system flexibility requirements for the FLRR Forward Period, the CAISO will use the following process each year, in accordance with the schedule set forth in the Business Practice Manual:

(1) The CAISO will conduct fleet flexibility assessments each spring, considering the most recent CPUC standard planning assumptions used for the long term procurement plan process. For purposes of determining the advisory FLRR requirements, the CAISO may adjust the assumptions in the models and studies for load forecast, energy efficiency, and

demand response programs based on its own assessments and may perform additional studies as it deems necessary or appropriate.

(2) The CAISO will post the proposed assumptions for determining the advisory system flexibility requirements, including explanations of any material differences in key planning assumptions from the most recent CPUC long-term procurement plan process, and provide market notice that stakeholders have an opportunity to submit written comments on the assumptions. Following review of the comments, the CAISO will post any revisions to its assumptions. The CAISO will provide market notice of, and will conduct, a meeting or conference call with stakeholders to discuss the assumptions and comments.

(3) The CAISO will perform its studies and post a report detailing forecasted system flexibility requirements for the next five years. The CAISO will provide market notice that stakeholders have an opportunity to submit written comments on the report. Following review of the comments, the CAISO will post any revisions to its report. The CAISO will provide market notice of, and will conduct, a meeting or conference call with stakeholders to discuss the report and comments.

44.3.2 Determination of Advisory Local Reliability Requirements

In order to determine the advisory local reliability requirements for the FLRR Forward Period, the CAISO will use the following process each year, in accordance with the schedule set forth in the Business Practice Manual:

(1) The CAISO will use the model and base data consistent with that used for Local Capacity Technical Studies performed in accordance with Section 40.3. For purposes of determining the advisory FLRR requirements, the CAISO may adjust the assumptions in these models and studies for load forecast, energy efficiency, and demand response programs based on its own assessments, and may perform additional studies as it deems necessary or appropriate.

(2) The CAISO will post the proposed assumptions for determining the advisory local reliability requirements, including explanations of any material differences in key planning assumptions from the most recent ISO local capacity technical study, and provide market

notice that stakeholders have an opportunity to submit written comments on the assumptions. Following review of the comments, the CAISO will post any revisions to its assumptions. The CAISO will provide market notice of, and will conduct, a meeting or conference call with stakeholders to discuss the assumptions and comments.

(3) The CAISO will perform its studies and post a report detailing the advisory local reliability requirements for the next five years. The CAISO will provide market notice that stakeholders have an opportunity to submit written comments on the report. Following review of the comments, the CAISO will post any revisions to its report. The CAISO will provide market notice of, and will conduct, a meeting or conference call with stakeholders to discuss the report and comments.

44.4 Evaluation of FLRR Request

Upon receipt of a request for an FLRR designation, the CAISO will determine whether the resource is eligible to receive a designation under the criteria set forth in Section 44.2.1. A resource will be determined eligible for an FLRR designation based on the following assessment process:

(1) The CAISO will post the proposed assumptions that will be used for FLRR assessment to determine if the resource is needed for flexible or local capacity requirements under Sections 44.5 and 44.6 prior to receiving any requests for FLRR designations according to the schedule set forth in the Business Practice Manual and provide market notice that stakeholders have an opportunity to submit written comments on the assumptions. Following review of the comments, the CAISO will post any revisions to its assumptions. The CAISO will provide market notice of, and will conduct, a meeting or conference call with stakeholders to discuss the assumptions and comments.

(2) After receiving required information and documentation from a resource owner notifying the ISO that the resource is no longer economically viable and that the resource owner intends to retire the resource, the CAISO will engage an independent evaluator and provide such information and documentation to the independent evaluator;

(3) In accordance with the schedule in the Business Practice Manual, the independent evaluator will assess the economic viability of the resource and the CAISO will conduct

an assessment, to determine if the resource is needed for flexible or local capacity requirements under Sections 44.5 and 44.6.

(4) If the independent evaluator determines that the resource will not be economically viable and the CAISO determines the resource is needed for flexible or local reliability requirements under Section 44.5 or 44.6, then the resource will be deemed eligible for an FLRR designation.

(5) If a resource is deemed eligible for an FLRR designation, the independent evaluator will establish the going-forward costs for the resource in accordance with Section 44.11.1 and the Business Practice Manual.

44.5 Determination of FLRR Designation

The CAISO will determine whether the resource requesting an FLRR designation is necessary in order to meet the identified requirements for system flexibility or local reliability during the FLRR Forward Period, and not earlier than the FLRR Forward Period. The CAISO will determine if a resource is needed using the assumptions established in Sections 44.3.1 and 44.3.2 and the Business Practice Manual to evaluate the ISO's need for system flexibility and local reliability during the FLRR Forward Period using Applicable 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), absent the resource that seeks an FLRR designation, is able to supply the relevant system flexibility requirement or local requirement such that forecasted load, operating reserve, and ramping requirements for system energy, as discussed in the BPM, are addressed..

44.6 FLRR Designation Resource Selection

If the CAISO determines that more than one resource is eligible to receive an FLRR designation for a given FLRR Designation Year and the combined capacity of the resources is greater than the system flexibility and/or local reliability requirement, the CAISO will select the resource or resources to receive an FLRR designation, based on the following criteria in the order listed:

(1) The effectiveness of the capacity at meeting the identified system flexibility and/or local reliability requirement;

(2) The net costs of compensating the resource under this Section 44.6;

(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 operating characteristics of the resource;

(5) Whether the resource is subject to restrictions as a use-limited resource; and

(6) The effectiveness of the capacity in meeting other system conditions.

44.7 Proposed FLRR Designation

After the CAISO identifies the resource or resources it proposes to designate under the FLRR Mechanism, the CAISO will use the following process, in accordance with the schedule set forth in the Business Practice Manual:

(1) The CAISO will prepare and post a designation report on the CAISO Website that contains the following information:

(a) The system flexibility and/or local reliability requirement that is forecast to occur within the FLRR Forward Period based on the studies performed under Section 44.3;

(b) The eligibility of the identified resource or resources to receive an FLRR designation;

(c) The elements of the proposed designation, including the name of the resource or resources, the amount of capacity designated, an explanation why each resource was identified to receive a designation, the calculation and amount of the going-forward costs that will be compensated, and the beginning and end dates for the designation; and

(d) Such other information as the CAISO determines is appropriate.

(2) The CAISO will provide a market notice that it has reached a tentative decision to issue an FLRR designation, that the designation report is posted on the CAISO Website, and that stakeholders have an opportunity to submit written comments on the proposed designation or suggest alternatives to meet the identified system flexibility or local reliability requirement. The CAISO will also provide market notice of, and will conduct, a meeting or conference call with stakeholders to discuss the proposed designation and

any comments on the designation report and any suggested alternatives to the proposed designation.

(3) If the CAISO modifies its tentative designation, the CAISO will review the modified proposal with stakeholders in accordance with the process set forth in this Section 44.7(2).

(4) The CAISO will present its proposed designation to the Board of Governors for consideration and approval.

44.8 Issuance of Designation

If the Board of Governors approves the CAISO's proposed designation, the CAISO will contact the identified resource or resources to provide notice of the FLRR designation and obtain written confirmation that the resource owner accepts the FLRR designation. Resources receiving an FLRR designation must post security consistent with CAISO requirements to ensure that the CAISO and other Market Participants may recover any compensation paid for the FLRR designation if the resource retires during the FLRR Designation Year and must waive any right to seek a CPM risk of retirement designation for the year following the FLRR Designation Year.

44.9 Term of FLRR Designation

An FLRR designation under this Section 44 shall become effective upon approval by the ISO Board and shall terminate at midnight on December 31 of the FLRR Designation Year. Except for 2013, compensation will be based on the entire FLRR Designation Year, as described in Sections 44.11 and 44.12. The resource may request designation for an additional one-year term under Section 44.2.2.

44.10 Obligations of a Resource With an FLRR Designation

A resource with an FLRR designation must submit bids in response to all requests for offers of RA Capacity during the FLRR Designation Year for which the resource is eligible to bid. Failure to submit a bid in response to a request for offers for which the resource is eligible shall render the resource ineligible for compensation under Section 44.11 for the duration of the longest term of the contract that was the subject of the Request for Offers that the resource missed, except as provided in Section 44.2.1(5). A resource with an FLRR designation may participate in all aspects of the CAISO markets for which it is otherwise eligible, and is eligible for CPM designation under Section 43. Any resource receiving an FLRR

designation must forego taking any actions and submitting any filings that will enable the resource to retire during the FLRR Designation Year (except it may during the designation year submit a request for an FLRR designation for the next year) and must undertake all reasonable actions necessary to maintain its air permits and meet other regulatory requirements during the FLRR Designation Year.

44.11 Compensation for Resources With an FLRR Designation

As set forth in this Section 44.11, a resource with an FLRR designation will receive a payment that supplements its revenues from CAISO markets and capacity contracts such that the resource is provided recovery of its annual going-forward costs as approved by FERC, except for 2013 as provided in Section 44.2.2, and not to exceed the amount determined by the independent evaluator under Section 44.11.1.

44.11.1 Determination of Going-Forward Costs

The CAISO will retain an independent evaluator to evaluate financial information provided by the owner of the resource requesting an FLRR designation in order to establish the maximum going-forward costs for which the resource may receive compensation. A resource's going-forward costs shall be the sum of the following costs, as they are appropriately accrued on a pro rata basis for the FLRR Designation Year, as described in the Business Practice Manual:

(1) Annual labor costs for operations and maintenance;

(2) Administrative expenses for employees at the resource;

(3) Basic maintenance costs (excluding variable operations and maintenance costs included in Default Energy Bids or in negotiated variable costs of providing Ancillary Services);

(4) Variable costs (excluding variable operating costs included in the Default Energy Bids or in negotiated variable costs of providing Ancillary Services);

(5) Taxes, fees (including environmental permitting), and insurance;

(6) Short-term carrying changes for maintaining reasonable levels of inventories and spare parts;

(7) Basic corporate administrative and general expenses that are directly attributable to the resource;

(8) Major maintenance project costs, as amortized annually and not to exceed $2 million per year, for projects initiated during the FLRR Designation Year;

(9) Any interest on debt incurred prior to or during the FLRR Designation Year that could have been avoided by retirement of the unit;

(10) The annualized cost for the FLRR Designation Year of variable operating costs included in multi-year contracts for the resource, and

(11) Such other costs that the independent evaluator determines are costs that would not otherwise be incurred if the resource were retired.

The CAISO will accept the independent evaluator's determination of going-forward costs without modification. The resource owner will use the going-forward costs determined by the independent evaluator as part of the filing for FERC approval of the compensation amount and will not request approval of a higher amount.

44.11.2 Monthly FLRR Designation Payment

For each month of the FLRR Designation Year, a resource with an FLRR designation will be entitled to payment equivalent to one twelfth of the annual going-forward costs approved by FERC less (1) any monthly CPM or bilateral contractual capacity revenues and (2) 90 percent of monthly CAISO Net Market Revenues, subject to monthly and annual true-ups. In the event that the sum of 90 percent of CAISO Net Market Revenues and 100 percent of monthly CPM and bilateral contractual capacity revenues exceeds one twelfth of the annual going-forward costs, then the excess revenues will be included in the calculation of compensation under this Section for the remaining months in the FLRR designation. Payments will commence in the Trading Month following approval of the designation by the CAISO Board. For the months in the FLRR Designation Year prior to CAISO Board approval of the designation, the CAISO will defer the monthly FLRR payments and pay them on the next regularly scheduled monthly invoice for each deferred Trading Month following CAISO Board approval. If, in the final month of the designation, the sum of all calculated monthly payments for the FLRR Designation Year, as trued up, exceeds the annual going-forward costs for the FLRR Designation Year plus 10 percent of CAISO Net Market Revenues for the FLRR Designation Year, then the resource owner shall return the amount of the excess, with interest, to the CAISO. Interest will be calculated on the excess amount on a pro rata basis for each month in proportion to the monthly payments at the rate of interest calculated as set forth in Section 11.29.10.2. After the FERC decision approving the going-forward costs for the resource becomes final

and non-appealable, the CAISO will adjust all monthly payments to conform to the FERC-approved going-forward costs and will recover any excess payments previously made to the resource through the monthly true-up process or from the posted security if necessary. If the FERC decision is not final and non-appealable by the end of the FLRR Designation Year, the CAISO will retain the posted security in an amount equivalent to the difference between the amounts paid and the amounts to which the resource would be entitled under the FERC decision and will finally adjust the payments when the FERC decision becomes final and non-appealable.

44.11.3 Calculation of CAISO Net Market Revenues

The resource owner will report to the CAISO on a monthly basis the information necessary for the CAISO to determine bilateral contractual capacity revenues on the schedule specified in, and consistent with the requirements of, the applicable Business Practice Manual. The CAISO will not credit the resource for any market operations at a loss over a Trading Month. The CAISO will calculate variable operating costs (excluding variable operating costs for sales outside of the CAISO Balancing Authority Area that are not reflected in CAISO market Schedules) based on the resource's Default Energy Bid, costs for providing Ancillary Services that the resource negotiates with the independent entity responsible for establishing Default Energy Bids, and the CAISO's proxy cost calculations of minimum load and start-up costs. The Default Energy Bid costs used will be the costs under the Negotiated Default Energy Bid option if costs have been established under this option, otherwise, the costs under the Cost-Based Default Energy Bid option, will be used. The resource owner may negotiate a different minimum load or start-up cost with the independent entity responsible for establishing Default Energy Bids. In the absence of any negotiated default Ancillary Services bids, the CAISO will use a zero bid to calculate CAISO Net Market Revenues. The CAISO will use zero costs for providing RUC Capacity.

44.12 Allocation of FLRR Designation Payment Costs

For each month of the FLRR Designation Year, the CAISO shall allocate the costs of the FLRR payments to all Scheduling Coordinators for LSEs that serve Load in the TAC Area(s) in which the need for the FLRR designation arose based on the ratio of Metered Demand of each LSE represented by the Scheduling Coordinator in the TAC Area(s) to total Metered Demand in the TAC Area(s) as recorded in the CAISO Settlement system for the actual days during the Settlement month. If the resource receives

an FLRR designation for both a system flexibility requirement and a local reliability requirement, then the FLRR payments will be allocated to all TAC areas.

44.13 Termination of FLRR Designation

The FLRR designation, and the resource's obligations under the FLRR designation, cease at the end of the FLRR Designation Year. Any resource with an FLRR designation that retires during the FLRR Designation Year will forfeit all payments for the designation, past and future, and the resource will forfeit the posted security in an amount equal to the sum of payments made during the FLRR designation period with interest. If, during the term of an FLRR designation, the resource receives an RA contract for that year and the contract does not fully compensate the resource for its going-forward costs as determined under Section 44.11.1, the FLRR designation will not terminate but the compensation received under the contract will be netted against the FLRR compensation. If during the term of an FLRR designation, the resource receives an RA contract for the remainder of the designation year that provides compensation equal to or in excess of its going-forward costs determined under Section 44.11.1, the FLRR designation will terminate immediately upon the date the contract becomes effective.

* * * *

Appendix A

Master Definition Supplement

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CAISO Net Market Revenues – As used in Section 44, the revenues a resource receives from the CAISO for Energy, Ancillary Services, RUC Capacity, Flexible Ramping Constraint, and Bid Cost Recovery, minus variable operating costs.

* * * *

FLRR – Flexible Capacity and Local Reliability Resource Retention.

* * * *

FLRR Designation Year – The calendar year for which a resource requests an FLRR designation or for which the CAISO issues an FLRR designation to a resource, as applicable. Except for 2013, the FLRR Designation Year is the first calendar year after the calendar year in which the resource owner submits its request under Section 44.2.2.

* * * *

FLRR Forward Period – The period for which the CAISO will determine the system flexibility and local reliability requirements for purposes of the FLRR. The period begins on January 1 of the second calendar year after the requested FLRR Designation Year and ends on December 31 of the fourth calendar year after the requested FLRR Designation Year.

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FLRR Mechanism – The Flexible Capacity and Local Reliability Resource Retention Mechanism.

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Attachment C – 2013 Flexible Capacity Procurement Requirement – Supplemental Information to Proposal, March 2, 2012

Flexible Capacity and Local Reliability Resource Retention Amendment Filing

California Independent System Operator

Fifth Replacement FERC Electric Tariff

December 12, 2012

2013 Flexible Capacity Procurement Requirement

Supplemental Information to Proposal

March 2, 2012

Prepared by: Market and Infrastructure Policy
California Independent System Operator

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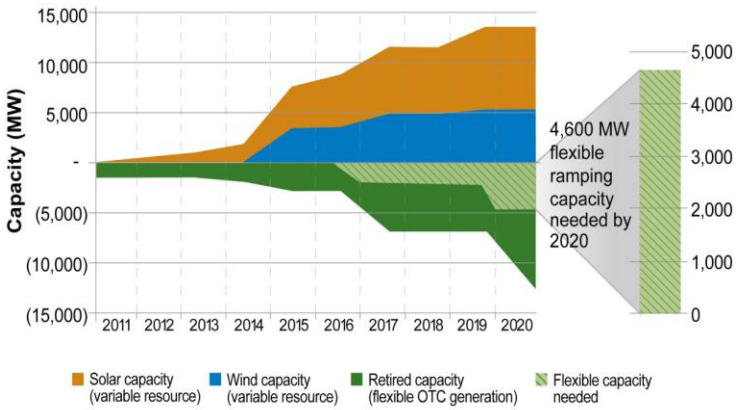
1.0 Executive Summary

California's electric system is undergoing one of its most significant transformations ever. In an effort to drive California toward a cleaner, greener and more diverse energy supply portfolio, policy makers have enacted some of the strictest and time-aggressive environmental regulations in the country. California is simultaneously implementing a renewables portfolio standard, which requires that 33 percent of retail energy sales be met by eligible renewable energy by 2020, while simultaneously eliminating the use of once-through cooling technology at coastal power plants, causing the potential retirement of 12,079 megawatts of generation, or 21 percent of California's installed generation capacity, over the next eight years.[1] The ISO anticipates that retirement of once-through cooled resources will create a capacity gap of more than 3,500 megawatts needed to serve load in the ISO's balancing authority area as early as the end of 2017, and the ISO projects this capacity gap to grow to 4,600 megawatts by 2020. The ISO's analyses identifying this capacity gap take into account new capacity additions, most of which will be variable energy resources. The 4,600 megawatt deficiency by 2020 also assumes that the 535 megawatt Sutter Energy Center, which is currently at risk of retirement, is part of the supply fleet.



California is also pursuing the development of 12,000 megawatts of distributed generation resources, which are relatively small-scale and largely inflexible resources connected to utility distribution systems and located close to load. Distributed generation is another component of California's strategy for diversifying and increasing the share of renewable resource electricity production in the state. Even though increased levels of distributed generation may decrease system peaks, it may also increase load variability on the grid, potentially adding to the overall energy variability of the grid.

As the system operator for a majority of the state, the ISO is responsible for maintaining grid reliability and doing so in a cost-effective manner, particularly in light of the significant transformation that the electricity grid is undergoing. Nothing, however, could undermine the state's environmental policy goals more quickly than reliability issues or significant consumer cost impacts. Planning for the availability of flexible resources, which are those resources that can respond to ISO dispatch instructions, can help avoid reliability and cost impacts in the near future.

[1] Installed net dependable capacity in the ISO balancing authority area in January 2012 was 58,458 MW.

Given the impending challenges of this transformation, the ISO has identified several concerns that underlay the need for securing sufficient flexible capacity to respond to the changing grid conditions and to propose a flexible capacity requirement beginning in 2013. These concerns are:

1. The once-through-cooling policy will reduce the number of flexible resources.

   California's State Water Resources Control Board has promulgated a rule that eliminates most once-through-cooled resources by the end of 2020. As a result, 12,079 megawatts of flexible generation resources are impacted and could retire as early as the end of 2017.

2. Intermittent resource additions will quickly displace flexible capacity in meeting resource adequacy obligations.

   Without timely modification to the Commission's resource adequacy program, inflexible and variable resources will displace resource adequacy capacity sourced from traditional flexible resources that have historically satisfied the CPUC's resource adequacy capacity requirements. Unlike most conventional resources, many renewable resources operate on intermittent fuel supplies, such as sunshine and wind, and are incapable of responding to ISO dispatch instructions and needs.

3. Flexible resources will retire prematurely due to revenue insufficiency unless enhancements are made to the resource adequacy program.

   ISO studies show that intermittent resources increase supply variability and decrease supply predictability, which require greater readiness and response from flexible generation. These studies also demonstrate that increases in the penetration of renewable resources will result in decreasing energy market revenues for traditional, flexible generation as more energy is provided by renewable generation. Moreover, the traditional, flexible generation resources will be cycled more frequently, causing greater wear and tear and increasing operating costs.

Any parameters for flexibility must support ISO operational needs and align with the existing market structure and resource adequacy construct. Consistent with these objectives, the ISO has determined that appropriate, durable parameters for assessing flexibility are these three operational attributes:

- Maximum continuous ramping --

  Maximum continuous ramping is the megawatt amount by which the net load (load minus wind and solar) is expected to change in either an upward or a downward direction continuously in a given month.

- Load following --

  Load following is the ramping capability of a resource to match the maximum megawatts by which the net load is expected to change in either an upward or a downward direction in a given hour for the relevant resource adequacy compliance month.

- Regulation --

  Regulation is the capability of a generating unit to automatically respond during the intra-dispatch interval to the ISO's four-second automatic generation control signal to adjust its output to maintain system frequency and tie line load with neighboring balancing area authorities.

These three categories represent the operational flexibility attributes needed by the ISO and can be applied on a resource-by-resource basis to assess the amount of flexible capacity each resource can provide. To determine the total amount of capacity needed of each of these three categories for 2013, the ISO based the requirements on an historical analysis of the 2011 changes in net load for durations relevant to the three categories of flexible capacity. A comparative analysis of the net load changes for the years 2006 and 2010, and a comparison of the three flexible capacity categories across the years 2006, 2010 and 2011 can be found in Appendix A.

The table below lists the proposed 2013 resource adequacy requirements for each of the three flexible capacity categories by month for the ISO balancing authority area. The maximum continuous ramping capacity is based on the duration of the continuous upward ramp for each month. For the regulation requirement, the values are shown only for informational purposes. Although the table shows the approximate regulation requirement based on analysis of the 1-minute change in net load within any 5-minute interval, the ISO recommends that a regulation requirement not be set in 2013, but be evaluated for use in 2014 and beyond based on additional information provided by the implementation of regulation pay-for-performance metrics.

2011							
Monthly System Requirements	Maximum Continuous Ramp			60-Minute Load Following Requirement		Regulation Requirement	
	Capacity (MW)	Ramp Rate (MW/min.)	Duration (Hr.)	60-min Capacity (MW)	Ramp Rate (MW/min.)	5-minute Capacity (MW)	Ramp Rate (MW/min.)
January	8,133	32.7	4.2	3,935	66	664	132.8
February	6,982	32.8	3.6	3,630	60	656	131.3
March	5,453	26	3.4	3,271	55	1,020	204.0
April	8,859	20	7.4	2,897	48	544	108.7
May	8,000	22	6.0	2,951	49	678	135.7
June	11,382	32	5.9	2,637	44	637	127.5
July	13,544	23	9.8	3,137	52	840	167.9
August	18,181	27	11.1	2,933	49	686	137.1
September	17,824	34	8.7	3,004	50	634	126.8
October	9,510	20	7.8	3,514	59	635	126.9
November	7,855	22	5.9	3,746	62	1,351	270.2
December	7,577	29	4.3	4,506	75	668	133.7

The ISO proposes that flexible capacity requirements be established for each month of the year. Establishing the requirements monthly will recognize that the amounts of flexible capacity needed differ month to month. The inventory of traditional flexible capacity resources that can provide maximum continuous ramping and load following capacity, as demonstrated in this report, should provide sufficient procurement headroom in 2013 to avoid any market power concerns with meeting these requirements.

The implementation of a flexible capacity procurement requirement for compliance year 2013 requires CPUC action in this proceeding to modify the resource adequacy program and FERC approval of the tariff amendments that result from the ISO stakeholder process on flexible capacity procurement. It is critical that we take action this year to put these requirements in place to ensure the resource adequacy fleet can continue to meet the reliability needs of the system for 2013 and beyond. Doing so will also mitigate the need for the ISO to engage in backstop procurement of flexible generation capacity should load-serving entities fail to procure sufficient flexible capacity on their own.

The ISO has put forth a reasonable, needs-based proposal for 2013 to begin refining the CPUC's resource adequacy program to incorporate flexible capacity. The ISO looks forward to working collaboratively with the CPUC, other local regulatory authorities and stakeholders to preserve sufficient flexible resources that can satisfy the maximum continuous ramping and load following capabilities for 2013 while preparing the way for the 33 percent renewables portfolio standard and the possible retirement of 12,079 megawatts of flexible capacity once-through-cooled resources.

2.0 What is flexible capacity?

2.1 What is resource flexibility?

The first step in determining a resource's flexible capacity is to assess its operational flexibility, which is the resource's ability to respond to ISO dispatch instructions. The degree of flexibility each resource has is determined by:

- How fast the resource can ramp up or down;
- How long the resource can sustain an upward or downward ramp;
- How quickly the resource can change its ramp direction;
- How far the resource can reduce output and not encounter emission limitations;
- How quickly the resource can start; and
- How frequently the resource can be cycled on and off.

A resource's degree of flexibility is largely qualitative; a resource's flexibility at any particular time can vary depending on the status of that resource (e.g., on-line or off-line) or other operating parameters (e.g., current MW output or operating range).

Given the essential, yet qualitative nature of flexibility, the ISO must set parameters to reasonably assess a resource's flexibility. Any parameters for flexibility must support ISO

operational needs and align with the existing market structure and resource adequacy construct. Consistent with these objectives, the ISO determined that the appropriate parameters for assessing flexibility are these three operational attributes:

- Maximum continuous ramping;
- Load following; and
- Regulation.

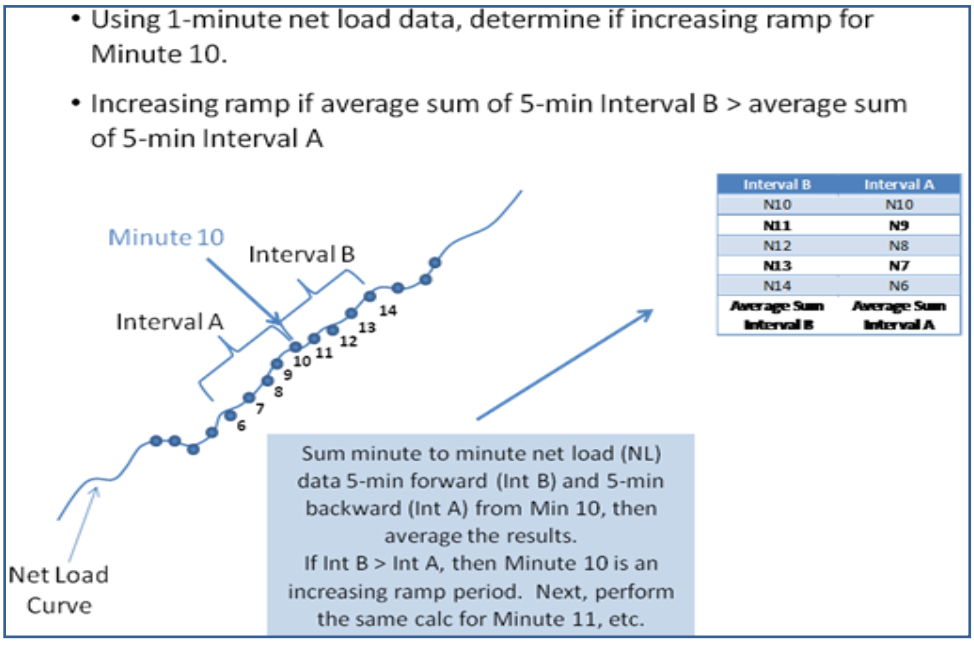
These three categories represent the operational flexibility needed by the ISO and can be applied on a resource-by-resource basis to assess the amount of flexible capacity each resource can provide.

2.2 What are the characteristics of each of the three categories of flexible capacity: maximum continuous ramping, load following and regulation?

2.2.1 *What is maximum continuous ramping?*

Maximum continuous ramping is the megawatt amount the net load (load minus wind and solar) is expected to change in either an upward or a downward direction continuously in a given month. As illustrated below in Figure 1, the maximum continuous upward ramp is determined by a moving five-minute window and taking the sum of the net load for each minute within a five-minute interval. As long as the sum of a subsequent five-minute interval is greater than the sum of the previous five-minute interval, the ramp is increasing. The maximum continuous ramping capacity requirement will ensure that there is sufficient ramping capacity to meet the ISO's largest continuous net load ramp for a particular month. Maximum continuous ramping capacity is expressed in megawatts.

Figure 1: Calculating the Continuous Ramp Value



For 2011, the maximum continuous upward-load ramp occurred in August and reached 18,181 megawatts over approximately 11 hours. Based on this experience, resources that can start and reach their net qualifying capacity (NQC) within 11 hours would meet the maximum ramping requirement for August 2013. The maximum ramping capacity in August for a long start unit that requires a start time greater than 11 hours would be its NQC minus Pmin (the minimum normal capability of a generating unit), assuming that this value is less than the unit's ramp rate multiplied by 11 hours. A resource's maximum continuous ramp capacity can be calculated as follows:

- Maximum Continuous Ramping
  - For resources that have a startup time ≥ longest ramp duration:
    - min((NQC-Pmin),ramp duration*RRavg)
  - For resources that have a startup time < longest ramp duration:
    - min(Pmin+(longest ramp duration--SUT)*RRavg, NQC)

    Where:

    SUT is the start-up time; and

    RRavg is the weighted average ramp-rate. The weighted is based on the MW size of a resources ramp-rate segment.

For resources that can start in less time than the monthly continuous ramp duration, Pmin can also count toward meeting the maximum continuous ramping requirement.[2] While the ISO encourages all dispatchable capacity to bid into the ISO's real-time market, a portion of the maximum continuous ramp may be met by flexible resources that are ramping from one self-schedule to another. For 2013, the ISO would not prohibit resources contributing to the maximum continuous ramp from self-scheduling. For 2014 and beyond, the ISO will reevaluate self-scheduling rules.

2.2.2 *What is load following?*

Load following is the ramping capability of a resource to match the maximum megawatts by which the net load is expected to change in either an upward or a downward direction in a given hour for the relevant resource adequacy compliance month. The ISO is proposing a 1-hour timeframe for this category to ensure that enough unloaded capacity with a defined ramping capability is available to be dispatched on a five-minute basis through the ISO real-time dispatch market application.

To determine the load-following capacity of a resource, the resource must have a ramping capability greater than the ramping capability of resources meeting the continuous ramp criteria.

[2] See Table 3 for a list of the monthly duration periods.

Load following capacity is calculated as follows:

For resources with a start-up time ≥60 minutes:

- min((NQC-Pmin),60min*RRavg)

For resources with a start-up time < 60 minutes:

- min(Pmin+(60-SUT)*RRavg, NQC)

Where:

SUT is the start-up time; and

RRavg is the weighted average ramp-rate. The weighted is based on the MW size of a resources ramp-rate segment.

2.2.3 *What is regulation?*

Regulation is the capability of a generating unit to automatically respond during an intra-dispatch interval to the ISO's four-second automatic generation control signal to adjust its output to maintain system frequency and tie line load with neighboring balancing area authorities.

Only resources that are certified to provide regulation by the ISO will be eligible to satisfy the regulation flexible capacity requirement. To determine the regulation capacity requirement of a resource, the ISO will look at the weighted average ramp rate of the unit over the range for which it can provide regulation. The regulation flexible capacity requirement is satisfied if the sum of the five-minute capacity with a defined ramp rate from all resource adequacy regulation resources exceeds the maximum five-minute change of the net load for each month. The regulation requirement is expressed as a megawatt per minute value.

For 2013, the ISO proposes not to set a minimum regulation requirement. The risk of insufficient regulation capacity in 2013 is low and all regulation-certified resource adequacy resources are obligated to make their regulation service available to the ISO.

The following table summarizes the characteristics of the three types of flexible capacity.

Table 1: ISO Proposed Flexible Capacity Requirement Categories

Maximum Continuous Ramp	Load Following	Regulation
Maximum Capacity (MW): Maximum Continuous Upward Net Load Ramp for the Month **Ramp Rate (MW/min):** Maximum Capacity/Ramp Duration	**Capacity (MW):** Maximum 1-hour upward Change in Net Load **Ramp Rate (MW/min):** Maximum Capacity Change in 1-hour/60	**Capacity (MW):** Maximum 5-minute Change in Net Load **Ramp Rate (MW/min):** Maximum 5-minute Change in Net Load/5
Requirement is determined by largest continuous ramping period in the relevant month.	Requirement is the 1-hour capacity need and the 60-minute ramping capability need in the relevant month.	Requirement is the need for 5-minute capacity expressed as a MW/min ramp rate in the relevant month.
Unit must respond to ISO dispatch instructions. Renewable generation and base load units are not eligible to provide this capacity.	Unit must respond to ISO dispatch instructions.	Units must be regulation certified.
Each resource's contribution is ramping capacity over the time period: • NQC – Pmin if the unit cannot start within the maximum continuous ramping period. • NQC if the unit starts and reaches NQC during the maximum continuous ramping period.	Each resource's contribution is the minimum of: • NQC - Pmin • Ramp Rate(/minute) * 60 minutes • Ramp Rate based on the MW weighted average ramp-rate of the resource for a resource with different ramp-rates for different operating ranges (i.e., use the megawatt size of the operating zone to weight the ramp rate for that zone).	Each resource's contribution is: • Ramp rate based on the MW weighted average ramp rate of the resource for the operating ranges where it can provide regulation. • No regulation requirement set for 2013.

2.3 Does flexibility include upward and downward ramping capability?

Yes, flexibility is characterized by – (i) a resource's ability to move both up and down, to produce or curtail energy, (ii) a demand resource's ability to consume or curtail energy, and (iii) a storage device's ability to charge or discharge – based on an ISO dispatch instruction or automatic generation control signal.

For 2013, the ISO will not separately require downward ramp capability, but will assume that any resource that counts for flexible capacity can ramp up and down. In subsequent years, both upward and downward ramping needs will be considered. For example,

regulation up and down are separate ancillary services, so sufficient regulation would need to be available in both directions as flexible capacity. This will be further discussed and developed by the ISO for 2014 and beyond.

2.4 Is needed flexibility provided by resources participating in the market?

No. The ISO is concerned that, without a flexible capacity requirement, the resources participating in the market may provide some level of flexibility, but it may not be sufficient to meet the ISO's reliability needs. As an extreme example, if all resource adequacy capacity were either base load, intermittent, or fully self-scheduled, the current resource adequacy requirement would be met, but there would be no flexible capacity available to operate the grid under normal conditions. While the ISO expects flexibility from the fleet of resource adequacy resources, hoping that sufficient flexibility is provided based on market participation alone is not a sound strategy. The risk of a shortage moving into the future is unacceptably high without an express requirement.

3.0 Why is a flexible capacity requirement needed in 2013?

Adopting a flexible capacity requirement for the 2013 resource adequacy program will ensure that the ISO has sufficient flexible capacity available in 2013 and beyond to manage current and incremental operation needs as more intermittent resources come on-line over 2012-2013 period. Establishing these requirements now for 2013 will allow us to gain experience and make refinements to the requirements in subsequent years so that the program is robust and well established in the 2015-2017 timeframe when we will have even higher penetrations of renewable resources and once-through-cooled generation retirements underway. Finally, having these requirements in place beginning in 2013 will mitigate the need for the ISO having to resort to ISO backstop procurement to address flexibility deficiencies in the resource adequacy fleet.

The CPUC's resource adequacy program imposes local and system resource adequacy procurement obligations on its jurisdictional load-serving entities for each month in the resource adequacy compliance year. To date, the Commission has not imposed an obligation on those load-serving entities to procure resources with specific operational characteristics. Load-serving entities are not required to demonstrate that they have procured capacity with specific operational characteristics in their year-ahead or month-ahead resource adequacy showings. Accordingly, the characteristics of the resource adequacy fleet available to reliably operate the grid during the compliance period may or may not meet the operational flexibility required by system conditions, especially in light of the grid transformation occurring over the next few years.

Going forward, the prudent course is for the ISO and CPUC to begin the challenging transition to the new supply paradigm, which means operating with a more variable and less predictable supply fleet. We must start this transition now by establishing and refining rules that will ensure reliability for the very near future. Any decision to avoid or delay a timely

transition is untenable and only shortens the limited time we have to "get it right." In the end, the risks of doing nothing versus doing something are asymmetric. Securing too little flexible capacity in 2013 may not be correctable until several years later given the time to re-commercialize retired resources or build new ones. Since over the next few years the need for flexible capacity will continue to grow with the addition of new renewable resources and, as existing once-through-cooled plants retire, the situation will worsen before it will improve. Specifically, the ISO is concerned about the following three issues:

1. The once-through-cooling policy will reduce the number of flexible resources;
2. Intermittent resource additions will quickly displace flexible capacity in meeting resource adequacy obligations; and
3. Flexible resources will retire prematurely due to revenue insufficiency unless there are enhancements to the resource adequacy program.

3.1 The once-through-cooling water policy reduces fleet flexibility.

In 2010, the State Water Resources Control Board adopted a rule to reduce the effects associated with cooling water intake structures on marine and estuarine life.[3] According to the California Energy Commission, the once-through-cooling rule and the emission offsets for new fossil power plants "are two of the most important challenges facing the electricity generating industry."[4]

Implementation of the once-through-cooling rule makes grid planning more challenging. The rule affects sixteen power plants within the ISO grid, which to comply, must retrofit, repower or retire. About 17,500 megawatts of generation are subject to the once-through-cooling policy, which has phased-in levels of compliance through 2024. Over the next six to eight years, the ISO anticipates that 12,079 megawatts of the 17,500 megawatts of once-through-cooled flexible generating units will retire absent long-term power purchase agreements that make it financially feasible to repower or retrofit the resources. The ISO's core concern around the rule is well expressed by the California Energy Commission in its recently published 2011 Integrated Energy Policy Report:

> To reduce impacts [of the OTC rule], many of the owners of California's aging power plants are choosing to retire rather than make capital investments in the facility, causing a need for new capacity to satisfy peak demand and appropriate reserves. However, licensing new power plants is difficult, given the scarcity and corresponding cost of offsets required to avoid harmful impacts on air quality. Even repowering at the site of an aging power plant has its challenges. So, while policies to reduce the use of OTC are increasing the demand for new power plants, air quality constraints are restricting the development of fossil fuel power plants. This complexity is especially apparent in those areas of the state where existing air quality fails to satisfy ambient standards. The South Coast Air Basin, for example, is experiencing the full effects of these opposing forces. To satisfy local capacity

[3] http://www.waterboards.ca.gov/water_issues/programs/ocean/cwa316/index.shtml

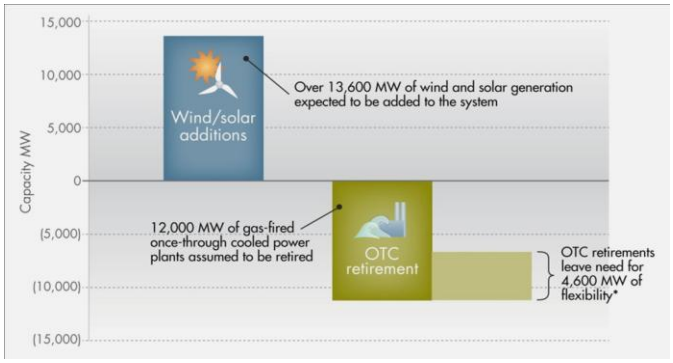
[4] California Energy Commission Integrated Energy Policy Report, January 2012, at pg. 112.

> requirements (LCR) and help integrate variable renewable generation, the region will have to replace some of its older capacity with dispatchable, flexible fossil power plants when existing OTC power plants retire.[5]
>
> …
>
> Most owners of California's plants that use once-through cooling would prefer to repower them, according to implementation plans submitted in April 2011, but no owners indicated willingness to make the necessary investment without a long term power purchase agreement. Similarly, plant owners say they would need long-term power purchase agreements to finance refitting their existing plants with alternative cooling technologies. Retirement of these plants will increase the need for new generating capacity to satisfy peak electricity demands and maintain appropriate reserves. [6]

Without any assurance that a portion of these resources will be replaced, the ISO, together with the CPUC and other local regulatory authorities, must ensure that a robust and effective procurement framework is in place to ensure sufficient flexible capacity is available.

3.2 New intermittent resources risk displacement of flexible capacity resources.

The 33 percent renewables portfolio standard is a floor, not a ceiling on mandated energy deliveries from renewable resources. Over the next six to eight years, the ISO anticipates the addition of 13,600 megawatts of new wind and solar resources and the retirement of 12,079 megawatts of once-through-cooled flexible generation resources.



Along with these additions and retirements, substantial amounts of renewable distributed generation resources are being developed as relatively small-scale and largely inflexible resources connected to utility distribution systems and located close to load. Distributed generation is a key component of California's strategy for increasing the share of renewable resource electricity production in the state. The state has adopted a goal of 12,000 MW of distributed generation by 2020.

Load-serving entities want their distributed generation procurement to count toward resource adequacy requirements. Since a majority of the distributed resources built will be inflexible photovoltaics, if counted as resource adequacy capacity, these will displace flexible resources under the CPUC current resource adequacy program.

The ISO's fundamental concern is that new intermittent and distributed resources will displace existing flexible dispatchable capacity that currently satisfies a portion of the 115

[5] California Energy Commission Integrated Energy Policy Report, January 2012, at p. 112.

[6] Id. at p. 3.

percent local and system resource adequacy capacity requirement. Without sufficient flexible resources in the fleet, the ISO will be unable to reliably operate the grid. The ISO proposal is to set a flexible capacity requirement for 2013 that ensures a reasonable amount of ramping capability exists and prevents the degradation of flexible capacity. For these reasons, the ISO strongly believes that refinements to preserve flexible capacity resources must be determined in this phase of the CPUC's resource adequacy proceeding.

3.3 Retirements threaten fleet flexibility

Renewable resources will offset energy sales from conventional flexible resources. Table 2 below demonstrates this fact *even* at the 20 percent renewables portfolio standard achievement level. As dependence on conventional, flexible generation increases to balance swings in load net of variable generation, capacity and energy revenues will decrease. Diminished energy sales from conventional flexible resources increase the probability of their retirement.

Table 2: 20% RPS Flexible Capacity Impacts Relative to the 2012 Reference Case[7]

	Combined Cycle	Simple Cycle	Gas Fired Steam Turbine
Number of starts	35 %	-21 %	-22 %
On-peak Energy (MWh)	-11 %	-39 %	-29 %
Off-peak Energy (MWh)	-16 %	-33 %	-18 %
Revenue ($,000)	-16 %	-39 %	-29 %

Thus, the Commission's resource adequacy program, and the programs of other local regulatory authorities, must ensure that these flexible resources remain viable and available to the ISO to maintain system reliability and to minimize the need for procurement through ISO backstop mechanisms.

[7] ISO Integration of Renewable Resources 20% RPS Report, August 31, 2010, at p.87. The 2012 reference case uses the same load and other assumptions as the 20 percent RPS case, except that the renewable portfolio includes only the renewable resources online in 2006.

4.0 What are the risks of waiting to set a flexible capacity requirement until 2014?

4.1 Lost opportunity

Time is short and the issues are pressing. Any refinements not adopted in this proceeding will be delayed for further consideration until 2014. The more delay, the more compressed are the opportunities to plan and refine the CPUC's resource adequacy program in time to have the flexible capacity requirement in place as increasing renewable resources come on-line and once-through-cooled resources retire. Also, the less time, the less "incremental" the necessary modifications will be to the program to address the changing resource mix. If the CPUC, in this proceeding, delays a decision on the ISO's proposed transitional flexible capacity requirement for 2013, there will be a lost opportunity and more pronounced modifications to the resource adequacy program will be needed in 2014.

4.2 Lost flexibility

At the workshop, SCE suggested the CPUC consider a flexible capacity pilot for 2013. The ISO's concern with a pilot is that a pilot does not preserve existing flexibility for 2014 and beyond, and it allows for the potential degradation of the fleet by an additional year. It is necessary that the CPUC take steps now to preserve fleet flexibility as a bridge to 2014 and beyond.

4.3 Delayed learning curve

The ISO believes that the three flexible capacity categories — maximum ramping, load following and regulation — have durability, even though the ISO may refine the megawatt requirement values by category in future years. It is prudent for the Commission to take an incremental step in 2013 to establish a flexible capacity requirement. In this way, market participants have the opportunity to plan and procure for flexible capacity resources and gain experience that will help the process for future years, prior to the need for flexible capacity becoming overwhelmingly urgent.

5.0 What are the flexible capacity requirements for 2013?

In response to CPUC workshop participants' comments, the ISO submits this supplemental information to its flexible capacity proposal filed on January 13, 2012. This supplement moves away from an inventory-based flexible capacity requirement to an analytically determined, needs-based requirement.[8] For 2013, the flexible capacity requirement is assessed based on a historical analysis of the 2011 changes in net load for durations relevant to the three categories of flexible capacity. A comparative analysis of the net load changes for the years 2006, 2010, and 2011 can be found in Appendix A. The year 2006 is included for

[8] California Independent System Operator Corporation Proposal On Phase 1 Issues, R.11-10-023, January 13, 2012. The proposal is posted on the ISO's website at http://www.caiso.com/Documents/2012-01-13_Phase1Proposal_FlexCap.pdf

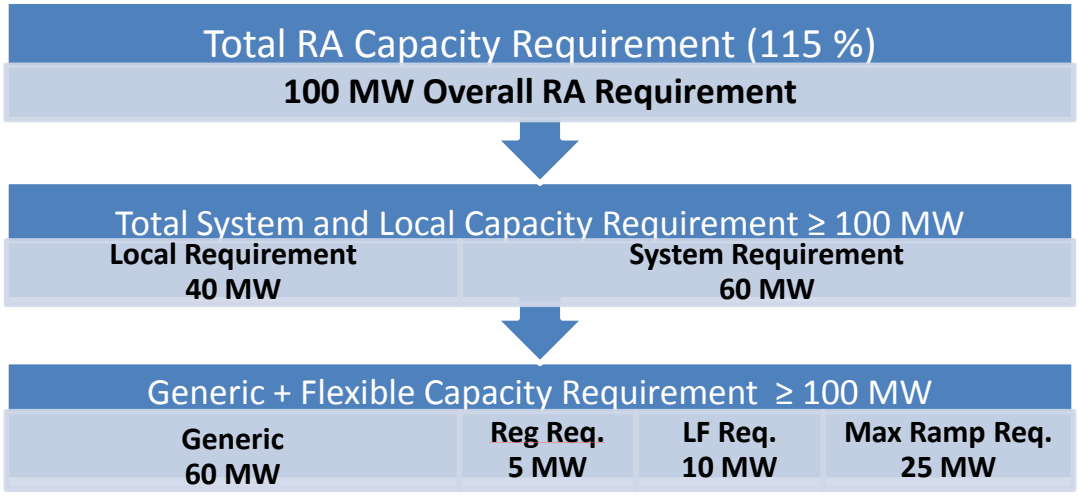
comparative purposes as it represents the year with the highest peak loads recorded by the ISO.

For 2014 and beyond, the ISO intends to produce a forward looking needs-based analysis of load and net load ramps, which best aligns with the ISO's methodology used in the renewable integration studies.

For 2013, the ISO proposes not to set a minimum regulation requirement. Although regulation is an important operational characteristic and should be included as a specific requirement in a future resource adequacy program, the risk of insufficient regulation capacity in 2013 is low and all regulation-certified resource adequacy resources are obligated to make their regulation service available to the ISO. Additionally, with the implementation of regulation pay-for-performance measures, the ISO expects to have additional information in the future that better defines regulation requirements in terms of capacity and performance. Specific regulation requirements will be re-evaluated for 2014 and beyond.

Further, similar to how local capacity counts as system capacity, the ISO proposes that the three flexible capacity categories contribute to the overall generic capacity requirement resulting in four capacity categories. The four capacity categories are: generic capacity, maximum continuous ramping, load following, and regulation. Generic capacity is then further defined by its locational attribute: system or local capacity. Figure 2 below illustrates how each capacity category must ultimately add up to the overall 115 to 117 percent resource adequacy capacity requirement.

Figure 2: Each Capacity Category Must Equal the Overall RA Capacity Requirement



Many flexible resources will be able to provide megawatts in three of the flexible capacity categories; however, certain other resources may only be able to provide generic resource adequacy capacity (i.e., they have no flexibility) or just one or two categories of flexible capacity. To allow for these varying levels of flexibility, the categories are not mutually exclusive by resource. A flexible resource located in a local capacity area may fulfill

all capacity requirements depending on its operational capabilities– system, local, regulation, load following and maximum continuous ramping. Examples of how a resource can be eligible to provide multiple categories of flexible capacity are shown below in Figure 3 and Figure 4.

Figure 3: Resource Eligible to Provide All Categories of Flexible Capacity

Example 1:

NQC = 500 MW, Pmin = 300 MW
Ramp rate =10MW/min, regulation certified
3-hour start-up time (SUT)
Not self-scheduled

- Provides the following RA capacity:

Generic:	500 MW	(NQC)
Maximum Ramping	500 MW	(NQC, SUT< Max Ramp Period)
Load Following	200 MW	(NQC – Pmin, since SUT> 1 hr.)
Regulation	10 MW/min	

Figure 4: Resource Not Eligible to Provide All Categories of Flexible Capacity

- Example 2:

NQC = 500 MW, Pmin = 200 MW
Ramp rate = 3 MW/min, not regulation certified
18 hour start-up time (SUT)
Not self-scheduled

- Provides the following RA capacity:

Generic:	500 MW	(NQC)
Maximum Ramping	300 MW	(NQC - Pmin, SUT> Max Ramp Time)
Load Following	180 MW	(3 MW/min * 60 min)
Regulation	0 MW/min	(not regulation certified)

5.1 What are the proposed system flexible capacity requirements for 2013?

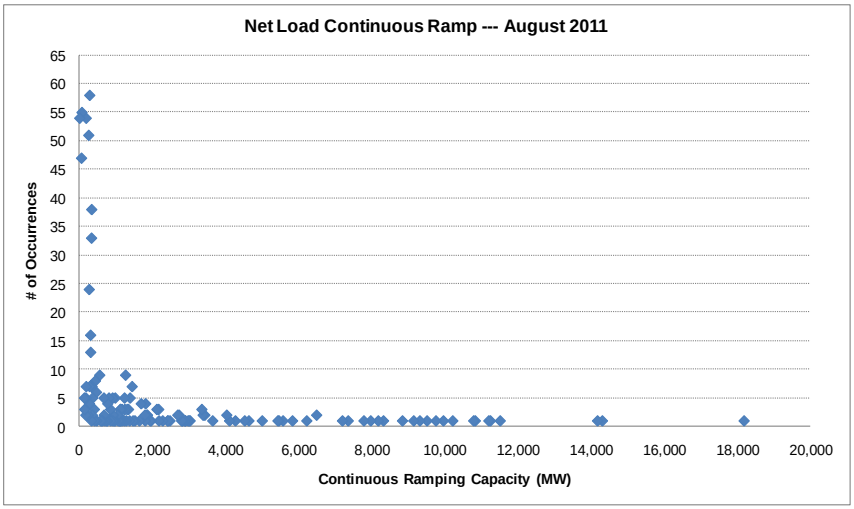
Table 3 below lists the proposed 2013 resource adequacy requirements for each of the three flexible capacity categories by month for the ISO balancing authority area. The maximum continuous ramping capacity is based on the duration of the continuous upward ramp for each month. For the regulation requirement, while Table 3 shows the approximate regulation requirement based on analysis of the net load 1-minute change within any 5-minute interval, the ISO recommends that a regulation requirement not be set in 2013, but be evaluated for use in 2014 and beyond, based on additional information provided by the implementation of regulation pay-for-performance metrics.

Table 3: ISO Proposed 2013 Flexible Capacity Requirement

2011							
Monthly System Requirements	Maximum Continuous Ramp			60-Minute Load Following Requirement		Regulation Requirement	
	Capacity (MW)	Ramp Rate (MW/min.)	Duration (Hr.)	60-min Capacity (MW)	Ramp Rate (MW/min.)	5-minute Capacity (MW)	Ramp Rate (MW/min.)
January	8,133	32.7	4.2	3,935	66	664	132.8
February	6,982	32.8	3.6	3,630	60	656	131.3
March	5,453	26	3.4	3,271	55	1,020	204.0
April	8,859	20	7.4	2,897	48	544	108.7
May	8,000	22	6.0	2,951	49	678	135.7
June	11,382	32	5.9	2,637	44	637	127.5
July	13,544	23	9.8	3,137	52	840	167.9
August	18,181	27	11.1	2,933	49	686	137.1
September	17,824	34	8.7	3,004	50	634	126.8
October	9,510	20	7.8	3,514	59	635	126.9
November	7,855	22	5.9	3,746	62	1,351	270.2
December	7,577	29	4.3	4,506	75	668	133.7

Figure 5 highlights the number and magnitude of maximum continuous ramp periods for August 2011.

Figure 5: Number and Magnitude of Continuous Ramp Periods from August 2011



5.2 How much flexible capacity must be shown by LSE's annually and monthly?

The ISO proposal is that each load-serving entity shows procurement of 90 percent of its flexible capacity requirement on the annual resource adequacy showing and 100 percent procurement of the requirement on the monthly resource adequacy showing. The ISO is also

proposing that the annual showing be changed to require a showing for all months, rather than just the five summer months. This change is necessary so that the ISO can assess the flexibility of the fleet for that resource adequacy compliance year.

5.3 Why is the ISO proposing a monthly flexible capacity requirement?

The ISO is proposing that flexible capacity requirements be established for each month of the year. Establishing the requirements monthly will recognize that the amounts of flexible capacity needed differ month to month. The flexible capacity requirement will be assessed based on analysis of the 2011 changes in net load for durations relevant to the three categories of flexible capacity.

5.4 Is market power a concern in 2013 for the amount of flexible capacity required?

No. The inventory of traditional flexible capacity resources that can provide maximum continuous ramping and load following capacity, as shown in Table 4 and Table 6 below, should provide sufficient procurement headroom in 2013 to avoid any market power concerns.

Table 5 shows the depth of the 2011 fleet that can provide maximum continuous ramping capacity relative to the proposed 2013 maximum continuous ramping capacity requirement. The worst case is September where the amount of maximum continuous ramping capacity is 66 percent of the fleet capability.

Table 4: Maximum Continuous Ramping Capability (excluding hydro)

Fleet Capability	Month											
Technology	Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11
Combined Cycle	7,493	8,301	8,160	10,770	9,596	9,554	10,557	11,858	10,701	10,655	9,575	8,301
Gas Turbine	3,905	3,902	3,880	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905	3,905
Pump-Storage	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330	1,330
Steam	11,266	11,266	11,266	11,266	11,266	11,266	11,266	11,194	11,266	11,266	11,266	11,266
Grand Total	23,994	24,799	24,636	27,271	26,098	26,055	27,058	28,287	27,202	27,156	26,076	24,803

Table 5: Percent Maximum Continuous Ramping Requirement to Fleet Capability

Jan-11	Feb-11	Mar-11	Apr-11	May-11	Jun-11	Jul-11	Aug-11	Sep-11	Oct-11	Nov-11	Dec-11
34%	28%	22%	32%	31%	44%	50%	64%	66%	35%	30%	31%

Table 6: Load Following Capability (excluding hydro)

Load Following Capability	
Technology	**Total (MW)**
Combined Cycle	8,176
Gas Turbine	3,504
Pump Storage	1,330
Steam	10,235
Grand Total	23,244

The highest 60-minute load following need in 2011 occurred in December, which was 4,506 megawatts. The ISO fleet in 2011 had 23,244 megawatts of load following capability in 2011.

5.5 How would the ISO determine compliance with a flexible capacity requirement?

Based on the annual and monthly showings each load-serving entity submits, the ISO will evaluate the quantity of flexible capacity provided in each of the three flexible capacity categories for the respective annual or monthly time period for the total system and by local-regulatory authority. If all load-serving entities in aggregate demonstrate sufficient system-level flexible capacity, then the ISO has no need to take any further action. However, if in aggregate, the system flexible capacity requirement has not been met, then the ISO will evaluate the showings by load-serving entity. The ISO will notify in writing the deficient load serving entity's scheduling coordinator and the relevant local regulatory authority. The ISO proposes that the local regulatory authority coordinate with its load-serving entities to cure any deficiencies and provide a revised showing to the ISO. If the local regulatory authority's load-serving entities do not cure the deficiency, the ISO may exercise its backstop authority to cure the deficiency and satisfy the system-level flexible capacity requirement. The specific form of this backstop procurement and the allocation of the backstop procurement costs are being considered in the ISO's flexible capacity procurement stakeholder process.

6.0 What resources are eligible to provide flexible capacity?

As a general principle, the ISO proposes that all resource adequacy resources be eligible to provide flexible capacity, except those resources that are unable to respond to ISO dispatch instructions. Under this criterion, most renewable generation resources, which generate only when the sun is shining or the wind is blowing, base load generation, such as the nuclear units that do not respond to dispatch instructions unless there is a system emergency, and other physically or contractually limited resources should not count as flexible capacity if they cannot respond to ISO dispatch signals. Eligibility rules require further stakeholder input and will be developed fully through the ISO's flexible capacity procurement initiative. Eligibility will be discussed in greater detail in the ISO's straw proposal to be published in March as part of that initiative.

6.1 Will the ISO be able to quantify the amount of flexible capacity by resource?

Yes, the ISO intends to produce a table identifying the flexible capacity attributes of each resource adequacy eligible to provide flexible capacity and provide this information to the respective resource owners, or, if not subject to confidentiality concerns, make it available through the ISO's website.

The maximum contributions a dispatchable resource can contribute to load following and maximum continuous ramping are as follows:

- Load Following:
  - For resources that have a startup time ≥60min:
    - min((NQC-Pmin),60min*RRavg)
  - For resources that have a startup time <60min:
    - min(Pmin+(60-SUT)*RRavg, NQC)
- Maximum Continuous Ramping
  - For resources that have a startup time ≥ the longest ramp duration:
    - min((NQC-Pmin),ramp duration*RRavg)
  - For resources that have a startup time < the longest ramp duration:
    - min(Pmin+(longest ramp duration--SUT)*RRavg, NQC)

      Where:

      SUT is the start-up time; and

      RRavg is the weighted average ramp-rate. The weighting is based on the megawatt size of a resource's ramp-rate segments.

6.2 Could the ISO procure a once-through-cooled resource for flexible capacity under its backstop procurement authority?

In compliance year 2013, if the resource adequacy showings indicate a deficiency in a flexible capacity category, and if it is not cured by a load-serving entity, the ISO could use backstop authority to procure a once-through-cooled resource that could provide the flexible capacity required.

6.3 How do use-limited resources count toward flexible capacity?

For 2013, the ISO proposes allowing a maximum of 15 percent of the maximum continuous ramping requirement to come from use limited resources, and the balance coming from non-use limited resources. This will enable use-limited resources to contribute during ramps that are greater than one standard deviation over the mean ramp.

6.4 Can demand response and storage devices count toward flexible capacity?

If a demand response resource or storage device is dispatchable in the ISO market, and is capable of providing one or more of the flexible capacity requirements, then, subject to the rules of the CPUC and other local regulatory authorities, as applicable, these resources would be eligible to provide flexible capacity.

6.5 Are long-start resources eligible to provide flexible capacity?

Yes. Long-start units are eligible to provide flexible capacity. If a long-start resource can start in less than the maximum continuous ramping monthly duration period, then the resource's full net qualifying capacity may count as flexible capacity. The maximum ramping capacity for a long start unit that requires a start time greater than the monthly duration period would be its net qualifying capacity minus Pmin, assuming that this value is less than the unit's ramp rate multiplied by the monthly duration hours.[9]

7.0 Flexible capacity proposal for 2013

The implementation of a flexible capacity procurement requirement for compliance year 2013 requires CPUC action in this proceeding to modify the resource adequacy program and FERC approval of the tariff amendments that result from the ISO stakeholder process on flexible capacity procurement. In this section, the ISO describes its general concept of the flexible capacity procurement requirement for 2013 under the composite regulatory provisions. Certain elements of the requirement, such as self-scheduling rules and ISO backstop authority, will be developed more thoroughly in the ISO's flexible capacity procurement stakeholder initiative. The straw proposal in that initiative will be issued in March and will contain additional information about those elements of requirement envisioned for 2013. Upon issuance, the ISO will provide the straw proposal to the CPUC and the parties in this proceeding.

7.1 ISO flexible capacity procurement requirement proposal for 2013

7.1.1 *Eligible resources*

The ISO will compute the flexible capacity amount that each resource adequacy resource can provide in the three separate flexible capacity categories. For 2013, the ISO proposes that all resource adequacy resources be eligible to provide flexible capacity, including dynamically scheduled resources and pseudo-ties within their resource adequacy import limitations; except that the following resources will not be eligible to provide flexible ramping capacity:

1. Base load resources – This includes, for example, nuclear-fueled generators and other resources that produce energy at a relatively constant rate to meet continuous energy demand, which have limited or no flexibility.

[9] See Table 3 for a list of the monthly duration periods.

2. Intermittent resources – This includes solar photovoltaic and wind resources that can only produce energy when the fuel source is available, i.e., sunshine or wind. These resources have no inherent upward ramp capability.
3. Hydro-electric generation– Hydro resources can be very flexible, but are often constrained by water and environmental regulations. The ISO and stakeholders will require more time to properly assess the flexibility of hydro-electric resources. Their eligibility to provide flexible capacity should be deferred for further consideration.
4. Hourly intertie resources – The limited flexibility of hourly intertie schedules prevents their ability to provide flexible capacity.

7.1.2 *Partial flexible capacity procurement*

Like other resource adequacy capacity, a portion of a resource's availability capacity can be procured as flexible capacity. For example, capacity below a very long start resource's Pmin can count toward the system or local capacity requirement, but would not count as maximum continuous ramping if it cannot fully ramp during the maximum continuous ramping period.

7.1.3 *Must offer obligations*

For 2013, the ISO is not proposing any change to the resource adequacy must offer obligations under the ISO tariff. All resource adequacy resources will be required to submit bids for energy and certified ancillary services, along with a bid of zero in the residual unit commitment.

7.1.4 *Self-scheduling rules*

For 2013, the ISO does not propose to prohibit flexible capacity resources from submitting self-schedules in the day-ahead and real-time markets, as the resource adequacy resources can today. This will be re-evaluated for 2014 and beyond.

7.1.5 *Annual and monthly showing rules*

In the annual resource adequacy showings to the CPUC, each jurisdictional load-serving entity will have to demonstrate 90% procurement of resource adequacy requirements, 100% procurement of local capacity requirements, and 90% procurement of the flexible capacity requirements. In the 2013 monthly showings, each LSE must show 100 percent procurement of all requirements.

The ISO is also proposing that the annual showing for system capacity and flexible capacity be changed from the current form of only the five summer months to all months in the year. This will enable the ISO to make a preliminary assessment of flexible capacity based on the annual showings.

7.1.6 *Deficiency assessment, when done and how done*

The ISO will conduct deficiency assessments for both the annual showing and the monthly showings. For 2013, the deficiency assessment will be conducted by the ISO in two stages, which the ISO will develop in the stakeholder process. In the first stage, the ISO will assess the flexible capacity provided by all load-serving entities within its footprint using a portfolio assessment. If the combined portfolio does not provide adequate flexible capacity, then the ISO will assess the sufficiency of each individual load-serving entity's portfolio. Flexibility requirements will be set for each local regulatory authority using a load ratio share. Using these allocations and working with the local regulatory authority, the ISO will determine which load-serving entities are deficient. The ISO will notify the respective local regulatory authorities if any of their jurisdictional load-serving entities are do not meet the flexible capacity requirement.

7.1.7 *Opportunity to cure deficiencies*

If after the ISO assesses the overall system flexible capacity needs against the aggregate showings and a deficiency remains, any load-serving entities that do not meet the flexible capacity requirement will have an opportunity to cure their deficiencies. For annual deficiencies, load-serving entities will have 30 days to cure. For monthly showings, load-serving entities will be required to cure the deficiency before the final monthly showing. If deficiencies are not cured within these time frames, the ISO will consider the procurement to be deficient and will exercise its backstop procurement authority to resolve the deficiency.

7.1.8 *Criteria for selecting flexible capacity for ISO backstop procurement*

For 2013, in circumstances where multiple resources are able to provide flexible capacity, the ISO will through its stakeholder process develop the criteria to be used to select which resource will be chosen to provide flexible capacity when the ISO must exercise its backstop procurement authority. Examples of the criteria the ISO will consider are:

1. Effectiveness – The electrical effectiveness of the resource at resolving the required flexible capacity need and, where possible, local capacity need.
2. Least cost– The capacity costs associated with the resource's eligible flexible capacity.
3. Uncontracted for capacity- The amount of capacity a resource has that was not contracted as resource adequacy capacity in the current resource adequacy compliance year.
4. Ramp rate – The ramp rate of a resource.
5. Sustainability – The potential upward ramp capability of the resource (NQC-Pmin).
6. Availability – The resource's amount of flexible capacity.
7. Restrictions – The constraints and use limitations on the resource.
8. Flexible attributes – The ability of the resource to provide flexible capacity in each of the flexible capacity categories.

7.1.9 *Backstop terms and conditions*

The backstop procurement mechanism the ISO will use to procure flexible resources in the event deficiencies are not cured in a timely manner is currently under development in an ISO stakeholder process and subject to FERC approval. The stakeholder process will also consider the cost allocation of the backstop procurement.

8.0 CPUC flexible capacity requirement considerations

The ISO proposes that the CPUC take action to ensure the future reliability of the system by establishing a flexible capacity procurement requirement as part of the 2013 resource adequacy program. The requirement should be based on ISO studies which have consistently demonstrated the dual impacts of increased variable renewable generation and the retirement of once-through-cooled generation resources. Structuring the requirement around the three categories of flexible capacity procurement will give load-serving entities time to adjust and shape their procurement practices and portfolios while they are still in the process of acquiring renewable generation; waiting until their portfolios are fully procured to meet the 33 percent renewables portfolio standard will be too late and could have costly impacts that could be avoided by taking action now.

8.1 Establish load-serving entity authority to procure flexible capacity

Similar to the process used for local capacity requirements, the ISO will publish the total flexible capacity needed by category for 2013 by July 2012. The CPUC and other local regulatory authorities will then require their jurisdictional load-serving entities to procure the required amount of flexible capacity.

8.2 Allocation of the requirement to load-serving entities

The ISO recommends the CPUC allocate the flexible capacity requirement to its load-serving entities by implementing a process similar to the allocation of local capacity for the 2013 resource adequacy compliance year.

8.3 Showing requirements and timing of showings

The CPUC should require its jurisdictional load-serving entities to make an annual resource adequacy showing that meets 90 percent of system procurement requirements for all months, 100 percent of local capacity requirements, and 90 percent of the flexible capacity requirements for all months. Annual showings would be submitted in October as they are today, but should require showings for all months. For each month in 2013, each load-serving entity should be required to show that they are able to meet 100 percent of all requirements. The annual and monthly showings need not show the same resources.

8.4 Deficiency and cure rules

Load-serving entities should have an opportunity to cure deficiencies in the procurement of flexible capacity as determined by the local regulatory authority and in advance of the final monthly showing.

9.0 Conclusion

The implementation of a flexible capacity procurement requirement for compliance year 2013 requires CPUC action in this proceeding to modify the resource adequacy program and FERC approval of the tariff amendments that result from the ISO stakeholder process on flexible capacity procurement. It is critical that we take action this year to put these requirements in place to ensure the resource adequacy fleet can continue to meet the reliability needs of the system for 2013 and beyond. Doing so will also mitigate the need for the ISO to engage in backstop procurement of flexible generation capacity should the utilities fail to procure sufficient flexible capacity on their own.

The ISO has put forth a reasonable, needs-based proposal for 2013 to begin refining the CPUC's resource adequacy program to incorporate flexible capacity. The goal is to preserve sufficient flexible resources that can satisfy the maximum continuous ramping and load following capabilities for 2013 while preparing the way for the 33 percent renewables portfolio standard and the possible retirement of 12,079 megawatts of flexible capacity once-through-cooled resources.

Appendix A:

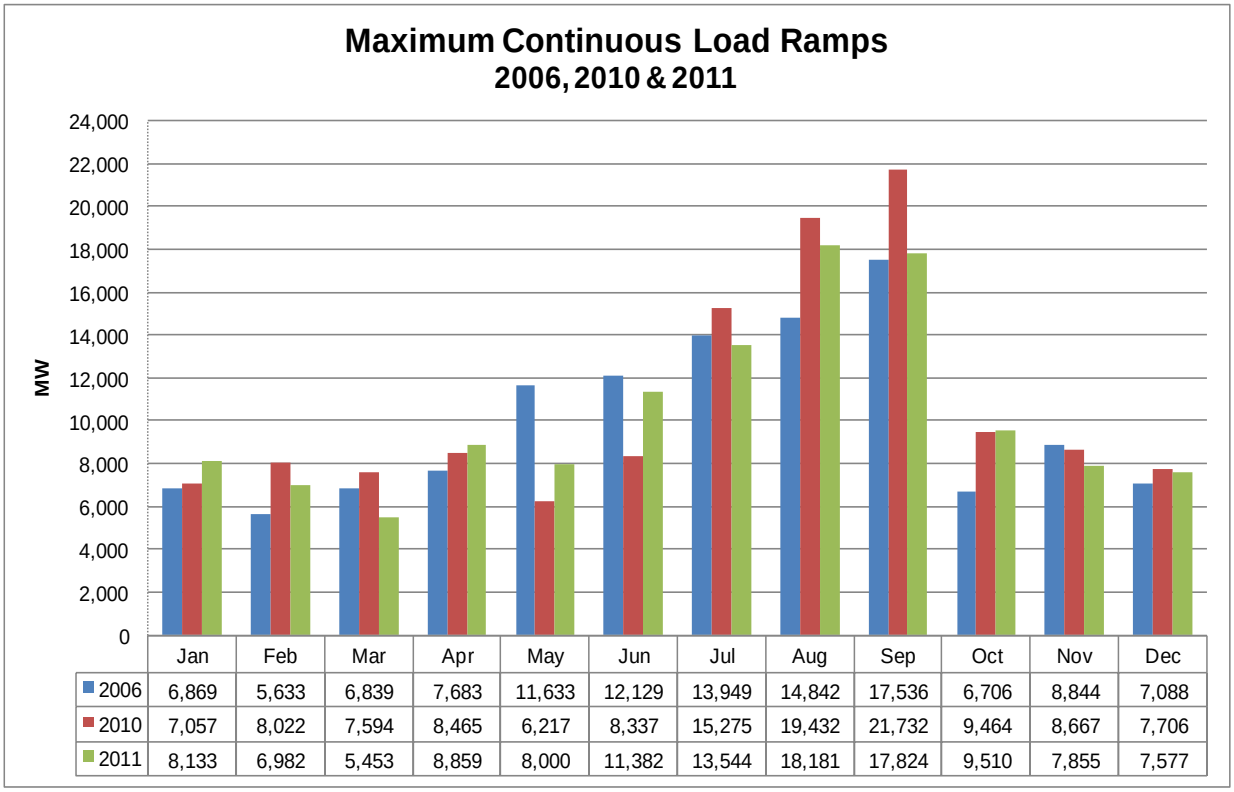
Multi-Year Comparison of Flexible Capacity Needs: 2006, 2010, and 2011

The ISO's proposed flexible capacity requirement is based on the 1-minute net load data from 2011. For comparison purposes, the ISO is including here a multi-year analysis of flexible capacity needs based on 2006, 2010 and 2011 1-minute net load data. The year 2006 is included since that year had the highest recorded ISO coincident peak load, even though it had a lower penetration of variable energy resources than 2010 or 2011.

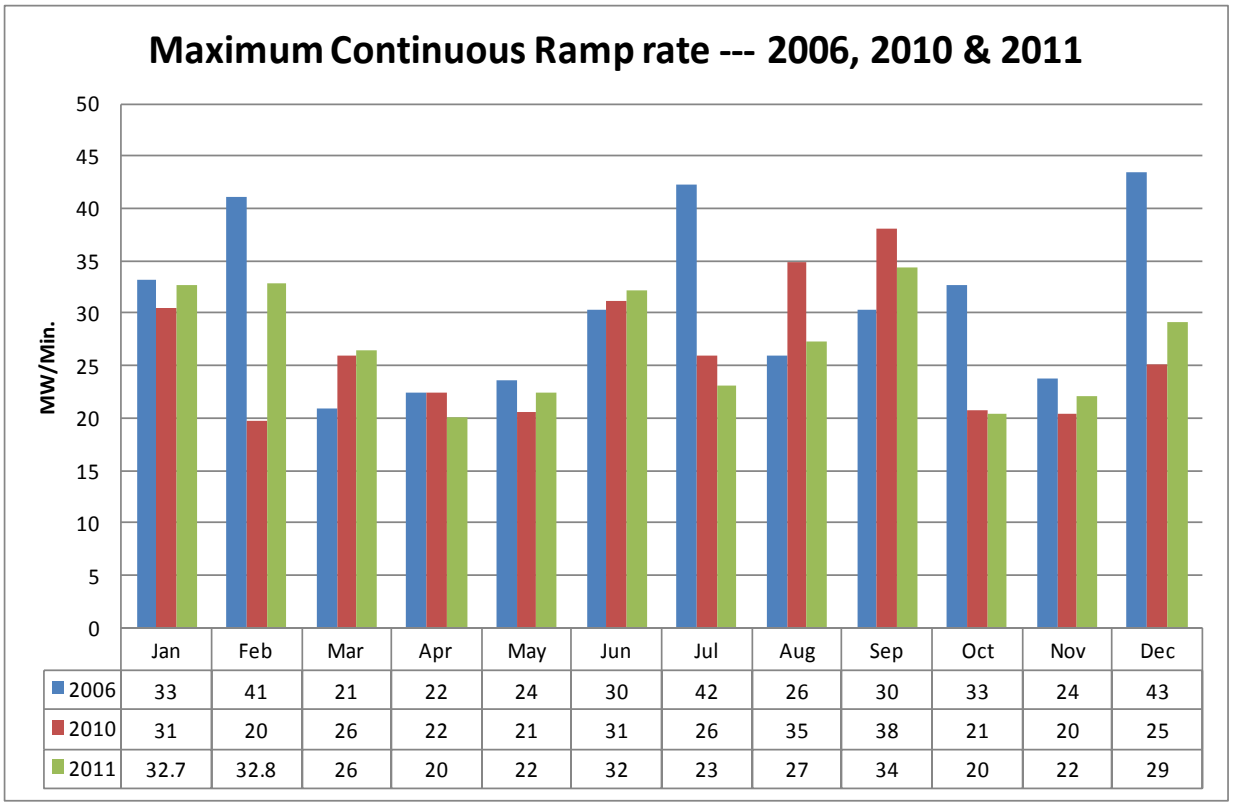
2010							
Monthly System Requirements	**Maximum Continuous Ramp**			**60-Minute Load Following Requirement**		**Regulation Requirement**	
	Capacity (MW)	**Ramp Rate (MW/min.)**	**Duration (Hr.)**	**60-Min Capacity (MW)**	**Ramp Rate (MW/min.)**	**5-Minute Capacity (MW)**	**Ramp Rate (MW/min.)**
January	7,057	31	4	4,120	69	609	122
February	8,022	20	7	3,440	57	645	129
March	7,594	26	5	3,329	55	797	159
April	8,465	22	6	2,629	44	654	131
May	6,217	21	5	2,527	42	544	109
June	8,337	31	4	2,675	45	552	110
July	15,275	26	10	3,061	51	636	127
August	19,432	35	9	3,010	50	674	135
September	21,732	38	10	2,963	49	655	131
October	9,464	21	8	3,531	59	1,430	286
November	8,667	20	7	4,321	72	626	125
December	7,706	25	5	4,198	70	1,667	333

2011							
Monthly System Requirements	Maximum Continuous Ramp			60-Minute Load Following Requirement		Regulation Requirement	
	Capacity (MW)	Ramp Rate (MW/min.)	Duration (Hr.)	60-Min Capacity (MW)	Ramp Rate (MW/min.)	5-Minute Capacity (MW)	Ramp Rate (MW/min.)
January	8,133	32.7	4.2	3,935	66	664	132.8
February	6,982	32.8	3.6	3,630	60	656	131.3
March	5,453	26	3.4	3,271	55	1,020	204.0
April	8,859	20	7.4	2,897	48	544	108.7
May	8,000	22	6.0	2,951	49	678	135.7
June	11,382	32	5.9	2,637	44	637	127.5
July	13,544	23	9.8	3,137	52	840	167.9
August	18,181	27	11.1	2,933	49	686	137.1
September	17,824	34	8.7	3,004	50	634	126.8
October	9,510	20	7.8	3,514	59	635	126.9
November	7,855	22	5.9	3,746	62	1,351	270.2
December	7,577	29	4.3	4,506	75	668	133.7

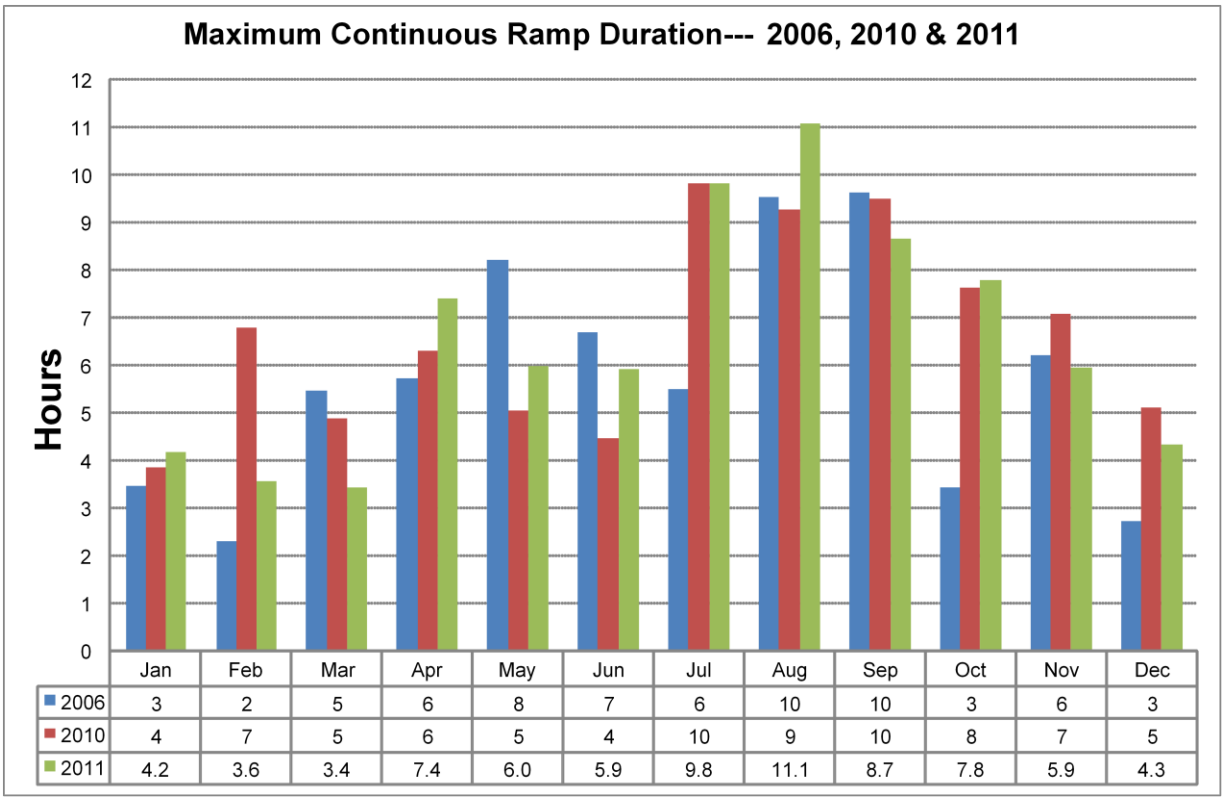
2006							
Monthly System Requirements	Maximum Continuous Ramp			60-Minute Load Following Requirement		Regulation Requirement	
	Capacity (MW)	Ramp Rate (MW/min.)	Duration (Hr.)	60-Min Capacity (MW)	Ramp Rate (MW/min.)	5-Minute Capacity (MW)	Ramp Rate (MW/min.)
January	6,869	33	3	4,217	70	695	139
February	5,633	41	2	3,833	64	1,356	271
March	6,839	21	5	3,414	57	891	178
April	7,683	22	6	3,195	53	1,250	250
May	11,633	24	8	2,839	47	1,520	304
June	12,129	30	7	3,374	56	1,851	370
July	13,949	42	6	3,904	65	1,533	307
August	14,842	26	10	2,887	48	607	121
September	17,536	30	10	2,928	49	620	124
October	6,706	33	3	3,477	58	622	124
November	8,844	24	6	3,969	66	1,429	286
December	7,088	43	3	5,194	87	819	164



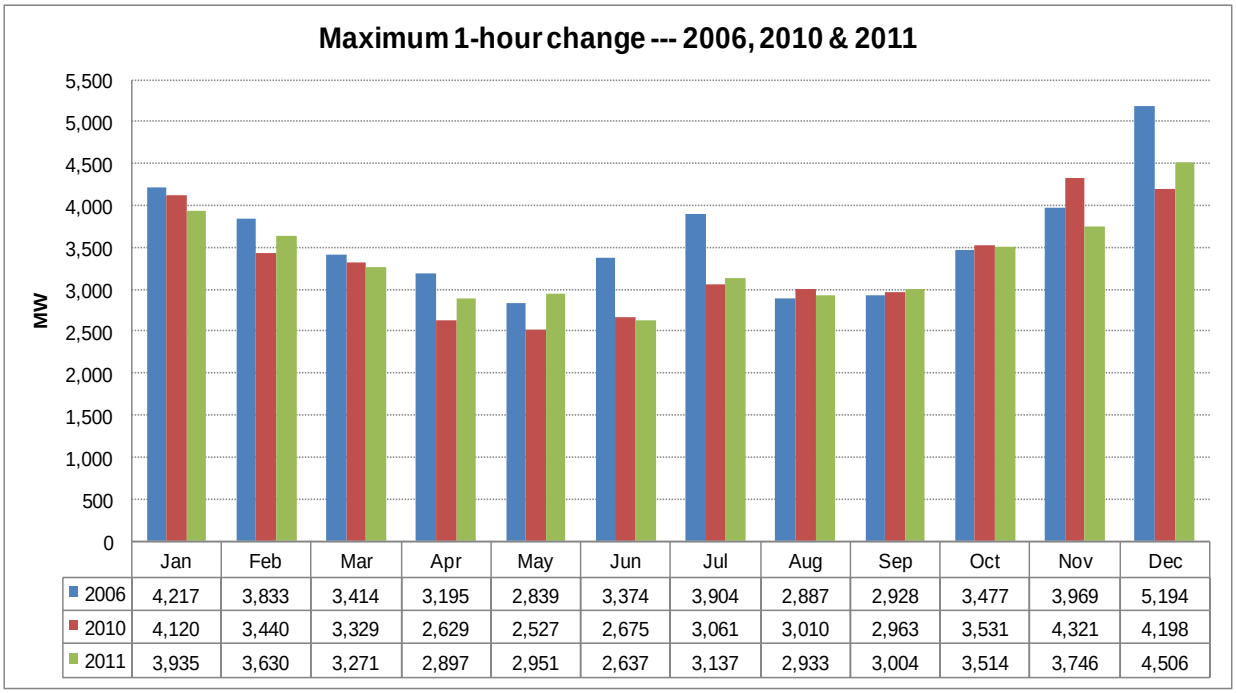
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2006	6,869	5,633	6,839	7,683	11,633	12,129	13,949	14,842	17,536	6,706	8,844	7,088
2010	7,057	8,022	7,594	8,465	6,217	8,337	15,275	19,432	21,732	9,464	8,667	7,706
2011	8,133	6,982	5,453	8,859	8,000	11,382	13,544	18,181	17,824	9,510	7,855	7,577



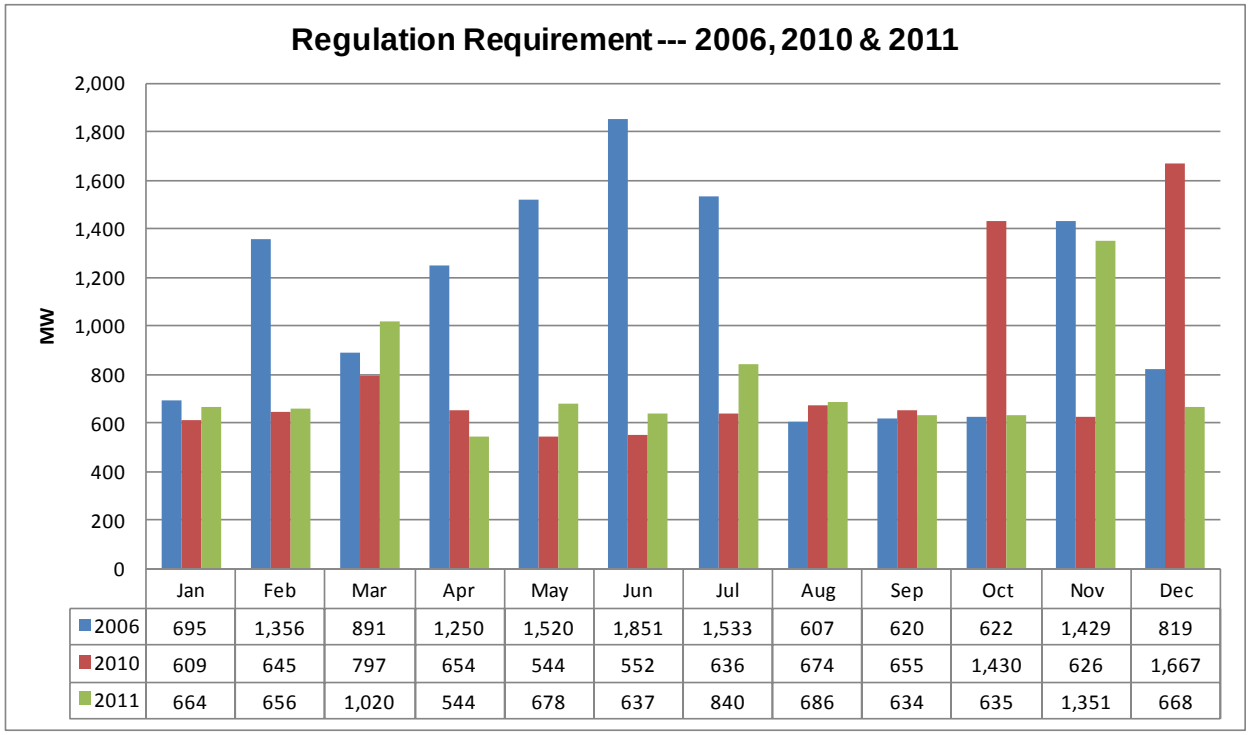
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2006	33	41	21	22	24	30	42	26	30	33	24	43
2010	31	20	26	22	21	31	26	35	38	21	20	25
2011	32.7	32.8	26	20	22	32	23	27	34	20	22	29



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2006	3	2	5	6	8	7	6	10	10	3	6	3
2010	4	7	5	6	5	4	10	9	10	8	7	5
2011	4.2	3.6	3.4	7.4	6.0	5.9	9.8	11.1	8.7	7.8	5.9	4.3



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2006	4,217	3,833	3,414	3,195	2,839	3,374	3,904	2,887	2,928	3,477	3,969	5,194
2010	4,120	3,440	3,329	2,629	2,527	2,675	3,061	3,010	2,963	3,531	4,321	4,198
2011	3,935	3,630	3,271	2,897	2,951	2,637	3,137	2,933	3,004	3,514	3,746	4,506



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2006	695	1,356	891	1,250	1,520	1,851	1,533	607	620	622	1,429	819
2010	609	645	797	654	544	552	636	674	655	1,430	626	1,667
2011	664	656	1,020	544	678	637	840	686	634	635	1,351	668

Attachment D – Flexible Capacity Procurement: Risk of Retirement – ISO Market Design & Infrastructure Policy. Presented to the ISO Board, September 13, 20122

Flexible Capacity and Local Reliability Resource Retention Amendment Filing

California Independent System Operator

Fifth Replacement FERC Electric Tariff

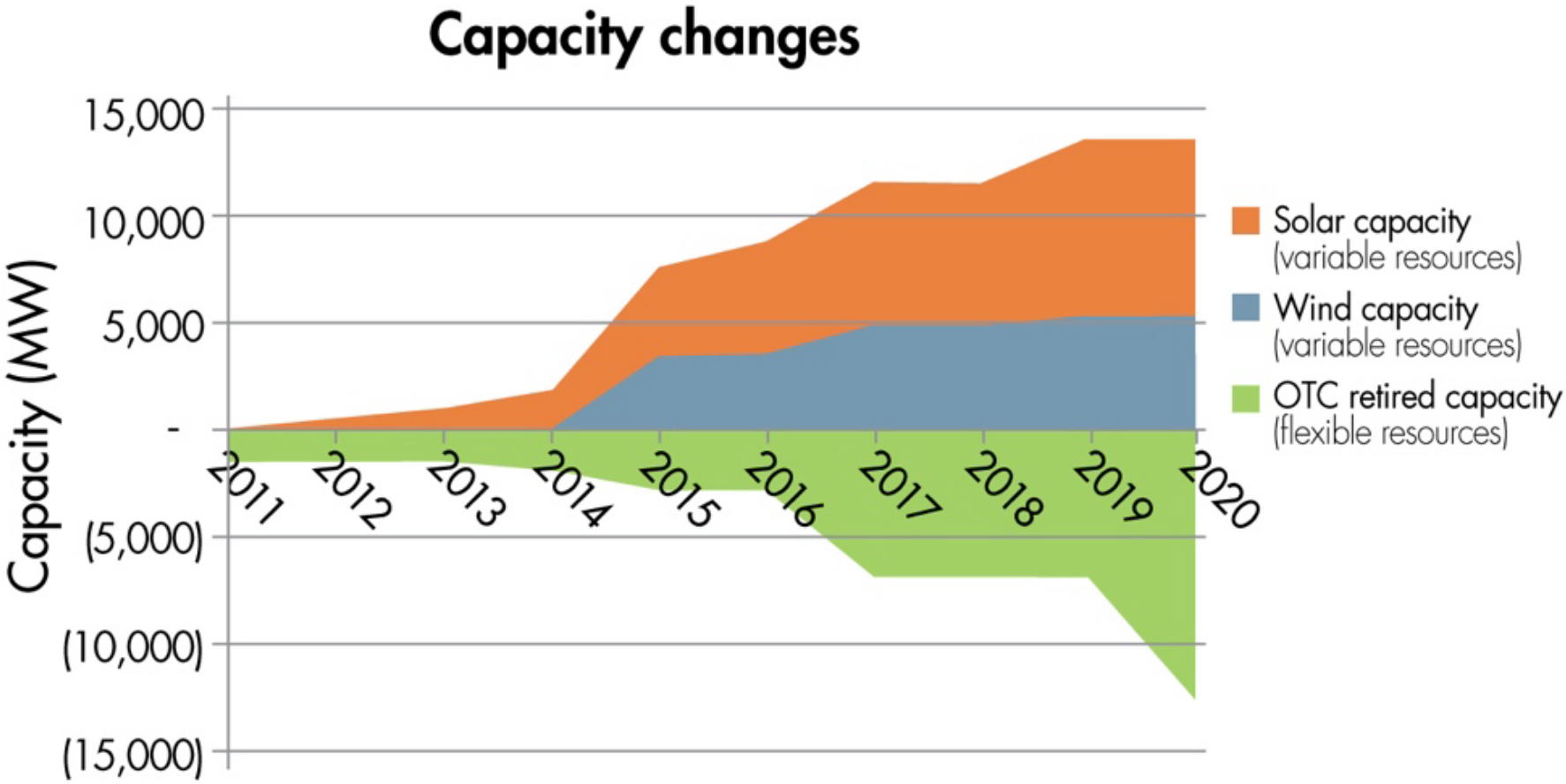
December 12, 2012

Flexible Capacity Procurement: Risk of Retirement

Greg Cook
Director, Market Design & Infrastructure Policy

Board of Governors Meeting
General Session
September 13-14, 2012

Management commenced initiative to address gap in ISO's authority to secure resources at risk of retirement needed for reliability in future years.



Proposal provides a financial bridge to resources at risk of premature retirement.

- Single year procurement
  - Resource owner has made decision to retire resource
  - ISO concludes resource is needed two to five years in the future
- Not a capacity payment
  - No performance or must-offer requirements in the ISO markets
  - Must actively pursue resource adequacy contracts
- No obligations for resource or ISO at the end of a procurement year

Design developed based on philosophy to incent resources to seek resource adequacy contracts.

- Financial bridge to cover costs until year of need
  - Payment based on resource's going forward costs

- Payments reduced for other revenue
  - 90% of net ISO market revenues
  - Any capacity payments
    - Capacity Procurement Mechanism
    - Bilateral resource adequacy contracts

Costs allocated to load serving entities based on load ratio share.

- Simple load ratio share allocation is appropriate given:

  - ✓ No forward flexible capacity requirement
  - ✓ Backstop mechanism not anticipated to be frequently used
  - ✓ Provides system reliability benefits
  - ✓ Limited duration

In event of a local need, cost will be allocated to the LSEs in the Transmission Access Charge area

Sunset provisions included to recognize need for a primary procurement mechanism

- Flexible capacity procurement backstop provision will sunset provided:

  1. A forward flexible capacity requirement is established, and

  2. The backstop procurement mechanism has not been triggered for a period of two years.

Stakeholder concerns remain on several issues

- Capacity obligation
- Long-term standby option
- Compensation methodology
- Cost allocation
- Needs determination

Management revised proposal to provide for objective and transparent needs determination process with significant opportunities for stakeholder input.

- In the spring of each year, the ISO will provide detailed flexibility needs for the next five years.
- ISO will work with local regulatory authorities to determine the underlying assumptions used in needs assessment.
- Expanded process for making designation to allow more time for stakeholder input and alternative solutions.
- ISO will brief the Board prior to making a designation.

For 2013, special schedule will be used to accommodate FERC Order timeline.

- ISO will produce five year flexibility assessment in first quarter of 2013.
- Resources at risk of retirement will have 30 days after issuance of FERC Order to notify ISO of intent to retire.
- If ISO determines resource is needed for system flexibility, ISO will host a stakeholder meeting 75 days after FERC Order.
- Stakeholders will have 30 days to provide comments and alternative solutions prior to final decision on designation.

Management recommends the Board approve the flexible capacity procurement proposal.

- Addresses current gap in the ISO's backstop procurement authority.
  - Without this provision, risk of losing units needed for future reliable grid operation.
- Provides minimum compensation to keep units financially viable until year of need.
- Maintains incentives to rely on resource adequacy bilateral contracting as primary procurement mechanism.
- Provides significant opportunity for stakeholder input prior to ISO designation.

Attachment E – ISO's Department of Market Monitoring Comments on the Revised Straw Proposal for Flexible Capacity Procurement, June 21, 2012

Flexible Capacity and Local Reliability Resource Retention Amendment Filing

California Independent System Operator

Fifth Replacement FERC Electric Tariff

December 12, 2012

Comments on the Revised Straw Proposal for Flexible Capacity Procurement Department of Market Monitoring June 21, 2012

The Department of Market Monitoring (DMM) appreciates the opportunity to provide comments on the Flexible Capacity Procurement Straw Proposal posted on June 6, 2012. DMM supports the ISO's effort to ensure the efficient and reliable operation of the grid as the state moves toward a 33% renewable goal and stricter environmental standards.

The ISO has proposed at the CPUC to enhance the Resource Adequacy program by establishing a flexible capacity procurement requirement for the 2013 Resource Adequacy requirement year. While the details of this proposal are being worked out with the CPUC, the ISO is concurrently proposing through an ISO stakeholder process a backstop mechanism that would allow the ISO to backstop any flexible requirement shortage. This will be Phase II of the Flexible Capacity Procurement stakeholder process.

The ISO has filed a waiver at FERC for the risk of retirement timing requirement of the Capacity Procurement Mechanism (CPM) and the CPUC has directed Pacific Gas and Electric Company (PG&E), Southern California Edison (SCE), and San Diego Gas & Electric (SDG&E) to negotiate and enter into a resource adequacy contract with Sutter Energy Center in order to keep Sutter online in 2012.[1] The purpose would be to delay the potential irreversible retirement of the Sutter plant until CAISO could determine the impacts of its retirement on the grid. To address this issue consistently rather than rely on ad hoc regulatory filings, the ISO is proposing a mechanism to address capacity at risk of retirement that is needed to maintain system flexibility or local reliability.

Phase I of this stakeholder process puts forward a policy that will "ensure the ISO has sufficient backstop procurement authority to address capacity at risk of retirement that the ISO identified as needed up to five years in the future to maintain system flexibility or local reliability."[2] Our comments below primarily address their proposal to achieve this goal.

[1] http://docs.cpuc.ca.gov/word_pdf/AGENDA_RESOLUTION/162002.pdf

[2] http://www.caiso.com/Documents/RevisedStrawProposal-FlexibleCapacityProcurement.pdf

Phase I: Risk-of-Retirement Mechanism

DMM believes the risk of a needed resource retiring to be the more immediate concern and supports the ISO's decision to make this the focus of Phase I. We tentatively support the ISO's Risk of Retirement plan. Provided below is a summary of three main observations and recommendations that are explained in more detail later in our comments:

- *Backstop needs determination:* Although there has been a proposal at the CPUC to include flexible capability criteria into RA requirements, currently there are no flexible capability requirements imposed by the CPUC or the ISO. The backstop being created is not intended to backstop any specific requirement, but instead act as a backstop only in the event the ISO determines that capacity listed in RA showings is not sufficient to provide the local or flexible capabilities needed. The ISO should therefore make these needs understandable and transparent for all market participants. DMM supports the look-out period of the proposal and notes that a five year lookout may significantly mitigate the risk of the ISO needing a retired resource.
- *Eligibility and conditions:* DMM believes there must be strict eligibility requirements and comprehensive conditions for a risk of retirement designation. These include an independent review of costs, full and good faith participation in the resource adequacy market, and stringent claw back requirements if the resource fails to meet any obligations.
- *Compensation:* DMM generally supports a cost-based payment approach rather than an administrative price. However, there are a few issues we believe warrant additional discussion and consideration. We ask the ISO to consider (1) increasing the clarity of the compensation structure, including details on the stream of payments and collateral requirements, as well as specifically addressing the compensation issue during the year two overlap with the Capacity Procurement Mechanism (CPM) that already exists in the tariff; (2) implementing an alternative compensation going forward cost plan that would incent the designated resource's participation in the market; and (3) revising the least-cost comparison methodology to incorporate net revenue payments into the going-forward cost option's total costs. Some specific examples of options that may address these last two issues are provided later in this paper.

Backstop timing and needs determination

The ISO has identified three areas which may cause flexible capacity to be limited to such an extent that the ISO can no longer count on capacity requirements to inherently encompass ramping requirements. (1) The Renewable Portfolio Standard (RPS) mandate will lead IOUs to replaces flexible capacity with intermittent generation in their Resource Adequacy obligation, (2) once-through-cooling may significantly decrease the number of flexible resources in California, and (3) a shift in market incentives caused by the RPS mandate may cause flexible resources to retire due to insufficient revenue payments. Without a change in policy, these areas may lead to such a lack of flexibility that the ISO may have difficulty reliably operating the grid or may distort the market such that there is increased risk of price spikes and market manipulation.

In an effort to ensure there is an adequate level of flexibility, the ISO has identified the following gaps in the planning and procurement of flexible resources.

- The CPUC Resource Adequacy program procures resources solely based on capacity and does not consider the flexibility of a resource. Due to changes in the broader energy market and regulatory policies, a capacity requirement alone may not ensure that CAISO has enough flexibility to reliably operate the grid.
- There are no proceedings in place to ensure California's IOUs and energy service providers (ESP's) have adequate capacity and flexibility multiple-years forward, specifically in years 2 - 9. Neither CAISO nor the CPUC provides a multi-year flexible requirement to IOUs and ESPs. However, it has been pointed out by the CPUC that they do provide a target procurement range in years 2 through 9. At this point in time the target does not account for needed flexible capacity and there is no visibility into IOUs and ESPs multi-year contracts to verify they have enough capacity or flexibility in the medium-term.
- The ISO's Capacity Procurement Mechanism is no longer adequate as a backstop because it does not allow the procurement based on insufficient flexible requirements or capacity needs beyond one year past the RA term.

Regardless of whether the ISO has determined the exact flexible needs shortage, DMM believes the gaps in flexible planning and procurement to be a significant and growing gap in the ISO market that should be addressed in both the short and long term. In the short-term the ISO has not provided any data indicating that there is a flexible capacity shortage. However, as noted in DMM's 2011 annual report, the ISO is on the verge of a dramatic increase in intermittent renewable capacity in the next few years.[3] In addition, there is a delay between when the market values a resource attribute and when this value is reflected in investment decisions. Therefore, despite the lack of short-term urgency, we support the ISO moving forward with a long-term, cohesive solution as soon as possible.

The ISO is creating a risk-of-retirement (ROR) mechanism not to backstop against current or future requirements, but as a mechanism in which to ensure needed flexibility does not retire prematurely. The ISO should make every effort to make their determination of flexible capacity needs understandable and transparent to all market participants in a timely manner so that these can be incorporated into investment decisions.

Eligibility and Conditions

The ISO has included a list of eligibility requirements and conditions once a designation is made to a resource. We encourage the ISO to make these as clear, consistent, and stringent as possible to avoid any potential manipulation of the risk of retirement mechanism (RORM). Below are some details we encourage the ISO to consider including in the proposal:

[3] Page 33 of: http://www.caiso.com/Documents/2011AnnualReport-MarketIssues-Performance.pdf

- While we agree with the ISO requirement that the resource owner must show that it made reasonable attempts to bilaterally contract for RA capacity, we would add that the resource owner must have made a conforming bid, or include in a signed affidavit why they were not able to make a conforming bid at least one RA request for offer (RFO).

- We request clarity on who would verify the resource's submitted net revenues to ensure that the resource would be unprofitable in the following year(s) and therefore eligible for the RORM.

- The meaning of the term "independent evaluator" should be outlined in more detail. Will any special requirement or provisions be specified in the tariff for this entity? Or, will this entity essentially serve as a contractor to the ISO?

- Once a risk-of-retirement backstop designation is made, it should be made clear that the resource will continue to have all tariff obligations outlined in the tariff, but will have no *additional* performance or must-offer requirements during the year of the award.

- The ISO should consider strengthening the claw-back provision covering the situation where a resource is not available in the year the ISO invoked the risk-of-retirement mechanism to cover. Specifically DMM is interested in what funds may be clawed back and if a penalty would be assessed.

Compensation

The ISO is proposing a cost-based payment system that covers the minimum of (1) going-forward costs, or (2) mothballing and reenergizing costs. DMM notes there are several areas under the current design that may lead to an inefficient outcome. We suggest two potential changes to the compensation methodology to improve market efficiency and reduce overall costs of RORC. In addition, we request clarification on the ISO's and resources obligations once a resource has been designated under the RORM.

(1) Current Proposal Compensation Structure

The following encompasses our current understanding of the compensation structure and identifies areas which could be made more clear.

- The ISO proposes to pay the minimum of (1) the cost to mothball and reenergize, or (2) the gross going-forward fixed costs of the unit. The cost to reenergize will be the expected cost for the current year being evaluated and not the year of need. As we understand it, if the resource chooses not to reenergize in the current year, or if actual costs to reenergize are higher than estimated, than the resource will still only be paid the initial estimated costs.

- The amount of cost-based compensation will be determined based on a recommendation by an independent evaluator. The independent evaluator will verify the resource's documentation and evaluate which option, going-forward costs or mothballing, is the least-cost option.

- Once the resource is paid the least-cost option under the risk of retirement mechanism (RORM), for as long as the ISO finds them to be needed, they are required to be available in the year of stated need or be subject to a claw back provision. If they are found not to be needed, they may retire. DMM encourages the ISO to make this policy understandable and transparent. For example:
    - Resource is RORM'ed in year 1 for year 5, the resource does not apply for the ROR mechanism in years 2-4 and does not have an RA contract at any point in time, does the resource still need to be available in year 5? Will the ISO in each year after a resource was RORM'ed state whether the resource is still needed whether the resource applies for the mechanism or not?
    - In the same example as above, what if resource B applies for the RORM during year 3 when the first resource did not apply for the RORM. Will the ISO still assume the first resource will be available in year 5 and so not RORM resource B?
    - Resource is RORM'ed in year 1 for year 5, the resource applies for the ROR mechanism in years 2-4, does the resource still has to be available in year 5 if in year 3 the ISO said it was not needed?
- As several market participants have noted, there is a year overlap between the CPM risk-of-retirement tariff section and the proposed risk-of-retirement mechanism. In the event that a resource is needed in the following year, if the ISO does not modify the CPM section in the tariff, then a resource could fall under two compensation structures. DMM feels this is a significant issue with the current proposal and encourages the ISO to work through how this would work in the next draft.

(2) Alternative Compensation Structures

Under the current proposal, the ISO will pay going forward costs (GFC) or mothballing costs to a resource, net of any revenue for energy, ancillary service and RUC capacity received over the year that exceeds the resource's going forward costs. Any resource therefore that is RORM'ed will have no incentive to bid-in and actively participate in the market, as all profits will be directly netted against payments from the ISO. In order to incentivize market participation, DMM suggests that the ISO and stakeholders consider the following alternative compensation structure options:

1. Pay the resource going-forward costs (GFC) – (Expected Net Market Revenues* X%), where X represents the percentage of Expected Net Market Revenues that is provided as an incentive for the unit to operate when it can profitably do so in the ISO markets.

   When applying for the RORM, resources must show their expected net revenues. The ISO could pay the resource their going forward costs minus some percentage of these expected revenues. The ISO therefore is paying them enough to make their combined profits from the ISO and expected profits from the market high enough to stay online. This basic concept might also be employed using a fixed payment or percentage of GFFC instead of a percent of Expected Net Market Revenues.

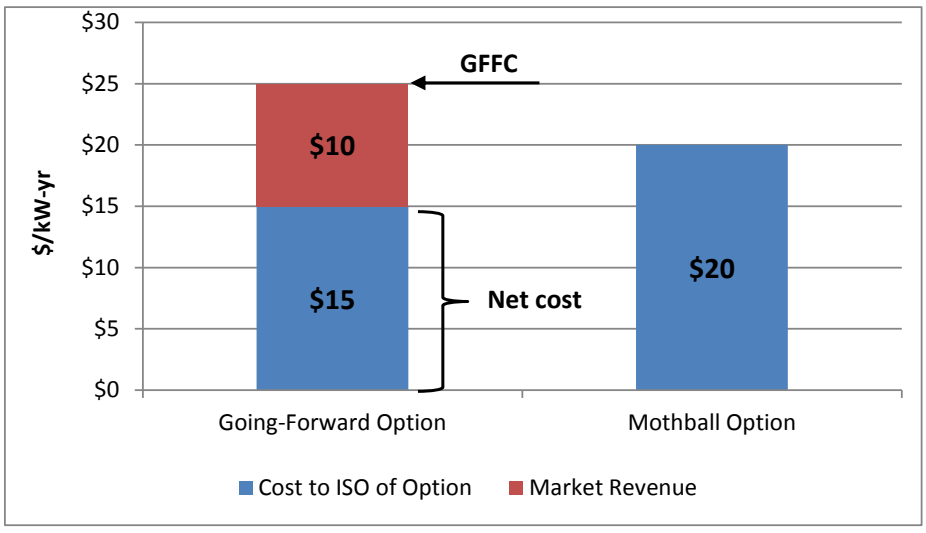
2. Pay the resource in a similar manner as (1), but rather than use the resources expected net revenues use net revenues from a proxy resource given actual market prices during the year. The proxy resource would have the same resource characteristics as the resource applying for the RORM. This would eliminate the risk for the resource of forecasting revenues based on unknown market conditions and variable O&M costs.
3. Pay the resource GFC and then only subtract for this a percentage of their actual net revenue for energy, ancillary service and RUC capacity received over the year that exceeds the resource's going forward costs. With this approach, the payment would be Going-forward costs (GFC) – (Actual Net Market Revenues* Y%), where Y represents the percentage of actual net market revenues.

As shown in Figure 1, these approaches could increase efficiency, reduce costs of RORM designations, and prevent the mothballing of units when a unit's Going Forward Fixed Costs less market revenues were actually lower than mothballing costs. The scenario in Figure 1 assumes the following:

- Mothball costs are $20/kW-yr
- Going forward costs are $25/kW-yr
- Net market revenues (if the unit operates) of $10/kW-yr

Under this scenario, the net cost of keeping the plant on-line is actually $15/kW-yr ($25/kW - $10/kW), while the cost of mothballing the unit is $20/KW-yr. However, under the ISO's proposal the unit would be paid $20/kW-yr based on the cost of being mothballed. The unit would not have any incentive to keep the unit available and operate it in the market when this was economic, since the $10/kW-yr it could earn would be subtracted from its $20/kW-yr payment. However, the approaches outlined above could be designed to that it is most profitable for the unit owner and less costly for the ISO to keep the plant on-line and run it when it is economic.

Figure 1. Going Forward Costs vs. Mothballing Costs



(3) Evaluation of least-cost options

The ISO proposes that an independent evaluator will review the financial documentation and make a recommendation on the least-cost payment option. It appears from the proposal that this will be a straight line item comparison between (1) the resource's total mothball and costs to reenergize compared directly against (2) the resources total going forward costs. As noted in the prior section, DMM recommends the ISO consider whether this approach is the most efficient. Under any of the proposed compensation schemes, if a resource is paid going forward costs, likely it will earn part of their payment stream from the market rather than from direct payments from the ISO. Therefore by comparing the two compensation options total costs, the ISO is not accounting for revenues earned in the market. For example, in the scenario outlined in Figure 1, if the units net market revenues from are greater than $5/kW, then the going-forward cost option is less expensive than the mothball option.

Phase II: Resource Adequacy Changes and Backstop

DMM does not object to the concept of backstopping external procurement policies to ensure that the ISO has adequate capability[4] to reliably operate the grid. We would note our preference for a comprehensive plan rather than a patchwork fix. Also market participants widely support moving toward a multi-year central capability market or multi-year Resource Adequacy program that includes a flexibility requirement. We agree with the ISO that there are deficiencies the planning and procurement of flexible resources that will need to be cured; however, DMM has seen no evidence that in the short-term there is an urgent need to procure flexibility beyond the inherent flexibility procured in the Resource Adequacy program that would make a backstop in 2013 necessary. We therefore support the ISO pushing this issue to Phase II of this stakeholder process. Phase II will also address cost causation principles and assess the cost allocation for Phase I.

[4] By capability market we mean a market that encompasses the ISO's reliability requirements for both capacity and flexibility.

Attachment F – ISO's Department of Market Monitoring Comments on the Final Draft Proposal for Flexible Capacity Procurement, August 1, 2012

Flexible Capacity and Local Reliability Resource Retention Amendment Filing

California Independent System Operator

Fifth Replacement FERC Electric Tariff

December 12, 2012

Comments on the Final Draft Proposal for Flexible Capacity Procurement Department of Market Monitoring August 1, 2012

The Department of Market Monitoring (DMM) appreciates the opportunity to provide comments on the Flexible Capacity Procurement Draft Final Proposal posted on July 26, 2012. Our comments below solely address their Phase I final draft proposal to implement a Risk of Retirement mechanism.

Phase I: Risk-of-Retirement Mechanism

DMM continues to believe the risk of a needed resource retiring to be an immediate concern and agrees with the ISO's decision to make this the focus of Phase I. In our previous comments[1] we tentatively supported the ISO's Risk of Retirement proposal under the assumption that additional details in the final draft would ameliorate the bulk of both DMM's and stakeholder's concerns. We feel that although the ISO has taken steps to respond to many of these issues and clarified the proposal greatly between the straw proposal and final draft proposal, there are still some additional details that should be considered in order to prevent significant market inefficiencies and gaming opportunities.

An overview: the ISO proposes to determine if a resource is needed for system flexibility or local reliability sometime within years 2-5 and will designate a resource under the risk of retirement mechanism (RORM) by:

1. Having the resource certify that they are no longer economically viable through a financial showing of costs and projected revenues to the Department of Market Monitoring (DMM).
2. Paying the resource a minimum revenue guarantee of the lesser of going forward costs, and long-term standby costs plus costs to return to service for that year, subject to:
    a. A claw-back feature if the resource retires- in the year of designation only,

[1] "Comments on the Revised Straw Proposal for Flexible Capacity Procurement," Department of Market Monitoring, June 21, 2012.

b. A 'not-offer' incentive that applies 100% of market revenues against the minimum revenue guarantee.

3. Paying the resource an administrative payment under the CPM provision for the year before the resource is needed.

Provided below is a summary of our main observations and recommendations that are explained in detail later in our comments:

- *Objective of risk of retirement mechanism:* The ISO should clarify whether the objective of the mechanism is (1) to ensure the ISO has access to the designated resource in the year of need, at the least-cost OR (2) to only ensure that designated resources are economically viable in the interim years between the designation year and year of need, at the least-cost. DMM believes the ISO is proposing option (2) and therefore due to the shortened time frame and additional compensation formulation included in the draft final proposal, advocates that the long-term standby option be removed as a possibility.
- *Compensation:* The compensations structure of any out-of-market mechanism is typically the area that will create opportunities for gaming and market inefficiency. DMM understands the difficulty in creating a compensation structure that pays a resource a high enough amount not to retire, but does not lead to negative externalities on current market structures. We have several concerns about the proposed compensation structure,
    - (1) As noted by multiple market participants, the structure may fail to compensate generators enough to prevent them from retiring if they submit their actual costs, which leads to gaming concerns.
    - (2) The structure may not provide a least-cost solution through the imposition of the 'not-offer' incentive provision. We do not agree with the ISO's argument that taking away the 'not offer' provision is the same thing as imposing a must-offer requirement and go into detail below in our comments about efficient market outcomes.
    - (3) The comparison between going forward costs and long-term standby costs on a year by year basis ignores likely future designations and potential revenues, which may lead to an inefficient minimum revenue payment choice.
- *Stakeholder Comments:* We note that stakeholders have provided extensive comments indicating concern in specific areas that have not been addressed by the ISO. We ask the ISO to consider responding to areas that have wide stakeholder concern or useful acuity. In our detailed comments below we summarize ones we found particularly insightful.

Objective of Proposal

Many stakeholder and DMM concerns with the ISO's proposal appear to stem from an unclear statement of what the ISO is procuring under the Risk of Retirement Mechanism (RORM). Although initially the ISO proposed the RORM to be (1) an out-of-market mechanism that ensures the designated

resource is available in the year of defined need; it has morphed into a proposal to be (2) an out-of-market mechanism that pays resources to not retire until a future date when it becomes eligible under CPM, economic through market mechanisms, or another solution is found. While this may seem like a pedantic distinction, it has a significant effect on the optimal compensation structure. Under (2) the ISO does not need a compensation structure that incents or explicitly requires a resource to be available in the year of need. This was one of the most significant concerns DMM brought up in the previous round of comments and was echoed by stakeholders.[2]

Taking a step back then, the ISO is seeking to find a compensation structure under RORM that incents a resource to stay available as a future potential source of capacity for a maximum of only three years. This is illustrated in the table below. In Year 0, the resource will apply for the risk of retirement mechanism. The furthest out the ISO can designate the resource for under RORM is year 5. Assuming the resource reapplies for the RORM each year and the ISO forecast of need does not change, by year 4 the resource will be eligible for compensation under the CPM Risk of Retirement provision.

October, Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Applies RORM	RORM	RORM	RORM	CPM ROR	Needed

The CPM ROR would be given in year 4 if the resource is still considered needed in year 5 and this would contain a must-offer clause. Therefore the RORM does not have to incent resources to be online in year 5, only available to fall under the CPM in year 4, which means the resource would only receive a RORM designation for a maximum of 3 years. Given this short time frame and the ISO's detailed component comparison[3] between long-term standby costs plus costs to reenergize, and going forward costs, it is unrealistic that the long-term stand by costs would ever be less expensive than going forward costs, even if the ISO looked at the total expected RORM costs across the range of years rather an on a year-by-year basis.[4]

DMM therefore recommends the removal of long-term standby as a compensation option.[5] We acknowledge that both DMM and certain LSE's advocated to keep the long-term standby option as a disincentive for a resource to use the RORM as way to manipulate the RA market. However, under the current proposal, the long-term standby option is inferior as an option or disincentive to market manipulation and therefore should be removed to prevent unnecessary complexity and consulting fees.

[2] Comments submitted by Jeffrey Nelson and Alex J. Morris on behalf of Southern California Edison submitted June 26, 2012, pp. 2 – 3.

[3] "Flexible Capacity Procurement Phase 1: Risk of Retirement," Market and Infrastructure Policy, July 26, 2012, pp. 27 – 28.

[4] Comments submitted by Jeffrey Nelson and Alex J. Morris on behalf of Southern California Edison submitted June 26, 2012, pp. 4. They suggested that the RORM should minimize costs over years leading up to the term of need rather than a year-by-year analysis.

[5] This was also suggested in, "Western Power Trading Forum Comments on Flexible Capacity Procurement," June 27, 2012, pp. 2 – 3.

The ISO is proposing that going forward costs should be paid using PJM's Deactivation Avoidable Cost Credit (DACC) formulation. It should also be noted that PJM's DACC also includes a provision for a resource to go to FERC and file actual costs if they feel that the formula used as a foundation for compensation will not fully compensate actual costs. This may be an appropriate point for the ISO and stakeholders to consider.

Compensation

In our previous comments DMM suggested a potential change to the compensation methodology to improve market efficiency and reduce overall costs of RORM by removing the 'not-offer' provision that subtracts 100% of market revenues from the minimum revenue guarantee. This suggestion was supported or also proposed by a diverse set of stakeholders[6]; however, was not adopted on the grounds that the market benefits "would likely occur at the cost of all supply that was willing to participate in the market without a Flexible Capacity Risk of Retirement designation."[7] DMM understands the ISO's point, and in fact, had its own internal discussions on how to determine a market efficient outcome when there is non-market mechanism influencing energy market participation. The following section clarifies why the 'not-offer' provision should be removed and why essentially preventing resources to participate in the energy market to protect a small subset of suppliers is counter to free market principles. This is predicated on the assumption that any RORM designated resource is absolutely needed in the near future and therefore if there was a working long-term flexible capacity market or multi-year RA market, that the resource would have a long-term contract.

Removal of 'not-offer' incentive

Under the current proposal, the ISO will pay going forward costs or long-term standby costs to a resource, net of any revenue for energy, ancillary service and RUC capacity received over the year that exceeds the resource's going forward costs. Any resource therefore that is designated under RORM will have no incentive to bid-in and actively participate in the energy market, as all profits will be directly netted against RORM payments from the ISO.[8] We call this the 'not offer' provision, as it incents resources not to offer into the energy market.

In order to determine an efficient market outcome, we first considered why we are designating a resource under the RORM in the first place. The ISO is proposing a risk of retirement mechanism because currently there is no long-term market for system flexibility or local capacity, and in the future when there is a market, there is the potential this market could fail and lead to reliability issues. The

[6] "Dynegy Marketing and Trade, LLC Comments on Revised Flexible Capacity Procurement Phase 1: Risk of Retirement Proposal," June 26, 2012, page 1 notes, "compensation limited to going forward costs is inadequate." This was also noted in comments by SCE, Calpine, and GenOn.

[7] "Flexible Capacity Procurement Phase 1: Risk of Retirement," Market and Infrastructure Policy, July 26, 2012, pp. 29.

[8] Comments submitted by Eric Leuze on behalf of GenOn Energy, Inc. (GenOn) submitted June 27, 2012, pp. 2 and Comments submitted by Mark J. Smith on behalf of Calpine submitted June 26, 2012, pp. 6 – 7.

crux assumption being the resource is being designated under the mechanism in years 2-5 because of a market failure of some sort.

DMM both assumes that the resource is needed at some point in years 2-5 and that there is lumpy capacity procurement, that is, that LSEs cannot dictate the exact quantity and time period of their power supply contracts. They are limited by the timing of when generation is made available to purchase and the output of that resource. Therefore a designated resource under perfect market conditions would have a long-term contract enabling it to be economically viable and participate in the market.

In either situation, a long-term contract or an out-of-market payment, the resource has at least a portion of its fixed costs covered by a non-energy market payment. Also in either situation the resource may create market efficiencies by participating and gaining revenues from the energy market. Imposing a 'not-offer' incentive provision on a designated resource that removes any market efficiencies that could be gained from the resource's energy market participation is thereby inherently a market distortion. Preventing the resource's energy market participation therefore may artificially increase LMPs and profits by a marginal amount for a very small subset of suppliers. The opposite is also true, by allowing the resource to participate in the market, it will likely lower LMP's during the periods where it is economic for the generator to run.

This is only an efficient outcome, if as DMM assumes, the resource would have been under contract; however, we must make that assumption based on the ISO's forecasted need of the resource and current contracting practices. We conclude that fundamentally it is counter to free market principles to distort markets by imposing the 'not-offer' provision and DMM strongly recommends the ISO reconsider its compensation methodology.

Alternative compensation structures

DMM suggests that the ISO and stakeholders consider the following alternative compensation structure. We would also note there does not need to be a must-offer requirement for the ISO to include assumptions about a resource's level of participation in a compensation structure.[9] The resource itself must make these assumptions when making their decision to retire and then give these calculations to DMM and the independent evaluator to verify when applying for the RORM. Given feedback from the ISO, we recommend the approaches in the following order:

1. Pay the resource GFC and then only subtract for this a percentage of their actual net revenue for energy, ancillary service and RUC capacity received over the year that exceeds the resource's going forward costs. With this approach, the payment would be Going-forward costs (GFC) – (Actual Net Market Revenues* Y%), where Y represents the percentage of actual net market revenues.

[9] "Flexible Capacity Procurement Phase 1: Risk of Retirement," Market and Infrastructure Policy, July 26, 2012, pp. 29.

2. Pay the resource going-forward costs (GFC) – (Expected Net Market Revenues* X%), where X represents the percentage of Expected Net Market Revenues that is provided as an incentive for the unit to operate when it can profitably do so in the ISO markets.

   When applying for the RORM, resources must show their expected net revenues. The ISO could pay the resource their going forward costs minus some percentage of these expected revenues. The ISO therefore is paying them enough to make their combined profits from the ISO and expected profits from the market high enough to stay online. This basic concept might also be employed using a fixed payment or percentage of GFFC instead of a percent of Expected Net Market Revenues.

3. Pay the resource in a similar manner as (2), but rather than use the resources expected net revenues use net revenues from a proxy resource given actual market prices during the year. The proxy resource would have the same resource characteristics as the resource applying for the RORM. This would eliminate the risk for the resource of forecasting revenues based on unknown market conditions and variable O&M costs.

As shown in Figure 1, these approaches could increase efficiency, reduce costs of RORM designations, and prevent the long-term standby of units when a unit's going forward fixed costs less market revenues were actually lower than long-term standby costs. Under this compensation methodology, the long-term standby options becomes even less likely to be relevant.

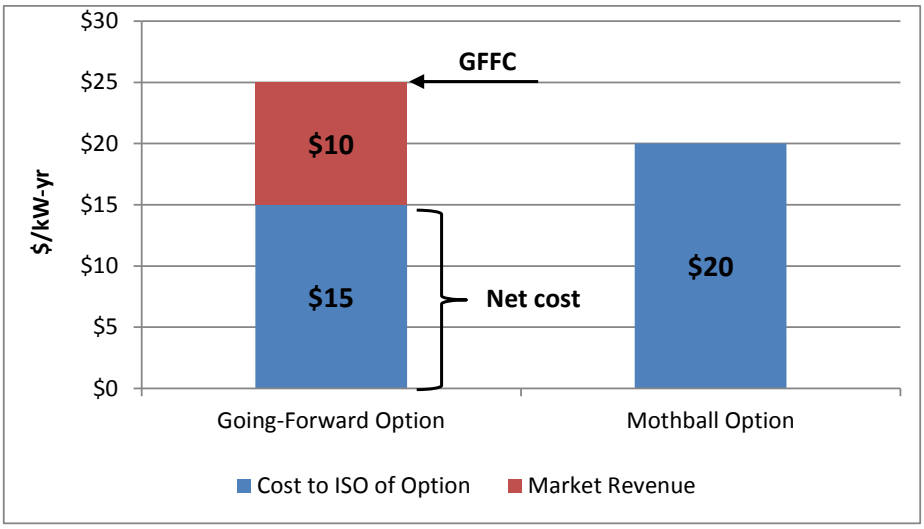
The scenario in Figure 1 assumes the following:

- long-term standby costs are $20/kW-yr
- Going forward costs are $25/kW-yr
- Net market revenues (if the unit operates) of $10/kW-yr

Under this scenario, the net cost of keeping the plant on-line is actually $15/kW-yr ($25/kW - $10/kW), while the cost of long-term standby the unit is $20/KW-yr. However, under the ISO's proposal the unit would be paid $20/kW-yr based on the cost of being on long-term standby. The unit would not have any incentive to keep the unit available and operate it in the market when this was economic, since the $10/kW-yr it could earn would be subtracted from its $20/kW-yr payment.[10] However, the approaches outlined above could be designed so that it is most profitable for the unit owner and less costly for the ISO to keep the plant on-line and run it when it is economic.

Figure 1. Going Forward Costs vs. Long-term Standby Costs

[10] Comments submitted by Eric Leuze on behalf of GenOn Energy, Inc. (GenOn) submitted June 27, 2012, pp. 2 and Comments submitted by Mark J. Smith on behalf of Calpine submitted June 26, 2012, pp.6 – 7.



Stakeholder Comments

As noted in our introduction the ISO responded to numerous stakeholder comments and clarified the proposal significantly between the straw proposal and final draft proposal. Some of the following questions may have been answered within context of the paper, but given the length of the proposal and time constraint, perhaps DMM missed the response.

1. What happens to a unit that requests retirement outside the window- is it analyzed for retirement immediately or prevented from retiring until the next analysis period?[11]

2. When does an owner become obligated to make the resource at risk of retirement available on the terms proposed at FERC? There seems to be uncertainty around when the owner may be free to end negotiations and proceed with retiring.[12]

3. The CAISO should clarify what revenues will be counted within the compensation methodology. For example, whether a supplier will be required to report risk management transactions such as hedges or contracts for differences. [13]

4. Will bid cost recovery payments be excluded as revenues?[14] DMM has noted that often bid cost recovery payments are far in excess of default energy bid prices so may be appropriate to count in part as revenue.

[11] "Dynegy Marketing and Trade, LLC Comments on Revised Flexible Capacity Procurement Phase 1: Risk of Retirement Proposal," June 26, 2012.

[12] Comments submitted by Eric Leuze on behalf of GenOn Energy, Inc. (GenOn) submitted June 27, 2012.

[13] Ibid pp. 6

5. How will the ISO provide transparency regarding the 5-year forward forecasts. There are several issues at play, from incenting the appropriate response from LSEs to not incenting generation to manipulate the RA markets due to a transparent system flexibility or local need. DMM recommends the ISO think about the benefits of transparency and the trade-off with potential manipulation incentives.

6. Did the ISO consider requiring a security deposit to discourage resources from seeking a "free" RORM review?[15] DMM encourages the ISO to consider this proposal as it would incent the correct market behavior from resources.

7. Did the ISO consider allowing for unanticipated alternative solutions as a less expensive substitute for the RORM before the awards were given?[16] DMM notes that the ISO issued something similar by calling for alternative proposals before designating Huntington Beach units 3 and 4 under the CPM in June 2012.

[14] Ibid.

[15] Comments submitted by Jeffrey Nelson and Alex J. Morris on behalf of Southern California Edison submitted June 26, 2012, pp. 4.

[16] Comments submitted by Jeffrey Nelson and Alex J. Morris on behalf of Southern California Edison submitted June 26, 2012, pp. 5.

Attachment G – ISO's Department of Market Monitoring Comments on the Revised Final Draft Proposal for Flexible Capacity Procurement, August 28, 2012

Flexible Capacity and Local Reliability Resource Retention Amendment Filing

California Independent System Operator

Fifth Replacement FERC Electric Tariff

December 12, 2012

Comments on the Revised Final Draft Proposal for Flexible Capacity Procurement Department of Market Monitoring August 28, 2012

The Department of Market Monitoring (DMM) appreciates the opportunity to provide comments on the Flexible Capacity Procurement Revised Draft Final Proposal posted on August 17, 2012. Additional details on these issues can be found in DMM's prior comments on this stakeholder process.

- Generally, DMM supports the removal of the not-offer incentive in favor of a net revenue sharing compensation structure.
- The long-term standby option has be removed, which DMM feels will significantly simplify the Independent Evaluator's compensation recommendation for eligible resources.
- DMM supports the addition of the cure period, new CPM relationship, and sunset clause in the new proposal.
- How the ISO will provide transparency regarding the 5-year forward flexible capacity forecasts is still unclear. DMM recommends the ISO produce these forecasts several years in advance of the year of need.
- DMM recommends the ISO review stakeholder's comments on appropriate going-forward cost compensation, particularly in regards to payment of debt interest expense and the inclusion of corporate salaries and expenses.
- As noted in the proposal, resources would have to submit financial information that would be assessed by DMM to confirm that the resource is not financially viable absent additional revenue. In order to do this assessment, DMM will need to rely on a review of financial information by an independent evaluator to estimate the resource's going forward costs for the upcoming year using an established formula. DMM will compare these going forwards cost to estimates of the unit's potential net market revenues developed by DMM to assess the financial viability of the unit.

Attachment H – ISO's Department of Market Monitoring Presentation - Comments on Flexible Capacity Procurement: Risk of Retirement, August 2, 2012

Flexible Capacity and Local Reliability Resource Retention Amendment Filing

California Independent System Operator

Fifth Replacement FERC Electric Tariff

December 12, 2012

DMM Comments on Flexible Capacity Procurement: Risk of Retirement

Carrie Bentley– Department of Market Monitoring
CBentley@caiso.com
August 2nd, 2012

Overview

- Capacity compensation options
- Energy compensation options

Capacity compensation options

- Current proposal
  - Lesser of:
    - Going forward costs
    - Long-term standby and costs to reenergize
- DMM suggestion:
  - Pay going forward costs only

DMM rationale

- Very difficult to determine actual long-term standby costs
- Going forward costs will be comparable
  - The comparison between going forward costs and long term standby costs is being done annually.
  - Maximum three years for a resource to go on standby and then come back online, even if ISO analyzes over expected designation.

October, Year 0	Year 1	Year 2	Year 3	Year 4	Year 5
Applies RORM	RORM	RORM	RORM	CPM ROR	Needed

Energy compensation option

- Current proposal
  - ‘Not-offer’ incentive provision, which takes away 100% of net market revenues
- DMM suggestion
  - Consider a different compensation structure that doesn’t include a ‘not-offer’ provision that takes away most benefits to market participation.
    (1) Pay GFFC, split actual net revenues
    (2) Pay GFFC minus estimated market net revenues, generator keep all revenues
  - If still include standby option, use estimated net revenues to project costs

DMM Rationale

Applying a portion of market revenues to the Minimum Revenue Guarantee will allow:

- RORM designated resources to earn revenue,
- Load serving entities to reduce direct out-of-market payments, and
- Will result in more efficient market outcomes during periods when it is economic for resource to bid into the market.

DMM perspective on market efficiency

- Only have RORM because there is a market failure
- If there wasn't a market failure, the resource would have a long-term contract:
  - Markets price in future needs
  - Energy procurement is lumpy
- Resource has at least a portion of their fixed costs covered either by the market or by the mechanism.
- Therefore it is a market distortion to discourage resources from participating in energy market through the 'not-offer' provision.

Comparison of must-offer and DMM recommendation

- Taking away the ‘not offer’ incentive is not the same as a must offer requirement

- Must-offer Requirement
  - Must offer capacity at any bid price
  - Not guaranteed any costs above RA payment
  - Keep 100% of revenues

- DMM Recommendation
  - Resource choses when to offer capacity into energy market
  - Guaranteed all going forward costs
  - Keep only a percentage of revenues

Attachment I – ISO's Market Surveillance Committee Opinion on Flexible Capacity Procurement: Risk of Retirement, September 7, 2012

Flexible Capacity and Local Reliability Resource Retention Amendment Filing

California Independent System Operator

Fifth Replacement FERC Electric Tariff

December 12, 2012

Opinion on
Flexible Capacity Procurement: Risk of Retirement

by

James Bushnell, Member,
Scott M. Harvey, Member,
Benjamin F. Hobbs, Chair,
Shmuel S. Oren, Member

Members of the Market Surveillance Committee of the California ISO

Final

September 7, 2012

Summary

The Market Surveillance Committee (MSC) of the California Independent System Operator (CAISO) has been asked to provide an opinion on the CAISO's proposals on Flexible Capacity Procurement (FCP) for units at Risk of Retirement (ROR). Earlier versions of the FCP proposal have been discussed during MSC meetings in 2012 and, most recently, at the August 14, 2012 MSC meeting. In addition, MSC members have participated in stakeholder calls and have reviewed stakeholder comments submitted to the ISO.

While agreeing with several areas of potential concern identified by stakeholders, we support the FCP initiative overall as a transition mechanism. There is a high degree of uncertainty about market conditions and reliability needs in the CAISO system over at least the next half-decade. To the extent that the market environment and the current resource adequacy design is leading to outcomes that the CAISO can demonstrate threaten reliability, it is reasonable for it to be able to take steps that mitigate those threats.

This is fundamentally a "backstop" mechanism, meant to come into play only when the market and regulatory procurement falls short in some way. As with any backstop authority, a primary concern is how the presence of the backstop may distort market procurement away from more reliable and efficient choices. While we believe that the CAISO has tried to limit such potential negative feedback, there will likely be some impact and it is impossible to predict all of the possible consequences of implementing this back up procurement mechanism. We therefore support a measure that would sunset this mechanism, and would favor a time-based

sunset, such as 5 years, over the current proposal whose sunset provision uses a criterion based on market conditions that the CAISO itself can influence.

Last, we note that this process highlights the different perspectives of the institutions governing California's electricity markets, particularly the CAISO and California's Local Regulatory Authorities (LRA), particularly the California Public Utilities Commission (CPUC). There are important fundamental questions to be resolved about the appropriate trade-off between levels of reliability and costs. All Californians would benefit from a unified vision on the proper balance of reliability and costs, and the best methods to achieve this balance.

1. Background

1.1 The Problem

The current combination of long-term procurement planning (LTPP), one-year resource adequacy (RA), and other policies such as the renewable portfolio standard (RPS) have created an apparent surplus of "generic" capacity. The current glut of capacity has apparently contributed to lower revenues for suppliers. Under these conditions, at least one plant placed in service after 2000 has indicated plans to retire and move critical equipment to other sites, and other plants may make similar decisions.

However some planning scenarios indicate that an irreversible retirement of "flexible" units now could result in a shortfall of such capacity over a 4 or 5 year time horizon. It is clear that plants not currently in the planning pipeline would be unlikely to be available in such a time-horizon, and even plants currently in the pipeline have some uncertainty associated with their in-service dates. Moreover, if the capacity provided by these retiring plants would be needed in a few years, it would potentially be far more expensive for ratepayers to replace them with new capacity in just a few years than to keep this capacity in operation or available.

In addition, there is an unusually large amount of uncertainty surrounding the future configuration of generation supply in the state. Environmental restrictions on plants using once-through-cooling (OTC) could lead to potentially large amounts of unit retirements over the next half-decade, but the exact amount of retirement is not known at this time.

Given these conditions, CAISO staff believes that reliability will be threatened if too many relatively modern and flexible plants retire, and that a new policy informed by a forward-looking analysis of needs for reliability is necessary to "backstop" the RA market. The objective of such a policy should be to prevent such units from exiting the market prior to the time that important uncertainties in the market, such as OTC retirements, have been resolved.

There are two important dimensions to this problem. One is the fact that the current requirements for resource adequacy do not distinguish more flexible sources from other types of capacity. In this sense, the CAISO views the backstop as filling a gap for "flexibility" that the current RA market does not address.

The second issue is the time frame question. Some units may in fact be in demand under RA in a few years, but are uneconomic in the near term. This would be the case, for example, if some plants are currently lower cost than others that are planning to retire, but would be much more expensive to keep in operation over the long-run once the OTC restrictions are in force. In this sense, the FCP is essentially providing "bridge funding" to units that will be needed in future years.

These issues should also be considered in the context of the broader resource adequacy debate. Two fundamental questions about resource adequacy products are why are they needed, and what do they buy?

Regarding the first question, one must ask why the market solution is not the "right" one, thus justifying the creation of the FCP mechanism? If there are no customers for a plant, and its owners want to exit, should an ISO interfere with that decision? If the market is expected to change in future years, would not expected future earnings from the energy, ancillary services, and resource adequacy markets provide an incentive for customers to pay to keep a plant around, or for its owners to absorb short-term losses in the hope of future compensation? One could argue that if the retirement of a plant will result in RA capacity shortage in future years, the resulting future RA scarcity prices should induce load-serving entities (LSEs) to enter into forward contracts for future RA that will provide the necessary income to support the plant revenue stream so that it will not retire. So the question is whether the problem is a lack of information -- implying it would be sufficient for the CAISO to inform the market of its assessment of future reliability needs -- or whether there is a more serious market failure that requires remedy through an out-of-market-action such as the proposed FCP.

Similarly, if large amounts of new renewable capacity cause energy prices to become sufficiently volatile, there are potentially large financial gains for flexible units that can respond to that volatility, and large savings for customers who can procure the services of such flexible capacity. Flexible units that can quickly ramp up to provide energy in high price intervals and, symmetrically, ramp down in low price intervals will earn greater net revenues as a result of their optionality compared to what can be earned by similar cost, but less flexible units. Further, with the introduction this year of a flexiramp constraint in the real-time market, and the likely creation of a flexible ramping product in both day-ahead and real-time markets in the near future, generation capacity that can quickly adjust its input can potentially obtain additional income streams. In the second quarter of 2012, flexiramp payments amounted to about $19M, nearly twice the payments for spinning reserve. With additional revenues in the short-run energy and related services markets, it can be argued that there would not be "missing money" for flexible generation that needs

to be compensated for through a RA-style side payment, or at least no more missing money than for any other type of capacity needed by the market.[1]

1.2 Potential Underlying Causes

We now discuss some reasons why the existing resource adequacy and short-run markets might fail to provide a sufficient efficient amount of flexible capacity. We do not claim that any of these potential causes are definitively driving the current market dynamic. Rather, we think it is important to consider the underlying economic and regulatory factors that could be contributing to the current need for FCP, as the effectiveness of alternative remedies likely depends upon the cause of the problem.

1. *Differences between the views of the CAISO and other Agencies on capacity needs, flexible or otherwise.*

If the operational reliability analysis proposed by the CAISO implies that a higher level of total capacity (flexible plus inflexible) would be needed to reliably meet future load than would be required by current RA policy, this would lead to a higher perceived future value of capacity by the CAISO than the LSEs. Even if all parties agree on the level of need for total capacity, differences in views on the level of flexible capacity required could also lead to under-procurement of those specific types of capacity. We note that stakeholder views differ on the severity and nature of the underlying problem, while we also recognize that the CAISO is currently confronting the proposed retirement of a plant it believes will be needed. Under the CAISO's standards for reliability and flexibility, the proposed retirement signals a breakdown in the logic presented at the end of the previous section that current market mechanisms are sufficient.

2. *Price discrimination in the RA market.*

In normal markets, suppliers that were uneconomic in the short-run but economic in the long-run would remain in operation, either in expectation future profits, or through long term contracts entered into by third parties hedging against future high prices. However, some have argued that the current RA market effectively discriminates against some incumbent generation.[2]

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[1] We note that, as a general principle, it is preferable to reward flexibility through short run energy and ancillary service markets than through differentiated payments in long run capacity markets. The reason is that short run markets will reward availability and performance when actually needed, whereas the link between payments for capacity ("iron in the ground") and actual contribution to system flexibility is much weaker.

[2] The argument is that current procurement practices pay pro-rated costs of new entry only to newly constructed plants. If there is sufficient supply, and buyers are concentrated, their bargaining power can allow them to set RA prices closer to going-forward costs for

The fact that suppliers indicate a preference to retire plants in the face of a near-term glut of capacity could signal that they are not confident they would earn the full market value of their capacity during coming years, even if the market did tighten. Note that this would actually be a sign of ineffective price-discrimination, since one would expect that the goal of a buyer would be to pay the bare minimum necessary to each unit to keep it from retiring. If units prefer to retire anyway, this implies that the strategy had pushed payments below that level.

Price discrimination might be sustainable in a non-transparent RA market, especially if buyers have some market power. Imperfect information regarding going-forward costs could exacerbate this situation. The resulting lack of profitability would be an inefficient outcome. If this is a significant contributor to the problem, an at least partial solution in this case would be a reform of the RA design to implement a market clearing process for RA.

3. Ambiguous buyer authority for long-run RA contracts

In a normal contracting process, capacity buyers would recognize the benefits of maintaining supply and enter into longer-term contracts with such units to keep them in operation. One potential problem would therefore be secondary market or regulatory failure that prevents such contracting. One explanation suggested by a stakeholder at the August 14 meeting would be a perceived lack of regulatory authority for regulated LSEs to enter into such long-term contracts. If this is the problem, the CPUC could eliminate it by authorizing such longer term contracts to keep needed resources in operation together with providing proper incentives to the regulated LSEs to enter into such contracts. If this is the problem, either the LSEs need to obtain better information or the RA design needs to be reformed.

4. Strategic bargaining on the part of suppliers

It is possible that a generation unit could threaten exit in order to obtain an RA payment closer to the current marginal payment for capacity. This is an analog to the price-discrimination explanation above, but on the supplier side. Such a strategy is a risk because of ambiguities inherent in defining going-forward costs, including the opportunity costs of selling the generation equipment for deployment in other markets.

5. Differing institutional views on the economic viability of specific projects.

One reason why the market may not want to provide bridge financing to a unit is that few market parties believe it would *ever* be economically viable. If the CAISO has a more favorable evaluation of the long-run economics of a resource relative to the market's views, this could trigger the FCP. This could reflect differences in the market's (and the LRAs') evaluation of the need for flexible capacity (due perhaps to different expectations about load levels or differences in expected price volatility) or

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incumbent plants. The market for resource adequacy is not transparent in California, and we are not in a position to able to judge the extent to which this may be occurring.

differences in their evaluation of how much OTC capacity will retire or other new flexible capacity enter. It is also possible that the CAISO analysis regarding future need of flexible capacity is discounted by market participants in that they doubt that the forecasted RA capacity by the CAISO will actually translate into future RA requirements approved by LRAs.

If this is the source of the problem, the CAISO, the LRAs, and the LSEs need to agree on future needs. If the CAISO requires the LSEs to contract for more of one particular retiring resource, this will simply displace another resource. Some sort of LRA participation in the CAISO process for forecasting future RA needs may address such credibility issues.

2. Design Elements of the FCP product

There are many overlapping elements to the proposal, and we will not comment on every detail. Instead we organize the key elements into four categories: timing, finding of need, payment levels, and obligations of FCP units. In this section, we comment on how the proposal addresses each of these elements.

2.1 Timing of the Mechanism

In a strictly chronological sense, the mechanism is a backstop to a market process that should clear over a summer time-frame. The "primary" markets are the procurement and resource adequacy processes, overseen by the LRAs for their jurisdictional entities. If generation resources fail to sell their capacity (or services) through these processes, the CAISO can then choose whether to assess the need for FCP for that resource.

While the chronology of this process appears sound, it is difficult to predict the impact that the presence of FCP might have on the procurement and RA processes. Part of the difficulty arises because of uncertainty over the exact payment levels (discussed below). If net FCP payments exceed RA payments (that would otherwise maintain in the absence of FCP), then generators may *prefer* the FCP, and could accordingly request higher RA payments from LSEs in the conventional RA market. Conversely, if FCP payments are "too low", LSEs that might otherwise be compelled to provide the "bridge funding" through longer-term procurement because they anticipate future market risks, could prefer to let the FCP mechanism provide the funding instead. The load incentive is complicated by the fact the FCP costs will be allocated more broadly than across a single LSE, thus allowing an LSE that might otherwise contract with a unit to "free-ride" on the FCP contributions of others. Thus even if FCP is directly more expensive, any individual LSE may still prefer it to RA procurement.

Last, given that units acquired under FCP will be given some incentive to participate in the energy and ancillary services markets, the presence of these units can depress energy prices below levels that would prevail if these units had retired, or were

mothballed. These lower energy prices and lower energy market revenues could result in "missing money" for other generators, and consequently either increase RA prices or displace other resources from the market. In short, there are risks that the FCP can feedback to the markets it is designed to backstop in ways that make the FCP more likely to be triggered.

A second timing concern is that this process will be slow and inefficient, thereby causing generation to reach ex-post "wrong" decisions either to retire despite the designation, or not retire in expectation of higher payments when faced with an uncertain outcome. Given the cost-based regulatory nature of this product, there are limited options for minimizing this risk. We note that several elements of the proposal, such as eliminating the "long-term standby" option, and minimizing the obligations to units under FCP, were adopted in part to limit the complexity of the process of cost-determination. We support these elements for this reason.

One last point to highlight on the timing question is the recently added provisions for an opportunity for an "outside agreement" to supersede a pending FCP designation. To the extent that a unit was left unsupported by a contract because LSEs were not cognizant of the unit's importance to CAISO reliability planning, this interim period can allow for transactions to be reached with the benefit of better information. We support this addition to the proposal, while noting that the time-frame is necessarily compressed and may prove to be insufficient to achieve its goals. Moreover, how LSEs would respond depends on the ultimate source of the problem.

2.2 Finding of Need

The process for determining the need for a unit is both one of the most important and least transparent elements of the proposal. Upon receiving a notice that a resource is prepared to retire, the CAISO may conduct a simulation-based analysis of whether the unit is likely to be required for a reliability need over a 2 to 5 year time horizon.

There are ambiguities in the determination of need. For instance, the draft final proposal refers to need in terms of criteria "such as the reliability criteria of one day loss-of-load in ten years" (Section 5.1.1, p. 24). However, this is not the criterion that will actually be applied, as the draft proposal refers to "flexibility requirements" (p. 25) and notes in a footnote that "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" (p. 25 footnote 22). Therefore, the actual criteria for "need" will not be based on loss-of-load-expectation but rather will rely on an undefined "unacceptable levels of reliance on external balancing authorities," i.e., an inability to maintain area control error over unspecified periods of time, at unspecified frequencies. This ambiguity in part reflects the lack of standardization in the power industry of methods for quantitatively measuring flexibility and defining the need for it. Methods are

presently being proposed and debated in IEEE, CIGRE, and elsewhere, so there is not a standard industry approach for the ISO to follow. [3]

Given the complexities of simulation exercises required to determine loss-of-load or area control error, this process will not be as transparent as other reliability mechanisms. Further adding to the complexity is that assumptions would need to be made about load forecasts (including impacts of energy efficiency) and retirements due to, e.g., once-through cooling requirements, the trade-off is the ability to robustly check for the reliability impact of specific units under specific scenarios, which comes at the cost of losing some transparency. While acknowledging the concerns of some stakeholders about this process, we do not see any obviously better way to proceed. A more transparent but necessarily simplistic "bright line" standard would risk missing subtle but still important contributions of specific units under specific conditions.

Several stakeholders have commented that the assumptions going into the planning model for purposes of determining need for FCP should be consistent with those used for other planning purposes. We agree with this sentiment while noting that this is not the case under the current proposal. It is our understanding that the CAISO is using more conservative assumptions with regards to energy efficiency and demand response than is used by the CPUC for its long-term planning process. We do not know what assumptions are being used for OTC retirements. Some level of modeling differences can be justified by a focus on unit flexibility, which is not currently emphasized in the resource adequacy process. However, assumptions about the *level* of demand do not appear to be as strongly related to flexibility as to overall capacity needs.

We fear that, if they persist, strongly held differences in opinion about the appropriate standards and assumptions that should be applied to planning will ultimately be destabilizing and inefficient. If the need for flexible capacity identified by the CAISO process is due to differences in assumptions regarding future load levels, for example, the proposed backstop might be continually triggered simply because, for example, CPUC standards imply a unit is not needed, while the CAISO's standards imply that it is. This highlights the need that we noted above to understand what is causing the announced retirement of a unit identified by the CAISO as needed for reliability. Is it because the CAISO identifies greater needs than the conventional RA process, or instead because a flaw in the RA contracting framework is causing capacity that both LRAs such as the CPUC and the CAISO would agree will be needed to be uneconomic and retire prematurely?

We urge that those overseeing the California market work toward a unified vision for the correct levels of desired flexibility, and the implied reliability levels that underlie this. As such decisions contain both important implications for both costs

[3] See e.g., E. Lannoye, M. Milligan, J. Adams, A. Tuohy, H. Chandler, D. Flynn, and M. O'Malley, "Integration of Variable Generation: Capacity Value and Evaluation of Flexibility," IEEE Power Engineering Society Annual Meeting, San Diego, July 2012.

and reliability, neither the CAISO nor the LRAs should act unilaterally in pursuit of these goals. We note that the CPUC, in their most recent comments on the CAISO's proposal, have stated their willingness to cooperate on creating a backstop mechanism that appropriately considers flexibility needs.

In this context, we note that the current proposal for a sunset of FCP, which requires in part that FCP *not* be triggered over a certain length of time, can create the expectation of a self-fulfilling prophecy. If it so desired, the CAISO would have the power to ensure that the mechanism never sunsets simply by continuing to trigger it, using reliability studies for which it preserves a great degree of analytical latitude.

2.3 Compensation and Obligations

The obvious concern here is that, since payments are being determined through a regulatory, rather than market process, this process may not play out in a timely or equitable manner. In light of this concern, we agree with the CAISO's proposal to limit the options under FCP to a single "operational stand-by" track. Even so, this is relatively new ground that is being tread. We sympathize with concerns that payment levels may be decided well after a decision would need to be made on the status of a unit, but see the current framework as trying to limit this risk.

Future Obligations

For similar reasons we support the view that FCP be implemented as a single-year product. Any requirements for, or options to, renew the obligations beyond the payment year raise questions about how to appropriately value (and assign costs to) these options. This could significantly lengthen the process for determining a just and reasonable level of compensation, and raises the risk that the level of compensation could be out of proportion with the benefits provided.

We concede that a single year of FCP payments does not guarantee that a plant will not retire in future years, but a balance must be struck between the level of security provided by this process and its potential cost in both dollars and administrative time. We view the current proposal as falling along a spectrum of possible compromises among those two objectives, one end of which would be providing *no* payment and hoping the unit does not retire, the other end would be purchasing the unit outright to absolutely guarantee that there is no retirement of that unit (but potentially triggering the retirement of another unit). One argument in favor of a future obligation is that if the FCP intends to correct for a market failure, adopting a contract form that emulates a forward contract for future RA has a better chance of eventually being assumed by the market, while an FCP payment that entails no future obligation may interfere with the market solution by creating an easy way out for the suppliers of the flexible capacity. However, as explained above, the difficulty of administratively pricing the option value and supplier risk in a FCP type contract with future obligation may outweighs the benefits of such an approach, so

we opt for a simple backstop solution with the hope that a more comprehensive market oriented approach will be developed in the future.

Market Revenues

One remaining controversial aspect of the proposal deals with the retention of market revenues earned during the period in which a unit is on FCP. As we discussed above, this element can influence the incentives of both suppliers and load to reach deals outside of the FCP process. At the same time, if a unit *is* available, and has to apply all profits to offsetting FCP payments, it has little incentive to participate in the market and operate efficiently unless energy and ancillary service prices rise to the point where net market revenues would exceed the FCP payments anyway.

In light of these conflicting concerns, we find the CAISO's approach to be reasonable, although we would also be able to support a number of the options suggested by the Department of Market Monitoring. During the process, we highlighted difficulties with using bilateral agreements outside of the CAISO for the basis of measuring operating profits, and the CAISO's current proposal largely addresses those issues by omitting bilateral agreements covering energy or ancillary services, as opposed to capacity, from consideration.[4] Ideally the calculation of operating costs should be based on all the profits that the unit *could* have earned if it was offering its energy at marginal cost. Such a provision would have created an incentive for the unit to operate whenever it is efficient for it to do so. However, the fact that the unit is not eligible for make-whole payments on a 24 hour basis may impose added risks that will motivate a unit not to operate in some hours although it is in the money. For this reason, the provision that only actual energy and ancillary service revenues from the CAISO be counted is a reasonable compromise. The provision that the resource will not be credited, i.e., made whole, for operations at a loss is likely to create inefficient incentives. These inefficiencies could arise at times when a resource should offer its output at less than its default energy bid in order to satisfy a minimum run-time constraint or stay on line overnight to avoid shutdown costs. As a consequence, these rules may need further refinement.

Another source of potential revenue for a unit is being designated as backstop capacity and remunerated through CPM payments. We support the CAISO final proposal to claw back such payments from the FCP payments.

[4] The CAISO would still require reporting of any bilateral RA payments, and would apply 100% of those revenues toward offsetting the FCP payments. This could leave an incentive to reach low-value RA contracts if the difference between market and contract value could be transferred from buyer to seller by some other means or payments outside of CAISO's vision.

3. Summary

While we support the adoption of the current FCP proposal, we again emphasize two important implications of the need for such an instrument. First, this mechanism is explicitly designed to be a backstop. Many elements of the product are different from what would be ideal if it were meant to be the *primary* means of supporting continued operation of marginal plants in the system. In the current context, we agree with the spirit of this "minimalist" approach. However, given that the impact of this mechanism on the primary markets (both current and future) is difficult to predict, we believe a firm sunset date would ensure a considered and detailed review of the mechanism's cost and effectiveness.

At the same time, CAISO's need for such an instrument indicates a lack of consensus amongst California policy makers concerning the right tools for promoting and ensuring appropriate levels of investment and reliability in the California market. One of the goals of electricity restructuring was to allow customer preferences, expressed through market processes, to influence this trade-off. For many reasons this goal has been elusive. Planning and reliability standards continue to be dominated by engineering measures that relate crudely, at best, to any measure of economic or consumer benefits. Traditional cost-benefit analysis principles are impossible to apply when the benefits cannot be quantified in the same terms as costs. The CAISO should not, nor does it want to, make unilateral decisions about these complex issues. We hope that this process can mark the beginning of a serious conversation about the proper measures and levels of reliability, and of the mechanisms best suited to achieve these levels.

Finally, we conclude by stating our general preference for rewarding generating unit flexibility through revenues from short run markets for energy and ancillary services rather than through capacity (resource adequacy) payments. In the absence of an obvious market flaw that results in short run markets failing to give appropriately higher revenues to flexible capacity than to inflexible capacity, there is no argument for fragmenting resource adequacy markets into submarkets for flexible and inflexible capacity. Designing such markets would also be complicated, and it is uncertain whether it would give effective incentives to provide the needed flexibility when actually needed by market operations. The CAISO is presently developing a flexible ramping product that, if it works as intended, should provide at least a large share of the incremental revenues needed to incent construction and maintenance of flexible capacity, relative to inflexible capacity.