

August 31, 2018

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

**Re: California Independent System Operator Corporation
CAISO Tariff Amendments to Implement Reliability
Coordinator Service**

Docket No. ER18-___-000

Dear Secretary Bose:

The California Independent System Operator Corporation (“CAISO”) proposes this tariff amendment to provide reliability coordinator service to transmission operators within its balancing authority area and to other balancing authorities in the western interconnection, including transmission operators within those balancing authority areas.¹ The amendment sets forth the terms under which the CAISO will provide reliability coordinator service. Specifically, to provide reliability coordinator service, the CAISO proposes the following tariff amendments: (1) a new section of the tariff, Section 19, containing the provisions specific to reliability coordinator service; (2) revisions to existing tariff provisions as necessary to account for the CAISO’s provision of reliability coordinator services; (3) new definitions specific to reliability coordinator service in Appendix A; (4) a new pro forma agreement for use by customers that receive reliability coordinator service from the CAISO in Appendix B; and (5) a new rate schedule in Appendix F to implement the reliability coordinator service charge.²

The CAISO requests a Commission order on this filing by November 15, 2018. Although the CAISO will not begin providing reliability coordinator services prior to July of 2019, an order in mid-November will provide the CAISO and customers a level of certainty with respect to the rates, terms and conditions of the service and support their timely execution of a reliability coordinator service agreement with the CAISO. Execution of reliability coordinator service agreements

¹ The CAISO submits the proposed tariff changes pursuant to Section 205 of the Federal Power Act, 16 U.S.C. § 824d.

² Capitalized terms not otherwise defined in this filing have the meanings set forth in Appendix A to the CAISO tariff as revised by this filing, and references to numbered sections are references to sections of the CAISO tariff as revised by this tariff filing, unless the context indicates otherwise.

in late 2018 is necessary to commit customers to the activities required for onboarding and for the CAISO to understand the scope of its commitment in terms of the number of entities for which it will be providing the service.

The CAISO requests a November 15, 2018 effective date for the tariff provisions in Sections 19.1 to 19.5, Sections 19.8 to 19.16, Appendix A, and Appendix B.³ These are the provisions necessary to support customers' execution of the reliability coordinator service agreement and their participation in the onboarding process leading up to the CAISO becoming their reliability coordinator of record. In addition, these provisions will support customers' requests for supplemental services, including hosted advance network applications, as provided in the reliability coordinator service agreement.

The CAISO requests a July 1, 2019 effective date for the tariff provisions in Sections 19.6 and 19.7, the changes to existing tariff Sections 11.20.9 and 14.7, and the new rate schedule in Appendix F. These contain the rate and settlement provisions necessary for the CAISO to collect the costs of providing reliability coordinator service from customers. July 1, 2019 is the date that the CAISO plans to become the reliability coordinator of record for entities within its balancing authority area and others that commence service on that date. Having a July 1 effective date for these tariff provisions will allow the CAISO to accomplish this transition while continuing to pass through to its scheduling coordinators the reliability coordinator charges it currently receives from Peak Reliability (Peak) through the time frame when the CAISO anticipates providing reliability coordinator service within its balancing authority area. These provisions also support the CAISO settling reliability coordinator service charges with other balancing authorities and the transmission operators within those balancing authority areas.

I. Summary

On January 2, 2018, the CAISO notified Peak that it would cease taking reliability coordinator service from Peak in late 2019, and shortly thereafter began the process of establishing itself as a NERC-certified reliability coordinator. The CAISO plans to serve as the reliability coordinator for entities within its balancing authority area, and will also offer to serve as the reliability coordinator for other balancing authorities in the western interconnection, including transmission operators within those balancing authority areas. In this filing, the CAISO sets forth the tariff provisions relating to its impending provision of such reliability coordinator services, as well as supplemental services that are related to, but not part of, the reliability coordinator function. This proposal, which is the result of an extensive stakeholder effort, will provide an opportunity for customers to obtain

³ The CAISO also proposes to cancel the existing eTariff records for Sections 19.1.1, 19.1.2, and 19.1.3, as these records will not be used and doing so will eliminate any confusion regarding the status of these sections.

this North American Electric Reliability Corporation (NERC)-mandated reliability service at a reasonable cost.

The tariff changes necessary to implement the CAISO's provision of reliability coordinator services consist of the following items:

- A new Section 19 to the CAISO tariff containing the provisions specific to reliability coordinator service;
- Revisions to existing tariff provisions, particularly the existing provisions for passing through the costs of reliability coordinator services to CAISO scheduling coordinators, to account for the CAISO's provision of reliability coordinator services;
- New definitions relating to the provision of reliability coordinator service to be included in Appendix A;
- A new rate schedule delineating the determination and allocation of the costs to the CAISO of providing reliability coordinator services; and
- A new pro forma reliability coordinator services agreement to be entered into by all balancing authorities and transmission operators receiving reliability coordinator services from the CAISO in Appendix B.

The CAISO developed these amendments through a comprehensive process that provided robust opportunities for stakeholder review and input, including two proposal documents, a review and comment period relating to the draft tariff modifications and agreement, and a number of meetings including several in-person meetings with potentially interested entities.

Although the CAISO includes in these tariff provisions some general language as to the obligations of the CAISO and customers relating to the actual provision of reliability coordinator services, it has purposefully avoided addressing such issues in detail in these documents. This is because the provision of reliability coordinator services is governed by NERC reliability standards, as established and overseen by NERC, the Western Electricity Coordinating Council (WECC) and FERC. Because the standards and related requirements are dynamic and change over time, replicating these matters in the tariff would be inefficient and confusing and would potentially cause conflict over time between the tariff and the substantive requirements for reliability coordinator service. For this reason, most of the modifications and additions proposed herein relate to the manner in which the CAISO will determine the costs that it incurs in providing reliability coordinator services and will allocate those costs to customers taking such services.

In consultation with stakeholders, there was broad consensus that the CAISO should strive for simplicity and efficiency in designing these provisions. The CAISO has aimed to do so. For instance, the CAISO will determine the costs associated with providing reliability coordinator services (the “reliability coordinator funding requirement”) by utilizing the existing rate design model that it uses for the grid management charge. The reliability coordinator funding requirement will be developed based on a percentage of the CAISO’s overall revenue requirement, which means that reliability customers will enjoy the benefits of the stability of the CAISO’s grid management charge as well as the robust processes for review and stakeholder input with respect to the development of that rate. Similarly, the CAISO proposes to allocate the costs that it incurs in providing reliability coordinator services using a volumetric rate. In addition to ensuring simplicity and efficiency, this process will ensure that all customers are treated in a nondiscriminatory fashion.

In addition to undertaking a robust stakeholder process to develop the enclosed tariff modifications, the CAISO has taken other steps to promote inclusiveness in the delivery of reliability coordinator services. In particular, the CAISO established a senior management-level interim reliability coordinator project steering committee to address oversight issues. This committee includes a representative from each balancing authority and transmission operator that expressed interest in receiving reliability coordinator service from the CAISO, as well as a representative from the CAISO, and is providing input and guidance regarding the reliability coordinator operating procedures that will be administered by the CAISO, as well as the establishment and role of a future reliability coordinator oversight committee. This oversight committee will provide input and guidance to CAISO management on various issues relating to the reliability coordinator function, and will be designed to include procedures that provide for engagement with the public and regulators.

In addition to the services that constitute the NERC-mandated reliability coordinator function, the CAISO also will offer reliability coordinator customers certain “supplemental” services to help assist them in meeting their own reliability obligations. These services will not be mandatory, but rather available at the election of each reliability coordinator customer. The CAISO will account for the costs of providing these services separately from the costs of reliability coordinator services, and recover them directly from the customers who elect to receive these services based on the actual costs incurred by the CAISO in providing them.

II. Background

In the NERC functional model, the reliability coordinator is the entity that has the highest level of authority responsible for the reliable operation of the bulk electric system. The reliability coordinator has the wide area view of the bulk

electric system and the operating tools, processes and procedures necessary to administer its authority to prevent or mitigate emergency operating situations in both next-day analysis and real-time operations through instructions issued to participating balancing authorities and transmission operators.

The CAISO currently receives reliability coordinator service from Peak and is a party to the Peak funding agreement. Under that agreement, Peak charges the CAISO a proportionate share of Peak's annual funding requirement based on its net energy for load, which under its tariff the CAISO in turn passes through to scheduling coordinators that serve load within its balancing authority area.⁴

On January 2, 2018, the CAISO provided Peak with notice that it will no longer fund Peak after September 2, 2019.⁵ Up until that date, the CAISO will continue to pay its share of Peak's annual funding requirement and pass through those charges under its tariff.⁶ Prior to that termination date, the CAISO intends to be certified by NERC and WECC as a reliability coordinator within its balancing authority area.⁷ All transmission operators within the CAISO balancing authority area will become reliability coordinator customers of the CAISO concurrent with that certification, which is targeted for July 1, 2019. In addition, the CAISO will offer reliability coordinator services to balancing authorities outside of the CAISO balancing authority area and to the transmission operators within those balancing authority areas that choose to take such service from the CAISO. The initial onboarding for most reliability coordinator customers outside of the CAISO balancing authority area is targeted for no earlier than September 1, 2019, and most potential customers prefer November 1, 2019. In any event, the CAISO will engage with these customers to align the date on which they will begin to receive reliability coordinator service from the CAISO.⁸

⁴ CAISO Tariff Section 11.20.9.

⁵ Other funding parties have sent Peak a revocable notice of withdrawal.

⁶ On August 6, 2018, Peak confirmed that its funders support the wind down of the organization and the transition of reliability coordinator services to other providers by the end of 2019. https://www.peakrc.com/whatwedo/Transitional/Documents/2018_08_06%20Future%20Strategy%20announcement%20Release%20Final%20for%20Posting.pdf

⁷ On February 1, 2018, the CAISO notified WECC that it will seek certification to perform the functions of a reliability coordinator. The certification process is independent from the tariff amendment proposed in this proceeding, except to the extent that certification is a condition of the CAISO providing reliability coordinator service, and will not be further discussed.

⁸ Some balancing authorities outside of the CAISO balancing authority area may elect to take reliability coordinator services from the CAISO on July 1, 2019. The CAISO will coordinate with all interested customers with respect to the timing of their transition.

III. Stakeholder Process

As an initial step to providing reliability coordinator services, the CAISO hosted three public meetings in January 2018. These meetings provided background information on the CAISO's decision to become a reliability coordinator and some preliminary thoughts on how it would go about doing so. The first meeting was held in Folsom, California, the second in Phoenix, Arizona, and the third in Portland, Oregon.⁹ Following these background meetings, the CAISO initiated a stakeholder process to develop the rate design and other tariff provisions necessary to support its efforts to become a reliability coordinator.¹⁰

The CAISO published a straw proposal on April 5, 2018, hosted a public meeting to discuss the proposal on April 12, 2018, received written comments shortly thereafter and then provided a comprehensive response to those comments on May 31, 2018. In addition, on May 31, the CAISO posted the first draft of the proposed reliability coordinator services agreement for stakeholder review. Based on stakeholder input on the straw proposal and draft agreement and further internal consideration, the CAISO published a draft final proposal on June 20, 2018, hosted a public meeting on June 27, 2018, and received written comments on July 11, 2018. The draft final proposal was approved by the CAISO Governing Board on July 26, 2018.¹¹

The CAISO also published a complete draft of the proposed tariff revisions, including a revised reliability coordinator services agreement, on July 18, 2018. On July 27, 2018, the CAISO hosted a stakeholder informational call to present the tariff framework and agreement, and comments were provided by stakeholders on August 10, 2018. On August 20, 2018 the CAISO responded to stakeholder comments on the proposed tariff language and agreement.

Stakeholders provided valuable input that shaped the proposed tariff amendment and agreement, and generally support the terms under which the CAISO plans to provide reliability coordinator service. Not surprisingly, however, given the timing of the initiative and the fact that historically there has been a single reliability coordinator in the west, stakeholders expressed differing views, and in some cases, concerns, with respect to specific design elements. The CAISO prepared detailed responses to comments before developing its draft final

⁹ All of the materials associated with this initiative can be found on the CAISO website at <http://www.caiso.com/informed/Pages/ReliabilityCoordinator/Default.aspx>

¹⁰ All of the materials associated with this initiative can be found on the CAISO website at: http://www.caiso.com/informed/Pages/StakeholderProcesses/ReliabilityCoordinatorServicesRateDesignTerms_Conditions.aspx

¹¹ The Board of Governors memorandum, including the draft final proposal attached to the memorandum, is included as Attachment F.

proposal, which largely addressed the concerns that were raised. The substance of each key issue, as well as some of the modifications the CAISO has made to address stakeholder concerns, are discussed below in Part IV of this transmittal letter in connection with the elements with respect to which they were raised.

IV. Reliability Coordinator Service

The CAISO is well suited to provide reliability coordinator service just as other ISO/RTOs have done for many years. Today the CAISO performs numerous tasks in its role as the transmission operator for facilities within its balancing authority area that it will also perform as the reliability coordinator. Assuming the functional responsibilities of a reliability coordinator will extend responsibility for these activities to additional balancing authorities that elect to take reliability coordinator service from the CAISO. The CAISO has existing knowledge and experience coordinating operations across regions, and has extensive data sources and models, including analytical tools that can be extended across the reliability coordinator service area. The CAISO is an experienced transmission operator with a large balancing authority area that has a significant number of remedial action schemes, special protection schemes, existing contract complexities, qualified paths, and other mitigation procedures involved in its operations. In addition, the CAISO operates the energy imbalance market, which is expected to serve 65 percent of the load in the western interconnection by 2020. Participation in the energy imbalance market does not dictate that customers receive reliability coordinator service from the CAISO. However, it does mean that such entities may already have established a majority of the interfaces and data exchange protocols required for the CAISO to deliver reliability coordinator service to them. Building on these skills, tools, interfaces and procedures to provide reliability coordinator service is a natural step for the CAISO and will provide other balancing authorities with a reliable and cost-effective option for this NERC-required service.

A. Implementation of Reliability Coordinator Services

The CAISO will provide reliability coordinator service to all transmission operators within the CAISO balancing authority area and will offer the same service to balancing authorities outside of the CAISO balancing authority area and to the transmission operators within those balancing authority areas. All balancing authorities and transmission operators that wish the CAISO to act as their reliability coordinator will be required to execute a reliability coordinator service agreement. The service agreement will obligate each customer to comply with the reliability coordinator requirements and pay the reliability coordinator charges set forth in the applicable provisions of the CAISO tariff. This tariff-based approach to providing reliability coordinator service is consistent with how the CAISO provides all of its services to customers, and is consistent

with how other ISO/RTOs provide reliability coordinator service to their customers.¹²

Section 19.2 requires the CAISO to obtain and maintain certification from the NERC and WECC and to perform the functions of a reliability coordinator. It further describes the implementation procedures for balancing authorities and transmission operators to obtain reliability coordinator service from the CAISO. The CAISO and the customer will establish the service date and the onboarding period; i.e., the timeframe after execution of the service agreement and prior to the start of service necessary to perform the associated integration and certification tasks. The CAISO is developing training materials and other procedures in support of this effort. The initial reliability coordinator service date will be July 1, 2019 for the first group of customers, which will consist of, at a minimum, the transmission operators in the CAISO balancing authority area. The next service date for customers outside of the CAISO balancing authority area that do not begin taking service on July 1 will be no earlier than September 1, 2019, with the majority of interested external customers expressing a preference to join as of November 1, 2019.¹³ Thereafter, the CAISO will target April 1 of each year as the initial reliability coordinator service date for subsequent customers.

The CAISO will develop a checklist of readiness criteria, which it will publish in a business practice manual, so that the CAISO and the customers can track progress towards achieving the service date. Prior to the initial service date, each customer and the CAISO will engage in functional and system integration testing, training (as required), shadow operations, and other activities in order to confirm that the customer will be able to meet the readiness criteria. The CAISO will report on the CAISO website at least monthly on progress towards achieving the readiness criteria during the integration and testing phases of the onboarding process. At least 30 days before the service date, the CAISO and the customer will exchange a readiness statement to indicate they are prepared to move forward with a change in the reliability coordinator service

¹² All other ISO/RTOs in the United States provide reliability coordinator services to transmission operators within their balancing authority area and some provide the service to entities outside of their balancing authority area. See MISO Tariff, Module F – Coordination Services, Schedule 31 – Reliability Coordination Service Cost Recovery Adder, and Attachment KK-1 – Form of Service Agreement for Reliability Coordination Service; see also *Midwest ISO*, 123 FERC ¶ 61,265 (2008) (conditionally accepting proposed reliability and seams services).

¹³ The CAISO will carefully monitor reliability coordinator transition developments to ensure that the timing and scope of these activities are coordinated in a reliable and efficient manner.

provider on the service date. These requirements will provide assurance and transparency with respect to the onboarding process.¹⁴

B. Scope of Reliability Coordinator Services

The scope of reliability coordinator services and the associated obligations of the CAISO and customers receiving those services are set forth in Section 19.5. This section generally summarizes the requirements and activities set forth in the relevant reliability standards with respect to reliability coordinator functions and tools needed to perform those functions. The CAISO, as the reliability coordinator for the customer, will perform the specific tasks and functions applicable to a reliability coordinator pursuant to the NERC reliability standards.¹⁵ These functions generally include providing outage coordination service, performing operations planning analysis, conducting real-time assessment, monitoring and wide area situational awareness, administering a system operating limit methodology, approving system restoration plans, facilitating system restoration drills, communicating, establishing curtailment procedures and issuing operating instructions to customers with respect to monitored facilities. The CAISO will remain the balancing authority for its balancing authority area and a transmission operator for the facilities under its operational control. As such, the CAISO personnel responsible for the balancing authority and transmission operator functions will be required to follow directives issued by the CAISO personnel performing the reliability coordinator function. This provision also specifies that the CAISO must provide reliability coordinator services in a manner that does not unduly discriminate or give undue preference to any customer, including itself in its roles as balancing authority and transmission operator.

Each reliability coordinator customer will perform the obligations required of it by the NERC reliability standards applicable to the functions for which it is registered, insofar as they relate to interactions with the reliability coordinator. These interactions generally involve exchanging data, operating plans, operating procedures, studies, and reports, following operating instructions with respect to monitored transmission facilities, and providing such information as the CAISO may reasonably request in relation to major incidents. The customer will remain responsible for all requirements associated with its registered functions, and nothing in the tariff will alter any customer's responsibilities under the NERC reliability

¹⁴ The implementation of customers into the energy imbalance market follows a similar process. See CAISO Tariff Section 29.2(b)(4)-(8).

¹⁵ Section 19.1(d) provides that the NERC reliability standards take precedence over the provisions of Section 19 or any other CAISO tariff provision applicable to reliability coordination customers to the extent of any inconsistency, thus avoiding any potential inconsistency between the description of reliability coordinator service in the CAISO tariff and the NERC reliability standards.

standards. As such, each customer will remain responsible with respect to compliance with all applicable NERC/WECC reliability standards.

The CAISO will also offer certain supplemental services to customers that choose the CAISO as their reliability coordinator. Although these services will not be part of the CAISO's reliability coordinator function itself, they will leverage the CAISO's technology and expertise in providing reliability coordinator services. These additional services will initially include, but are not limited to, hosted advanced network applications and physical security assessments. The hosted advanced network application service will consist of a web-based interface that will allow customers to view ratings, contingencies, remedial action schemes, and one-line diagrams, along with real-time state estimation and real-time security assessments. Customers who select the physical security review service can have the CAISO assess the protection of their critical transmission stations and substations and associated primary control centers as an independent party as required by the NERC CIP-014 reliability standard.¹⁶ All of these services are separate from the reliability coordinator service and each customer may elect whether or not to take, on an a la carte basis, any supplemental service offered by the CAISO. The customer elections will be documented and settled separately as described further below.

Stakeholders generally understand and agree with the scope of the reliability coordinator service and supplemental services that the CAISO will offer. Some stakeholders raised questions about the status of the Western Interchange Tool (WIT) and the Enhanced Curtailment Calculator (ECC), which are tools used in western interconnection daily operations. These tools are not necessarily required to provide reliability coordinator service in accordance with the reliability standards. Nonetheless, as a balancing authority, the CAISO understands the importance of these tools and that historically these types of tools have been centrally managed in the western interconnection by either WECC or the reliability coordinator. Although the interchange authority function has been removed from the NERC functional model, the CAISO agrees that these tools should continue to be used in the western interconnection without any disruption to service. Therefore, the CAISO is actively working with WECC, NERC and other reliability coordinators to ensure these tools continue to be centrally managed and available. The CAISO will ensure that reliability coordinator customers have access to the WIT and ECC tools and will include the costs for such tools in its core reliability coordinator service charge. More information on this topic will be shared as it becomes available at future WECC meetings and in other forums that are ongoing with interested balancing authorities and transmission operators.

¹⁶ The CAISO currently provides this service to its participating transmission owners and the CAISO has committed to extend this service to all reliability coordinator customers that wish to receive it.

C. Reliability Coordinator Services Rates and Charges

1. Development of the Reliability Coordinator Funding Requirement

The CAISO will recover the costs of providing reliability coordinator services through a reliability coordinator services charge, which is set forth in a new Schedule 7 of existing Appendix F to the CAISO tariff. The declaration of April Gordon, the CAISO's Director of Financial Planning and Procurement (Gordon Declaration), provides a detailed discussion of how the CAISO developed the reliability coordinator services charge.¹⁷

As explained in Ms. Gordon's declaration, the CAISO will leverage its existing rate design model and activity based costing system to determine the amount it will charge for reliability coordinator service. The model is based on seven guiding ratemaking principles¹⁸ which are cost causation, focus on use of services, transparency, predictability, forecastability, flexibility and simplicity. This is the same model used by the CAISO to determine the grid management charges and the energy imbalance market administrative fees.¹⁹

Utilizing this approach, the CAISO will develop an annual reliability coordinator funding requirement. The funding requirement will be the product of the CAISO's overall annual revenue requirement multiplied by the percentage of costs attributable to providing reliability coordinator services (the "reliability coordinator percentage") as determined as part of the triennial cost of service study the CAISO conducts as part of its GMC revenue requirement determination.²⁰ This approach allows the reliability coordinator funding requirement to build upon the stability of the CAISO's annual GMC revenue requirement, benefiting both the reliability coordinator customers and customers paying other CAISO rates.²¹ Reliability coordinator customers will also benefit because the reliability coordinator funding requirement will be developed in tandem with the robust grid management charge process, thus subjecting it to the various stakeholder input and review procedures associated with that process.²²

¹⁷ The declaration is included as Attachment E to this filing.

¹⁸ Additional information regarding the CAISO's GMC rate structure is available at http://www.aiso.com/Documents/DraftFinalProposal-2012GridManagementChargeFeb15_2011.pdf.

¹⁹ Gordon Declaration at P 3.

²⁰ *Id.* at P 4.

²¹ *Id.* at P 5. Since 2007, the CAISO's overall GMC revenue requirement has averaged an annual increase of less than 1 percent. *Id.*

²² See CAISO Tariff, Appendix F, Schedule 1, Part D.

The reliability coordinator percentage of the revenue requirement will be based on the direct and indirect time and expense necessary for the CAISO to perform its reliability coordinator services and functions. The CAISO will update the reliability coordinator percentage as part of the triennial cost of service study that the CAISO performs as part of its GMC revenue requirement determination process. However, because the next triennial study is not due to be performed until 2020, the CAISO needed to determine initial reliability coordinator percentages based on an estimate of the costs necessary to provide reliability coordinator services prior to this study.

The CAISO has developed two initial RC services percentages. The first initial percentage, which the CAISO calculated as two percent of its total revenue requirement, represents the costs that the CAISO expects to incur in offering reliability coordinator services to entities within its own balancing authority area, which it plans to commence on July 1, 2019, along with a few external entities that the CAISO anticipates, in its discretion, will be ready to begin taking reliability coordinator services as of this date. This initial percentage will establish the reliability coordinator services rate until September 1, 2019, which is the earliest date on which the CAISO will begin providing reliability coordinator services to other interested entities outside of its balancing authority area. As discussed below, the CAISO calculated that nine percent of its total revenue requirement is reasonably representative of the costs that the CAISO will incur in offering reliability coordinator services to entities both inside and external to its balancing authority area as of September 1, 2019 at the earliest. Based on broad expressions of interest and Peak's direction to wind down its operations in 2019, the CAISO reasonably expects it will be providing reliability coordinator services to customers in the northwest and southwest regions of the western interconnection by the end of 2019, and the nine percent figure reflects this assumption.²³

The CAISO determined the revenue requirement percentages applicable to reliability coordinator services by performing a modified interim cost of service study. The CAISO first estimated the associated direct operating expenses. Labor will be the largest expense.²⁴ In the scenario where the CAISO is providing service to much of the western interconnection,²⁵ the CAISO projects that approximately 55 full time equivalent positions will be needed to support the service.²⁶ The CAISO

²³ The CAISO expects that it would be able to accommodate all balancing authorities in the western interconnection at this rate if that is the outcome.

²⁴ Gordon Declaration at P 12.

²⁵ The CAISO would be able to deliver reliability coordinator service to the entire western interconnection with this same level of full time equivalents.

²⁶ Gordon Declaration at P 12. The CAISO initially estimated that it could perform reliability coordinator service for most of the western interconnection with 32 full time equivalents. Through

developed this estimate based on an analysis that considered internal resources necessary to provide reliability coordinator services, other reliability coordinator staffing plans, and other relevant studies related to the reliability coordinator function.²⁷ The CAISO also accounted for its ability to leverage existing CAISO personnel to reduce the direct costs of providing reliability coordination services. The CAISO can do this because it already has significant resources performing activities similar to the RC functions (e.g., balancing authority planning staff).²⁸ The CAISO thus based the total labor cost estimate on the direct hours associated with each reliability coordinator-related task that existing CAISO staff would perform, paired with the personnel expenses of each of the full time equivalent positions included in the analysis. The CAISO also identified the projected non-labor related costs and mapped these costs to the reliability coordinator-related tasks.²⁹ These costs include reliability coordinator-specific tools and applications.

The CAISO also proposes to allocate a proportionate amount of its indirect expenses to the reliability coordinator budget. The CAISO determined the indirect portion of the estimated reliability coordinator expense by allocating the indirect expenses identified in the revenue requirement proportionately based on the direct cost percentages.³⁰ Indirect costs represent those costs that are not assignable to a specific task associated with a CAISO service and charged to customers who receive that service. Indirect costs include labor costs from those positions considered in an indirect, rather than direct, supporting role as well as other components of the CAISO's revenue requirement such as administrative tools and capital.³¹ This indirect expense allocation allows the CAISO and stakeholders to consider reliability coordinator services and related projects during the annual capital budget planning process.

The CAISO will develop the reliability coordinator funding requirement as part of the annual budget process used to determine the CAISO's annual GMC revenue requirement, following the requirements and schedule set forth in the CAISO tariff.³² Going forward, the CAISO will update the reliability coordinator percentage as part of the triennial cost of service study by analyzing the hours and resources tracked

working with stakeholders and the evaluation of other information, the CAISO revised this estimate up to 55 full time equivalents. *Id.*

²⁷ *Id.* at PP 13-16.

²⁸ *Id.*

²⁹ *Id.* at P 17.

³⁰ *Id.* at P 18.

³¹ *Id.*

³² CAISO Tariff, Appendix F, Schedule 1, and Part D – Budget Schedule.

against the reliability coordinator-related activity based costing task codes. Also, because the CAISO will determine the reliability coordinator funding requirement as a percentage of the overall CAISO revenue requirement, it will reduce the GMC revenue requirement.

Several stakeholders sought rate protection through a cap on the total budget for reliability coordinator services. The CAISO proposal does not include a specific cap on the reliability coordinator service funding requirement. A reliability coordinator-specific rate cap would be partially redundant to the existing FERC revenue requirement cap that has been established through a stakeholder process and has been in effect for many years. This overall rate cap limits the increase of the GMC revenue requirement that can occur without a full cost of service study and filing with the Commission. Restricting rate increases with respect to some but not all of the costs that roll up to the total GMC revenue requirement could restrict the CAISO's ability to respond to operational or technical design changes in its reliability coordinator function. A reliability coordinator-specific rate cap could unfairly shift costs to other grid management charge categories, contrary to the CAISO's cost causation principles. A single cap on the GMC revenue requirement provides the stability assurance that customers should expect and allows the CAISO the flexibility to meet the needs of all customers in the most cost-effective manner.³³

2. Calculating the Reliability Coordinator Services Charge

To recover the reliability coordinator revenue requirement, the CAISO will calculate a reliability coordinator services rate annually, effective January 1 each year. The CAISO will perform reliability coordinator services for the following entities: balancing authorities with load; transmission operators within balancing authority areas, with or without load; and generation-only balancing authorities. The CAISO will calculate the reliability coordinator services rate by taking the annual reliability coordinator funding requirement, less any known minimum reliability coordinator services charge for the applicable year (discussed below), and dividing the funding requirement by the sum of (1) the annual net energy for load MWh for all balancing authorities with load and transmission operators and (2) the annual net generation MWh for all generators connected to generation-only balancing authorities and transmission operators that the CAISO anticipates will take reliability coordinator services for the applicable year.³⁴

³³ Gordon Declaration at PP 21-22. The CAISO has shown years of cost and revenue requirement stability which provides all customers with assurance of fiscal discipline in managing all of their needs. See Attachment F, Draft Final Proposal at pg. 13, figure 2.

³⁴ Gordon Declaration at P 23.

Net energy for load is a NERC-defined term that refers to net balancing authority area generation, plus energy received from other balancing authority areas, less energy delivered to balancing authority areas through interchange. It includes balancing authority area losses but excludes energy required for storage at energy storage facilities.³⁵ Peak currently uses net energy for load as the billing determinant for assessing the costs of its reliability coordinator services.³⁶ The CAISO will likewise use net energy for load as the basis for calculating the reliability coordinator services charge for balancing authority areas and transmission operators that have load.³⁷ The CAISO will use the net generation of all generators connected to generation-only balancing authorities as the basis for calculating the reliability coordinator services charge for such entities.³⁸ Net generation refers to the net power available from a generating facility to be fed into the power system at the high side of the generating facility transformer(s). This term is similar to net energy for load in that it is the net energy from a generation-only balancing authority area that is available to serve load.³⁹ The CAISO proposes to add to its tariff new definitions for “net energy for load” and “net generation.”⁴⁰

To calculate such charges, the CAISO will multiply either the reliability coordinator customer’s net energy for load (for entities with load) or net generation (for generation-only balancing authority areas) by the reliability coordinator services rate to determine the amount that the CAISO will invoice the reliability coordinator customer.⁴¹ As discussed in greater detail below, the CAISO proposes to continue to settle and invoice reliability coordinator-related charges to entities within the CAISO’s balancing authority area based on the procedures set forth in existing Section 11.20.9 with some minor modification, which is the provision by which the CAISO currently passes through its share of the reliability coordinator charge from Peak. Thus, the CAISO will assess the reliability coordinator services charge to all scheduling coordinators that serve load and transmission operators within the CAISO balancing authority area. For such entities, the CAISO will determine the

³⁵ *Id.* at P 24.

³⁶ Peak employs the minimum charge formulation for all balancing authorities without net energy for load. *See infra*, fn. 45.

³⁷ *Id.* at P24.

³⁸ *Id.* at P25.

³⁹ *Id.*

⁴⁰ As discussed, the CAISO will continue to assess reliability coordinator costs to its scheduling coordinators based on “NERC/WECC metered demand” which is functionally similar to “net energy for load”, and will charge transmission operators without load a minimum charge.

⁴¹ Gordon Declaration at P 26.

reliability coordinator services charge by multiplying the annual reliability coordinator services rate by the entity's share of the total NERC/WECC metered demand in MWh for the CAISO balancing authority area, determined in accordance with Section 11.20.9. Although NERC/WECC metered demand is a substantially similar measurement to net energy for load, to ensure that the CAISO assesses costs to its balancing authority area on a comparable basis to other balancing authority areas, the CAISO proposes to clarify that the definition of net energy for load will equal NERC/WECC metered demand for the CAISO balancing authority area.

The CAISO will implement a minimum reliability coordinator services charge of \$5,000 applicable to reliability coordinator customers that either have no net energy for load and no net generation during an applicable period, or whose reliability coordinator service charge for a particular year, calculated as described above, would result in a charge that was less than \$5,000.⁴² Even if a reliability coordinator customer has no load and no generation, it will still require constant, although minimal, administrative attention from a reliability coordinator service provider.⁴³ Without load or generation, there is no metric the CAISO can use as a proxy billing determinant that reasonably represents the costs the CAISO incurs to provide reliability coordinator services to such entities. Instead, \$5,000 represents the amount that the CAISO estimates it would generally spend towards providing outage coordination, dispatch and other services to entities with either zero or an amount of net energy for load or net generation that would otherwise result in a reliability coordinator service charge below the minimum.⁴⁴

For reliability coordinator customers that take reliability coordinator services for less than a full year in either their initial or final year of participation, the CAISO will prorate their reliability coordinator services charge liability for such years based on the period that the customer takes service during such year, rounded up to the nearest month.

The CAISO will not have a reliability coordinator services-specific operating reserve account and will instead rely upon the general CAISO operating reserves funded by reliability coordinator customers through their share of indirect cost allocations. Initially, the CAISO proposed a reliability coordinator-specific operating reserve to assure customers that the CAISO would have reserves to draw upon. Some stakeholders requested that the CAISO instead rely upon the general operating reserve; others wanted control over any reliability coordinator-specific operating reserve. The final proposal ensures that the general operating reserve

⁴² *Id.* at P 27.

⁴³ The CAISO believes that only transmission operators that are reliability coordinator customers would not have net energy for load or net generation. Customers that are balancing authorities by definition would have either net energy for load or net generation.

⁴⁴ Gordon Declaration at P 27.

account, which reliability coordinator customers fund through their share of indirect expenses, will be available to manage any shortfall as noted above and any potential penalty as described below. This approach represents an efficient way to manage CAISO reserves across all services, and resolves stakeholder concerns.

Some generation-only balancing authorities commented that the CAISO's proposal to calculate their reliability coordinator service charge based on net generation will increase their costs and is inequitable. Under the current funding agreement, Peak charges such entities a *de minimis* minimum annual charge.⁴⁵ The generation-only balancing authorities consider this charge to be justified based on their size and purported limited impact on the bulk electric system. In addition, they argue that they do not need all aspects of the reliability coordinator service provided by the CAISO. They assert that using a volumetric billing determinant of net generation will result in them paying several times their current annual cost for reliability coordinator service compared to what Peak currently charges them under the funding agreement.⁴⁶ They seek pricing for generation-only balancing authorities that considers the same factors they assert were applied when Peak developed its funding agreement so that their costs for reliability coordinator service from the CAISO would be less than (or at the very least no more) than what they currently pay Peak.

The CAISO considered these comments and concluded it was appropriate to allocate reliability coordinator costs to generation-only balancing authorities based on their net generation. Peak never filed for Commission review and approval the methodology it utilized to determine its *de minimis* minimum annual charge for these entities, and there is no public record of any process or methodology Peak employed to determine the allocation to generation-only balancing authorities. As such, that Peak ultimately decided to assess a *de minimis* charge to these entities says nothing about the justness and reasonableness of the CAISO's proposal. The CAISO's proposal is just and reasonable because it treats all balancing authorities similarly and is consistent with the cost allocation principles applied by the CAISO in developing its rates.⁴⁷ Most importantly, it is consistent with cost causation

⁴⁵ Because the funding parties agreed that net-energy for load would be the billing determinant, Peak charges generation-only balancing authorities a minimum charge equal to the lower of \$10,000 or 0.015% of the final funding amount. See Section 4.3 of the Peak Funding Agreement: file:///U:/Reliability%20Coordination/Peak%20Wind%20Down/2015_06_10%20Peak%20Board%20and%20Member%20Approved%20Final%20Agreement.pdf

⁴⁶ The estimates of what the generation-only balancing authorities may be charged under the CAISO's proposal were represented by the generation-only balancing authorities during the stakeholder process and cannot be verified by the CAISO because the CAISO does not have access to the net generation billing data for these entities that would be used by the CAISO in assessing reliability coordinator charges.

⁴⁷ The CAISO assesses its grid management charge to all scheduling coordinators based on volume, i.e., each MWh of load and each MWh of generation represented in the market.

principles and recognizes the benefits generation-only balancing authorities receive from reliability coordinator services.

Significantly, NERC standards do not differentiate between generation-only balancing authorities and traditional balancing authorities. All balancing authorities are required to have a reliability coordinator, and the service provided by the CAISO fulfills that fundamental obligation for generation-only balancing authorities, just as it does for other balancing authorities. The CAISO's role is to ensure reliability over a broader integrated footprint comprised of multiple interconnected balancing authority areas; its role is not so myopic as to focus only on individual balancing authorities without regard to the "bigger picture." The CAISO's cost allocation proposal appropriately recognizes the broader scope of its role.

Generation-only balancing authorities rely on the bulk electric system to deliver all the energy they generate, and reliability coordinators are responsible for overseeing the reliable operation of the system. The physical limitations of the bulk electric system are defined by equipment capabilities across balancing authorities, and these limits are impacted by the energy produced by generation. Therefore, an entity's net generation is an effective and reasonable measure of its contribution to potential reliability issues requiring reliability coordinator monitoring and response. Moreover, reliability coordinators must manage operational aspects of generation and associated equipment, as well as their forced and planned outages. By allocating costs based on MWh amounts of load and generation, the CAISO's proposal appropriately considers the costs of providing reliability coordinator services to the entire footprint over which the CAISO will provide such services and the benefits all balancing authorities receive from reliability coordinator services.

The fact that some reliability coordinator-specific tasks may not be required to fully monitor a generation-only balancing authority does not make the CAISO's proposal unreasonable or inequitable. Each balancing authority, regardless of whether it has load or not, will inherently have differences—some may have numerous remedial action schemes, some may have a qualified path located within their area, and some may have one or more seams with another reliability coordinator area. Similarly, some generation-only balancing authorities may primarily consist of variable energy resources while others are comprised of more traditional resources. Attempting to devise an allocation scheme that precisely accounts for all of these various circumstances and potential differences among all balancing authorities would be extremely difficult and costly, not to mention inherently tenuous insofar as such circumstances can and will change over time, meaning far less predictability for customers. Rate design does not require such exactitude in order to comply with cost causation principles. Rather, the CAISO's

proposal must reasonably allocate the costs it incurs to provide the service.⁴⁸ Although the generation-only balancing authorities would prefer to maintain a de minimus charge that resulted from no quantifiable cost-benefit basis analysis by Peak, the reliability coordinator services and benefits they will receive are not trivial. For the reasons described above, net load and net generation represent reasonable, quantifiable proxies for the benefits these entities receive from reliability coordinator service and the costs the CAISO incurs to provide those services.⁴⁹

As explained above, the CAISO will apply the reliability coordinator service charge based on volume (*i.e.*, MWh). A volumetric charge is warranted because the corresponding benefits will accrue to all balancing authorities that receive reliability coordinator services from the CAISO, not just those with load. Moreover, the CAISO proposal does not make an up-front allocation of costs based on an analysis of benefits and usage at a specific point in time, but instead allocates costs based on volume over time, which helps ensure that as volumes and benefits change, cost allocation also will adjust to accommodate those changes. All of these factors demonstrate that the allocation of the reliability coordinator service charge on a volumetric basis is just and reasonable.

D. Supplemental Services Charges

The charges for supplemental services will be separate from the reliability coordinator services charge, and will be based on the direct costs incurred by the CAISO to provide these services.⁵⁰ The hosted advance network application services are expected to include a one-time charge of \$35,000 to \$70,000, depending upon the number of reliability coordinator customers that elect to take the service. This amount will be charged over the initial 3-year term in equal annual installments as provided in the tariff. The CAISO will also recover an annual ongoing fee to cover software license fees and CAISO support. The software license fee will be equal to the vendor license costs which will vary per reliability coordinator customer depending upon the number of users. The CAISO support fee

⁴⁸ See *Ill. Commerce Comm'n v. FERC*, 576 F.3d 470, 476 (7th Cir. 2009) (citing *KN Energy*, 968 F.2d at 1300; *Transmission Access Policy Study Group v. FERC*, 225 F.3d 667, 708 (D.C. Cir. 2000), *aff'd sub nom. NY v. FERC*, 535 U.S. 1 (2002); *Pac. Gas & Elec. Co. v. FERC*, 373 F.3d 1315, 1320-21 (D.C. Cir. 2004); *Midwest ISO Transmission Owners v. FERC*, 373 F.3d 1361, 1368 (D.C. Cir. 2004); *Alcoa Inc. v. FERC*, 564 F.3d 1342, 1346-47 (D.C. Cir. 2009); *Sithe/Independence Power Partners, L.P. v. FERC*, 285 F.3d 1, 4-5 (D.C. Cir. 2002); 16 U.S.C. § 824d).

⁴⁹ The CAISO would only apply the minimum charge in the absence of net energy for load or net generation, *i.e.*, zero volume, or if the resulting charge would otherwise be less than the minimum.

⁵⁰ The actual charges for the supplemental services will be published in the BPM to allow for the charges to be adjusted based on the CAISO's cost on a consistent basis.

is expected to be \$45,000 per reliability coordinator customer. The CAISO support includes hardware costs for hosting the service, operation and maintenance, technical support, security and administrative costs.

The charge for the physical security review or any similar supplemental services that the CAISO elects to offer will be established as the actual cost incurred by the CAISO based on the number of hours spent times the labor rate for the individual working on the project including administrative staff.⁵¹

E. Settlement of Reliability Coordinator Services Charges

Generally, the CAISO settles with entities within its balancing authority area that are certified as CAISO scheduling coordinators. The CAISO does not, however, propose to require that reliability coordinator service customers that are not otherwise scheduling coordinators be certified as CAISO scheduling coordinators in order to receive reliability coordinator services. The CAISO tariff provisions applicable to scheduling coordinators are extensive and in many ways unique to market participation. The potential customers for reliability coordinator services, however, are balancing authorities and transmission operators that may or may not also participate in any CAISO markets. Section 19 therefore includes separate requirements for settlement of reliability coordinator charges and related provisions for those reliability coordinator customers who are not otherwise scheduling coordinators for load-serving entities within the CAISO's balancing authority area.

The CAISO had initially proposed procedures that would have improved the financial efficiency of the process but would have been more complex for reliability coordinator customers to implement. Stakeholders universally requested simplicity over efficiency, and the proposed amendment reflects this approach to settlement of reliability coordinator service charges. The CAISO has also ensured that the settlement process for non-CAISO entities is consistent with its existing procedures for passing through the costs of reliability coordinator services that it is allocated from Peak to internal CAISO scheduling coordinators, which the CAISO proposes to retain in an amended form.

1. Settlement for Reliability Coordinator Customers External to the CAISO

In order to ensure that the CAISO has adequate and accurate data regarding the applicable billing determinants needed to calculate reliability coordinator service charges, each reliability service customer must submit specified billing data volumes no later than a date that will be published by the CAISO, which the CAISO

⁵¹ The CAISO offers a similar structure for charges associated with the study of generator interconnection requests. See, *infra*, fn. 57.

anticipates will be September 30.⁵² Customers that are generation-only balancing authorities will submit their total annual net generation in MWh from January 1 through December 31 of the previous year. All other customers will submit their total annual net energy for load in MWh from January 1 through December 31 of the previous year. Customers that are transmission operators with no net energy for load during the period January 1 through December 31 of the prior year will indicate such to the CAISO. If the customer does not submit the required billing volume data by the specified date, the CAISO will utilize the customer's default MWh value specified in the reliability coordinator services agreement to determine the customer's billing data volume. For customers that are, or are located in, generation-only balancing authority areas, the default MWh value will equal the customer's installed generation capacity times a 90 percent capacity factor times 8,760 hours in a year. For other customers, the default MWh value will equal the net energy for load volumes reported by NERC/WECC for the year before the effective date of the customer's reliability coordinator services agreement, multiplied by a factor of 1.25. These default values were determined in collaboration with stakeholders, based on a discussion of what amount would constitute a sufficient but not unduly onerous incentive for reliability coordinator customers to provide the necessary data on a timely basis.

An informational statement containing billing data volumes submitted by the customers will be published by a date specified by the CAISO, which is expected to be by October 30 of each year. A customer will be deemed to have validated and accepted its billing data volume unless it modifies its billing data volume by a date specified by the CAISO, which is expected to be November 30 following the publication of the billing data volume informational statement. In order to ensure that settlement is based on accurate data, the CAISO may with good cause review actual billing data volumes based on information available to the CAISO and adjust a customer's charges up to two years prior to the most recently issued invoice to account for inaccuracies.⁵³

The CAISO will invoice customers on an annual basis for reliability services provided during that calendar year, except for the initial year of reliability coordinator services which will be invoiced at the same time the CAISO invoices customers for the year following that initial year. The CAISO will provide customers with an invoice by the first business day of each calendar year for reliability coordinator service to be provided during that calendar year. Customers will have the opportunity to review and validate the charges included in the invoice, which shall be binding on the

⁵² Customers in the CAISO balancing authority area are not required to submit billing data since the CAISO will calculate such customers' share of the CAISO balancing authority area's net energy for load in accordance with Section 11.20.9.

⁵³ Information available to the CAISO would include published sources such as the WECC and sources available to the CAISO through the operation of its market.

customer unless the customer has raised a dispute within 21 business days of the date of issuance. Customers are required to make timely payment to the CAISO of any charges on an invoice no later than 21 business days after the invoice is issued. If payment is not received by the last business day in January, the customer will be charged a \$1,000 one-time late payment fee on a supplemental invoice, and will be considered to be in default. These procedures and timelines substantially mirror those by which the CAISO passes through and collects the costs that it is invoiced by Peak, as set forth in Section 11.20.9, and with minor modifications to Section 11.20.9, will be in full alignment.

Customers are not permitted to dispute any reliability coordinator service invoice, except on the grounds that an error in the invoice causes the invoiced amount to differ from the amount that would result from the application of the rate set forth in the CAISO Tariff. In other words, customers will be able to dispute errors in the CAISO's calculation of reliability coordinator service charges, but not the underlying inputs or other issues. If the CAISO determines that an invoice contains such a calculation error, and the resolution of the dispute makes correction necessary, the CAISO will issue a corrected invoice within 21 business days of the date the initial invoice was issued. If there is any dispute relating to a charge included on an invoice that is not resolved prior to the payment due date, the customer must pay any amounts shown on the relevant invoice as of that payment date.⁵⁴

This simplified dispute process is consistent with how the CAISO would presently address a dispute with respect to its allocation of reliability coordinator charges in its balancing authority area and it is reasonable to extend the same dispute resolution procedure to reliability service provided by the CAISO to customers outside of its balancing authority area.⁵⁵ The customer provides the billing data to the CAISO, rather than the CAISO calculating the billing data, and the customer has an opportunity to review and correct the data it submits prior to the invoice being issued. Moreover, almost a full year will have passed from the time the data was generated until the date of the submission by the customer. There is no reason customers should be permitted to later complain that there was an inaccuracy in the data they provided or to raise any other issue that does not involve the accuracy of the CAISO's calculations. There are only two inputs into the reliability service charge calculation and the customer has control over the only input that can vary.

⁵⁴ All other disputes are subject to resolution under the alternative dispute resolution provisions of the CAISO tariff; provided that nothing limits the function of the reliability coordinator oversight committee under its charter established pursuant to Section 19.11.

⁵⁵ CAISO Tariff Section 11.20.9.5. The CAISO currently uses the term "typographical and ministerial" to limit disputes regarding such allocations. However, based on stakeholder input, the CAISO agreed to modify this language as discussed above. The CAISO views this change as a clarification rather than substantive because an error in executing the applicable formula can fairly be classified as "ministerial" in nature.

In the event a customer defaults on the payment of all or any portion of the charges included on an invoice, the CAISO may issue a supplemental invoice to all other customers that reallocates any amounts unpaid by the defaulting customer to all other customers in proportion to the amounts included on those customers' invoices. Customers shall make payment to the CAISO of any charges on a supplemental invoice within 21 business days of the date the supplemental invoice is issued. The CAISO will use all commercially reasonable efforts to collect unpaid amounts and credit other customers in proportion to the amount of the supplemental invoice they previously received. This approach is reasonable because there is no financial security for the CAISO to draw upon, as is the case with scheduling coordinators. This mechanism allows the CAISO to remain whole while it seeks to recover the shortfall from the defaulting party. This mechanism is modeled on the similar mechanism in the Peak funding agreement for collecting costs from defaulting parties.

2. Settlement Within the CAISO Balancing Authority Area

Reliability coordinator customers and scheduling coordinators that serve load in the CAISO balancing authority area will be settled in accordance with Section 11.20.9, not Section 19. The proposed changes to Section 11.20.9 align with the procedures in Section 19, discussed in the previous section, which ensure that the CAISO will settle customers and load within its balancing authority area similar to how it settles with balancing authority customers outside of the CAISO balancing authority area. Otherwise, in addition to discrimination concerns, it would be difficult for the CAISO to account for its balancing authority area reliability coordinator service charges because the CAISO does not itself serve load in its balancing authority area.⁵⁶ Nonetheless, the CAISO must account for recovery of reliability coordinator service charges based upon the net energy for load within its balancing authority area, some of which is not represented by a reliability coordinator customer. The CAISO has seven registered transmission operators within its balancing authority area that will be reliability coordinator customers; however, these seven transmission operators do not represent all of the load in the CAISO balancing authority area. Having a separate provision for settlement within the CAISO balancing authority area allows the CAISO to ensure that all load within its balancing authority area is assessed a portion of the costs associated with providing reliability coordinator services to the CAISO balancing authority area.

⁵⁶ Although the CAISO is not a party to a reliability coordinator service agreement and therefore not a reliability coordinator customer by definition, the CAISO is nonetheless obligated by its tariff to comply with the provisions of Section 19 applicable to its balancing authority and transmission operator functions.

3. Settlement of Supplemental Services

The CAISO will invoice reliability coordinator customers that elect to receive hosted advance network application services when the services commence and each year thereafter on the customer's service date anniversary. Payment for services will be due within 21 business days of the invoice date. The CAISO will continue to invoice the customer for the supplemental service annually during the initial 3-year commitment period and each year thereafter until the service has been terminated in accordance with the reliability coordinator service agreement.

The CAISO will require reliability coordinator customers that elect to have a physical security review or other similar service offered by the CAISO to provide a \$50,000 deposit at the time the review request is submitted. A deposit will be required for each requested service. If the deposit exceeds the actual cost incurred to provide physical security review, the CAISO will refund the excess amount to the customer, including interest at the rate the CAISO received on the deposit. If the actual cost of performing the service exceeds the deposit, the CAISO will invoice the customer for the excess and the customer shall pay the undisputed amount within thirty (30) calendar days. If the customer fails to timely pay any undisputed costs, the CAISO shall not be obligated to continue to perform supplemental service unless and until the customer has paid all undisputed amounts. This process is similar to the process implemented by the CAISO to perform evaluations of material modification requests and other studies for generators interconnecting to the CAISO controlled grid.⁵⁷ Following this existing process allows the CAISO to efficiently account for its costs in performing the physical security review and similar work that may be requested by the reliability coordinator customer.

F. Penalties

Section 14.7 of the current tariff sets forth a process by which the CAISO may seek, with FERC approval, to allocate reliability standards-related penalty costs assessed by FERC, NERC and/or WECC to specific entities whose conduct was found to have contributed to such penalty or to potentially allocate and recover from customers through a one-time assessment the cost of any such penalties it is otherwise unable to pay from existing funds. This provision was established pursuant to an order issued by FERC that sets forth the requirements and process that ISOs/RTOs must follow for allocation of such penalties.⁵⁸ Because this provision refers broadly to penalties levied against the CAISO "as the Registered

⁵⁷ See, e.g., CAISO Tariff Appendix U, Section 6.4, 7.6, 8.5, and 10 (establishing the procedures to request large generator interconnection studies).

⁵⁸ See Order Providing Guidance on Recovery of Reliability Penalty Costs by Regional Transmission Organizations and Independent System Operators, 122 FERC ¶ 61,247 (2008) (Guidance Order).

Entity for the violation of one or more NERC Reliability Standards,” it would apply to any penalties that the CAISO might receive in connection with performing the reliability coordinator function. As required by FERC in the Guidance Order, any such proposed allocation must be submitted to FERC for its review and approval.

As discussed above, the CAISO will not have a reliability coordinator services-specific operating reserve account and will instead rely upon the general CAISO operating reserves funded by all customers through their share of indirect cost allocations according to the formula described above. The CAISO would therefore be able to pay fines received from FERC/NERC/WECC for failure to comply with a reliability standard from a single operating reserve, regardless of which function may have been penalized. This would avoid the complication of allocating reliability standard compliance penalties based on function, which would likely be difficult if not impossible and highly contentious in any event. The general CAISO operating reserve account is funded at 15% of the CAISO’s operating and maintenance budget and should be adequate to cover virtually any potential penalty levied upon the CAISO for any reliability standard compliance violation.

The CAISO’s approach to maintaining operating reserves, together with its strong reliability standards compliance mechanisms, will at a minimum reduce, and more likely will eliminate, the need to invoke the tariff provisions associated with reliability standard compliance penalty allocation. Indeed, the CAISO has never used these provisions. The CAISO specifically included reliability coordinator customers in this requirement, however, because it is necessary to comply with the Guidance Order. In reality, the penalty allocation provision would be invoked only if there were a substantial penalty that could not be covered by reserves or, if in the CAISO’s discretion, there were a need to pursue a direct allocation or indirect allocation as permitted under these provisions. And even in such a case, customers would have an equal opportunity to intervene and comment on the CAISO filing seeking FERC authorization to recover penalties incurred by the CAISO directly or indirectly from reliability coordinator customers or market participants.⁵⁹

G. Oversight

In parallel with the stakeholder process, the CAISO established a senior management-level interim reliability coordinator project steering committee. This committee includes a representative from each balancing authority and transmission operator that expressed interest in receiving reliability coordinator service from the CAISO, as well as a representative from the CAISO. Each

⁵⁹ The reliability coordinator services agreement includes a provision to clarify that execution of the agreement can’t be deemed a waiver of any federal entity’s right to challenge an allocation of reliability-related penalties by the CAISO.

representative has responsibility within their respective organization for maintaining reliability so that the steering committee, via working groups, has the requisite expertise to develop, review and comment on procedures and practices relating to the CAISO's reliability coordinator function. The steering committee is also providing input and guidance regarding the establishment, role and charter of a future reliability coordinator oversight committee.⁶⁰ This oversight committee will provide input and guidance to CAISO management on various issues relating to the reliability coordinator function, including operational issues and overarching reliability coordinator policies and procedures.

Several stakeholders sought assurance that the oversight committee would facilitate engagement with stakeholders outside of its membership. The CAISO has committed to address these concerns in the oversight committee charter. To that end, the oversight committee will hold public sessions that will focus on any matters of broader public interest regarding the CAISO's performance of the reliability coordinator function. This will help to serve the interests of stakeholders and the general public, including state and federal regulators and regional stakeholders. These public oversight committee meetings will follow the same CAISO procedures for advance notice and posting of documents that the CAISO follows with respect to its public stakeholder meetings. The CAISO will also prepare and maintain minutes of each public oversight committee meeting so that there is a corporate record for future reference. In addition to this opportunity for engagement at public oversight committee meetings, the CAISO staff will maintain regular contact and interaction with such entities, to ensure that state and federal regulators and regional advisory bodies are kept informed of matters relating to reliability coordinator service and have a ready means to provide input and guidance on such matters.

H. Service Agreement

All balancing authorities and transmission operators who wish to receive reliability coordinator service from the CAISO must enter into the reliability coordinator service agreement included in Appendix B. The service agreement obligates the CAISO to provide the reliability coordinator service and the customer to pay for the service it receives from the CAISO, in accordance with the relevant provisions of the CAISO tariff. Including transmission operators as specific signatories to the service agreement is necessary because transmission operators have specific obligations to provide data to the CAISO and will need to follow procedures that are not applicable to the balancing authorities, including transmission operators in the CAISO balancing authority area. Transmission operators, with the consent of the balancing authorities in which they are located, may also elect to settle reliability coordinator service charges directly with the CAISO or they may opt to settle independently with their balancing authority, in which case

⁶⁰ CAISO Tariff Section 19.11.

the load that they serve would be included in the calculation of the charges paid by the balancing authority.

The service agreement consists primarily of references to the applicable CAISO tariff provisions relating to the reliability coordinator service. The service agreement establishes the type of customer – balancing authority, transmission operator, or both – and by doing so ensures that the appropriate obligations are requested and performed by each customer. For sake of clarity, each reliability coordinator services customer will be required to specifically list the transmission operators and transmission owners that they are representing. This requirement will ensure that all transmission owners are accounted for in each of the balancing authority areas taking reliability coordinator service from the CAISO. The service agreement also includes common general contractual terms appropriate for the provision of reliability coordinator services, as well as specific provisions uniquely applicable to federal entities.

The initial term of the service agreement will be 18 months. Thereafter, the service agreement will renew annually for consecutive one-year terms until terminated by the customer or the CAISO pursuant to the terms of the service agreement. A customer may terminate its agreement with the CAISO, without penalty, by giving not less than 12 months' written notice to the CAISO after completion of the initial term; provided, however, that such notice must align with the annual entry and exit window for reliability coordinator customers. The CAISO anticipates having one window each year, in April, for entering and exiting customers. This fixed window ensures adequate preparation and resources, and appropriate WECC recertification processes, as well as a recognition of seasonal challenges during the winter and summer months. The CAISO will reasonably assist the customer's transition to another reliability coordinator, provided the CAISO is reimbursed for reasonable costs incurred for the transition service.

An early termination fee will apply, equal to the balance of estimated reliability coordinator service charge and supplemental services fees, if applicable, remaining on the greater of the required notice period or payment period, if a customer terminates its agreement before the expiration of the notice period. This fee reasonably ensures recovery of any costs incurred by the CAISO for the initial integration and subsequent termination of service to the customer. If the customer is receiving hosted advance network application services, then the remaining initial set-up charge and the balance of the committed period for the services will need to be paid. The customer's responsibility for any outstanding balances owed under the service agreement will survive the termination.

Most of the remainder of the reliability coordinator service agreement provisions are identical to or consistent with other CAISO *pro forma* service agreements. The reliability coordinator service agreement is, however, distinct in four key respects. First, with respect to the CAISO's ability to terminate the

agreement (and therefore the provision of reliability coordinator services) based on a customer default, after discussions with stakeholders the CAISO agreed to add language making clear that any such notice of termination would need to include a transition plan for the customer to transition to a new reliability coordinator in order to ensure continued grid reliability. Second, many references to the tariff with respect to standard contract provisions such as confidentiality, dispute resolution, uncontrollable forces and others are to Section 19 rather than to the tariff provisions referenced in other similar provisions included in CAISO *pro forma* service agreements. As discussed above, reliability service customers are not required to be scheduling coordinators and a distinct set of provisions is useful in specifically defining their contractual obligations. Third, the liability provision is modeled on the Peak funding agreement liability provision rather than by reference to the CAISO tariff provision applicable to scheduling coordinator and other market participant liability. This allows the liability of the parties under the service agreement to be appropriately tailored for reliability coordinator service. In essence, liability between the parties is disclaimed and no third party has any right to enforce the terms of the agreement. This ensures that the primary avenue for the enforcement of the obligations under the service agreement, other than the obligation to pay, would be pursuant to the NERC reliability standards and not a contractual claim. Lastly, the CAISO may not assign the agreement, which provides assurance that the CAISO will not seek to transfer its reliability coordinator function to another entity.

All transmission operators in the CAISO balancing authority area will be expected to execute the reliability coordinator service agreement by the end of 2018 so that they are covered when the CAISO becomes the reliability coordinator of record for them on July 1, 2019.⁶¹ Balancing authorities outside of the CAISO who wish to participate in the initial onboarding on or after September 1, 2019 must initiate the service agreement execution process with the CAISO by November 2018 and execute the service agreement no later than December 31, 2018. Execution of the service agreement on this timeline is necessary because it will facilitate the exchange of information, data and models that will be used in the set-up process and preparation for shadow operations. Moreover, the executed service agreements will define the scope of the CAISO reliability coordinator service area and reflect that the CAISO will be the reliability coordinator of record for those customers effective on or after September 1, 2019. Knowing the scope of the CAISO reliability coordinator service area is essential to the NERC/WECC certification process. It will also determine the seams with other reliability coordinators so that reliability coordinator coordination

⁶¹ Other balancing authorities outside of the CAISO balancing authority area may also enter into a reliability coordinator services agreement with a July 1 service date.

issues may be addressed in appropriate agreements between the affected reliability coordinators.⁶²

V. Effective Date

The CAISO requests that this amendment be made effective in two parts. The CAISO requests a November 15, 2018 effective date for the tariff provisions in Sections 19.1 to 19.5, Sections 19.8 to 19.16, Appendix A, and Appendix B. These are the provisions necessary to support customers' execution of the reliability coordinator service agreement and their participation in the onboarding process leading up to the CAISO becoming their reliability coordinator of record. These are the provisions necessary to support customers' requests for supplemental services, including hosted advance applications, as provided in the reliability coordinator service agreement. As of November 15, the CAISO also proposes to cancel the existing eTariff records for Sections 19.1.1, 19.1.2, and 19.1.3, as these records will not be used in new Section 19. Eliminating these unused tariff records will avoid confusion now that Section 19 is being utilized for purposes of the CAISO's reliability coordinator service provisions.

The CAISO requests a July 1, 2019 effective date for the tariff provisions in Sections 19.6 and 19.7, the changes to existing tariff Sections 11.20.9 and 14.7, and the new rate schedule in Appendix F. These are the provisions necessary for the CAISO to settle with customers for reliability coordinator service. Having a later effective date for these tariff provisions will allow the CAISO to continue and settle the reliability coordinator charges it currently receives from Peak through the time frame when the CAISO anticipates providing reliability coordinator service within its balancing authority area. These provisions also support the CAISO settling reliability coordinator service charges with other balancing authorities and the transmission operators within those balancing authority areas.

The CAISO requests a Commission order by November 15, 2018 with respect to both parts regardless of the requested effective date. This will provide customers a level of certainty with respect to the rates, terms and conditions of CAISO reliability coordinator service and support their timely execution of a reliability coordinator service agreement with the CAISO. Execution of a service agreement will commit customers to the activities associated with the onboarding processes and the CAISO will know the scope of the onboarding effort.

⁶² The CAISO's reliability coordinator project steering committee that includes representatives from all potential balancing authority and transmission operator customers includes a seams working group to consider and address such matters.

VI. Requests for Waiver

The CAISO respectfully requests waiver of the Commission's notice requirement to permit those tariff changes contained in this filing with a requested effective date of July 1, 2019 to go into effect on that date. Specifically, pursuant to Section 35.11 of the Commission's regulations (18 C.F.R. § 35.11), the ISO requests waiver of the notice requirement contained in Section 35.3 of the Commission's regulations (18 C.F.R. § 35.3) to allow the requested effective date. Waiver of the notice requirement to permit the requested effective date is reasonable and will provide the CAISO and reliability coordinator service customers the certainty necessary to implement this service as proposed, while ensuring that the CAISO can continue to pass through the costs that it is allocated by Peak.

Also, the CAISO submits that this filing substantially complies with the requirements of Section 35.13 of the Commission's regulations, 18 C.F.R. § 35.13, applicable to filings of this type. The CAISO respectfully requests waiver of any such requirement to the extent this filing does not satisfy that requirement. In particular, the CAISO requests waiver of the requirement to submit Period 1 and Period 2 schedules, because the reliability coordinator service charge is based on an accepted methodology included in the CAISO tariff and is not based on historical data in Period 1 schedules or on the projections in Period 2 schedules. Moreover, there is good cause to waive filing requirements that are not material to the Commission's consideration of the filing, including the proposed reliability coordinator service charge.

VII. Service

The CAISO has served copies of this filing upon the California Public Utilities Commission, the California Energy Commission, and all parties with scheduling coordinator agreements under the CAISO tariff. In addition, the CAISO has posted the filing on the CAISO website.

VIII. Contents of Filing

In addition to this transmittal letter, this filing includes the following attachments:

Attachment A	Clean tariff sheets with a requested effective date of November 15, 2018
Attachment B	Marked tariff sheets with a requested effective date of November 15, 2018

Attachment C	Clean tariff sheets with a requested effective date of July 1, 2019
Attachment D	Marked tariff sheets with a requested effective date of July 1, 2019
Attachment E	Declaration of April D. Gordon
Attachment F	CAISO Board of Governors Memorandum, including the Draft Final Proposal attached thereto

IX. Correspondence

Pursuant to Rule 203(b) of the Commission's Rules of Practice and Procedure,⁶³ the CAISO requests that all correspondence, pleadings, and other communications concerning this filing be served upon the following:

John C. Anders
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⁶³ 18 C.F.R. § 385.203(b).

X. Conclusion

The CAISO requests that the Commission accept the amendment proposed in this filing effective November 15, 2018 and July 1, 2019 as requested. If there are any questions concerning this filing, please contact the undersigned.

Respectfully submitted,

By: /s/ John C. Anders

Roger E. Collanton
General Counsel
Burton A. Gross
Deputy General Counsel
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California Independent System
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System Operator Corporation*

Attachment A – Clean Tariff to be Effective November 15, 2018
Tariff Amendments to Implement Reliability Coordinator Service
California Independent System Operator Corporation
August 31, 2018

19. Reliability Coordinator

19.1 General Provisions

- (a) **RC Services.** The CAISO will provide RC Services to RC Customers that execute the Reliability Coordinator Services Agreement (RCSA) and the CAISO Balancing Authority.
- (b) **Tariff Obligations.** RC Customers must comply with –
 - (1) the provisions of Section 19; and
 - (2) other provisions of the CAISO Tariff that apply to the extent such provisions –
 - (A) expressly refer to Section 19 or RC Customers;
 - (B) are cross referenced in Section 19; or
 - (C) are included in Section 1 or Appendix A.
- (c) **Inconsistency Between Provisions.** If there is an inconsistency between a provision in this Section 19 and another provision of the CAISO Tariff regarding the rights or obligations of RC Customers, the provision in Section 19 shall prevail to the extent of the inconsistency.
- (d) **Inconsistency With Requirements of NERC Reliability Standards.** If there is an inconsistency between a provision in this Section 19 or any other CAISO Tariff provision applied to RC Customers through Section 19 and an obligation or requirement set forth in an applicable NERC Reliability Standard, the NERC Reliability Standard shall prevail to the extent of the inconsistency.

19.2 Access to RC Services

- (a) **In General.** The CAISO will –
 - (1) obtain certification from NERC and WECC to perform the functions of a Reliability Coordinator;
 - (2) maintain such certification as a Reliability Coordinator; and
 - (3) provide RC Services in accordance with the NERC Reliability Standards to –
 - (A) transmission operators in the CAISO Balancing Authority Area;
 - (B) the CAISO Balancing Authority;

- (C) other Balancing Authorities that request such services from the CAISO and execute the RCSA, including Balancing Authorities that are also registered as transmission operators; and
- (D) transmission operators that are within Balancing Authority Areas receiving RC Services from the CAISO.

(b) **Implementation of RC Services.**

(1) **Balancing Authorities.** A Balancing Authority that elects to receive Reliability Coordinator services from the CAISO must first execute an RCSA with the CAISO that establishes –

- (A) the Balancing Authority as an RC Customer of the CAISO;
- (B) the transmission operators within the Balancing Authority Area that will take RC Services from the CAISO, including itself if the Balancing Authority is also registered as a transmission operator;
- (C) the date upon which the Balancing Authority and the identified transmission operators will receive RC Services from the CAISO (the “RC Services Date”); and
- (D) the obligation of the Balancing Authority to complete the onboarding requirements in Section 19.2(b)(7)-(9) prior to the RC Services Date.

(2) **Transmission Operators in Balancing Authority Areas External to CAISO.**

Transmission operators in an RC Customer Balancing Authority Area must execute a RCSA that establishes –

- (A) whether the transmission operator will be invoiced by their associated Balancing Authority or invoiced directly by the CAISO; and
- (B) the date upon which the transmission operator will begin receiving RC Services from the CAISO (the “RC Services Date”); and
- (C) the obligation of the transmission operator to complete the onboarding requirements set forth in Section 19.2(b)(7)-(9) prior to the RC Services Date.

- (3) **Transmission Operators in the CAISO Balancing Authority Area.** Transmission operators in the CAISO Balancing Authority Area must execute a RCSA that establishes the obligation of the transmission operator to complete the onboarding requirements in Section 19.2(b)(7)-(9) prior to the RC Services Date for the CAISO Balancing Authority Area.
- (4) **RC Services Date.** The CAISO, in consultation with the RC Customer, will in its discretion determine the RC Services Date for each entity requesting RC Services, which will be targeted for April 1 of each calendar year except for the initial onboarding dates established in Section 19.2(b)(6).
- (5) **Onboarding Period.** The CAISO, in consultation with the RC Customer, will in its discretion establish the onboarding period based on the complexity and compatibility of the Balancing Authority's transmission and technology systems with the CAISO systems, certification requirements, number and size of transmission operators within the Balancing Authority Area, and the planned timing of the CAISO's implementation of RC Services.
- (6) **Initial Onboarding Dates.** The initial RC Services Dates will be –
- (A) no earlier than July 1, 2019 for RC Customers within the CAISO's Balancing Authority Area and other RC Customers with that RC Services Date; and
 - (B) no earlier than September 1, 2019 for RC Customers outside of the CAISO's Balancing Authority Area with an RC Services Date other than what may be provided under Section 19.2(b)(6)(A).
- (7) **Integration Testing and Shadow Operations.** The CAISO and the RC Customer will, prior to the RC Services Date, engage in functional and system integration testing, shadow operations, and other activities that confirm the RC Customer's onboarding requirements are complete and sufficient to meet the readiness criteria as set forth in the Business Practice Manual for RC Services.

- (8) **Readiness Determination.** No later than 30 days prior to the RC Services Date, the CAISO will determine, in consultation with the RC Customer, whether the systems and processes of the RC Customer and the CAISO will be ready for the CAISO to begin to provide the RC Customer with RC Services, according to the readiness criteria set forth in the Business Practice Manual for RC Services.
- (9) **Readiness Statement.** The CAISO and the RC Customer will exchange a readiness statement with each other at least 30 days prior to the RC Services Date in which a senior officer of each entity states –
- (A) that the processes and systems of the prospective RC Customer and the CAISO have satisfied or will have satisfied the readiness criteria set forth in the Business Practice Manual for RC Services;
 - (B) any exceptions from the readiness criteria specified in the Business Practice Manual for RC Services, and that despite such exceptions, the criteria were met or will be met;
 - (C) that the RC Services Date is conditional on the resolution of the known issues identified in the statements and any unforeseen issues that undermine the satisfaction of the readiness criteria set forth in the Business Practice Manual for RC Services; and
 - (D) if, subsequent to exchanging readiness statements, the CAISO or the RC Customer determines that it cannot proceed with implementation on the RC Services Date, the CAISO or the RC Customer will notify the other of the delay, the reason for the delay, the proposed new RC Services Date, if it can be determined, and whether it will need to re-issue a portion or all of the readiness statement.
- (10) **Readiness Reporting.** The CAISO will report on the CAISO Website periodically, but not less than monthly during integration testing and shadow operations, on progress towards achieving the readiness criteria set forth in the Business Practice Manual for RC Services.

19.3 Supplemental Services – Hosted Advanced Network Applications (HANA)

- (a) **Scope of HANA Services.** The CAISO will also offer web-based HANA services to its RC Customers as those services are described in the Business Practice Manual for RC Services.
- (b) **Initial Commitment and Term.** An RC Customer that elects to obtain HANA services from the CAISO will be required to make a three-year initial commitment for these services, after which the RC Customer may take HANA services for additional one-year terms as provided in the Business Practice Manual for RC Services.
- (c) **Notification of Election.** An RC Customer must notify the CAISO in writing 90 calendar days in advance of the date that the RC Customer elects to take HANA.
- (d) **Termination of HANA Services.** An RC Customer may terminate HANA services in accordance with the RCSA.

19.4 Supplemental Services – Physical Security Review

- (a) **Physical Security Review.** If requested by the RC Customer, the CAISO will provide RC Customers that are transmission operators with verification of their periodic risk assessments of their transmission stations and substations in accordance with Critical Infrastructure Protection Standard 014 (CIP-014) if requested pursuant to the RCSA.
- (b) **Scope of Other Supplemental Services.** Further detail regarding the nature of the physical security review, as well as any other supplemental services offered by the CAISO, is described in the Business Practice Manual for RC Services.

19.5 Roles and Responsibilities

- (a) **CAISO Reliability Coordinator Obligations.**
 - (1) **Reliability Coordinator Services.** The CAISO, as the Reliability Coordinator for the RC Customer, will perform the specific tasks and functions applicable to a Reliability Coordinator pursuant to the NERC Reliability Standards as detailed in the RC Operating Procedures, which include –
 - (A) providing outage coordination services;
 - (B) performing operations planning analysis;

- (C) conducting real-time assessment, monitoring and wide area situational awareness;
- (D) administering a system operating limit (SOL) methodology;
- (E) approving system restoration plans and facilitating system restoration drills; and
- (F) issuing operating instructions to RC Customers with respect to monitored facilities.

(2) **Other CAISO Reliability Responsibilities.** Nothing in Section 19 shall alter the CAISO's responsibilities under the other sections of the CAISO Tariff, under any agreement not required by Section 19, or under the NERC Reliability Standards or any other Applicable Reliability Criteria as the Balancing Authority for the CAISO Balancing Authority Area and the transmission operator for the CAISO Controlled Grid, provided that the CAISO, as the Balancing Authority for the CAISO Balancing Authority Area and the transmission operator for the CAISO Controlled Grid, must comply with applicable obligations in Section 19, including Section 19.5(b)(2)(B).

(3) **Relationship Among CAISO Registered Functions.** The CAISO in its function as the Reliability Coordinator shall at all times provide RC Services in a manner that does not unduly discriminate or give undue preference to any RC Customer, including itself as a Balancing Authority and transmission operator.

(b) **RC Customer Obligations.**

- (1) **RC Customer Eligibility.** An RC Customer must be registered and certified under the applicable authorities as –
- (A) a Balancing Authority;
 - (B) a transmission operator within a Balancing Authority Area that receives RC Services from the CAISO; or
 - (C) a transmission operator within the CAISO Balancing Authority Area.

- (2) **RC Customer Obligations.** An RC Customer will perform the obligations of an RC Customer in accordance with the RSCA and Section 19 and the obligations required by NERC Reliability Standards applicable to the functions for which it is registered, insofar as they relate to interactions with the Reliability Coordinator, which include –
- (A) exchanging data, operating plans, operating procedures, studies, and reports with the CAISO in accordance with the Business Practice Manual for RC Services and applicable RC Operating Procedures;
 - (B) following CAISO operating instructions as the Reliability Coordinator with respect to monitored transmission facilities in accordance with applicable RC Operating Procedures; and
 - (C) promptly providing such information as the CAISO may reasonably request in relation to major incidents consistent with the NERC event analysis program.
- (3) **Other Balancing Authority or Transmission Operator Responsibilities.** Nothing in the CAISO Tariff will alter an RC Customer's responsibilities under NERC Reliability Standards as the Balancing Authority for its Balancing Authority Area, as a transmission operator, or any other function for which the RC Customer is registered.
- (4) **RC Customer Termination of Services.**
- (A) **Reliability Coordinator Services Agreement.** An RC Customer located outside of the CAISO Balancing Authority Area that elects to terminate RC Services must terminate the RSCA pursuant to its terms.
 - (B) **Notice.** Delivery to the CAISO of a written notice of termination pursuant to the terms of the RSCA shall represent the commitment by the RC Customer to undertake all necessary preparations to receive services from a Reliability Coordinator other than the CAISO.

- (C) **Actions Following Notice.** Upon receipt of such notice, the CAISO will undertake all reasonably necessary preparations to assist in transitioning the RC Customer to a Reliability Coordinator other than the CAISO.

* * * * *

19.8 Supplemental Services – HANA Services Charge

- (a) **HANA Services Charge.** The CAISO will charge RC Customers that elect HANA services the annual cost for the ongoing software license fee, which will be passed through directly to the RC Customers, and the costs set forth in Appendix F, Schedule 7 which will include –
- (1) a start-up cost amortized over an initial 3-year minimum commitment period; and
 - (2) the annual cost for CAISO support of the HANA services.
- (b) **Invoicing for HANA Services.** The CAISO will invoice the RC Customer for HANA services 21 Business Days prior to when the services commence. Each year thereafter, the CAISO will invoice the RC Customer for HANA services 21 Business Days prior to the anniversary date of when the RC Customer first began to receive HANA services, unless otherwise provided in Schedule 2 of the RSCSA.
- (c) **Payment for HANA Services.** Payment for HANA services will be due within 21 Business Days of the invoice date, unless otherwise provided in Schedule 2 of the RSCSA.
- (d) **Termination of HANA Services.** An RC Customer that has elected to receive HANA services will continue to be invoiced for the services annually during the initial 3-year commitment period and each year thereafter until the services have been terminated in accordance with the Business Practice Manual for RC Services.

19.9 Supplemental Services – Physical Security Review Charge

- (a) **In General.** An RC Customer may request in writing that the CAISO perform physical security review or other supplemental reliability services as specified in the Business Practice Manual for RC Services.

- (b) **Charges.** An RC Customer electing such services will be charged the actual costs incurred by the CAISO provided that (i) the RC Customer requests in writing that the CAISO perform the services, and (ii) the RC Customer provides a \$50,000 deposit to the CAISO at the time the request is submitted along with any information required by the CAISO to perform the services, and –
- (1) if the deposit exceeds the actual cost incurred to provide physical security review services, the CAISO will refund the excess amount to the RC Customer;
 - (2) if the actual cost of performing the services exceeds the deposit, the CAISO will invoice the RC Customer for the excess, and the RC Customer shall pay the undisputed amount within thirty (30) calendar days;
 - (3) if the RC Customer fails to timely pay any undisputed costs, the CAISO shall not be obligated to continue to perform physical security review services unless and until the RC Customer has paid all undisputed amounts.

19.10 Dispute Resolution Procedures

- (a) **In General.** The dispute resolution provisions in Section 13 shall apply to any dispute arising under Section 19 or the RCSA, except that any reference in Section 13 to Market Participants will be read as a reference to the RC Customer, and except as provided in Section 19.10(c).
- (b) **Timing.** An RC Customer that has disputed an RC Services Invoice under Section 19.7 must initiate any good faith negotiation or other dispute resolution remedy under Section 13 within 90 days after the day on which the CAISO provides notice of resolution of the dispute; otherwise, the RC Services Invoice will be binding on the RC Customer.
- (c) **Limitation on Disputes.** Claims or disputes asserting that the CAISO or any RC Customer was not, or is not, in compliance with the NERC Reliability Standards, and claims the CAISO failed to perform a specific task or function required of a Reliability Coordinator, will not be subject to resolution under Section 13 of the CAISO Tariff; provided that nothing in this section shall limit the function of the Reliability Coordinator Oversight Committee under its charter established pursuant to Section 19.11.

19.11 Reliability Coordinator Oversight

- (a) **In General.** The CAISO will establish a Reliability Coordinator Oversight Committee that provides RC Customer input and oversight to the CAISO's provision of RC Services.
- (b) **Charter.** The CAISO will, in consultation with prospective RC Customers, adopt a public charter that prescribes the membership, responsibilities and procedures of the Reliability Coordinator Oversight Committee.

19.12 Uncontrollable Forces

The provisions of Sections 14.1 – 14.3 regarding Uncontrollable Forces will apply to RC Customers, except that all references to "Market Participants" in such provisions shall be read as including RC Customers for purposes of application.

19.13 Liability

The provisions of Article VIII of the RCSA will apply to the CAISO and RC Customers with respect to any liability arising under Section 19.

19.14 Penalties

The provisions of Section 14.7 regarding the allocation of Reliability Standards penalties will apply to RC Customers.

19.15 Confidentiality

The confidentiality provisions of Section 20 will apply to provision of RC Services to RC Customers, including any information provided by RC Customers to the CAISO in connection with the provision of RC Services, except that all references to "Market Participants" in Section 20 shall be read as including RC Customers for purposes of application.

19.16 Miscellaneous Provisions in Addition to Section 22

Section 22 will apply to the CAISO's provision of RC Services pursuant to Section 19, except that all references to "Market Participants" in Section 22 shall be read as including RC Customers for purposes of application.

* * * * *

Appendix A

Master Definition Supplement

* * * *

- Net Energy for Load

Net Balancing Authority Area generation, plus energy received from other Balancing Authority Areas, less energy delivered to Balancing Authority Areas through interchange. It includes Balancing Authority Area losses but excludes energy required for storage at energy storage facilities. Net Energy for Load equals NERC/WECC Metered Demand for the CAISO Balancing Authority Area.

* * * *

- Net Generation

Net power available from a Generating Facility to be fed into the power system at the high side of the Generating Facility transformer(s). Net generation is equal to gross generation minus the generator's internal power usage (station service).

* * * *

- RC Customer

An entity for which the CAISO acts as the Reliability Coordinator pursuant to Section 19.

* * * *

- RC Funding Requirement

The revenue required to offset the costs that the CAISO will incur to provide RC Services.

* * * *

- RC Operating Procedures

Operating Procedures adopted by the CAISO to facilitate compliance with NERC Reliability Standards applicable to the Reliability Coordinator function.

* * * *

- RC Services

The Reliability Coordinator services provided by the CAISO for an RC Customer, pursuant to Section 19 and the Reliability Coordinator Services Agreement.

* * * *

- RC Services Date

The date on which the CAISO assumes the role of Reliability Coordinator for an RC Customer, pursuant to Section 19.2.

* * * *

- Reliability Coordinator Services Agreement (RCSA)

An agreement between an RC Customer and the CAISO, a pro forma version of which is set forth in Appendix B.

* * * *

- Reliability Coordinator Services Charge (RC Services Charge)

The charges that the CAISO assesses to RC Customers for providing Reliability Coordinator Services pursuant to Sections 19.7 or 11.20.9, as calculated in accordance with Appendix F, Schedule 7.

* * * * *

Appendix B.22 Reliability Coordinator Services Agreement

CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

AND

[RC CUSTOMER]

RELIABILITY COORDINATOR SERVICES AGREEMENT (RCSA)

THIS AGREEMENT is dated this _____ day of _____, _____, and is entered into, by and between:

(1) **[Full Legal Name]**, having its registered and principal place of business located at [Address] (the “RC Customer”);

and

(2) **California Independent System Operator Corporation** (the “CAISO”), a California nonprofit public benefit corporation having a principal executive office located at such place in the State of California as the CAISO Governing Board may from time to time designate.

The RC Customer and the CAISO are hereinafter referred to as the “Parties”.

Whereas:

- A.** WHEREAS, the CAISO has registered with and will be certified by NERC as a Reliability Coordinator prior to the RC Services Date identified in this Agreement;
- B.** WHEREAS, the RC Customer is registered with and certified by NERC as a Balancing Authority and/or Transmission Operator;
- C.** WHEREAS, the RC Customer has determined that there is a need for the RC Customer to identify a Reliability Coordinator for its operations, currently and into the foreseeable future; and
- D.** WHEREAS, pursuant to this Agreement, the CAISO agrees to provide to the RC Customer services as set forth herein.

NOW THEREFORE, in consideration of the mutual covenants set forth herein, the Parties agree as follows:

ARTICLE I

DEFINITIONS AND INTERPRETATION

1.1 Specific Definitions.

1.1.1 CAISO Tariff: The CAISO electric tariff, as amended from time to time.

1.1.2 Confidential Information: Documents, materials, data, or information (“Data”) provided to it by any other Party that reflects or contains: (a) Data treated as confidential or commercially sensitive under the confidentiality provisions of Section 20 of the CAISO Tariff; (b) Critical Energy Infrastructure Information, as defined in Section 388.113(c)(1) of FERC’s regulations; (c) Critical Electric Infrastructure Information defined in Section 215A of the Federal Power Act and regulations published by the Department of Energy; (d) pricing of third party vendor software costs for services under this Agreement; or (e) technical information and materials that constitute valuable, confidential, and proprietary information, know-how, and trade secrets belonging to a Party, including, but not limited to, information relating to drawings, maps, reports, specifications, and records and/or software, data, computer models, and related documentation.

1.1.3 FERC: The Federal Energy Regulatory Commission.

1.1.4 Initial Term: The Initial Term of the Agreement is eighteen (18) months from the RC Services Date.

1.1.5 Person: Any individual, corporation, cooperative corporation, municipal corporation, quasi-municipal corporation, non-profit corporation, joint operating entity, limited liability company, mutual association, partnership, limited partnership, limited liability partnership, association, joint stock company, trust, unincorporated organization, government entity or political subdivision thereof (including a federal power marketing administration), or organization recognized as a legal entity by law in the United States, Mexico, or Canada, as applicable.

1.1.6 RC Services: The Reliability Coordinator services provided by the CAISO and described in Section 19 of the CAISO Tariff. RC Services do not include the supplemental services also offered under this Agreement, as described in Sections 2.2.1 and 2.2.2.

1.1.7 RC Services Date: The date upon which the CAISO becomes the Reliability Coordinator of record for an RC Customer and the RC Customer begins receiving RC Services from the CAISO.

1.2 Rules of Interpretation. The following rules of interpretation and conventions will apply to this Agreement:

- (a) if there is any inconsistency between this Agreement and Section 19 of the CAISO Tariff, Section 19 of the CAISO Tariff will prevail to the extent of the inconsistency;
- (b) the singular will include the plural and vice versa;
- (c) the masculine will include the feminine and neutral and vice versa;
- (d) “includes” or “including” will mean “including without limitation”;
- (e) references to a Section, Article or Schedule will mean a Section, Article or a Schedule of this Agreement, as the case may be, unless the context otherwise requires;
- (f) a reference to a given agreement or instrument will be a reference to that agreement or instrument as modified, amended, supplemented or restated through the date as of which such reference is made;
- (g) unless the context otherwise requires, references to any law will be deemed references to such law as it may be amended, replaced or restated from time to time;
- (h) unless the context otherwise requires, any reference to a Party includes a reference to its permitted successors and assigns;
- (i) any reference to a day, week, month or year is to a calendar day, week, month or year;
- (j) the captions and headings in this Agreement are inserted solely to facilitate reference and will not have any bearing upon the interpretation of any of the terms and conditions of this Agreement; and
- (k) unless otherwise defined in this Agreement, terms and expressions used in this Agreement will have the same meanings as those contained in the “NERC Glossary of Terms Used in Reliability Standards”.

ARTICLE II

GENERAL RESPONSIBILITIES OF THE PARTIES

- 2.1 Agreement.** This Agreement is subject to Section 19 of the CAISO Tariff, which is incorporated herein.
- 2.2 Description of CAISO Responsibilities.** The CAISO agrees to provide RC Services to the RC Customer, commencing on the RC Services Date, in accordance with Section 19 of the CAISO Tariff. The CAISO will establish a

Reliability Coordinator Oversight Committee in accordance with Section 19.11 of the CAISO Tariff.

2.2.1 Supplemental Services – Hosted Advanced Network Application (HANA).

The CAISO agrees to provide HANA services to the RC Customer at its request for an additional charge, as set forth in Section 19.3 of the CAISO Tariff.

- (a) The RC Customer shall: (i) notify the CAISO 90 calendar days in advance of the RC Customer's requested start date of initial HANA services and which HANA services the RC Customer desires to take in accordance with Section 19.3(c) of the CAISO Tariff; and (ii) pay for such services in accordance with Section 19.8 of the CAISO Tariff. The start date of taking the initial HANA services will establish the anniversary date for the minimum three years of taking the HANA services and the billing date.
- (b) Each subsequent year, the RC Customer will notify the CAISO in writing 90 calendar days in advance of the anniversary date of the HANA services as to which HANA services it is electing to take for the following calendar year. If the RC Customer does not provide such notice to the CAISO 90 calendar days in advance of the anniversary date of the HANA services, the CAISO will continue to provide the RC Customer with the same HANA services it is providing to the RC Customer during the then current year.
- (c) If the RC Customer elects to receive HANA services, the RC Customer agrees to pay for three years of services regardless of whether it takes HANA services for the entire three year term, and will be invoiced one-third of that amount annually during the initial three year term. Thereafter, the RC Customer will be invoiced annually for HANA services as described in Section 2.2.1(b) above.
- (d) The CAISO will post the HANA service costs on the RC secure website.

2.2.2 Supplemental Services – Physical Security Review. The CAISO agrees to provide physical security review services to the RC Customer at its request for an additional charge, as set forth in Section 19.4 of the CAISO Tariff, in accordance with applicable Reliability Standards (currently, NERC CIP-014).

2.3 Description of RC Customer Responsibilities. The RC Customer agrees to comply with the provisions of Section 19 of the CAISO Tariff. The RC Customer shall notify the CAISO in the event there is a change in the registered reliability functions applicable to the RC Customer or, if it is a Transmission Operator, a change in its Balancing Authority Area.

2.4 RC Customer Entity Status. The RC Customer is either a (check all of the boxes that apply):

- (a) Balancing Authority (settled based on Net Energy for Load (NEL) of the BAA)
- (b) Generator Only Balancing Authority (settled based on Net Generation (NG) of the BAA)
- (c) Transmission Operator:
 - 1) Outside CAISO BAA with no load (settled based on fee)
 - 2) Outside CAISO BAA with load (settled based on Transmission Owner load or share of BAA NEL)
 - 3) Inside CAISO BAA with no load (settled based on fee)
 - 4) Inside CAISO BAA with load (settled based on share of CAISO BAA NEL)

2.4.1 Conflict of Designation. If there is a conflict between the Balancing Authority and the Transmission Operator regarding who will be billed and pay for the RC Services, the CAISO will give precedence to the Balancing Authority.

2.5 Identification of Transmission Operators and Transmission Owners. Each RC Customer that is a Balancing Authority will provide the CAISO with a list of the Transmission Operators and corresponding Transmission Owners it is representing for RC Services in Schedule 1, if any. Each RC Customer that is a Transmission Operator will provide the CAISO with a list of the Transmission Owners it is representing for RC Services in Schedule 1 and will identify the Balancing Authority Area in which it and any Transmission Owners are located. Any changes to Schedule 1 will not constitute an amendment to this Agreement.

2.6 Non-Jurisdictional Entities. For an RC Customer that is an exempt entity as described in section 201(f) of the Federal Power Act, 16 U.S.C. 824(f), the CAISO acknowledges that this Agreement does not extend FERC’s jurisdiction over the RC Customer.

ARTICLE III

TERM AND TERMINATION

3.1 Term. This Agreement will be effective as of the later of the date it is executed by the Parties or the date accepted for filing and made effective by FERC (“Effective Date”). The Agreement will remain in full force and effect for eighteen (18) months from the RC Services Date (“Initial Term”). Upon expiration of the Initial Term, this Agreement will automatically renew and will remain in full force

and effect until terminated pursuant to Sections 3.2.1 or 3.2.2 of this Agreement.

3.2 Termination.

3.2.1 Termination by CAISO. In the event the RC Customer commits any material default under this Agreement, which, if capable of being remedied, is not remedied within sixty (60) days after the CAISO has given written notice to the RC Customer of the default, the CAISO may terminate this Agreement at any time upon thirty (30) days prior written notice of termination, provided the notice of termination incorporates a transition plan for the RC Customer to transition to a new Reliability Coordinator to ensure that the termination of this Agreement results in no harm to the Western grid. The CAISO shall inform all RC Customers at the time it sends written notice of termination to any RC Customer. Any outstanding financial right or obligation or any other obligation under the CAISO Tariff of the RC Customer that has arisen while that RC Customer was receiving services under this Agreement, and any provision of this Agreement necessary to give effect to such right or obligation, will survive until satisfied. With respect to any notice of termination given pursuant to this Section, the CAISO must file a notice of termination with FERC, or must otherwise comply with the requirements of FERC Order No. 2001 and related FERC orders. For avoidance of doubt, if the CAISO terminates the Agreement under this Section 3.2.1 prior to expiration of the Initial Term, the RC Customer will still be required to pay the RC Service Charge for the remainder of the Initial Term and the HANA services charge, if applicable.

3.2.2 Termination by RC Customer. The RC Customer may terminate this Agreement, without penalty, by giving the CAISO not less than twelve (12) months advance written notice after the Initial Term. This notice will be given on or before April 1 of the current calendar year and such termination will become effective on April 1 of the following year. If the RC Customer gives the CAISO less than twelve (12) months' notice after the Initial Term and is being billed directly for the RC Services in accordance with Section 5.3, the RC Customer will be charged an amount equal to the balance of the RC Service Charge remaining on the twelve (12) month required notice period. Any outstanding financial right or obligation or any other obligation under the CAISO Tariff of the RC Customer that has arisen while that RC Customer was receiving services under this Agreement, and any provision of this Agreement necessary to give effect to such right or obligation, will survive until satisfied. With respect to any notice of termination given pursuant to this Section, the CAISO must timely file a notice of termination with FERC, or must otherwise comply with the requirements of FERC Order No. 2001 and related FERC orders. For entities defined under Section 201(f) of the Federal Power Act, 16 U.S.C. 824(f), termination will be effective upon twelve (12) months' notice irrespective of acceptance by FERC.

3.2.3 Transition Assistance. Except in the case of a CAISO termination for a default by the RC Customer, if the RC Customer requests in their notice of termination,

the CAISO will reasonably assist the RC Customer to transition to another Reliability Coordinator prior to the effective date of the transition, including providing data and assistance, provided that the RC Customer will reimburse the CAISO for its reasonable costs for such assistance.

ARTICLE IV

PENALTIES AND SANCTIONS

- 4.1 Allocation of Reliability Related Penalty Costs.** The CAISO will have the right to allocate reliability-related penalty costs assessed to the CAISO by FERC, NERC and/or WECC to the RC Customer in accordance with Section 19.14 of the CAISO Tariff.

ARTICLE V

BILLINGS AND SETTLEMENTS

- 5.1 Data and Submission.** The RC Customer will be responsible for submitting its RC Services' settlements data and related information to the CAISO in accordance with Section 19.6 of the CAISO Tariff.
- 5.2 Default MWh.** At the time it executes this Agreement, the RC Customer will provide an initial default MWh volume in Schedule 1. The default MWh volume will be used to calculate the RC Customer's Net Energy for Load or Net Generation to the extent it fails to submit the Net Energy for Load or Net Generation in accordance with Section 19.6 of the CAISO Tariff. If the RC Customer's installed capacity changes, the default Net Generation MWh volume set forth in Schedule 1 must be amended.
- 5.2.1 Validation of Default MWh Amount.** The CAISO reserves the right to request that the RC Customer provide it with data to validate the RC Customer's stated default MWh amount in Schedule 1. The RC Customer agrees to provide in a timely manner such requested data necessary for the CAISO to perform such validation, and the CAISO agrees to use this information solely for this purpose.
- 5.3 Invoice and Payment Process.** If the RC Customer is a Balancing Authority, or if it is a Transmissions Operator who elects to be billed directly in exchange for the RC Services provided by this Agreement, said RC Customer will be invoiced for RC Services in accordance with Section 19.7 of the CAISO Tariff and will have the right to dispute the RC Services invoiced amount in accordance with Sections 19.7 and 19.10 of the CAISO Tariff. If the RC Customer is a Transmission Operator and does not elect to be billed directly, the costs for its RC Services will be borne by its Balancing Authority. If the RC Customer is within the CAISO Balancing Authority Area, the Transmission Operator will be billed in accordance with Section 11.20.9 of the CAISO Tariff.

For billing purposes in accordance with this Section, the RC Customer represents that it is either a (check the box that applies):

- (a) **Balancing Authority**
- (b) **Transmission Operator (direct billing elected)**
- (c) **Transmission Operator (billed to Balancing Authority)**
- (d) **Transmission Operator within the CAISO BAA**

The invoice and payment process for the HANA services will be in accordance with Section 19.8 of the CAISO Tariff. The invoice and payment process for other supplemental services will be in accordance with Section 19.9 of the CAISO Tariff.

5.4 Payment Default. The CAISO will have the right to recover unpaid RC Services invoiced amounts from the RC Customer pursuant to Section 19.7 of the CAISO Tariff. For RC Customers in the CAISO Balancing Authority Area, the CAISO will have the right to recover unpaid RC Services invoiced amounts from the RC Customer pursuant to Section 11.20.9 of the CAISO Tariff.

ARTICLE VI

CONFIDENTIALITY

6.1 Confidentiality. Each Party's Confidential Information will be treated in accordance with the NERC Operating Reliability Data agreement and Section 19.15 of the CAISO Tariff and any other applicable confidentiality rules such as provided in the NERC Rules of Procedure, or data sharing agreements in effect between the Parties.

ARTICLE VII

GOVERNING LAW

7.1 Governing Law and Forum. This Agreement will be deemed to be a contract made under, and for all purposes will be governed by and construed in accordance with, the laws of the State of California, except its conflict of law provisions. The Parties irrevocably consent that any legal action or proceeding arising under or relating to this Agreement to which the CAISO ADR Procedures do not apply will be brought in any of the following forums, as appropriate: any court of the State of California, any federal court of the United States of America located in the State of California, or, where subject to its jurisdiction, before the FERC.

ARTICLE VIII

LIABILITY

- 8.1 Liability.** Except as expressly provided in this Agreement, neither Party, nor any of its directors, officers, employees, consultants or agents will be liable to the other Party under any circumstances, whether any claim is based in contract in tort, in equity for any punitive, or otherwise, for any special, consequential, indirect or incidental damages of any nature whatsoever, including, but not limited to, lost profits, loss of earnings or revenue, loss of use, loss of contract or loss of goodwill, or for any costs or expenses (including legal expenses) arising out of or in connection the performance or non-performance of its obligations under this Agreement.
- 8.2 No Third-Party Enforcement.** No third-party will be entitled to enforce this Agreement against any Party hereto. This Agreement is made and entered into for the sole protection and legal benefit of the Parties. No other Person will be a direct or indirect legal beneficiary, or have any direct or indirect cause of action or claim in connection with, this Agreement. No other Person will be a third-party beneficiary under this Agreement.
- 8.3 Recovery for Third-Party Indemnity.** To the extent that the CAISO suffers any loss as a result of any third-party claims arising out of the performance of this Agreement, the CAISO will be entitled to seek recovery of such loss through Section 14.4 of the CAISO Tariff, except that any reference in Section 14.4 of the CAISO Tariff to Market Participants will be read to include a reference to the RC Customer and references to the CAISO Tariff will be read to include a reference to this Agreement.

ARTICLE IX

DISPUTE RESOLUTION

- 9.1 Dispute Resolution.** The Parties will make reasonable efforts to settle all disputes arising out of or in connection with this Agreement. In the event any dispute is not settled, the Parties must adhere to the dispute resolution procedures as set forth in Section 19.10 of the CAISO Tariff.

ARTICLE X

MISCELLANEOUS

- 10.1 Representation and Warranties.** Each Party represents and warrants that the execution, delivery and performance of this Agreement by it has been duly authorized by all necessary corporate and/or governmental actions, to the extent authorized by law.

- 10.1.1 Information Exchange.** All information, including Confidential Information provided by any Party under this Agreement, is accurate to the extent of the providing Party's knowledge. The receiving Party receives the information "as is" and with the understanding that the information is accurate to the best of the providing Party's knowledge at the time of receipt.
- 10.2 Uncontrollable Forces Tariff Provisions.** Section 19.12 of the CAISO Tariff will be incorporated by reference into this Agreement.
- 10.3 Consistency with Federal Laws and Regulations.** This Agreement incorporates by reference Section 22.9 of the CAISO Tariff as if the references to the CAISO Tariff were referring to this Agreement.
- 10.3.1 Federal Entity Contract Requirements.** The provisions of Schedule 2 hereto contain provisions applicable to certain contracts entered into with the federal government. The provisions of Schedule 2 are applicable to a Party that is a federal entity if and to the extent required by applicable law and if not otherwise exempted.
- 10.3.2 No Waiver of Federal Rights.** By entering into this Agreement, no federal entity shall be deemed to have waived its rights to protest or challenge in any action or proceeding, any allocation of reliability related penalties, nor does any federal entity waive its sovereign immunity.
- 10.4 Assignments.** The RC Customer may assign or transfer any or all of its rights and/or obligations under this Agreement with the CAISO's prior written consent. Such consent will not be unreasonably withheld. Any such transfer or assignment will be conditioned upon the successor in interest accepting the rights and/or obligations under this Agreement as if said successor in interest was an original Party to this Agreement.
- 10.5 Notices.** Any notice, demand or request which may be given to or made upon either Party regarding this Agreement will be deemed properly served, given, or made: (a) upon delivery if delivered in person, (b) five (5) days after deposit in the mail if sent by first class United States mail, postage prepaid, (c) upon receipt of confirmation by return e-mail if sent by e-mail, or (d) upon delivery if delivered by prepaid commercial courier service, and unless otherwise stated or agreed must be made to the representative of the other Party indicated in Schedule 3. A Party must update the information in Schedule 3 of this Agreement as information changes. Such changes will not constitute an amendment to this Agreement.
- 10.6 Waivers.** Any waiver at any time by either Party of its rights with respect to any default under this Agreement, or with respect to any other matter arising in connection with this Agreement, will not constitute or be deemed a waiver with respect to any subsequent default or other matter arising in connection with this

Agreement. Any delay, short of the statutory period of limitations, in asserting or enforcing any right under this Agreement will not constitute or be deemed a waiver of such right.

- 10.7 Merger.** This Agreement constitutes the complete and final agreement of the Parties with respect to the subject matter hereof and supersedes all prior agreements, whether written or oral, with respect to such subject matter.
- 10.8 Severability.** If any term, covenant, or condition of this Agreement or the application or effect of any such term, covenant, or condition is held invalid as to any person, entity, or circumstance, or is determined to be unjust, unreasonable, unlawful, imprudent, or otherwise not in the public interest by any court or government agency of competent jurisdiction, then such term, covenant, or condition will remain in force and effect to the maximum extent permitted by law, and all other terms, covenants, and conditions of this Agreement and their application will not be affected thereby, but will remain in force and effect and the Parties will be relieved of their obligations only to the extent necessary to eliminate such regulatory or other determination unless a court or governmental agency of competent jurisdiction holds that such provisions are not separable from all other provisions of this Agreement.
- 10.9 Amendments.** This Agreement and the Schedules attached hereto may be amended from time to time by the mutual agreement of the Parties in writing. Amendments that require FERC approval will not take effect until FERC has accepted such amendments for filing and made them effective. Nothing contained herein will be construed as affecting in any way the right of the CAISO to unilaterally make application to FERC for a change in the rates, terms and conditions of this Agreement under Section 205 of the FPA and pursuant to FERC's rules and regulations promulgated thereunder, and the RC Customer will have the right to make a unilateral filing with FERC to modify this Agreement pursuant to Section 206 or any other applicable provision of the FPA and FERC's rules and regulations thereunder; provided that each Party will have the right to protest any such filing by the other Party and to participate fully in any proceeding before FERC in which such modifications may be considered. Nothing in this Agreement will limit the rights of the Parties or of FERC under Sections 205 or 206 of the FPA and FERC's rules and regulations thereunder, except to the extent that the Parties otherwise mutually agree as provided herein.
- 10.10 Counterparts.** This Agreement may be executed in one or more counterparts at different times, each of which will be regarded as an original and all of which, taken together, will constitute one and the same Agreement. Each individual signing this Agreement certifies that the Party represented has duly authorized such individual to sign, bind, and obligate such Party.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be duly executed on behalf of each by and through their authorized representatives as of the date hereinabove written.

California Independent System Operator Corporation

By: _____

Name: _____

Title: _____

Date: _____

[RC Customer]

By: _____

Name: _____

Title: _____

Date: _____

SCHEDULE 1

RC Customer Required Information

(Sections 1.1.6, 2.5 and 5.2)

The RC Customer represents the following Transmission Operators and corresponding Transmission Owners for RC Services:

Balancing Authority Area ("BAA")	Transmission Operator ("TOP")		Transmission Owner ("TO")
	Name	Direct Billed (Yes/No)	

RC Services Date: _____

Default MWh: _____

SCHEDULE 2

FEDERAL GOVERNMENT CONTRACT PROVISIONS

(Section 10.3.1)

This Schedule 2 contains provisions that are necessary for the United States of America, acting by and through the Western Area Power Administration (“Western”) and the Bonneville Power Administration (“Bonneville”) to enter into the Agreement.

1. Billing and Payment

Notwithstanding Section 5.3 of the body of the Agreement, the CAISO will submit an annual invoice to Bonneville and Western for RC Services for the current year. The invoice will contain information specified in 5 C.F.R. § 1315.9(b). The amount of the invoice will be paid on a monthly basis to the CAISO in an amount equal to 1/12 of the invoiced amount calculated for Bonneville and Western, respectively, pursuant to Section 19.7 of the CAISO Tariff and sent to the persons designated by Bonneville and Western. Bonneville and Western may change the persons designated to receive the invoices at any time by written notice to the CAISO. Bonneville and Western will make each monthly payment by the twentieth day of the month, and such payments will be in accordance with the Prompt Payment Act, 31 U.S.C. § 3900 et seq.

2. Contingent Upon Appropriations and Authorization

Where activities provided for in this Agreement extend beyond the current fiscal year, continued expenditures by Western are contingent upon Congress making the necessary appropriations required for the continued performance of Western’s obligations under the Agreement. In case such appropriation is not made, (i) Western will promptly give each of the other Parties written notice of such failure. (ii) Western will from and after the occurrence of any such failure no longer be a party to this Agreement, and (iii) the Parties hereby release Western from its contractual obligations and from all liability due to the failure of Congress to make such appropriation.

3. Covenant Against Contingent Fees

Each of the Parties warrants to each of the other Parties that no person or selling agency has been employed or retained by it to solicit or secure the Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by any Party for the purpose of securing business. For breach or violation of this warranty by any Party other than Western or Bonneville, Western and Bonneville will have the right to annul the contract with respect to Western and Bonneville without liability or in its discretion to deduct from the contract price or consideration the full amount of such commission, percentage, brokerage, or contingent

fee.

4. Contract Work Hours and Safety Standards

The Agreement, to the extent that it is of a character specified in Section 103 of the Contract Work Hours and Safety Standards Act (Act), 40 U.S.C. § 3701, as amended or supplemented, is subject to the provisions of the Act, 40 U.S.C. §§ 3701-3708, as amended or supplemented, and to regulations promulgated by the Secretary of Labor pursuant to the Act.

5. Equal Opportunity Employment Practices

Section 202 of Executive Order No. 11246, 30 Fed. Reg. 12319 (1965), as amended by Executive Order No. 12086, 43 Fed. Reg. 46501 (1978), as amended or supplemented, which provides, among other things, that the Parties will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin, is incorporated herein by reference the same as if the specific language had been written into the contract.

6. Use of Convict Labor

The Parties agree not to employ any person undergoing sentence of imprisonment in performing the Agreement except as provided by 18 U.S.C. § 3622(c), as amended or supplemented, and Executive Order No. 11755, 39 Fed. Reg. 779 (1973), as amended or supplemented.

SCHEDULE 3

NOTICES

(Section 10.5)

RC Customer

Name of Primary
Representative:

Title:

Company:

Address:

City/State/Zip Code:

Email address:

Phone:

Name of Alternative
Representative:

Title:

Company:

Address:

City/State/Zip Code:

Email address:

Phone:

CAISO

Name of Primary Representative: Regulatory Contracts
Title: N/A
Address: 250 Outcropping Way
City/State/Zip Code: Folsom, CA 95630
Email address: RegulatoryContracts@caiso.com
Phone: (916) 351-4400

Name of Alternative Representative: Christopher J. Sibley
Title: Manager, Regulatory Contracts
Address: 250 Outcropping Way
City/State/Zip Code: Folsom, CA 95630
Email address: csibley@caiso.com
Phone: (916) 608-7030

Attachment B – Marked Tariff to be Effective November 15, 2018
Tariff Amendments to Implement Reliability Coordinator Service
California Independent System Operator Corporation
August 31, 2018

19. Reliability Coordinator [Not Used]

19.1 General Provisions [Not Used]

(a) **RC Services.** The CAISO will provide RC Services to RC Customers that execute the Reliability Coordinator Services Agreement (RCSA) and the CAISO Balancing Authority.

(b) **Tariff Obligations.** RC Customers must comply with –

(1) the provisions of Section 19; and

(2) other provisions of the CAISO Tariff that apply to the extent such provisions –

(A) expressly refer to Section 19 or RC Customers;

(B) are cross referenced in Section 19; or

(C) are included in Section 1 or Appendix A.

(c) **Inconsistency Between Provisions.** If there is an inconsistency between a provision in this Section 19 and another provision of the CAISO Tariff regarding the rights or obligations of RC Customers, the provision in Section 19 shall prevail to the extent of the inconsistency.

(d) **Inconsistency With Requirements of NERC Reliability Standards.** If there is an inconsistency between a provision in this Section 19 or any other CAISO Tariff provision applied to RC Customers through Section 19 and an obligation or requirement set forth in an applicable NERC Reliability Standard, the NERC Reliability Standard shall prevail to the extent of the inconsistency.

19.2 Access to RC Services [Not Used]

(a) **In General.** The CAISO will –

(1) obtain certification from NERC and WECC to perform the functions of a Reliability Coordinator;

(2) maintain such certification as a Reliability Coordinator; and

(3) provide RC Services in accordance with the NERC Reliability Standards to –

(A) transmission operators in the CAISO Balancing Authority Area;

(B) the CAISO Balancing Authority;

(C) other Balancing Authorities that request such services from the CAISO and execute the RCSA, including Balancing Authorities that are also registered as transmission operators; and

(D) transmission operators that are within Balancing Authority Areas receiving RC Services from the CAISO.

(b) Implementation of RC Services.

(1) Balancing Authorities. A Balancing Authority that elects to receive Reliability Coordinator services from the CAISO must first execute an RCSA with the CAISO that establishes –

(A) the Balancing Authority as an RC Customer of the CAISO;

(B) the transmission operators within the Balancing Authority Area that will take RC Services from the CAISO, including itself if the Balancing Authority is also registered as a transmission operator;

(C) the date upon which the Balancing Authority and the identified transmission operators will receive RC Services from the CAISO (the “RC Services Date”); and

(D) the obligation of the Balancing Authority to complete the onboarding requirements in Section 19.2(b)(7)-(9) prior to the RC Services Date.

(2) Transmission Operators in Balancing Authority Areas External to CAISO.

Transmission operators in an RC Customer Balancing Authority Area must execute a RCSA that establishes –

(A) whether the transmission operator will be invoiced by their associated Balancing Authority or invoiced directly by the CAISO; and

(B) the date upon which the transmission operator will begin receiving RC Services from the CAISO (the “RC Services Date”); and

(C) the obligation of the transmission operator to complete the onboarding requirements set forth in Section 19.2(b)(7)-(9) prior to the RC Services Date.

(3) Transmission Operators in the CAISO Balancing Authority Area.

Transmission operators in the CAISO Balancing Authority Area must execute a RCSA that establishes the obligation of the transmission operator to complete the onboarding requirements in Section 19.2(b)(7)-(9) prior to the RC Services Date for the CAISO Balancing Authority Area.

(4) RC Services Date. The CAISO, in consultation with the RC Customer, will in its discretion determine the RC Services Date for each entity requesting RC Services, which will be targeted for April 1 of each calendar year except for the initial onboarding dates established in Section 19.2(b)(6).

(5) Onboarding Period. The CAISO, in consultation with the RC Customer, will in its discretion establish the onboarding period based on the complexity and compatibility of the Balancing Authority's transmission and technology systems with the CAISO systems, certification requirements, number and size of transmission operators within the Balancing Authority Area, and the planned timing of the CAISO's implementation of RC Services.

(6) Initial Onboarding Dates. The initial RC Services Dates will be –

(A) no earlier than July 1, 2019 for RC Customers within the CAISO's Balancing Authority Area and other RC Customers with that RC Services Date; and

(B) no earlier than September 1, 2019 for RC Customers outside of the CAISO's Balancing Authority Area with an RC Services Date other than what may be provided under Section 19.2(b)(6)(A).

(7) Integration Testing and Shadow Operations. The CAISO and the RC Customer will, prior to the RC Services Date, engage in functional and system integration testing, shadow operations, and other activities that confirm the RC Customer's onboarding requirements are complete and sufficient to meet the readiness criteria as set forth in the Business Practice Manual for RC Services.

(8) **Readiness Determination.** No later than 30 days prior to the RC Services Date, the CAISO will determine, in consultation with the RC Customer, whether the systems and processes of the RC Customer and the CAISO will be ready for the CAISO to begin to provide the RC Customer with RC Services, according to the readiness criteria set forth in the Business Practice Manual for RC Services.

(9) **Readiness Statement.** The CAISO and the RC Customer will exchange a readiness statement with each other at least 30 days prior to the RC Services Date in which a senior officer of each entity states –

(A) that the processes and systems of the prospective RC Customer and the CAISO have satisfied or will have satisfied the readiness criteria set forth in the Business Practice Manual for RC Services;

(B) any exceptions from the readiness criteria specified in the Business Practice Manual for RC Services, and that despite such exceptions, the criteria were met or will be met;

(C) that the RC Services Date is conditional on the resolution of the known issues identified in the statements and any unforeseen issues that undermine the satisfaction of the readiness criteria set forth in the Business Practice Manual for RC Services; and

(D) if, subsequent to exchanging readiness statements, the CAISO or the RC Customer determines that it cannot proceed with implementation on the RC Services Date, the CAISO or the RC Customer will notify the other of the delay, the reason for the delay, the proposed new RC Services Date, if it can be determined, and whether it will need to re-issue a portion or all of the readiness statement.

(10) **Readiness Reporting.** The CAISO will report on the CAISO Website periodically, but not less than monthly during integration testing and shadow operations, on progress towards achieving the readiness criteria set forth in the Business Practice Manual for RC Services.

19.3 Supplemental Services – Hosted Advanced Network Applications (HANA)

- (a) **Scope of HANA Services.** The CAISO will also offer web-based HANA services to its RC Customers as those services are described in the Business Practice Manual for RC Services.
- (b) **Initial Commitment and Term.** An RC Customer that elects to obtain HANA services from the CAISO will be required to make a three-year initial commitment for these services, after which the RC Customer may take HANA services for additional one-year terms as provided in the Business Practice Manual for RC Services.
- (c) **Notification of Election.** An RC Customer must notify the CAISO in writing 90 calendar days in advance of the date that the RC Customer elects to take HANA.
- (d) **Termination of HANA Services.** An RC Customer may terminate HANA services in accordance with the RCSA.

19.4 Supplemental Services – Physical Security Review

- (a) **Physical Security Review.** If requested by the RC Customer, the CAISO will provide RC Customers that are transmission operators with verification of their periodic risk assessments of their transmission stations and substations in accordance with Critical Infrastructure Protection Standard 014 (CIP-014) if requested pursuant to the RCSA.
- (b) **Scope of Other Supplemental Services.** Further detail regarding the nature of the physical security review, as well as any other supplemental services offered by the CAISO, is described in the Business Practice Manual for RC Services.

19.5 Roles and Responsibilities

- (a) **CAISO Reliability Coordinator Obligations.**
 - (1) **Reliability Coordinator Services.** The CAISO, as the Reliability Coordinator for the RC Customer, will perform the specific tasks and functions applicable to a Reliability Coordinator pursuant to the NERC Reliability Standards as detailed in the RC Operating Procedures, which include –
 - (A) providing outage coordination services;
 - (B) performing operations planning analysis;

- (C) conducting real-time assessment, monitoring and wide area situational awareness;
- (D) administering a system operating limit (SOL) methodology;
- (E) approving system restoration plans and facilitating system restoration drills; and
- (F) issuing operating instructions to RC Customers with respect to monitored facilities.

(2) **Other CAISO Reliability Responsibilities.** Nothing in Section 19 shall alter the CAISO's responsibilities under the other sections of the CAISO Tariff, under any agreement not required by Section 19, or under the NERC Reliability Standards or any other Applicable Reliability Criteria as the Balancing Authority for the CAISO Balancing Authority Area and the transmission operator for the CAISO Controlled Grid, provided that the CAISO, as the Balancing Authority for the CAISO Balancing Authority Area and the transmission operator for the CAISO Controlled Grid, must comply with applicable obligations in Section 19, including Section 19.5(b)(2)(B).

(3) **Relationship Among CAISO Registered Functions.** The CAISO in its function as the Reliability Coordinator shall at all times provide RC Services in a manner that does not unduly discriminate or give undue preference to any RC Customer, including itself as a Balancing Authority and transmission operator.

(b) **RC Customer Obligations.**

(1) **RC Customer Eligibility.** An RC Customer must be registered and certified under the applicable authorities as –

- (A) a Balancing Authority;
- (B) a transmission operator within a Balancing Authority Area that receives RC Services from the CAISO; or
- (C) a transmission operator within the CAISO Balancing Authority Area.

(2) **RC Customer Obligations.** An RC Customer will perform the obligations of an RC Customer in accordance with the RCSA and Section 19 and the obligations required by NERC Reliability Standards applicable to the functions for which it is registered, insofar as they relate to interactions with the Reliability Coordinator, which include –

- (A) exchanging data, operating plans, operating procedures, studies, and reports with the CAISO in accordance with the Business Practice Manual for RC Services and applicable RC Operating Procedures;
- (B) following CAISO operating instructions as the Reliability Coordinator with respect to monitored transmission facilities in accordance with applicable RC Operating Procedures; and
- (C) promptly providing such information as the CAISO may reasonably request in relation to major incidents consistent with the NERC event analysis program.

(3) **Other Balancing Authority or Transmission Operator Responsibilities.**

Nothing in the CAISO Tariff will alter an RC Customer's responsibilities under NERC Reliability Standards as the Balancing Authority for its Balancing Authority Area, as a transmission operator, or any other function for which the RC Customer is registered.

(4) **RC Customer Termination of Services.**

- (A) **Reliability Coordinator Services Agreement.** An RC Customer located outside of the CAISO Balancing Authority Area that elects to terminate RC Services must terminate the RCSA pursuant to its terms.
- (B) **Notice.** Delivery to the CAISO of a written notice of termination pursuant to the terms of the RCSA shall represent the commitment by the RC Customer to undertake all necessary preparations to receive services from a Reliability Coordinator other than the CAISO.

(C) **Actions Following Notice.** Upon receipt of such notice, the CAISO will undertake all reasonably necessary preparations to assist in transitioning the RC Customer to a Reliability Coordinator other than the CAISO.

* * * * *

19.8 Supplemental Services – HANA Services Charge

- (a) **HANA Services Charge.** The CAISO will charge RC Customers that elect HANA services the annual cost for the ongoing software license fee, which will be passed through directly to the RC Customers, and the costs set forth in Appendix F, Schedule 7 which will include –
- (1) a start-up cost amortized over an initial 3-year minimum commitment period; and
 - (2) the annual cost for CAISO support of the HANA services.
- (b) **Invoicing for HANA Services.** The CAISO will invoice the RC Customer for HANA services 21 Business Days prior to when the services commence. Each year thereafter, the CAISO will invoice the RC Customer for HANA services 21 Business Days prior to the anniversary date of when the RC Customer first began to receive HANA services, unless otherwise provided in Schedule 2 of the RCSA.
- (c) **Payment for HANA Services.** Payment for HANA services will be due within 21 Business Days of the invoice date, unless otherwise provided in Schedule 2 of the RCSA.
- (d) **Termination of HANA Services.** An RC Customer that has elected to receive HANA services will continue to be invoiced for the services annually during the initial 3-year commitment period and each year thereafter until the services have been terminated in accordance with the Business Practice Manual for RC Services.

19.9 Supplemental Services – Physical Security Review Charge

- (a) **In General.** An RC Customer may request in writing that the CAISO perform physical security review or other supplemental reliability services as specified in the Business Practice Manual for RC Services.

- (b) **Charges.** An RC Customer electing such services will be charged the actual costs incurred by the CAISO provided that (i) the RC Customer requests in writing that the CAISO perform the services, and (ii) the RC Customer provides a \$50,000 deposit to the CAISO at the time the request is submitted along with any information required by the CAISO to perform the services, and –
- (1) if the deposit exceeds the actual cost incurred to provide physical security review services, the CAISO will refund the excess amount to the RC Customer;
- (2) if the actual cost of performing the services exceeds the deposit, the CAISO will invoice the RC Customer for the excess, and the RC Customer shall pay the undisputed amount within thirty (30) calendar days;
- (3) if the RC Customer fails to timely pay any undisputed costs, the CAISO shall not be obligated to continue to perform physical security review services unless and until the RC Customer has paid all undisputed amounts.

19.10 Dispute Resolution Procedures

- (a) **In General.** The dispute resolution provisions in Section 13 shall apply to any dispute arising under Section 19 or the RCSA, except that any reference in Section 13 to Market Participants will be read as a reference to the RC Customer, and except as provided in Section 19.10(c).
- (b) **Timing.** An RC Customer that has disputed an RC Services Invoice under Section 19.7 must initiate any good faith negotiation or other dispute resolution remedy under Section 13 within 90 days after the day on which the CAISO provides notice of resolution of the dispute; otherwise, the RC Services Invoice will be binding on the RC Customer.
- (c) **Limitation on Disputes.** Claims or disputes asserting that the CAISO or any RC Customer was not, or is not, in compliance with the NERC Reliability Standards, and claims the CAISO failed to perform a specific task or function required of a Reliability Coordinator, will not be subject to resolution under Section 13 of the CAISO Tariff; provided that nothing in this section shall limit the function of the Reliability Coordinator Oversight Committee under its charter established pursuant to Section 19.11.

19.11 Reliability Coordinator Oversight

- (a) **In General.** The CAISO will establish a Reliability Coordinator Oversight Committee that provides RC Customer input and oversight to the CAISO's provision of RC Services.
- (b) **Charter.** The CAISO will, in consultation with prospective RC Customers, adopt a public charter that prescribes the membership, responsibilities and procedures of the Reliability Coordinator Oversight Committee.

19.12 Uncontrollable Forces

The provisions of Sections 14.1 – 14.3 regarding Uncontrollable Forces will apply to RC Customers, except that all references to "Market Participants" in such provisions shall be read as including RC Customers for purposes of application.

19.13 Liability

The provisions of Article VIII of the RCSA will apply to the CAISO and RC Customers with respect to any liability arising under Section 19.

19.14 Penalties

The provisions of Section 14.7 regarding the allocation of Reliability Standards penalties will apply to RC Customers.

19.15 Confidentiality

The confidentiality provisions of Section 20 will apply to provision of RC Services to RC Customers, including any information provided by RC Customers to the CAISO in connection with the provision of RC Services, except that all references to "Market Participants" in Section 20 shall be read as including RC Customers for purposes of application.

19.16 Miscellaneous Provisions in Addition to Section 22

Section 22 will apply to the CAISO's provision of RC Services pursuant to Section 19, except that all references to "Market Participants" in Section 22 shall be read as including RC Customers for purposes of application.

* * * * *

Appendix A

Master Definition Supplement

* * * *

- Net Energy for Load

Net Balancing Authority Area generation, plus energy received from other Balancing Authority Areas, less energy delivered to Balancing Authority Areas through interchange. It includes Balancing Authority Area losses but excludes energy required for storage at energy storage facilities. Net Energy for Load equals NERC/WECC Metered Demand for the CAISO Balancing Authority Area.

* * * *

- Net Generation

Net power available from a Generating Facility to be fed into the power system at the high side of the Generating Facility transformer(s). Net generation is equal to gross generation minus the generator's internal power usage (station service).

* * * *

- RC Customer

An entity for which the CAISO acts as the Reliability Coordinator pursuant to Section 19.

* * * *

- RC Funding Requirement

The revenue required to offset the costs that the CAISO will incur to provide RC Services.

* * * *

- RC Operating Procedures

Operating Procedures adopted by the CAISO to facilitate compliance with NERC Reliability Standards applicable to the Reliability Coordinator function.

* * * *

- RC Services

The Reliability Coordinator services provided by the CAISO for an RC Customer, pursuant to Section 19 and the Reliability Coordinator Services Agreement.

* * * *

- RC Services Date

The date on which the CAISO assumes the role of Reliability Coordinator for an RC Customer, pursuant to Section 19.2.

* * * *

- Reliability Coordinator Services Agreement (RCSA)

An agreement between an RC Customer and the CAISO, a pro forma version of which is set forth in Appendix B.

* * * *

- Reliability Coordinator Services Charge (RC Services Charge)

The charges that the CAISO assesses to RC Customers for providing Reliability Coordinator Services pursuant to Sections 19.7 or 11.20.9, as calculated in accordance with Appendix F, Schedule 7.

* * * * *

Appendix B.22 Reliability Coordinator Services Agreement

CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

AND

[RC CUSTOMER]

RELIABILITY COORDINATOR SERVICES AGREEMENT (RCSA)

THIS AGREEMENT is dated this _____ day of _____, _____, and is entered into, by and between:

(1) **[Full Legal Name]**, having its registered and principal place of business located at **[Address]** (the “RC Customer”);

and

(2) **California Independent System Operator Corporation** (the “CAISO”), a California nonprofit public benefit corporation having a principal executive office located at such place in the State of California as the CAISO Governing Board may from time to time designate.

The RC Customer and the CAISO are hereinafter referred to as the “Parties”.

Whereas:

- A. WHEREAS, the CAISO has registered with and will be certified by NERC as a Reliability Coordinator prior to the RC Services Date identified in this Agreement;**
- B. WHEREAS, the RC Customer is registered with and certified by NERC as a Balancing Authority and/or Transmission Operator;**
- C. WHEREAS, the RC Customer has determined that there is a need for the RC Customer to identify a Reliability Coordinator for its operations, currently and into the foreseeable future; and**
- D. WHEREAS, pursuant to this Agreement, the CAISO agrees to provide to the RC Customer services as set forth herein.**

NOW THEREFORE, in consideration of the mutual covenants set forth herein, the Parties agree as follows:

ARTICLE I

DEFINITIONS AND INTERPRETATION

1.1 Specific Definitions.

1.1.1 CAISO Tariff: The CAISO electric tariff, as amended from time to time.

1.1.2 Confidential Information: Documents, materials, data, or information ("Data") provided to it by any other Party that reflects or contains: (a) Data treated as confidential or commercially sensitive under the confidentiality provisions of Section 20 of the CAISO Tariff; (b) Critical Energy Infrastructure Information, as defined in Section 388.113(c)(1) of FERC's regulations; (c) Critical Electric Infrastructure Information defined in Section 215A of the Federal Power Act and regulations published by the Department of Energy; (d) pricing of third party vendor software costs for services under this Agreement; or (e) technical information and materials that constitute valuable, confidential, and proprietary information, know-how, and trade secrets belonging to a Party, including, but not limited to, information relating to drawings, maps, reports, specifications, and records and/or software, data, computer models, and related documentation.

1.1.3 FERC: The Federal Energy Regulatory Commission.

1.1.4 Initial Term: The Initial Term of the Agreement is eighteen (18) months from the RC Services Date.

1.1.5 Person: Any individual, corporation, cooperative corporation, municipal corporation, quasi-municipal corporation, non-profit corporation, joint operating entity, limited liability company, mutual association, partnership, limited partnership, limited liability partnership, association, joint stock company, trust, unincorporated organization, government entity or political subdivision thereof (including a federal power marketing administration), or organization recognized as a legal entity by law in the United States, Mexico, or Canada, as applicable.

1.1.6 RC Services: The Reliability Coordinator services provided by the CAISO and described in Section 19 of the CAISO Tariff. RC Services do not include the supplemental services also offered under this Agreement, as described in Sections 2.2.1 and 2.2.2.

1.1.7 RC Services Date: The date upon which the CAISO becomes the Reliability Coordinator of record for an RC Customer and the RC Customer begins receiving RC Services from the CAISO.

1.2 Rules of Interpretation. The following rules of interpretation and conventions will apply to this Agreement:

- (a) if there is any inconsistency between this Agreement and Section 19 of the CAISO Tariff, Section 19 of the CAISO Tariff will prevail to the extent of the inconsistency;
- (b) the singular will include the plural and vice versa;
- (c) the masculine will include the feminine and neutral and vice versa;
- (d) “includes” or “including” will mean “including without limitation”;
- (e) references to a Section, Article or Schedule will mean a Section, Article or a Schedule of this Agreement, as the case may be, unless the context otherwise requires;
- (f) a reference to a given agreement or instrument will be a reference to that agreement or instrument as modified, amended, supplemented or restated through the date as of which such reference is made;
- (g) unless the context otherwise requires, references to any law will be deemed references to such law as it may be amended, replaced or restated from time to time;
- (h) unless the context otherwise requires, any reference to a Party includes a reference to its permitted successors and assigns;
- (i) any reference to a day, week, month or year is to a calendar day, week, month or year;
- (j) the captions and headings in this Agreement are inserted solely to facilitate reference and will not have any bearing upon the interpretation of any of the terms and conditions of this Agreement; and
- (k) unless otherwise defined in this Agreement, terms and expressions used in this Agreement will have the same meanings as those contained in the “NERC Glossary of Terms Used in Reliability Standards”.

ARTICLE II

GENERAL RESPONSIBILITIES OF THE PARTIES

2.1 Agreement. This Agreement is subject to Section 19 of the CAISO Tariff, which is incorporated herein.

2.2 Description of CAISO Responsibilities. The CAISO agrees to provide RC Services to the RC Customer, commencing on the RC Services Date, in accordance with Section 19 of the CAISO Tariff. The CAISO will establish a

Reliability Coordinator Oversight Committee in accordance with Section 19.11 of the CAISO Tariff.

2.2.1 Supplemental Services – Hosted Advanced Network Application (HANA).

The CAISO agrees to provide HANA services to the RC Customer at its request for an additional charge, as set forth in Section 19.3 of the CAISO Tariff.

(a) The RC Customer shall: (i) notify the CAISO 90 calendar days in advance of the RC Customer’s requested start date of initial HANA services and which HANA services the RC Customer desires to take in accordance with Section 19.3(c) of the CAISO Tariff; and (ii) pay for such services in accordance with Section 19.8 of the CAISO Tariff. The start date of taking the initial HANA services will establish the anniversary date for the minimum three years of taking the HANA services and the billing date.

(b) Each subsequent year, the RC Customer will notify the CAISO in writing 90 calendar days in advance of the anniversary date of the HANA services as to which HANA services it is electing to take for the following calendar year. If the RC Customer does not provide such notice to the CAISO 90 calendar days in advance of the anniversary date of the HANA services, the CAISO will continue to provide the RC Customer with the same HANA services it is providing to the RC Customer during the then current year.

(c) If the RC Customer elects to receive HANA services, the RC Customer agrees to pay for three years of services regardless of whether it takes HANA services for the entire three year term, and will be invoiced one-third of that amount annually during the initial three year term. Thereafter, the RC Customer will be invoiced annually for HANA services as described in Section 2.2.1(b) above.

(d) The CAISO will post the HANA service costs on the RC secure website.

2.2.2 Supplemental Services – Physical Security Review. The CAISO agrees to provide physical security review services to the RC Customer at its request for an additional charge, as set forth in Section 19.4 of the CAISO Tariff, in accordance with applicable Reliability Standards (currently, NERC CIP-014).

2.3 Description of RC Customer Responsibilities. The RC Customer agrees to comply with the provisions of Section 19 of the CAISO Tariff. The RC Customer shall notify the CAISO in the event there is a change in the registered reliability functions applicable to the RC Customer or, if it is a Transmission Operator, a change in its Balancing Authority Area.

2.4 RC Customer Entity Status. The RC Customer is either a (check all of the boxes that apply):

- (a) Balancing Authority (settled based on Net Energy for Load (NEL) of the BAA)
- (b) Generator Only Balancing Authority (settled based on Net Generation (NG) of the BAA)
- (c) Transmission Operator:
 - 1) Outside CAISO BAA with no load (settled based on fee)
 - 2) Outside CAISO BAA with load (settled based on Transmission Owner load or share of BAA NEL)
 - 3) Inside CAISO BAA with no load (settled based on fee)
 - 4) Inside CAISO BAA with load (settled based on share of CAISO BAA NEL)

2.4.1 Conflict of Designation. If there is a conflict between the Balancing Authority and the Transmission Operator regarding who will be billed and pay for the RC Services, the CAISO will give precedence to the Balancing Authority.

2.5 Identification of Transmission Operators and Transmission Owners. Each RC Customer that is a Balancing Authority will provide the CAISO with a list of the Transmission Operators and corresponding Transmission Owners it is representing for RC Services in Schedule 1, if any. Each RC Customer that is a Transmission Operator will provide the CAISO with a list of the Transmission Owners it is representing for RC Services in Schedule 1 and will identify the Balancing Authority Area in which it and any Transmission Owners are located. Any changes to Schedule 1 will not constitute an amendment to this Agreement.

2.6 Non-Jurisdictional Entities. For an RC Customer that is an exempt entity as described in section 201(f) of the Federal Power Act, 16 U.S.C. 824(f), the CAISO acknowledges that this Agreement does not extend FERC’s jurisdiction over the RC Customer.

ARTICLE III

TERM AND TERMINATION

3.1 Term. This Agreement will be effective as of the later of the date it is executed by the Parties or the date accepted for filing and made effective by FERC (“Effective Date”). The Agreement will remain in full force and effect for eighteen (18) months from the RC Services Date (“Initial Term”). Upon expiration of the Initial Term, this Agreement will automatically renew and will remain in full force

and effect until terminated pursuant to Sections 3.2.1 or 3.2.2 of this Agreement.

3.2 Termination.

3.2.1 Termination by CAISO. In the event the RC Customer commits any material default under this Agreement, which, if capable of being remedied, is not remedied within sixty (60) days after the CAISO has given written notice to the RC Customer of the default, the CAISO may terminate this Agreement at any time upon thirty (30) days prior written notice of termination, provided the notice of termination incorporates a transition plan for the RC Customer to transition to a new Reliability Coordinator to ensure that the termination of this Agreement results in no harm to the Western grid. The CAISO shall inform all RC Customers at the time it sends written notice of termination to any RC Customer. Any outstanding financial right or obligation or any other obligation under the CAISO Tariff of the RC Customer that has arisen while that RC Customer was receiving services under this Agreement, and any provision of this Agreement necessary to give effect to such right or obligation, will survive until satisfied. With respect to any notice of termination given pursuant to this Section, the CAISO must file a notice of termination with FERC, or must otherwise comply with the requirements of FERC Order No. 2001 and related FERC orders. For avoidance of doubt, if the CAISO terminates the Agreement under this Section 3.2.1 prior to expiration of the Initial Term, the RC Customer will still be required to pay the RC Service Charge for the remainder of the Initial Term and the HANA services charge, if applicable.

3.2.2 Termination by RC Customer. The RC Customer may terminate this Agreement, without penalty, by giving the CAISO not less than twelve (12) months advance written notice after the Initial Term. This notice will be given on or before April 1 of the current calendar year and such termination will become effective on April 1 of the following year. If the RC Customer gives the CAISO less than twelve (12) months' notice after the Initial Term and is being billed directly for the RC Services in accordance with Section 5.3, the RC Customer will be charged an amount equal to the balance of the RC Service Charge remaining on the twelve (12) month required notice period. Any outstanding financial right or obligation or any other obligation under the CAISO Tariff of the RC Customer that has arisen while that RC Customer was receiving services under this Agreement, and any provision of this Agreement necessary to give effect to such right or obligation, will survive until satisfied. With respect to any notice of termination given pursuant to this Section, the CAISO must timely file a notice of termination with FERC, or must otherwise comply with the requirements of FERC Order No. 2001 and related FERC orders. For entities defined under Section 201(f) of the Federal Power Act, 16 U.S.C. 824(f), termination will be effective upon twelve (12) months' notice irrespective of acceptance by FERC.

3.2.3 Transition Assistance. Except in the case of a CAISO termination for a default by the RC Customer, if the RC Customer requests in their notice of termination,

the CAISO will reasonably assist the RC Customer to transition to another Reliability Coordinator prior to the effective date of the transition, including providing data and assistance, provided that the RC Customer will reimburse the CAISO for its reasonable costs for such assistance.

ARTICLE IV

PENALTIES AND SANCTIONS

4.1 Allocation of Reliability Related Penalty Costs. The CAISO will have the right to allocate reliability-related penalty costs assessed to the CAISO by FERC, NERC and/or WECC to the RC Customer in accordance with Section 19.14 of the CAISO Tariff.

ARTICLE V

BILLINGS AND SETTLEMENTS

5.1 Data and Submission. The RC Customer will be responsible for submitting its RC Services' settlements data and related information to the CAISO in accordance with Section 19.6 of the CAISO Tariff.

5.2 Default MWh. At the time it executes this Agreement, the RC Customer will provide an initial default MWh volume in Schedule 1. The default MWh volume will be used to calculate the RC Customer's Net Energy for Load or Net Generation to the extent it fails to submit the Net Energy for Load or Net Generation in accordance with Section 19.6 of the CAISO Tariff. If the RC Customer's installed capacity changes, the default Net Generation MWh volume set forth in Schedule 1 must be amended.

5.2.1 Validation of Default MWh Amount. The CAISO reserves the right to request that the RC Customer provide it with data to validate the RC Customer's stated default MWh amount in Schedule 1. The RC Customer agrees to provide in a timely manner such requested data necessary for the CAISO to perform such validation, and the CAISO agrees to use this information solely for this purpose.

5.3 Invoice and Payment Process. If the RC Customer is a Balancing Authority, or if it is a Transmissions Operator who elects to be billed directly in exchange for the RC Services provided by this Agreement, said RC Customer will be invoiced for RC Services in accordance with Section 19.7 of the CAISO Tariff and will have the right to dispute the RC Services invoiced amount in accordance with Sections 19.7 and 19.10 of the CAISO Tariff. If the RC Customer is a Transmission Operator and does not elect to be billed directly, the costs for its RC Services will be borne by its Balancing Authority. If the RC Customer is within the CAISO Balancing Authority Area, the Transmission Operator will be billed in accordance with Section 11.20.9 of the CAISO Tariff.

For billing purposes in accordance with this Section, the RC Customer represents that it is either a (check the box that applies):

- (a) Balancing Authority
- (b) Transmission Operator (direct billing elected)
- (c) Transmission Operator (billed to Balancing Authority)
- (d) Transmission Operator within the CAISO BAA

The invoice and payment process for the HANA services will be in accordance with Section 19.8 of the CAISO Tariff. The invoice and payment process for other supplemental services will be in accordance with Section 19.9 of the CAISO Tariff.

5.4 Payment Default. The CAISO will have the right to recover unpaid RC Services invoiced amounts from the RC Customer pursuant to Section 19.7 of the CAISO Tariff. For RC Customers in the CAISO Balancing Authority Area, the CAISO will have the right to recover unpaid RC Services invoiced amounts from the RC Customer pursuant to Section 11.20.9 of the CAISO Tariff.

ARTICLE VI

CONFIDENTIALITY

6.1 Confidentiality. Each Party's Confidential Information will be treated in accordance with the NERC Operating Reliability Data agreement and Section 19.15 of the CAISO Tariff and any other applicable confidentiality rules such as provided in the NERC Rules of Procedure, or data sharing agreements in effect between the Parties.

ARTICLE VII

GOVERNING LAW

7.1 Governing Law and Forum. This Agreement will be deemed to be a contract made under, and for all purposes will be governed by and construed in accordance with, the laws of the State of California, except its conflict of law provisions. The Parties irrevocably consent that any legal action or proceeding arising under or relating to this Agreement to which the CAISO ADR Procedures do not apply will be brought in any of the following forums, as appropriate: any court of the State of California, any federal court of the United States of America located in the State of California, or, where subject to its jurisdiction, before the FERC.

ARTICLE VIII

LIABILITY

- 8.1 Liability.** Except as expressly provided in this Agreement, neither Party, nor any of its directors, officers, employees, consultants or agents will be liable to the other Party under any circumstances, whether any claim is based in contract in tort, in equity for any punitive, or otherwise, for any special, consequential, indirect or incidental damages of any nature whatsoever, including, but not limited to, lost profits, loss of earnings or revenue, loss of use, loss of contract or loss of goodwill, or for any costs or expenses (including legal expenses) arising out of or in connection the performance or non-performance of its obligations under this Agreement.
- 8.2 No Third-Party Enforcement.** No third-party will be entitled to enforce this Agreement against any Party hereto. This Agreement is made and entered into for the sole protection and legal benefit of the Parties. No other Person will be a direct or indirect legal beneficiary, or have any direct or indirect cause of action or claim in connection with, this Agreement. No other Person will be a third-party beneficiary under this Agreement.
- 8.3 Recovery for Third-Party Indemnity.** To the extent that the CAISO suffers any loss as a result of any third-party claims arising out of the performance of this Agreement, the CAISO will be entitled to seek recovery of such loss through Section 14.4 of the CAISO Tariff, except that any reference in Section 14.4 of the CAISO Tariff to Market Participants will be read to include a reference to the RC Customer and references to the CAISO Tariff will be read to include a reference to this Agreement.

ARTICLE IX

DISPUTE RESOLUTION

- 9.1 Dispute Resolution.** The Parties will make reasonable efforts to settle all disputes arising out of or in connection with this Agreement. In the event any dispute is not settled, the Parties must adhere to the dispute resolution procedures as set forth in Section 19.10 of the CAISO Tariff.

ARTICLE X

MISCELLANEOUS

- 10.1 Representation and Warranties.** Each Party represents and warrants that the execution, delivery and performance of this Agreement by it has been duly authorized by all necessary corporate and/or governmental actions, to the extent authorized by law.

10.1.1 Information Exchange. All information, including Confidential Information provided by any Party under this Agreement, is accurate to the extent of the providing Party's knowledge. The receiving Party receives the information "as is" and with the understanding that the information is accurate to the best of the providing Party's knowledge at the time of receipt.

10.2 Uncontrollable Forces Tariff Provisions. Section 19.12 of the CAISO Tariff will be incorporated by reference into this Agreement.

10.3 Consistency with Federal Laws and Regulations. This Agreement incorporates by reference Section 22.9 of the CAISO Tariff as if the references to the CAISO Tariff were referring to this Agreement.

10.3.1 Federal Entity Contract Requirements. The provisions of Schedule 2 hereto contain provisions applicable to certain contracts entered into with the federal government. The provisions of Schedule 2 are applicable to a Party that is a federal entity if and to the extent required by applicable law and if not otherwise exempted.

10.3.2 No Waiver of Federal Rights. By entering into this Agreement, no federal entity shall be deemed to have waived its rights to protest or challenge in any action or proceeding, any allocation of reliability related penalties, nor does any federal entity waive its sovereign immunity.

10.4 Assignments. The RC Customer may assign or transfer any or all of its rights and/or obligations under this Agreement with the CAISO's prior written consent. Such consent will not be unreasonably withheld. Any such transfer or assignment will be conditioned upon the successor in interest accepting the rights and/or obligations under this Agreement as if said successor in interest was an original Party to this Agreement.

10.5 Notices. Any notice, demand or request which may be given to or made upon either Party regarding this Agreement will be deemed properly served, given, or made: (a) upon delivery if delivered in person, (b) five (5) days after deposit in the mail if sent by first class United States mail, postage prepaid, (c) upon receipt of confirmation by return e-mail if sent by e-mail, or (d) upon delivery if delivered by prepaid commercial courier service, and unless otherwise stated or agreed must be made to the representative of the other Party indicated in Schedule 3. A Party must update the information in Schedule 3 of this Agreement as information changes. Such changes will not constitute an amendment to this Agreement.

10.6 Waivers. Any waiver at any time by either Party of its rights with respect to any default under this Agreement, or with respect to any other matter arising in connection with this Agreement, will not constitute or be deemed a waiver with respect to any subsequent default or other matter arising in connection with this

Agreement. Any delay, short of the statutory period of limitations, in asserting or enforcing any right under this Agreement will not constitute or be deemed a waiver of such right.

10.7 Merger. This Agreement constitutes the complete and final agreement of the Parties with respect to the subject matter hereof and supersedes all prior agreements, whether written or oral, with respect to such subject matter.

10.8 Severability. If any term, covenant, or condition of this Agreement or the application or effect of any such term, covenant, or condition is held invalid as to any person, entity, or circumstance, or is determined to be unjust, unreasonable, unlawful, imprudent, or otherwise not in the public interest by any court or government agency of competent jurisdiction, then such term, covenant, or condition will remain in force and effect to the maximum extent permitted by law, and all other terms, covenants, and conditions of this Agreement and their application will not be affected thereby, but will remain in force and effect and the Parties will be relieved of their obligations only to the extent necessary to eliminate such regulatory or other determination unless a court or governmental agency of competent jurisdiction holds that such provisions are not separable from all other provisions of this Agreement.

10.9 Amendments. This Agreement and the Schedules attached hereto may be amended from time to time by the mutual agreement of the Parties in writing. Amendments that require FERC approval will not take effect until FERC has accepted such amendments for filing and made them effective. Nothing contained herein will be construed as affecting in any way the right of the CAISO to unilaterally make application to FERC for a change in the rates, terms and conditions of this Agreement under Section 205 of the FPA and pursuant to FERC's rules and regulations promulgated thereunder, and the RC Customer will have the right to make a unilateral filing with FERC to modify this Agreement pursuant to Section 206 or any other applicable provision of the FPA and FERC's rules and regulations thereunder; provided that each Party will have the right to protest any such filing by the other Party and to participate fully in any proceeding before FERC in which such modifications may be considered. Nothing in this Agreement will limit the rights of the Parties or of FERC under Sections 205 or 206 of the FPA and FERC's rules and regulations thereunder, except to the extent that the Parties otherwise mutually agree as provided herein.

10.10 Counterparts. This Agreement may be executed in one or more counterparts at different times, each of which will be regarded as an original and all of which, taken together, will constitute one and the same Agreement. Each individual signing this Agreement certifies that the Party represented has duly authorized such individual to sign, bind, and obligate such Party.

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be duly executed on behalf of each by and through their authorized representatives as of the date hereinabove written.

California Independent System Operator Corporation

By: _____

Name: _____

Title: _____

Date: _____

[RC Customer]

By: _____

Name: _____

Title: _____

Date: _____

SCHEDULE 1

RC Customer Required Information

(Sections 1.1.6, 2.5 and 5.2)

The RC Customer represents the following Transmission Operators and corresponding Transmission Owners for RC Services: _____

<u>Balancing Authority Area ("BAA")</u>	<u>Transmission Operator ("TOP")</u>		<u>Transmission Owner ("TO")</u>
	<u>Name</u>	<u>Direct Billed (Yes/No)</u>	

RC Services Date: _____

Default MWh: _____

SCHEDULE 2

FEDERAL GOVERNMENT CONTRACT PROVISIONS

(Section 10.3.1)

This Schedule 2 contains provisions that are necessary for the United States of America, acting by and through the Western Area Power Administration (“Western”) and the Bonneville Power Administration (“Bonneville”) to enter into the Agreement.

1. Billing and Payment

Notwithstanding Section 5.3 of the body of the Agreement, the CAISO will submit an annual invoice to Bonneville and Western for RC Services for the current year. The invoice will contain information specified in 5 C.F.R. § 1315.9(b). The amount of the invoice will be paid on a monthly basis to the CAISO in an amount equal to 1/12 of the invoiced amount calculated for Bonneville and Western, respectively, pursuant to Section 19.7 of the CAISO Tariff and sent to the persons designated by Bonneville and Western. Bonneville and Western may change the persons designated to receive the invoices at any time by written notice to the CAISO. Bonneville and Western will make each monthly payment by the twentieth day of the month, and such payments will be in accordance with the Prompt Payment Act, 31 U.S.C. § 3900 et seq.

2. Contingent Upon Appropriations and Authorization

Where activities provided for in this Agreement extend beyond the current fiscal year, continued expenditures by Western are contingent upon Congress making the necessary appropriations required for the continued performance of Western’s obligations under the Agreement. In case such appropriation is not made, (i) Western will promptly give each of the other Parties written notice of such failure. (ii) Western will from and after the occurrence of any such failure no longer be a party to this Agreement, and (iii) the Parties hereby release Western from its contractual obligations and from all liability due to the failure of Congress to make such appropriation.

3. Covenant Against Contingent Fees

Each of the Parties warrants to each of the other Parties that no person or selling agency has been employed or retained by it to solicit or secure the Agreement upon an agreement or understanding for a commission, percentage, brokerage, or contingent fee, excepting bona fide employees or bona fide established commercial or selling agencies maintained by any Party for the purpose of securing business. For breach or violation of this warranty by any Party other than Western or Bonneville, Western and Bonneville will have the right to annul the contract with respect to Western and Bonneville without liability or in its discretion to deduct from the contract price or consideration the full amount of such commission, percentage, brokerage, or contingent

fee.

4. Contract Work Hours and Safety Standards

The Agreement, to the extent that it is of a character specified in Section 103 of the Contract Work Hours and Safety Standards Act (Act), 40 U.S.C. § 3701, as amended or supplemented, is subject to the provisions of the Act, 40 U.S.C. §§ 3701-3708, as amended or supplemented, and to regulations promulgated by the Secretary of Labor pursuant to the Act.

5. Equal Opportunity Employment Practices

Section 202 of Executive Order No. 11246, 30 Fed. Reg. 12319 (1965), as amended by Executive Order No. 12086, 43 Fed. Reg. 46501 (1978), as amended or supplemented, which provides, among other things, that the Parties will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin, is incorporated herein by reference the same as if the specific language had been written into the contract.

6. Use of Convict Labor

The Parties agree not to employ any person undergoing sentence of imprisonment in performing the Agreement except as provided by 18 U.S.C. § 3622(c), as amended or supplemented, and Executive Order No. 11755, 39 Fed. Reg. 779 (1973), as amended or supplemented.

SCHEDULE 3
NOTICES
(Section 10.5)

RC Customer

Name of Primary Representative: _____

Title: _____

Company: _____

Address: _____

City/State/Zip Code: _____

Email address: _____

Phone: _____

Name of Alternative Representative: _____

Title: _____

Company: _____

Address: _____

City/State/Zip Code: _____

Email address: _____

Phone: _____

CAISO

Name of Primary

Representative: Regulatory Contracts

Title: N/A

Address: 250 Outcropping Way

City/State/Zip Code: Folsom, CA 95630

Email address: RegulatoryContracts@caiso.com

Phone: (916) 351-4400

Name of Alternative

Representative: Christopher J. Sibley

Title: Manager, Regulatory Contracts

Address: 250 Outcropping Way

City/State/Zip Code: Folsom, CA 95630

Email address: csibley@caiso.com

Phone: (916) 608-7030

Attachment C – Clean Tariff to be Effective July 1, 2019
Tariff Amendments to Implement Reliability Coordinator Service
California Independent System Operator Corporation
August 31, 2018

11.20.9 Reliability Coordinator Services Charge

11.20.9.1 Responsibility for the Reliability Coordinator Services Charge

- (a) Each Scheduling Coordinator, including Scheduling Coordinators that are also RC Customers, shall be obligated to pay the CAISO all of the RC Services Charges it is invoiced by the CAISO in accordance with Section 11.20.9.
- (b) The responsibility of each Scheduling Coordinator in the CAISO Balancing Authority Area for the RC Services Charge shall be allocated based on the Scheduling Coordinator's share of the total NERC/WECC Metered Demand for the CAISO'S Balancing Authority Area. A Scheduling Coordinator without any NERC/WECC Metered Demand during an allocation period shall be assessed the minimum RC Services Charge set forth in Appendix F, Schedule 7.
- (c) The CAISO's calculation of collateral requirements and other credit requirements under the CAISO Tariff shall include an adjustment for the Scheduling Coordinator's allocable share of the RC Services Charge, if applicable, except that the Estimated Aggregated Liability calculated for the Scheduling Coordinator shall not include extrapolated amounts for the RC Services Charge under Section 12.1.3.1.1(d).

11.20.9.2 Calculation and Assessment

- (a) The CAISO will provide Scheduling Coordinators with an RC Services Invoice by the first Business Day of each calendar year for RC Services to be provided during that calendar year, except for the initial period for RC Services. The initial period of RC Services will be invoiced from the RC Services Date, as determined in accordance with Section 19.2(b)(6) through the end of that calendar year, and will be invoiced at the same time the CAISO invoices RC Customers from the year following the initial period. The initial period will be prorated based on the portion of time during the initial calendar year that RC Service are provided.
- (b) The CAISO shall calculate the RC Services Charge allocable to each Scheduling Coordinator by using the RC Services Charge rate for the assessment year determined under Appendix F, Schedule 7, multiplied by the most recent NERC/WECC Metered

Demand for that Scheduling Coordinator determined under Section 11.20.4. A Scheduling Coordinator without any such NERC/WECC Metered Demand shall be assessed the minimum RC Services Charge set forth in Appendix F, Schedule 7.

- (c) Scheduling Coordinators shall make timely payment to the CAISO within 21 Business Days of the date the invoices were issued pursuant to Section 11.20.9.2(a).

11.20.9.3 Confirmation

- (a) It is the responsibility of each Scheduling Coordinator to notify the CAISO if the Scheduling Coordinator fails to receive its invoice for the RC Services Charge in accordance with the schedule in Section 11.20.9.2(a).
- (b) Each Scheduling Coordinator shall be deemed to have received its invoice for the RC Services Charge on the date specified in Section 11.20.9.2(a) unless the Scheduling Coordinator notifies the CAISO to the contrary.

11.20.9.4 Validation

- (a) Each Scheduling Coordinator shall have the opportunity to review the terms of the invoice for the RC Services Charge and shall be deemed to have validated that invoice unless it raises a dispute within 21 Business Days of the date of issuance.
- (b) Once validated, an invoice for the RC Services Charge shall be binding on the Scheduling Coordinator to which it relates.

11.20.9.5 Disputes and Corrections

- (a) Scheduling Coordinators shall be prohibited from disputing any RC Services Charge, except on grounds that an error causes the invoiced amount to differ from the amount that would result from the application of the rate set forth in the CAISO Tariff.
- (b) Any dispute of an invoice on the grounds specified in Section 11.20.9.5(a) shall be submitted and processed in accordance with the dispute resolution procedures for the RC Services Charge set forth in Sections 19.7 and 19.10.
- (c) If the CAISO determines that an invoice contains an error that causes the invoiced amount to differ from the amount that would result from the application of the rate set forth in the CAISO Tariff, and the resolution of the dispute makes correction necessary,

the CAISO will issue a corrected invoice within 21 Business Days of the date the initial invoice was issued.

- (d) Each Scheduling Coordinator that receives an invoice for the RC Services Charge shall pay any net debit and shall be entitled to receive any net credit specified on a corrected invoice. Payment of any net debit shall be due within 21 Business Days of the date the corrected invoice was issued.

11.20.9.6 Payment Default.

- (a) In the event a Scheduling Coordinator defaults on the payment of all or any portion of the RC Services Charge invoiced under Section 11.20.9.2(c) or 11.20.9.5(d), the CAISO shall have the right under Section 11.29.13.3 to enforce the financial security provided by the defaulting Scheduling Coordinator, and to take any such other action under Sections 11.29.12 or 11.29.13, as necessary, to obtain payment for the default amount.
- (b) To the extent all or any portion of the default amount remains unpaid, the CAISO
 - (1) may at its discretion issue an invoice for the unpaid RC Services Charge; and
 - (2) if such invoice is issued for a payment default, shall allocate responsibility for the unpaid amount to Scheduling Coordinators with NERC/WECC Metered Demand, excluding the CAISO Debtor that has not paid the payment default amount, based on the most recent NERC/WECC Metered Demand for each Scheduling Coordinator determined under Section 11.20.
- (c) Scheduling Coordinators shall make timely payment to the CAISO within 21 Business Days of the date the default invoices were issued pursuant to Section 11.20.9.6(b).

11.20.9.7 Modification to Schedule. Notwithstanding the provisions in Section 11.20.9, the CAISO may issue a Market Notice informing Scheduling Coordinators that the CAISO will implement a temporary modification to the billing and payment schedule for the RC Services Charge and setting forth the reasons for such modification, in which case the modified schedule described in that Market Notice shall govern.

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14.7.1 Overview of Process

Under the NERC Functional Model and the NERC Rules of Procedure, Registered Entities for a specific function, including the CAISO, may be assessed monetary penalties by FERC, NERC, and/or WECC for violations of one (1) or more NERC Reliability Standards applicable to that function. This Section 14.7 sets forth the procedure through which the CAISO may seek, with FERC approval, to directly allocate, in whole or in part, the cost of any such penalties assessed upon the CAISO to an entity or entities whose conduct or omission(s) NERC, WECC and/or FERC has determined contributed, in whole or in part, to the violation that gave rise to the penalty. This Section 14.7 also sets forth procedures through which the CAISO may seek, with FERC approval, to recover, in whole or in part, from RC Customers and Market Participants the cost associated with a monetary penalty for a NERC Reliability Standards violation(s) that is not subject to direct allocation. Penalties that are assessed upon the CAISO and become final on or after the effective date of this Section 14.7 shall be subject to the procedures set forth herein regardless of the date of the underlying violation(s) for which the penalty is assessed.

14.7.2 Direction Allocation of Reliability Standards Penalties

14.7.2.1 Conditions for Direct Allocation

If FERC, NERC, and/or WECC assess(es) one (1) or more monetary penalties against the CAISO as the Registered Entity for the violation of one or more NERC Reliability Standards, and the conduct or omission(s) of a particular RC Customer or RC Customers, or a particular Market Participant or Market Participants contributed, in whole or in part, to the violation(s) at issue, then the CAISO may seek to directly allocate, in whole or in part, such penalty costs to the RC Customer(s) or Market Participant(s) whose conduct or omission(s) contributed to the violation(s), provided that each of the following conditions are met:

- (1) The RC Customer(s) or Market Participant(s) subject to potential direct allocation receive notice of, and an opportunity to fully participate in, the underlying CMEP proceeding before NERC and/or WECC, or the FERC proceeding in the case of an enforcement proceeding directly instituted by FERC without a prior NERC or WECC proceeding;
- (2) The CMEP proceeding, or enforcement proceeding directly instituted by FERC, results in

a finding that the conduct or omission(s) of the RC Customer(s) or Market Participant(s) subject to potential direct allocation contributed, either in whole or in part, to the Reliability Standards violation(s) at issue; and

- (3) Any findings by NERC and/or WECC regarding whether the conduct or omission(s) of the RC Customer(s) or Market Participant(s) contributed, either in whole or in part, to the Reliability Standards violation(s) at issue are filed with FERC.

14.7.2.2 Notice to Affected RC Customer or Market Participant

The CAISO will notify the Market Participant(s) it believes contributed to the Reliability Standards violation(s) during the CMEP proceeding or, if applicable, during the enforcement proceeding directly instituted by FERC. This notification shall be in writing and shall: (i) inform the RC Customer(s) or Market Participant(s) that the CAISO intends to invoke the direct allocation provisions of this Section; (ii) detail the underlying factual basis for the CAISO's position; and (iii) inform the Market Participant(s) that it may seek to participate in the CMEP proceeding or, if applicable, the enforcement proceeding directly instituted by FERC.

14.7.2.3 Failure to Participate

A failure by the notified RC Customer(s) or Market Participant(s) to participate in the CMEP proceeding or, if applicable, in the enforcement proceeding directly instituted by FERC, will not prevent the CAISO from directly allocating the cost associated with a monetary penalty to the RC Customer(s) or Market Participant(s) provided all other conditions in Section 14.7.2 are satisfied.

14.7.2.4 Proposed Allocation and FERC Review Process

Where NERC and/or WECC, or FERC as may be applicable in an enforcement proceeding directly instituted by FERC, determines that the conduct or omission(s) of the RC Customer(s) or Market Participant(s) identified by the CAISO contributed, in whole or in part, to the NERC Reliability Standard(s) violation(s) at issue, the CAISO shall inform the involved RC Customer(s) or Market Participant(s) in writing and shall initially propose an allocation of the penalty cost on a basis proportional to the parties' relative fault, consistent with the applicable regulator's analysis. Regardless of whether the involved RC Customer(s) or Market Participant(s) agree or disagree over the allocation, the reasonability of such an allocation shall be determined by FERC through submission of the matter to FERC pursuant to Section

205 of the Federal Power Act.

14.7.2.5 Payment of Allocated Amount

After FERC issues a final order regarding the CAISO's ability to directly allocate the penalty cost, the CAISO shall include any FERC-approved allocated amounts in the invoice for the appropriate RC Customer(s) or Market Participant(s) for the next billing period, or as soon as practicable. The amount to be paid by the RC Customer(s) or Market Participant(s) shall include the allocated portion of the penalty, as established by FERC, together with interest calculated at the FERC authorized refund rate for the period of time, if any, between the CAISO's payment of the penalty and the RC Customer(s) or Market Participant(s) payment of its allocated portion of the penalty.

14.7.3 Indirect Allocation of Penalty Costs

14.7.3.1 Procedure for Allocation

Where the conduct or omission(s) of a particular RC Customer or RC Customers or a particular Market Participant or Market Participants has not been identified by NERC, WECC, or FERC as a contributing cause for a monetary penalty assessed against the CAISO for a NERC Reliability Standards violation, the CAISO may make a filing with FERC under Section 205 of the Federal Power Act seeking approval to recover the cost of such reliability-related penalties from all RC Customers or Market Participants. The CAISO's Section 205 filing may include a proposed methodology for allocating the penalty across the various types of RC Customers or Market Participants.

14.7.3.2 Case-By-Case FERC Review

Any allocation of penalties pursuant to Section 14.7.3 must be determined by FERC on a case-by-case basis. Absent FERC approval, the CAISO will not allocate a penalty under Section 14.7.3 to RC Customers or Market Participants.

14.7.3.3 Payment of Allocated Amount

After FERC issues a final order regarding allocation of the monetary penalty, the CAISO shall include any FERC-approved allocated amounts in the invoices for the appropriate RC Customers or Market Participants for the next billing period, or as soon as practicable.

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19.6 Provision of Settlement Data by RC Customers

- (a) **Applicability.** This Section 19.6 applies to the following RC Customers:
- (1) Balancing Authorities other than the CAISO;
 - (2) Transmission operators located in a Balancing Authority Area other than the CAISO that (i) have executed the RCSA and indicated in the RCSA that they have load, and (ii) have elected in the RCSA to receive direct billing of RC Services from the CAISO.
- (b) **Data Requirements.** By no later than the date and in the format specified in the Business Practice Manual for RC Services, such RC Customers must submit the following data regarding billing volumes –
- (1) for RC Customers that are, or are located in, generation-only Balancing Authorities, total annual Net Generation in MWh from January 1 through December 31 of the previous year; and
 - (2) for all other RC Customers, total annual Net Energy for Load in MWh from January 1 through December 31 of the previous year.
- (c) **Failure to Submit Data.** If the RC Customer does not submit the required billing volume data by the date specified in the Business Practice Manual for RC Services, the CAISO will utilize the RC Customer's default MWh specified in the RCSA, which will be established as follows:
- (1) the default total annual Net Generation in MWh for RC Customers that are, or are located in, generation-only Balancing Authorities will equal the sum of the RC Customer's installed generation capacity times a 90 percent capacity factor times 8,760 hours per year for RC Customers that are, or are located in, generation-only Balancing Authorities; and
 - (2) the default total annual Net Energy for Load in MWh for all other RC Customers

will equal the volumes reported by NERC/WECC for the year prior to the effective date of the RCSA, multiplied by 1.25.

- (d) **Reporting Zero Values.** If the RC Customer is a transmission operator that has indicated in its RCSA that it has no Net Energy for Load or Net Generation during the period January 1 through December 31 of the prior year, the RC Customer will indicate such to the CAISO.
- (e) **RC Customer Validation.** By no later than a date specified in the Business Practice Manual for RC Services, the CAISO will publish an informational statement containing the billing data volume for each RC Customer and a shared billing data volume statement including only RC Customer non-confidential information.
- (f) **RC Customer Acceptance.** An RC Customer shall be deemed to have validated and accepted its billing data volume published by the CAISO unless it modifies its billing data volume by no later than the date specified in the Business Practice Manual for RC Services.
- (g) **CAISO Audit of Submitted Data.** The CAISO may, with good cause, review actual Net Energy for Load or Net Generation information available to the CAISO and, following an opportunity for the RC Customer to comment, adjust an RC Customer's RC Services Charge assessed up to two years prior to the most recently issued invoice to account for inaccuracies between the billing volumes reported to the CAISO and the actual Net Energy for Load or Net Generation for the same period, and such adjustments will be reflected on the next annual RC Services Invoice.
- (h) **RC Customers in the CAISO Balancing Authority Area.** For RC Customers in the CAISO Balancing Authority Area no submission is required pursuant to this Section 19.6 since the CAISO will calculate such RC Customers' share of the CAISO Balancing Authority Area's Net Energy for Load in accordance with Section 11.20.9.

19.7 Settlements and Billing for RC Customers

- (a) **Applicability.** Section 19.7, rather than Section 11, shall apply to the CAISO Settlement

with RC Customers, unless the RC Customer is also a Scheduling Coordinator for a Load Serving Entity in the CAISO Balancing Authority Area, in which case Section 11.20.9 will apply rather than Section 19.7 and the CAISO will invoice such Scheduling Coordinators in accordance with Section 11.20.9.

(b) **Reliability Coordinator Services Charge.**

- (1) **In General.** The CAISO will charge RC Customers an RC Services Charge based on the rate calculated according to the formula in Appendix F, Schedule 7.
- (2) **Minimum RC Services Charge.** The CAISO will charge RC Customers a minimum RC Services Charge as set forth in Appendix F, Schedule 7.
- (3) **Application of Revenues.** The CAISO will apply revenues received from the RC Services Charge against the costs to be recovered through the Grid Management Charge as described in Appendix F, Schedule 7.

(c) **Billing Procedures.**

- (1) **In General.** The CAISO will invoice RC Customers on an annual basis for RC Services provided during that calendar year, except for the initial year of RC Services which will be invoiced in accordance with Section 19.7(c)(3).
- (2) **RC Services Invoice.** The CAISO will provide RC Customers with an RC Services Invoice by the first business day of each calendar year for RC Services to be provided during that calendar year.
- (3) **Initial RC Services Invoice Period.** The CAISO will invoice RC Customers for RC Services from the RC Services Date determined in accordance with Section 19.2(b)(6) until the end of that calendar year based on the applicable rate in Appendix F, Schedule 7 at the same time the CAISO invoices RC Customers for the year following that initial year.

(d) **Validation and Disputes of RC Services Invoices.**

- (1) **Review.** RC Customers will have the opportunity to review and validate the charges included in the RC Services Invoice.
- (2) **Validation.** An RC Services Invoice shall be binding on the RC Customer to

which it relates and will not be subject to later dispute unless the RC Customer has raised a dispute within 21 Business Days of the date of issuance.

(3) **Disputes.** RC Customers shall be prohibited from disputing any RC Services Invoice, except on the grounds that an error causes the invoiced amount to differ from the amount that would result from the application of the rate set forth in the CAISO Tariff.

(4) **Confirmation.** Confirmation, validation and resolution of any dispute associated with the invoicing of RC Services shall be managed through the CAISO's customer inquiry, dispute, and information system and as provided in the Business Practice Manual for RC Services.

(5) **Corrected Invoices.** If the CAISO determines that an RC Services Invoice contains an error that causes the invoiced amount to differ from the amount that would result from the application of the rate set forth in the CAISO Tariff, and the resolution of the dispute makes correction necessary, the CAISO will issue a corrected invoice within 21 Business Days of the date the initial invoice was issued.

(A) each RC Customer that receives an invoice for RC Services shall pay any net debit and shall be entitled to receive any net credit specified on a corrected invoice; and

(B) payment of any net debit shall be made in accordance with the procedures set forth in Section 19.7(e), except that payment shall be made by no later than 21 Business Days after a corrected invoice is issued.

(e) **Payment by RC Customers.**

(1) **Payment Date.** RC Customers shall make timely payment to the CAISO of any charges on an RC Services Invoice by no later than 21 Business Days after an RC Services Invoice is issued, except as otherwise may be required to comply

with Schedule 2 of the RCSA.

(2) **Payment Procedures.**

(A) **General.** All payments to the CAISO made pursuant to this Section 19 will be denominated in United States dollars and cents and shall be made by Fedwire or, at the option of each RC Customer, by Automated Clearing House by 10:00 am on the relevant payment date.

(B) **RC Customer System Failure.** If any RC Customer becomes aware that a payment will not be, or is unlikely to be, received by the CAISO Bank by 10:00 am on the relevant payment date for any reason (including failure of the Fedwire or any computer system), it shall immediately notify the CAISO, giving full details of the payment delay (including the reasons for the payment delay), and shall make all reasonable efforts to remit payment as soon as possible, by an alternative method if necessary, to ensure that funds are received for value no later than 10:00 am on the payment date, or as soon as possible thereafter.

(C) **CAISO System Failure.** In the event of failure of any electronic transfer system affecting the CAISO Bank, the CAISO shall notify RC Customers of the occurrence of the system failure and the alternative methods and anticipated time of payment. In the event that a payment is received late by the CAISO Bank due to a system failure affecting the CAISO Bank, the procedures set forth in Section 19.7(e)(3)-(5) below shall not apply.

(3) **Late Payment and Default.** If payment is not received by the last Business Day in January, the RC Customer will be charged a \$1,000 late payment fee on a supplemental RC Services Invoice and will be considered to be in default, understanding that the CAISO reserves the right to terminate, consistent with the terms of the RCSA, such RC Customer's RC Services until such time as payment is received except as otherwise may be required to comply with

Schedule 2 of the RCSA.

- (4) **Payment Pending Dispute.** If there is any dispute relating to a charge included on an RC Services Invoice that is not resolved prior to the payment due date, the RC Customer shall pay any amounts shown on the relevant RC Services Invoice, despite the continuing pendency of the dispute, and the provisions of Section 19.10 will thereafter apply to the resolution of the dispute.
- (5) **Default Collection Procedures.**
- (A) **In General.** In the event an RC Customer defaults on the payment of all or any portion of the RC charges included on an RC Services Invoice, the CAISO may, at its discretion, issue a supplemental RC Services Invoice to all other RC Customers that reallocates any amounts unpaid by the defaulting RC Customer to all other RC Customers in proportion to the amounts included on those RC Customers' RC Services Invoices.
- (B) **Supplemental Payment.** RC Customers shall, subject to the dispute resolution procedures in Section 19.7(d), make payment to the CAISO of any charges on a supplemental invoice within 21 Business Days of the date the supplemental invoice is issued.
- (C) **CAISO Collection.** Notwithstanding any reallocation pursuant to this Section 19.7, the CAISO shall –
- (i) use all commercially reasonable efforts (including suspension of RC Services) to collect amounts invoiced in accordance with this Section 19.7; and
 - (ii) credit other RC Customers in proportion to the amount of the supplemental invoice they received pursuant to this Section 19.7 in an amount equal to any amounts collected by CAISO from a defaulting RC Customer, provided that any such credits will be included on the next annual invoice after the CAISO collects such amounts.

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Appendix A
Master Definition Supplement

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- [Not Used] * * * *

Appendix F

Rate Schedules

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Schedule 7

Reliability Coordinator Services Charge

The Reliability Coordinator Services Charge shall be based on the RC Funding Requirement. The RC Funding Requirement will consist of the annual costs associated with the CAISO's provision of Reliability Coordinator Services, including the annual costs associated with maintaining shared reliability coordinator tools such as the Western Interchange Tool and the Enhanced Curtailment Calculator. The CAISO will determine the RC Funding Requirement based on the percentage of its overall revenue requirement attributable to the cost of providing RC Services. This percentage will initially be determined by assessing the costs associated with providing RC Services, using data from the CAISO's 2016 cost of service study modified to reflect the assessed RC Services costs, and based on the expected number of customers that will have committed to take RC Services by the RC Services Dates provided in Section 19.2(b)(6). This percentage will be updated in conjunction with the triennial cost of service study conducted by the CAISO as described in Schedule 1, Part A of this Appendix F. The RC Funding Requirement will be calculated, on an annual basis, as the product of this percentage multiplied by the annual revenue requirement for the same year.

The percentage of the RC Funding Requirement for the initial RC Services Date provided in Section 19.2(b)(6) will be 2% for the July 1, 2019 targeted onboarding date, which will be assessed to applicable RC Customers, including Scheduling Coordinators that serve load in the CAISO Balancing Authority Area, in proportion to the Net Energy for Load or Net Generation for the period during which this rate is in effect. The percentage of the RC Funding Requirement for the initial RC Service Date provided in Section 19.2(b)(6) will be increased to 9% for the September 1, 2019 targeted onboarding date, which will thereafter be assessed to applicable RC Customers, including Scheduling Coordinators that serve load in the CAISO Balancing Authority Area, in proportion to the Net Energy for Load or Net Generation for the period during which this rate is in effect. The minimum annual RC Services Charge will also be prorated for applicable RC Customers during these periods.

The RC Funding Requirement will be developed utilizing the procedures associated with the development of the GMC revenue requirement, as set forth in Schedule 1, Part D of this Appendix F. Entities taking RC Services from the CAISO will have the opportunity to participate in that annual budget process.

The RC Funding Requirement will be treated as a component of the revenue in the CAISO Other Costs and Revenues category, for purposes of calculating the costs recovered through the GMC, as set forth in Schedule 1, Part C of this Appendix F.

The annual RC rate per MWh is calculated by taking the annual RC Funding Requirement less the known minimum RC Services Charge for the applicable year divided by the sum of 1) the annual Net Energy for Load MWh for all Balancing Authorities with load and Transmission Operators and 2) the annual Net Generation MWh for all generators connected to generation-only Balancing Authorities and Transmission Operators that the CAISO anticipates will take RC Services for the applicable year. The rates for the RC Services Charge shall be adjusted each year, effective January 1.

The annual RC Services Charge for each RC Customer will be calculated as follows:

- For RC Customers that are, or are located in, generation-only Balancing Authorities, multiplying the annual RC Services Charge rate by the total Net Generation in MWh as determined in accordance with Section 19.6. The RC Services Charge for such RC

Customers that are Balancing Authorities shall be calculated by removing any total Net Generation associated with Transmission Operators within such Balancing Authorities that have elected to receive direct billing of RC Services from the CAISO.

- For RC Customers that are, or are located in, Balancing Authority Areas with load, multiplying the annual RC Services Charge rate by the total Net Energy for Load in MWh as determined in accordance with Section 19.6 of the CAISO Tariff. The RC Services Charge for such RC Customers that are Balancing Authorities shall be calculated by removing any total Net Energy for Load associated with transmission operators within such Balancing Authorities that have elected to receive direct billing of RC Services from the CAISO.
- For RC Customers that are located in the CAISO's Balancing Authority Area and Scheduling Coordinators that serve load in the CAISO Balancing Authority Area, multiplying the annual RC Services Charge rate by the RC Customer's share of the total NERC/WECC Metered Demand in MWh for the CAISO Balancing Authority Area determined in accordance with Section 11.20.9.
- There will be a minimum annual RC Services Charge of \$5,000. This charge will be applied to RC Customers that either have no Net Energy for Load or Net Generation for a particular period as set forth in Section 19.6 of the CAISO Tariff, as well as RC Customers whose annual RC Services Charge, as calculated in accordance with this Schedule 7, would otherwise be less than \$5,000.
- For RC Customers that take RC Services for less than a full year in either the initial or final year of participation, the annual RC Services Charge will be pro-rated according to the period that the RC Customer takes service during such year, rounded up to the nearest month.

Any excess or shortfall in the RC Services Charge collected as compared to the RC Funding Requirement for a particular year will be credited or debited, as applicable, to the CAISO Operating Reserve Account.

Attachment D – Marked Tariff to be Effective July 1, 2019
Tariff Amendments to Implement Reliability Coordinator Service
California Independent System Operator Corporation
August 31, 2018

11.20.9 Reliability Coordinator Services Charges

11.20.9.1 Responsibility ~~F~~for the Reliability Coordinator Services Charges

- ~~(a) The CAISO shall invoice Scheduling Coordinators for all of the charges that are invoiced to the CAISO by the Reliability Coordinator.~~
- ~~(ba)~~ Each Scheduling Coordinator, including Scheduling Coordinators that are also RC Customers, shall be obligated to pay the CAISO all of the ~~Reliability Coordinator~~RC Services Charges it is invoiced by the CAISO in accordance with Section 11.20.9.
- ~~(eb)~~ The responsibility of ~~E~~each Scheduling Coordinator in the CAISO Balancing Authority Area's responsibility for the Reliability Coordinator RC Services Charges shall be allocated based on the Scheduling Coordinator's share of the total NERC/WECC Metered Demand for the CAISO'S Balancing Authority Area. A Scheduling Coordinator without any NERC/WECC Metered Demand during an allocation period shall be assessed the minimum RC Services Charge set forth in Appendix F, Schedule 7.
- ~~(ec)~~ The CAISO's calculation of collateral requirements and other credit requirements under the CAISO Tariff shall include an adjustment for the Scheduling Coordinator's allocable share of the ~~RC Reliability Coordinator Services~~ Charges, if applicable, except that the Estimated Aggregated Liability calculated for the Scheduling Coordinator shall not include extrapolated amounts for the ~~Reliability Coordinator RC Services~~ Charges under Section 12.1.3.1.1(d).

11.20.9.2 Calculation and Assessment

- (a) The CAISO will provide Scheduling Coordinators with an RC Services Invoice by the first Business Day of each calendar year for RC Services to be provided during that calendar year, except for the initial period for RC Services. The initial period of RC Services will be invoiced from the RC Services Date, as determined in accordance with Section 19.2(b)(6) through the end of that calendar year, and will be invoiced at the same time the CAISO invoices RC Customers from the year following the initial period. The initial period will be prorated based on the portion of time during the initial calendar year that RC Service are provided. ~~Within 5 Business Days after receiving the invoice for Reliability~~

~~Coordinator Charges, the CAISO shall issue a market notice setting forth the Reliability Coordinator Charge rate for the assessment year, which shall be calculated using the total Reliability Coordinator Charges invoiced to the CAISO divided by the most recent total NERC/WECC Metered Demand determined under Section 11.20.4.~~

- (b) The CAISO shall calculate the ~~Reliability Coordinator RC Services~~ Charges allocable to each Scheduling Coordinator by using the ~~Reliability Coordinator RC Services~~ Charge rate for the assessment year determined under ~~Appendix F, Schedule 7~~ Section 11.20.9.2(a), multiplied by the most recent NERC/WECC Metered Demand for that Scheduling Coordinator determined under Section 11.20.4. A Scheduling Coordinator without any such NERC/WECC Metered Demand shall be assessed the minimum RC Services Charge set forth in Appendix F, Schedule 7.
- (c) ~~Within 10 Business Days after receiving the invoice for the Reliability Coordinator Charges, the CAISO shall issue an invoice to each Scheduling Coordinator for its allocable share of the Reliability Coordinator Charges determined under Section 11.20.9.2(b).~~
- ~~(d)~~ Scheduling Coordinators shall make timely payment to the CAISO within ~~15-21~~ 21 Business Days of the date the invoices were issued pursuant to Section 11.20.9.2(~~ae~~).

11.20.9.3 Confirmation

- (a) It is the responsibility of each Scheduling Coordinator to notify the CAISO if the Scheduling Coordinator fails to receive its invoice for ~~the Reliability Coordinator RC Services~~ Charges in accordance with the schedule in Section 11.20.9.2(~~ae~~).
- (b) Each Scheduling Coordinator shall be deemed to have received its invoice for ~~Reliability Coordinator the RC Services~~ Charges on the date specified in Section 11.20.9.2(~~ae~~) unless the Scheduling Coordinator notifies the CAISO to the contrary.

11.20.9.4 Validation

- (a) Each Scheduling Coordinator shall have the opportunity to review the terms of the invoice for ~~the Reliability Coordinator RC Services~~ Charges and shall be deemed to have validated that invoice unless it raises a dispute within ~~five-21~~ 21 Business Days of the date

of issuance.

- (b) Once validated, an invoice for ~~the Reliability Coordinator RC Services~~ Charges shall be binding on the Scheduling Coordinator to which it relates.

11.20.9.5 Disputes and Corrections

- (a) Scheduling Coordinators shall be prohibited from disputing any ~~Reliability Coordinator RC Services~~ Charges, except on grounds that an error causes in the invoiced amount to differ from the amount that would result from the application of the rate set forth in the CAISO Tariff ~~is due to a mere typographical or other ministerial error by the CAISO.~~
- (b) Any dispute of an invoice on the grounds specified in Section 11.20.9.5(a) shall be submitted and processed in accordance with the dispute resolution procedures for ~~the Reliability Coordinator RC Services~~ Charges set forth in Sections 19.7 and 19.10 ~~the Business Practice Manual,~~
- (c) If the CAISO determines that an invoice contains an error that causes the invoiced amount to differ from the amount that would result from the application of the rate set forth in the CAISO Tariff ~~typographical or other ministerial error~~, and the resolution of the dispute makes correction necessary, the CAISO will issue a corrected invoice within ~~45~~ 21 Business Days of the date the initial invoice was issued.
- (d) Each Scheduling Coordinator that receives an invoice for ~~the Reliability Coordinator RC Services~~ Charges shall pay any net debit and shall be entitled to receive any net credit specified on a corrected invoice. Payment of any net debit shall be due within ~~40-21~~ 21 Business ~~d~~Days of the date the corrected invoice was issued.

11.20.9.6 Payment Default.

- (a) In the event a Scheduling Coordinator defaults on the payment of all or any portion of the ~~Reliability Coordinator RC Services~~ Charges invoiced under Section 11.20.9.2(~~cd~~) or 11.20.9.5(d), the CAISO shall have the right under Section 11.29.13.3 to enforce the financial security provided by the defaulting Scheduling Coordinator, and to take any such other action under Sections 11.29.12 or 11.29.13, as necessary, to obtain payment for the default amount.

- (b) To the extent all or any portion of the default amount remains unpaid, the CAISO
- (1) may at its discretion issue an invoice for the unpaid ~~Reliability Coordinator RC Services~~ Charges; and
 - (2) if such invoice is issued for a payment default, shall allocate responsibility for the unpaid amount to Scheduling Coordinators with NERC/WECC Metered Demand, excluding the CAISO Debtor that has not paid the payment default amount, based on the most recent NERC/WECC Metered Demand for each Scheduling Coordinator determined under Section 11.20.
- (c) Scheduling Coordinators shall make timely payment to the CAISO within ~~15-21~~ Business Days of the date the default invoices were issued pursuant to Section 11.20.9.6(b).

11.20.9.7 Modification to Schedule. Notwithstanding the provisions in Section 11.20.9, the CAISO may issue a Market Notice informing Scheduling Coordinators that the CAISO will implement a temporary modification to the billing and payment schedule for ~~the Reliability Coordinator RC Services~~ Charges and setting forth the reasons for such modification, in which case the modified schedule described in that Market Notice shall govern.

* * * * *

14.7.1 Overview of Process

Under the NERC Functional Model and the NERC Rules of Procedure, Registered Entities for a specific function, including the CAISO, may be assessed monetary penalties by FERC, NERC, and/or WECC for violations of one (1) or more NERC Reliability Standards applicable to that function. This Section 14.7 sets forth the procedure through which the CAISO may seek, with FERC approval, to directly allocate, in whole or in part, the cost of any such penalties assessed upon the CAISO to an entity or entities whose conduct or omission(s) NERC, WECC and/or FERC has determined contributed, in whole or in part, to the violation that gave rise to the penalty. This Section 14.7 also sets forth procedures through which the CAISO may seek, with FERC approval, to recover, in whole or in part, from ~~RC Customers and~~ Market Participants the cost associated with a monetary penalty for a NERC Reliability Standards violation(s) that

is not subject to direct allocation. Penalties that are assessed upon the CAISO and become final on or after the effective date of this Section 14.7 shall be subject to the procedures set forth herein regardless of the date of the underlying violation(s) for which the penalty is assessed.

14.7.2 Direction Allocation of Reliability Standards Penalties

14.7.2.1 Conditions for Direct Allocation

If FERC, NERC, and/or WECC assess(es) one (1) or more monetary penalties against the CAISO as the Registered Entity for the violation of one or more NERC Reliability Standards, and the conduct or omission(s) of a particular RC Customer or RC Customers, or a particular Market Participant or Market Participants contributed, in whole or in part, to the violation(s) at issue, then the CAISO may seek to directly allocate, in whole or in part, such penalty costs to the RC Customer(s) or Market Participant(s) whose conduct or omission(s) contributed to the violation(s), provided that each of the following conditions are met:

- (1) The RC Customer(s) or Market Participant(s) subject to potential direct allocation receive notice of, and an opportunity to fully participate in, the underlying CMEP proceeding before NERC and/or WECC, or the FERC proceeding in the case of an enforcement proceeding directly instituted by FERC without a prior NERC or WECC proceeding;
- (2) The CMEP proceeding, or enforcement proceeding directly instituted by FERC, results in a finding that the conduct or omission(s) of the RC Customer(s) or Market Participant(s) subject to potential direct allocation contributed, either in whole or in part, to the Reliability Standards violation(s) at issue; and
- (3) Any findings by NERC and/or WECC regarding whether the conduct or omission(s) of the RC Customer(s) or Market Participant(s) contributed, either in whole or in part, to the Reliability Standards violation(s) at issue are filed with FERC.

14.7.2.2 Notice to Affected RC Customer or Market Participant

The CAISO will notify the Market Participant(s) it believes contributed to the Reliability Standards violation(s) during the CMEP proceeding or, if applicable, during the enforcement proceeding directly instituted by FERC. This notification shall be in writing and shall: (i) inform the RC Customer(s) or Market Participant(s) that the CAISO intends to invoke the direct allocation provisions of this Section; (ii) detail

the underlying factual basis for the CAISO's position; and (iii) inform the Market Participant(s) that it may seek to participate in the CMEP proceeding or, if applicable, the enforcement proceeding directly instituted by FERC.

14.7.2.3 Failure to Participate

A failure by the notified RC Customer(s) or Market Participant(s) to participate in the CMEP proceeding or, if applicable, in the enforcement proceeding directly instituted by FERC, will not prevent the CAISO from directly allocating the cost associated with a monetary penalty to the RC Customer(s) or Market Participant(s) provided all other conditions in Section 14.7.2 are satisfied.

14.7.2.4 Proposed Allocation and FERC Review Process

Where NERC and/or WECC, or FERC as may be applicable in an enforcement proceeding directly instituted by FERC, determines that the conduct or omission(s) of the RC Customer(s) or Market Participant(s) identified by the CAISO contributed, in whole or in part, to the NERC Reliability Standard(s) violation(s) at issue, the CAISO shall inform the involved RC Customer(s) or Market Participant(s) in writing and shall initially propose an allocation of the penalty cost on a basis proportional to the parties' relative fault, consistent with the applicable regulator's analysis. Regardless of whether the involved RC Customer(s) or Market Participant(s) agree or disagree over the allocation, the reasonability of such an allocation shall be determined by FERC through submission of the matter to FERC pursuant to Section 205 of the Federal Power Act.

14.7.2.5 Payment of Allocated Amount

After FERC issues a final order regarding the CAISO's ability to directly allocate the penalty cost, the CAISO shall include any FERC-approved allocated amounts in the invoice for the appropriate RC Customer(s) or Market Participant(s) for the next billing period, or as soon as practicable. The amount to be paid by the RC Customer(s) or Market Participant(s) shall include the allocated portion of the penalty, as established by FERC, together with interest calculated at the FERC authorized refund rate for the period of time, if any, between the CAISO's payment of the penalty and the RC Customer(s) or Market Participant(s) payment of its allocated portion of the penalty.

14.7.3 Indirect Allocation of Penalty Costs

14.7.3.1 Procedure for Allocation

Where the conduct or omission(s) of a particular RC Customer or RC Customers or a particular Market Participant or Market Participants has not been identified by NERC, WECC, or FERC as a contributing cause for a monetary penalty assessed against the CAISO for a NERC Reliability Standards violation, the CAISO may make a filing with FERC under Section 205 of the Federal Power Act seeking approval to recover the cost of such reliability-related penalties from all RC Customers or Market Participants. The CAISO's Section 205 filing may include a proposed methodology for allocating the penalty across the various types of RC Customers or Market Participants.

14.7.3.2 Case-By-Case FERC Review

Any allocation of penalties pursuant to Section 14.7.3 must be determined by FERC on a case-by-case basis. Absent FERC approval, the CAISO will not allocate a penalty under Section 14.7.3 to RC Customers or Market Participants.

14.7.3.3 Payment of Allocated Amount

After FERC issues a final order regarding allocation of the monetary penalty, the CAISO shall include any FERC-approved allocated amounts in the invoices for the appropriate RC Customers or Market Participants for the next billing period, or as soon as practicable.

* * * *

19.6 Provision of Settlement Data by RC Customers

(a) **Applicability.** This Section 19.6 applies to the following RC Customers:

- (1) **Balancing Authorities other than the CAISO;**
- (2) **Transmission operators located in a Balancing Authority Area other than the CAISO that (i) have executed the RCSA and indicated in the RCSA that they have load, and (ii) have elected in the RCSA to receive direct billing of RC Services from the CAISO.**

(b) **Data Requirements.** By no later than the date and in the format specified in the

Business Practice Manual for RC Services, such RC Customers must submit the following data regarding billing volumes –

(1) for RC Customers that are, or are located in, generation-only Balancing Authorities, total annual Net Generation in MWh from January 1 through December 31 of the previous year; and

(2) for all other RC Customers, total annual Net Energy for Load in MWh from January 1 through December 31 of the previous year.

(c) **Failure to Submit Data.** If the RC Customer does not submit the required billing volume data by the date specified in the Business Practice Manual for RC Services, the CAISO will utilize the RC Customer's default MWh specified in the RCSA, which will be established as follows:

(1) the default total annual Net Generation in MWh for RC Customers that are, or are located in, generation-only Balancing Authorities will equal the sum of the RC Customer's installed generation capacity times a 90 percent capacity factor times 8,760 hours per year for RC Customers that are, or are located in, generation-only Balancing Authorities; and

(2) the default total annual Net Energy for Load in MWh for all other RC Customers will equal the volumes reported by NERC/WECC for the year prior to the effective date of the RCSA, multiplied by 1.25.

(d) **Reporting Zero Values.** If the RC Customer is a transmission operator that has indicated in its RCSA that it has no Net Energy for Load or Net Generation during the period January 1 through December 31 of the prior year, the RC Customer will indicate such to the CAISO.

(e) **RC Customer Validation.** By no later than a date specified in the Business Practice Manual for RC Services, the CAISO will publish an informational statement containing the billing data volume for each RC Customer and a shared billing data volume statement including only RC Customer non-confidential information.

- (f) **RC Customer Acceptance.** An RC Customer shall be deemed to have validated and accepted its billing data volume published by the CAISO unless it modifies its billing data volume by no later than the date specified in the Business Practice Manual for RC Services.
- (g) **CAISO Audit of Submitted Data.** The CAISO may, with good cause, review actual Net Energy for Load or Net Generation information available to the CAISO and, following an opportunity for the RC Customer to comment, adjust an RC Customer's RC Services Charge assessed up to two years prior to the most recently issued invoice to account for inaccuracies between the billing volumes reported to the CAISO and the actual Net Energy for Load or Net Generation for the same period, and such adjustments will be reflected on the next annual RC Services Invoice.
- (h) **RC Customers in the CAISO Balancing Authority Area.** For RC Customers in the CAISO Balancing Authority Area no submission is required pursuant to this Section 19.6 since the CAISO will calculate such RC Customers' share of the CAISO Balancing Authority Area's Net Energy for Load in accordance with Section 11.20.9.

19.7 Settlements and Billing for RC Customers

- (a) **Applicability.** Section 19.7, rather than Section 11, shall apply to the CAISO Settlement with RC Customers, unless the RC Customer is also a Scheduling Coordinator for a Load Serving Entity in the CAISO Balancing Authority Area, in which case Section 11.20.9 will apply rather than Section 19.7 and the CAISO will invoice such Scheduling Coordinators in accordance with Section 11.20.9.
- (b) **Reliability Coordinator Services Charge.**
- (1) **In General.** The CAISO will charge RC Customers an RC Services Charge based on the rate calculated according to the formula in Appendix F, Schedule 7.
 - (2) **Minimum RC Services Charge.** The CAISO will charge RC Customers a minimum RC Services Charge as set forth in Appendix F, Schedule 7.
 - (3) **Application of Revenues.** The CAISO will apply revenues received from the RC Services Charge against the costs to be recovered through the Grid

Management Charge as described in Appendix F, Schedule 7.

(c) **Billing Procedures.**

- (1) **In General.** The CAISO will invoice RC Customers on an annual basis for RC Services provided during that calendar year, except for the initial year of RC Services which will be invoiced in accordance with Section 19.7(c)(3).
- (2) **RC Services Invoice.** The CAISO will provide RC Customers with an RC Services Invoice by the first business day of each calendar year for RC Services to be provided during that calendar year.
- (3) **Initial RC Services Invoice Period.** The CAISO will invoice RC Customers for RC Services from the RC Services Date determined in accordance with Section 19.2(b)(6) until the end of that calendar year based on the applicable rate in Appendix F, Schedule 7 at the same time the CAISO invoices RC Customers for the year following that initial year.

(d) **Validation and Disputes of RC Services Invoices.**

- (1) **Review.** RC Customers will have the opportunity to review and validate the charges included in the RC Services Invoice.
- (2) **Validation.** An RC Services Invoice shall be binding on the RC Customer to which it relates and will not be subject to later dispute unless the RC Customer has raised a dispute within 21 Business Days of the date of issuance.
- (3) **Disputes.** RC Customers shall be prohibited from disputing any RC Services Invoice, except on the grounds that an error causes the invoiced amount to differ from the amount that would result from the application of the rate set forth in the CAISO Tariff.
- (4) **Confirmation.** Confirmation, validation and resolution of any dispute associated with the invoicing of RC Services shall be managed through the CAISO's customer inquiry, dispute, and information system and as provided in the Business Practice Manual for RC Services.

(5) **Corrected Invoices.** If the CAISO determines that an RC Services Invoice contains an error that causes the invoiced amount to differ from the amount that would result from the application of the rate set forth in the CAISO Tariff, and the resolution of the dispute makes correction necessary, the CAISO will issue a corrected invoice within 21 Business Days of the date the initial invoice was issued.

(A) each RC Customer that receives an invoice for RC Services shall pay any net debit and shall be entitled to receive any net credit specified on a corrected invoice; and

(B) payment of any net debit shall be made in accordance with the procedures set forth in Section 19.7(e), except that payment shall be made by no later than 21 Business Days after a corrected invoice is issued.

(e) **Payment by RC Customers.**

(1) **Payment Date.** RC Customers shall make timely payment to the CAISO of any charges on an RC Services Invoice by no later than 21 Business Days after an RC Services Invoice is issued, except as otherwise may be required to comply with Schedule 2 of the RCSA.

(2) **Payment Procedures.**

(A) **General.** All payments to the CAISO made pursuant to this Section 19 will be denominated in United States dollars and cents and shall be made by Fedwire or, at the option of each RC Customer, by Automated Clearing House by 10:00 am on the relevant payment date.

(B) **RC Customer System Failure.** If any RC Customer becomes aware that a payment will not be, or is unlikely to be, received by the CAISO Bank by 10:00 am on the relevant payment date for any reason (including failure of the Fedwire or any computer system), it shall immediately notify the CAISO, giving full details of the payment delay

(including the reasons for the payment delay), and shall make all reasonable efforts to remit payment as soon as possible, by an alternative method if necessary, to ensure that funds are received for value no later than 10:00 am on the payment date, or as soon as possible thereafter.

(C) **CAISO System Failure.** In the event of failure of any electronic transfer system affecting the CAISO Bank, the CAISO shall notify RC Customers of the occurrence of the system failure and the alternative methods and anticipated time of payment. In the event that a payment is received late by the CAISO Bank due to a system failure affecting the CAISO Bank, the procedures set forth in Section 19.7(e)(3)-(5) below shall not apply.

(3) **Late Payment and Default.** If payment is not received by the last Business Day in January, the RC Customer will be charged a \$1,000 late payment fee on a supplemental RC Services Invoice and will be considered to be in default, understanding that the CAISO reserves the right to terminate, consistent with the terms of the RCSA, such RC Customer's RC Services until such time as payment is received except as otherwise may be required to comply with Schedule 2 of the RCSA.

(4) **Payment Pending Dispute.** If there is any dispute relating to a charge included on an RC Services Invoice that is not resolved prior to the payment due date, the RC Customer shall pay any amounts shown on the relevant RC Services Invoice, despite the continuing pendency of the dispute, and the provisions of Section 19.10 will thereafter apply to the resolution of the dispute.

(5) **Default Collection Procedures.**

(A) **In General.** In the event an RC Customer defaults on the payment of all or any portion of the RC charges included on an RC Services Invoice, the CAISO may, at its discretion, issue a supplemental RC Services Invoice to all other RC Customers that reallocates any amounts unpaid

by the defaulting RC Customer to all other RC Customers in proportion to the amounts included on those RC Customers' RC Services Invoices.

(B) **Supplemental Payment.** RC Customers shall, subject to the dispute resolution procedures in Section 19.7(d), make payment to the CAISO of any charges on a supplemental invoice within 21 Business Days of the date the supplemental invoice is issued.

(C) **CAISO Collection.** Notwithstanding any reallocation pursuant to this Section 19.7, the CAISO shall –

(i) use all commercially reasonable efforts (including suspension of RC Services) to collect amounts invoiced in accordance with this Section 19.7; and

(ii) credit other RC Customers in proportion to the amount of the supplemental invoice they received pursuant to this Section 19.7 in an amount equal to any amounts collected by CAISO from a defaulting RC Customer, provided that any such credits will be included on the next annual invoice after the CAISO collects such amounts.

* * * *

Appendix A

Master Definition Supplement

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~~- [Not Used] Reliability Coordinator Charges~~

~~The charges for reliability coordination services that the Reliability Coordinator assesses to the CAISO.~~

* * * *

Appendix F

Rate Schedules

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Schedule 7

Reliability Coordinator Services Charge

The Reliability Coordinator Services Charge shall be based on the RC Funding Requirement. The RC Funding Requirement will consist of the annual costs associated with the CAISO's provision of Reliability Coordinator Services, including the annual costs associated with maintaining shared reliability coordinator tools such as the Western Interchange Tool and the Enhanced Curtailment Calculator. The CAISO will determine the RC Funding Requirement based on the percentage of its overall revenue requirement attributable to the cost of providing RC Services. This percentage will initially be determined by assessing the costs associated with providing RC Services, using data from the CAISO's 2016 cost of service study modified to reflect the assessed RC Services costs, and based on the expected number of customers that will have committed to take RC Services by the RC Services Dates provided in Section 19.2(b)(6). This percentage will be updated in conjunction with the triennial cost of service study conducted by the CAISO as described in Schedule 1, Part A of this Appendix F. The RC Funding Requirement will be calculated, on an annual basis, as the product of this percentage multiplied by the annual revenue requirement for the same year.

The percentage of the RC Funding Requirement for the initial RC Services Date provided in Section 19.2(b)(6) will be 2% for the July 1, 2019 targeted onboarding date, which will be assessed to applicable RC Customers, including Scheduling Coordinators that serve load in the CAISO Balancing Authority Area, in proportion to the Net Energy for Load or Net Generation for the period during which this rate is in effect. The percentage of the RC Funding Requirement for the initial RC Service Date provided in Section 19.2(b)(6) will be increased to 9% for the September 1, 2019 targeted onboarding date, which will thereafter be assessed to applicable RC Customers, including Scheduling Coordinators that serve load in the CAISO Balancing Authority Area, in proportion to the Net Energy for Load or Net Generation for the period during which this rate is in effect. The minimum annual RC Services Charge will also be prorated for applicable RC Customers during these periods.

The RC Funding Requirement will be developed utilizing the procedures associated with the development of the GMC revenue requirement, as set forth in Schedule 1, Part D of this Appendix F. Entities taking RC Services from the CAISO will have the opportunity to participate in that annual budget process.

The RC Funding Requirement will be treated as a component of the revenue in the CAISO Other Costs and Revenues category, for purposes of calculating the costs recovered through the GMC, as set forth in Schedule 1, Part C of this Appendix F.

The annual RC rate per MWh is calculated by taking the annual RC Funding Requirement less the known minimum RC Services Charge for the applicable year divided by the sum of 1) the annual Net Energy for Load MWh for all Balancing Authorities with load and Transmission Operators and 2) the annual Net Generation MWh for all generators connected to generation-only Balancing Authorities and Transmission Operators that the CAISO anticipates will take RC Services for the applicable year. The rates for the RC Services Charge shall be adjusted each year, effective January 1.

The annual RC Services Charge for each RC Customer will be calculated as follows:

- For RC Customers that that are, or are located in, generation-only Balancing Authorities, multiplying the annual RC Services Charge rate by the total Net Generation in MWh as determined in accordance with Section 19.6. The RC Services Charge for such RC

Customers that are Balancing Authorities shall be calculated by removing any total Net Generation associated with Transmission Operators within such Balancing Authorities that have elected to receive direct billing of RC Services from the CAISO.

- For RC Customers that are, or are located in, Balancing Authority Areas with load, multiplying the annual RC Services Charge rate by the total Net Energy for Load in MWh as determined in accordance with Section 19.6 of the CAISO Tariff. The RC Services Charge for such RC Customers that are Balancing Authorities shall be calculated by removing any total Net Energy for Load associated with transmission operators within such Balancing Authorities that have elected to receive direct billing of RC Services from the CAISO.
- For RC Customers that are located in the CAISO's Balancing Authority Area and Scheduling Coordinators that serve load in the CAISO Balancing Authority Area, multiplying the annual RC Services Charge rate by the RC Customer's share of the total NERC/WECC Metered Demand in MWh for the CAISO Balancing Authority Area determined in accordance with Section 11.20.9.
- There will be a minimum annual RC Services Charge of \$5,000. This charge will be applied to RC Customers that either have no Net Energy for Load or Net Generation for a particular period as set forth in Section 19.6 of the CAISO Tariff, as well as RC Customers whose annual RC Services Charge, as calculated in accordance with this Schedule 7, would otherwise be less than \$5,000.
- For RC Customers that take RC Services for less than a full year in either the initial or final year of participation, the annual RC Services Charge will be pro-rated according to the period that the RC Customer takes service during such year, rounded up to the nearest month.

Any excess or shortfall in the RC Services Charge collected as compared to the RC Funding Requirement for a particular year will be credited or debited, as applicable, to the CAISO Operating Reserve Account.

Attachment E – Declaration of April D. Gordon
Tariff Amendments to Implement Reliability Coordinator Service
California Independent System Operator Corporation
August 31, 2018

balancing authorities that obtain RC services from the CAISO and the CAISO balancing authority area.

Overview of RC Services Rate Design

3. In order to deliver RC services in the most cost-efficient manner, the CAISO will develop the RC services rate using the rate design model and activity-based costing (ABC) system that it uses to determine existing rates for other cost-based services that it provides such as its grid management charges and energy imbalance market (EIM) administrative fees. This model is based on seven guiding ratemaking principles: cost causation, focus on use of services, transparency, predictability, forecastability, flexibility and simplicity.

4. Under this approach, the CAISO will develop an annual RC funding requirement to calculate and assess the costs associated with providing RC services. This RC funding requirement will represent the product of the CAISO's annual revenue requirement, prior to RC income allocation, multiplied by the percentage (RC percentage) of the annual revenue requirement representing costs associated with providing RC services. The RC percentage will be updated as part of the triennial cost of service study that the CAISO performs as part of its GMC update process. The RC funding requirement will then be used to establish the annual RC services rate, which will be assessed to RC customers based on their measurable flow of energy on the bulk electric system (BES) within the CAISO RC footprint. The RC funding requirement will also be treated as a component of the revenue included in the "other costs and revenues" category of the CAISO's GMC revenue

requirement, which will ensure that the amounts collected through the RC services rate are appropriately credited against the CAISO's total GMC revenue requirement.

5. Using the CAISO's existing rate design paradigm to establish the rate for RC services will ensure that the CAISO's RC customers, as well as its existing GMC customers, benefit from the stability of the CAISO's annual GMC revenue requirement. In particular, since 2007, the CAISO's overall GMC revenue requirement has averaged an annual increase of less than 1 percent and remains 17 percent lower than its highest revenue requirement in 2003. During this time, the CAISO has implemented several major initiatives, including large-scale market redesign, construction of a new headquarters and backup control room, and launch of the energy imbalance market, with no material impact to the GMC revenue requirement.

6. RC customers will also benefit from the various stakeholder input and review procedures associated with the development of the CAISO's grid management charges, which the CAISO will also employ in developing the RC services rate. These procedures include:

- During the second quarter of each year, discussing with stakeholders the CAISO's budgeting assumptions for the following year.
- In the fourth quarter of each year, publishing a draft of its GMC revenue requirement, which will include the assumptions with respect to the RC

funding requirement, and holding a stakeholder meeting to discuss the draft.

- Providing stakeholders with at least one full CAISO Governing Board (Board) cycle to prepare comments on the proposed GMC revenue requirement before presenting it to the Board. Before the CAISO presents the proposed GMC revenue requirement to the Board for approval, it responds to all stakeholder comments and posts the responses on its public website.
- After Board approval, posting the final version of the GMC revenue requirement to be effective during the subsequent fiscal year. This documentation includes details such as the billing volumes together with work papers showing the relevant rate calculations.

Development of RC Funding Requirement

7. The first step in the development of the CAISO's RC services rate is the determination of the annual RC funding requirement, which will account for costs associated with providing RC services. The RC funding requirement will equal the product of the CAISO's annual revenue requirement multiplied by the RC percentage.
8. The RC percentage will represent the direct and indirect time and expenses necessary for the CAISO to perform its RC services and functions. The CAISO will update the RC percentage as part of the triennial cost of service study that the CAISO performs as part of its GMC update process. However, because the next

triennial study is not due to be performed until 2020, the CAISO needed to determine initial RC percentages based on an estimate of the costs necessary to provide RC services prior to this study.

9. The CAISO developed two initial RC services percentages. The first initial percentage, which the CAISO calculated as two percent of its annual revenue requirement, represents the costs that the CAISO expects to incur as of July 1, 2019 in offering RC services to entities within its own balancing authority area, as well as a few entities outside of its balancing authority area that are prepared to begin taking RC services from the CAISO as of that date. This initial percentage will establish the RC services rate until the date that the CAISO begins offering RC services to what it expects will be a larger group of interested entities outside of its balancing authority area, which is currently anticipated to be no earlier than September 1, 2019. For this later phase, the CAISO calculated that nine percent of its annual revenue requirement is reasonably representative of the costs that the CAISO will incur in offering RC services to entities both inside and external to its balancing authority area. The CAISO will utilize this nine percent figure to set the costs for RC services provided from September 1, 2019 until the next triennial cost of service study.
10. The CAISO determined these initial percentages by performing a modified interim cost of service study to assess the impacts of the RC service on the CAISO's overall cost structure. With respect to the participation of external entities, the CAISO assumed for purposes of determining the nine percent initial RC

percentage that it would be providing RC services to entities from a majority of the entities in the western interconnection that represent both the northwest and southwest regions. Given the broad expression of interest by entities across the western interconnection in potentially taking RC services from the CAISO, as well as the announcement by Peak Reliability that it intends to cease providing reliability coordinator services, the CAISO's assumption of broad participation by entities in the western interconnection in setting its initial RC services percentage is reasonable.

11. The CAISO conducted the interim study by examining the roles and responsibilities associated with providing RC services and the necessary resources to support them. The CAISO analyzed its existing ABC process codes and tasks codes to identify the direct roles and responsibilities of the reliability coordinator services function. In some cases this required new tasks to be developed in order to properly track activities relating to the provision of RC services by the CAISO.
12. To calculate the RC percentages, the CAISO first estimated the direct RC operating expenses. As part of this effort the CAISO determined the number of direct hours associated with each RC-related ABC task code performed by CAISO staff. In addition, the CAISO paired these hours with the personnel expenses of each of the full-time-equivalent positions that were included in the analysis. Labor will be the largest expense related to the CAISO's provision of RC services. In the scenario where the CAISO is providing service to most of the western

interconnection, the CAISO projects that approximately 55 full-time-equivalent positions will be needed to support the provision of RC services. Fifty-five full-time-equivalent positions represents personnel performing a direct supporting role as well as the contributions of personnel in an indirect supporting role. This projection is based on the CAISO's analysis of roles and responsibilities necessary to provide RC services as established by the North American Electric Reliability Corporation (NERC). The CAISO's analysis considered internal resources necessary to provide RC services and other reliability coordinator staffing plans.

13. Specifically, in developing its reliability coordinator operator staffing plan, the CAISO reviewed the staffing at the Midcontinent Independent System Operator, Inc. (MISO), PJM Interconnection, L.L.C. (PJM) and Peak Reliability. The CAISO found that the MISO and PJM staffing structures are not directly comparable because they allow for shared functions and/or staff moving between reliability coordinator- and balancing authority-assigned duties, whereas the CAISO reliability coordinator functions are based on a design principle that keeps these activities separate. Similarly, the CAISO found that a comparison between Peak Reliability and CAISO is not straightforward because the CAISO already has a robust operating infrastructure and enhanced tools that it has developed to support its ongoing operational responsibilities as a balancing authority and transmission operator.
14. After completing its review of other reliability coordinator staffing plans, the CAISO developed a scalable staffing plan that is based on its reliability coordinator

design. Assuming the CAISO provides RC services to the majority of entities in the western interconnection, staffing levels will be further separated from and therefore incremental to the CAISO balancing authority and transmission operator-related staffing. The CAISO RC will have three RC operators on shift during the 24 hours of each day. For the expanded reliability coordinator footprint, *i.e.*, an area that could encompass the entire western interconnection, the CAISO will also add six operations engineering staff employees to support the RC function by providing outage coordination analysis, day ahead operations planning analysis, and real time operations functions.

15. In addition to the full-time-equivalent positions described above, the CAISO reliability coordinator function will leverage certain existing CAISO personnel to reduce the labor costs directly allocated to the RC function. These existing personnel include the CAISO balancing authority operations planning staff, which includes 21 operations engineers who coordinate and analyze outages and support advanced network applications such as real-time contingency analysis, real-time voltage stability analysis, real-time dynamic stability analysis, and the look-ahead applications that predict system conditions up to two-three days in advance.

Further, the CAISO's existing operational readiness training and management group will be used to support the CAISO's reliability coordinator functions. This group supports tool development, testing and implementation, procedure drafting, and administration. It also includes a training group and simulation group with

dedicated training staff. The reliability coordinator staff will have 40 hours dedicated to training in every shift rotation to ensure they have the opportunity to accumulate continuing educational hours to contribute to their reliability coordinator certification and train on CAISO tools, and system operating procedures and guides.

16. Existing CAISO infrastructure programs will also limit the need to add additional reliability coordinator-related labor and staffing. The CAISO reliability coordinator function will be incorporated into the CAISO's existing emergency preparation program, which the CAISO uses to forecast conditions and determine whether additional staffing is needed. In the event that additional staff is needed, the CAISO reliability coordinator function will be able to call on off-shift reliability coordinators and engineers.

The CAISO also maintains an emergency response coordination (ERC) program that handles communication with CAISO staff and executives and outside parties, allowing system operations staff to concentrate on reliable bulk electric system operations and emergency responses. The CAISO reliability coordinator function will be able to use the ERC program to similarly allow RC staff to focus on bulk electric system reliability, rather than ancillary activities.

In addition, the CAISO reliability coordinator function will take advantage of the CAISO's existing 24x7x365 service desk and processes that automatically page on-call system subject matter experts in the event of data and tool anomalies or

- failures. This ensures that customer issues are directed to the service desk staff, and provides fast responses to technology issues, allowing the reliability coordinator operators to concentrate on bulk electric system reliability issues.
17. The second part of the analysis of direct costs consisted of identifying the projected non-labor-related costs and mapping these costs to the reliability coordinator-related ABC task codes. These costs include reliability coordinator specific tools and applications included in the core reliability coordinator offering as well as those that will be used in support of supplemental services, such as the hosted advanced network applications (HANA).
 18. The CAISO proposes to allocate a proportional amount of its indirect expenses other than labor to the RC funding requirement as well. These indirect expenses include other components of the CAISO's overall GMC revenue requirement such as administrative tools and capital. The indirect portion of the estimated reliability coordinator operating expense was calculated by allocating the indirect expenses identified in the revenue requirement proportionately based on the direct cost percentages.
 19. The sum of the direct and indirect expenses, less any RC-related supplemental revenue, such as for HANA services, constitutes the projected RC operating budget used in the analysis. The RC percentages were then calculated as the product of the RC operating budget divided by the revenue requirement, prior to the addition of RC income allocations.

The modified cost of service study used a progressive revenue requirement to calculate a reasonable RC funding requirement and ultimately reasonable RC percentages. The CAISO used its 2016 revenue requirement as the basis of the modified revenue requirement, consistent with the most recent cost of service study. To establish a suitable foundation for the RC funding requirement and RC percentage calculations, this revenue requirement included financial impacts expected with the new RC service offering and other non-RC planned projections until the next triennial cost of service study is completed. These impacts include projected personnel cost increases, such as for merit raises and benefits, and non-personnel cost increases, such as for software and hardware, as well as offsets based on additional anticipated revenue, such as for HANA and EIM administrative fees.

20. The RC percentage will be updated as part of the comprehensive triennial cost of service study that the CAISO performs as part of its grid management charges calculation process. As with the grid management charges, updates to the RC percentage will be based on costs from the year prior to the cost of service study.
21. The RC funding requirement, which determines the amount that the CAISO will collect from RC customers on an annual basis, will be determined each year by multiplying the CAISO annual revenue requirement for the applicable year by the current RC percentage.

The RC funding requirement will be included in the “other costs and revenues” category in the GMC revenue requirement. The GMC revenue requirement will continue to be subject to the current \$202 million cap. While there will not be a separate cap on the RC funding requirement, the RC funding requirement will be treated as a credit against GMC so as to protect against any cross-subsidization of costs, and will also be subject to the same cost development and review procedures as the GMC.

22. In the process of developing this proposal, some CAISO stakeholders expressed a preference for a mechanism to limit potential increases in the RC funding requirement, either as a year-to-year percentage limit on increases or a cost cap separate from the cap on the overall revenue requirement. The CAISO does not believe that such a cap or other mechanism to limit the RC funding requirement is warranted. The CAISO believes that by imposing an RC-specific cost cap or rate cap that it will be limited in its ability to respond to operational or technical design changes in its reliability coordinator function. This is particularly problematic because any such changes could be driven by factors beyond the CAISO’s control, *e.g.*, changes in NERC/Western Electricity Coordinating Council (WECC) criteria. A reliability coordinator rate cap could also unfairly shift costs to other grid management charge categories, which would be contrary to the CAISO’s cost causation principles. Also, as discussed above, RC customers will have the opportunity to scrutinize and provide input on the CAISO’s RC funding requirement determinations as part of the comprehensive annual budget and grid management

charge rates stakeholder review process. As such, there should be no question as to the transparency of the CAISO's RC services cost determinations.

Calculation and Assessment of RC Services Rate

23. The CAISO will calculate the RC services rate on an annual basis, effective as of January 1 each year. The RC services rate will be calculated by taking the annual RC funding requirement, less any known minimum RC services charge for the applicable year, and dividing the funding requirement by the sum of: (1) the annual net energy for load MWh for all balancing authorities with load and transmission operators and (2) the annual net generation MWh for all generators connected to generation-only balancing authorities and transmission operators that the CAISO anticipates will take RC services for the applicable year. As the CAISO RC footprint could potentially include load-serving balancing authorities as well as generation-only balancing authorities, the CAISO needs a billing determinant to apply to both types of balancing authorities. The commonality between the two types of balancing authorities is that both rely upon the bulk electric system overseen by a reliability coordinator to receive and deliver energy. Since both net energy for load and net generation refer to megawatt-hour (MWh) volumes and both are used to measure energy flow across the bulk electric system, the CAISO believes that they are comparable billing determinants for the CAISO to assess its overall RC service rate to balancing authorities.

24. Net energy for load is a NERC-defined term that refers to net balancing authority area generation, plus energy received from other balancing authority areas, less

energy delivered to balancing authority areas through interchange. It includes balancing authority area losses but excludes energy required for storage at energy storage facilities. Net energy for load is the billing determinant currently used by Peak Reliability for purposes of assessing the costs of its reliability coordinator services. The CAISO will likewise use net energy for load as the basis for calculating the RC services rate for balancing authority areas and transmission operators that have load.

25. Net generation is a WECC-defined term that refers to the net power available from a generating facility to be fed into the power system at the high side of the generating facility transformer(s). Net generation is equal to gross generation minus the generator's internal power usage (station service). The CAISO will use the net generation of all generators connected to generation-only balancing authorities and transmission operators as the basis for calculating the RC services rate.
26. The CAISO will use net energy for load and net generation to calculate the annual RC services rate for individual RC customers. The CAISO will multiply either the RC customer's net energy for load (for entities with load) or net generation (for generation-only entities) by the RC services rate to determine the amount that the CAISO will invoice the RC customer.
27. The CAISO will implement a minimum RC services charge of \$5,000, which will be applied to RC customers that have no net energy for load and no net generation

during an applicable period, or whose RC service charge for a particular year, calculated as described above, would result in a charge less than \$5,000. Even if a balancing authority has no load or generation in its footprint it will still require a constant amount of administrative attention from an RC service provider. Without load or generation, there is no metric that the CAISO can use as a billing determinant that reasonably represents the costs the CAISO incurs relative to other reliability coordinator customers. Instead, \$5,000 represents the amount that the CAISO estimates it will generally spend towards providing outage coordination, dispatch, and other services to entities with zero or an otherwise *de minimis* amount of net energy for load or net generation.

28. With respect to the CAISO balancing authority area, the CAISO will assess all load and transmission operator scheduling coordinators for RC services by multiplying the RC services rate by each scheduling coordinator's share of the total NERC/WECC metered demand in MWh for the CAISO balancing authority area. The CAISO will bill the minimum RC service charge of \$5,000 to scheduling coordinators within the CAISO balancing authority area with zero or an otherwise *de minimis* amount of metered demand. The minimum charges collected from these entities will be deducted from the amount to be collected from the remaining scheduling coordinators in the CAISO balancing authority area. NERC/WECC metered demand, which is similar to net energy for load, is the determinant that the CAISO uses to collect the costs that it is currently assessed for reliability coordination services performed by Peak Reliability, and will be used as the basis for determining the total net energy for load for the entire CAISO balancing

authority area. Thus, the CAISO is proposing to collect the costs associated with its provision of RC services to entities within its own balancing authority area in essentially the same manner as it does today.

29. The CAISO is retaining this separate process for collecting costs from internal CAISO entities because some of the load within the CAISO's balancing authority area will not be represented by any RC customer. The CAISO has seven registered transmission operators within its balancing authority area that will be RC customers; however, these seven transmission operators do not represent all of the load in the CAISO balancing authority area. Having a separate provision for settlement within the CAISO balancing authority area allows the CAISO to ensure that all entities that serve load within its balancing authority area pay a portion of the costs for the RC services that the CAISO is providing to its own balancing authority area.
30. For RC customers that take RC services for less than a full year in either their initial or final year of participation, their RC services charge liability for such years will be prorated according to the period that the customer takes service during such year, rounded up to the nearest month.
31. During the development of the CAISO's RC services rate, some generation-only entities took issue with the CAISO's proposal to calculate RC services charges for generation-only balancing authorities and transmission owners based on net generation. Under the funding agreement utilized by Peak Reliability, such entities

are assessed a minimum annual charge; the basis for Peak Reliability's minimum annual charge is unclear. These entities maintain that using a volumetric billing determinant will require them to pay the CAISO several times what they currently pay Peak Reliability, which they believe is inappropriate because they maintain that they will not need all aspects of the RC services provided by the CAISO.

32. The CAISO does not agree that generation-only entities with more than a *de minimis* amount of annual net generation should be assessed the minimum RC services charge. The proposal to charge generation-only balancing authorities based on net generation treats all balancing authorities similarly and is consistent with cost allocation principles. NERC standards do not differentiate between generation-only balancing authorities and traditional balancing authorities. All balancing authorities are required to have a reliability coordinator and the RC services that the CAISO will provide will fulfill that fundamental obligation for generation-only balancing authorities, just as it does for load-serving balancing authorities. Generation-only balancing authorities rely completely on the bulk electric system to deliver all the energy they generate and the reliability coordinator is responsible for overseeing the reliable operation of the assets necessary to oversee the reliable operation of the system. The physical limitations of the bulk electric system are defined by equipment capability and these limits are impacted by energy produced by generation, and as such require monitoring by the reliability coordinator. Net generation MWh volumes is an effective measure of energy transported on the bulk electric system and its subsequent contribution to potential reliability issues requiring reliability coordinator monitoring and response.

Reliability coordinators must also manage operational aspects of generators and their associated equipment, as well as their forced and planned outages. Further, generation-only balancing authorities must be included in the operational planning analysis and real-time analysis, which are required by NERC standards and are important to reliable operation of the bulk electric system.

33. The fact that some reliability coordinator specific tasks may not be required to fully monitor a generation-only balancing authority does not mean that generation-only balancing authorities should only receive a minimum RC services charge. Each balancing authority, regardless of whether it has load or not, will inherently have differences – some may have numerous remedial action schemes, some may have a qualified path located within their area, and some may have one or more seams with another reliability coordinator area. Similarly, some generation-only balancing authorities may primarily consist of variable energy resources while others comprise more traditional resources. Attempting to devise an allocation scheme that precisely accounts for all of these various circumstances and potential differences would be extremely difficult and costly, and would quickly become stale as system topologies change. Net generation and net energy for load represent reasonable proxies for a balancing authority's relative contribution to the costs incurred by the CAISO in order to provide reliability coordinator services, and the CAISO's proposal considers the impact on reliability coordinator services equally for all balancing authorities insofar as those balancing authorities with less generation or less load will pay relatively less for RC services.

34. The CAISO will not have an RC services-specific operating reserve account and will instead rely upon the general CAISO operating reserves funded by RC customers through their share of indirect cost allocations. Therefore, any excess or shortfall in RC service charges collected as compared with the RC funding requirement for a particular year will be credited or debited, as applicable, to the CAISO operating reserve account. The CAISO would therefore be able to pay fines received from the Federal Energy Regulatory Commission, /NERC/WECC for failure to comply with a reliability standard from a single operating reserve, regardless of which function was implicated. This would avoid the complication of allocating reliability standard compliance penalties based on function, which would likely be difficult if not impossible and highly contentious in any event. The general CAISO operating reserve account is funded at 15 percent of the CAISO's operating and maintenance budget and should be adequate to cover potential penalties levied upon the CAISO for any reliability standard compliance violation. Should fines exceed the reserve then the CAISO would apply an increase in the overall revenue requirement for the following year to cover the shortfall in operating reserves, which would then be recovered from all CAISO participants according to their shares of the revenue requirement. This approach will reduce or more likely eliminate the need to invoke the tariff provisions associated with reliability standard compliance penalty allocation, which the CAISO has in fact never used.

Recovery of Costs for Supplemental Services

35. As discussed in the filing, in addition to RC services, the CAISO will also offer RC customers “supplemental” services, which at the outset will consist of: (1) hosted advanced network application services, which will consist of a web-based interface that allows customers to view real-time information regarding such subjects as ratings, contingencies, and remedial action schemes; and (2) a physical security review, by which the CAISO will review and verify transmission operators customers’ periodic risk assessment of their transmission stations and substations in accordance with NERC standard CIP-014.

36. The charge for these supplemental services will be based on the costs incurred by the CAISO to provide these services. The charge for hosted advanced network application services will include a one-time charge of \$35,000 - \$70,000, depending upon the number of RC customers that elect to take the service. This amount will be charged over the initial three-year term in equal annual installments. The CAISO will also recover an annual ongoing fee to cover software license fees and CAISO support. The software license fee will be equal to the vendor license costs which will vary by reliability coordinator customer depending upon the number of users. The CAISO support fee will be \$45,000 per reliability coordinator customer. The CAISO support fee includes hardware costs for hosting the service, operation and maintenance, technical support, security, and administrative costs.

37. The physical security review charge will be determined based on the number or hours spent multiplied by the published labor rate. The CAISO will require that RC customers that wish to obtain the physical security review service provide a \$50,000 deposit against which the CAISO will charge the costs associated with these services. The CAISO will either refund the remaining deposit or directly invoice the RC customer for additional costs, depending on whether the actual costs are lesser or greater than the deposit.

I hereby certify under penalty of perjury that the foregoing statements are true and correct to the best of my knowledge, information, and belief:

Executed on: August 31, 2018

/s/ April D. Gordon
April D. Gordon

Attachment F – CAISO Board of Governors Memorandum, including Draft Final Proposal

Tariff Amendments to Implement Reliability Coordinator Service

California Independent System Operator Corporation

August 31, 2018



Memorandum

To: ISO Board of Governors

From: Eric Schmitt, VP, Operations

Date: July 18, 2018

Re: **Decision on reliability coordinator services rate design, terms, and conditions**

This memorandum requires Board action.

EXECUTIVE SUMMARY

As part of the ISO's reliability coordinator (RC) initiative, a stakeholder process has been completed to develop the rates, terms, and conditions of the ISO's RC services. The stakeholder process included input from a range of existing customers in the ISO balancing authority area, potential new customers across the Western Interconnection and other interested parties.

The rates, terms, and conditions outlined in this memo and the draft final proposal will be added to the tariff that will ultimately be filed with FERC for approval. Management intends to perform RC services for its balancing authority area and to offer these services to the balancing authorities and transmission operators throughout the Western Interconnection.

The ISO has the experienced operators, technology and other necessary resources to support this important function. Providing RC services will significantly reduce costs over the current provider, will enhance the ISO's service offerings and has the potential to improve overall system reliability.

Management seeks the approval of the Board of Governors and proposes the following motion:

Moved, that the ISO Board of Governors approves the proposal to implement the reliability coordinator services as described in the memo dated July 18, 2018; and

Moved, that the ISO Board of Governors authorizes Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the proposal described in the memorandum, including any filings that implement the overarching

initiative policy but contain discrete revisions to incorporate Commission guidance in any initial ruling on the proposed tariff amendment.

BACKGROUND

The ISO currently receives reliability coordinator services from Peak Reliability. On January 2, 2018, the ISO provided Peak with notice that it will no longer take service from, or fund, Peak after September 2, 2019. Prior to that date, the ISO intends to be certified by the North American Electric Reliability Corporation and Western Electricity Coordinating Council as a reliability coordinator for its balancing authority area. All transmission operators within the ISO balancing authority area will become reliability coordinator service customers of the ISO at that time.

The ISO reliability coordinator services will also be offered to balancing authorities outside of the ISO and to transmission operators within those external balancing authority areas.

The ISO has completed a stakeholder process to determine the rate design, terms and conditions for its RC services. During the process, a broad set of stakeholders provided specific requests for changes to the ISO's straw proposal, many of which are reflected in the draft final proposal that is being presented to the Board for consideration. Should the Board approve the proposal, Management will develop the relevant tariff amendments to be filed with FERC which allow the ISO to execute a FERC-approved agreement for RC services with interested customers. Management anticipates a FERC decision, executed binding agreements, and a committed set of customers by the end of 2018.

Parallel to the stakeholder initiative, Management has been working with the transmission operators inside and outside of the ISO balancing authority area, that have provided a letter of intent and executed a non-disclosure agreement with the ISO. This effort began with the formation of working groups comprised of subject matter experts from potential customers, and includes the development of the operating procedures, specific technical requirements, and other technical elements necessary to implement the reliability standards for RC services. The technical materials developed through this process support the RC certification process and will eventually be incorporated into the ISO operating procedures.

It is Management's intent to be certified as an RC and operational by July 1, 2019. At that time, the ISO anticipates first providing RC services to all entities within its balancing authority area, followed by adding other interested entities outside of the ISO area during the fourth quarter of 2019.

The ISO has stayed closely coordinated with Peak Reliability and other potential RC entities within the Western Interconnection. There will be ongoing seams coordination efforts as the transition takes place. Management continues to work with interested customers and other stakeholders on a thoughtful and rational schedule for the transition and will have a defined scope after receiving signed RC services agreements.

DISCUSSION AND ANALYSIS

The reliability coordinator is the highest level of authority responsible for the reliable operation of the Bulk Electric System (BES), and has authority to prevent or mitigate emergencies in day-ahead and real-time operations of the grid.

To do this, the RC:

- Maintains wide area situational awareness of the BES, including state estimation, contingency analysis, identifying and studying mitigation measures
- Aggregates outage information and conducts week-ahead studies of major outages
- Establishes the methodology for system operating limits (SOL) and coordinates seasonal studies
- Monitors transmission path flows, voltages, frequency, and related conditions
- Coordinates with other RCs within the same interconnection

The ISO already performs many of the “RC-like” tasks in its current role as the transmission operator for facilities within the ISO’s balancing authority area as well as outside of its area for shared and adjacent facilities. Becoming a certified RC will extend the area of responsibility for these activities to additional balancing authorities that elect to take reliability coordinator services from the ISO.

In addition, as an RC, the ISO will:

- Determine limits for and monitor interconnection reliability operating limits across its reliability coordination area
- Coordinate its activities with BAAs and transmission operators in its reliability coordination area both among operators and through user forums and user groups

A reliability coordinator also acts as the Interchange Authority for the balancing authorities it represents and administers interchange scheduling and tagging tools to perform this function. The WECC Interchange Tool is currently used for this purpose, which facilitates and coordinates the exchange of energy between balancing authorities in the Western Interconnection. The Enhanced Curtailment Calculator is another tool used by the reliability coordinator to manage power system congestion in conjunction with other tools. The ISO proposes to use either the same set of tools or new tools with similar functionality in order to manage Interchange Authority functions for its area.

The ISO RC services being offered to other balancing authorities and transmission operators will be a new line of business not directly related to participation in ISO markets. The ISO is well-suited to provide these services for the following reasons:

1. The ISO operates both a sophisticated energy market with a large Balancing Authority Area (BAA) and a real-time energy imbalance market (EIM) area that will soon serve 65% of the load in the Western Interconnection by 2020.

2. The ISO has existing knowledge and experience in coordinating operations across BAAs, data sources and models for the full Western Interconnection, including analytical tools that can be extended across the reliability coordination area.
3. The ISO has established extensive data communications with other BAAs across the interconnection, resulting in a mature and robust data platform for managing reliability information across all participating BAAs in a reliability coordination area.
4. The ISO is an experienced transmission operator with a large BAA that has a significant number of remedial action schemes, special protection schemes, and other mitigation procedures.
5. The ISO is able to provide reliability coordinator services to customers across a majority of the Western Interconnection at roughly 40% of current costs.

Reliability Coordinator Oversight

The ISO has established a senior management level interim committee, the Reliability Coordinator Project Steering Committee (RPSC). This committee includes a representative from each BA and transmission operator (TOP) that has expressed interest in RC services and has executed a letter of intent and non-disclosure agreement, as well as a representative from the ISO. Each representative is to have responsibility within their respective organization for maintaining reliability. The committee, and its working groups, are developing, reviewing and commenting on procedures and practices relating to the ISO's implementation and certification of its RC function.

The RPSC is providing input and guidance regarding the establishment and role of a future RC oversight committee that will provide oversight of the RC function and will be comprised of representatives from BAs and TOPs that elect to take RC service from the ISO. The tariff will reference the oversight committee and provide that the committee's operation will be governed by a charter established by the ISO and the BAs and TOPs that have elected to take RC service from the ISO. This oversight committee will provide input and guidance to ISO management on various issues relating to the RC function, including operational issues and overarching reliability coordinator policies and procedures.

The ISO recognizes the importance of transparency. To that end, the oversight committee will hold at least one public meeting per year that will focus on any matters regarding the ISO's performance of the RC function. This can help to serve the interests of stakeholders, including state and federal regulators and regional advisory bodies, such as the Western Interconnection Regional Advisory Board (WIRAB), which are an important component to this process. Management will also maintain regular contact and interaction with such entities, including WIRAB, to ensure that state and federal regulators and regional advisory bodies are kept informed of matters relating to RC service and have an available channel to provide input and advice on relevant matters.

Rate Design

Management has leveraged its existing rate design model and activity based costing (ABC) system to determine the amount it will charge for RC services. This is the same model used by the ISO to determine its other rates, including the Grid Management Charge and EIM administrative fees.

A modified interim cost of service study was performed to assess the impacts of the RC service on the ISO's overall cost structure. The study revealed that the combined direct and indirect costs of the RC service would account for 9% of the ISO overall costs. This percentage will be filed in the tariff and will establish the formula that will be used to develop the annual RC Funding Requirement and, subsequently the, Grid Management Charge revenue requirement.

This percentage presumes a future RC area that is comprised of the existing ISO BA and RC Customers from both the Northwest and Southwest regions of the Western Interconnection. The draft final proposal also presents the "ISO BA only" model which will be used to establish the initial rates for ISO BA customers beginning on July 1, 2019. The "ISO BA only" model will remain in place until additional potential customers join.

Annually, using this percentage, Management will allocate that portion of the revenue requirement to the RC service area to set the RC Funding Requirement. This percentage would remain in effect until reviewed during the next triennial cost of service study.

Other Rate Design Elements

- ***RC Rate*** – An RC rate per MWh will be established annually by dividing the RC Funding Requirement (adjusted for any known minimum charge billings) by the annual RC volumes.
- ***Billing Data*** – Most customers will be billed on their Net Energy for Load MWh volumes. For generation-only BAs and TOPs, Net Generation MWh volumes will be used.
- ***Minimum Charge*** - A minimum annual charge of \$5,000 will apply to entities that have no load or generation yet require RC services and to entities where the submitted MWh volumes yield a charge less than the established minimum charge.
- ***Settlements Process*** - RC Customers will be billed annually in January with payments due 21 business days after the invoice date to avoid late charges and default provisions.

RC Services Agreement

All Balancing Authorities and Transmission Operators who wish to receive RC services from the ISO must enter into a *pro forma* Reliability Coordinator Service Agreement (RCSA) with the ISO. The *pro forma* RCSA will be filed with FERC in August 2018. Once the *pro forma* agreement is accepted by FERC, individual service agreements with RC Customers will be executed and recorded in FERC's electronic quarterly reports.

The Initial Term of the RCSA will be 18 months. Thereafter, the agreement will renew annually for consecutive one year terms until terminated by the RC Customer or the ISO pursuant to the RCSA.

An RC Customer may terminate its agreement with the ISO, without penalty, by giving not less than twelve (12) months' written notice to the ISO after completion of the Initial Term; provided, such notice will be required to be aligned with the annual April exit window.

Supplemental Services

The ISO proposes to offer other services that will enhance its core RC services at an additional cost. These additional services include, but are not limited to, Hosted Advanced Network Applications (HANA) and Physical Security assessments (CIP-014). As detailed in the draft final proposal, these voluntary services will be billed separately at a rate to recover the ISO's costs for providing them. The ISO will continue to work with the RC Oversight Committee to identify supplemental services that will enhance the ISO RC service offerings and to determine the best ways to fund them.

POSITIONS OF THE PARTIES

The rate design stakeholder process has been well attended both in person and via webinar, and the feedback from stakeholders is broadly supportive of the RC rate design. Many of the provisions in the draft final proposal were modified based upon stakeholder feedback. The proposal for Board consideration is a result of four final minor changes to the draft final proposal and are a direct result of stakeholder comments.

In addition, a number of stakeholders asked for more clarity on elements of the draft final proposal that pertain to the rate design, and they provided input to the expected tariff provisions and the draft RC services agreement.

Regarding the rate design, stakeholders asked for assurance that the optional HANA tool costs and revenues will be borne by the users and not the customers of core RC services. At least one stakeholder requested that RC management be held accountable for compliance and excellence in reliable operations of the grid. ISO can confirm that both of these will be consistently applied as the ISO provides the RC services. Stakeholders also asked for more information on topics such as the RC staffing levels, the oversight of the RC processes and procedures, and how new customers will be

“onboarded” to begin receiving RC services. They generally acknowledged this can be provided as the ISO continues work with potential customers through the RPSC.

While not directly affecting the rate design, Management intentionally posted an early draft RC services agreement on May 31, to allow stakeholders the opportunity to provide their initial comments. These comments are helpful and will guide the ISO in preparation of the draft tariff language and a revised RC services agreement that are expected to be available in Mid-July. Upon approval of the rate design by the Board, the ISO will engage stakeholders in a process to prepare its FERC filing that is consistent with the final policy.

A number of potential new RC Customers have voiced support for an RC Rate cap and cost containment measures. Management continues to be non-supportive of a rate cap for the following reasons:

- It is partially redundant to the existing FERC revenue requirement cap in place, which is designed to limit the growth of the revenue requirement that can occur without a full cost of service study and FERC filing.
- Restricting the rate growth or degree of cost increases could severely restrict the ISO’s ability to respond to operational or technical design changes in its RC Service function, which could be detrimental to reliability.
- A rate cap could also unfairly shift costs to other grid management charge categories which would be contrary to our cost causation principle.
- The ISO has shown years of cost and revenue requirement stability which provides our stakeholders with confidence in our fiscal discipline.

CHANGES TO THE DRAFT FINAL PROPOSAL

- Billing data period will be aligned to calendar year versus the draft final proposal of July 1 - June 30 period.
 - The ISO agrees with public stakeholder comment that initially a billing data period consistent with the current process performed in the Western Interconnection is simpler during this transition phase. The ISO is open to changes in the billing data period at a later date if the RC Customers see benefits in potential changes.
- Removed California Oregon Intertie (COI) Path Operator fee credit from modified cost of service study.
 - It has been determined that the fee credit in the modified cost of service study for COI revenue belongs in the BA only and should not be offsetting the RC Service cost category. The delta was less than \$300k.
- Changed RC invoice due date to 21 business days from January 31.
 - This ensures customers always have a full 21 business days to submit payment even if invoice is not released on January 1.

- The 2019 billing process, which was identified in the draft final proposal as needing to be modified from the normal ongoing billing process has been clarified.
 - Charges for RC Services received from the ISO in 2019 will be included on the January 2020 invoice. Therefore, customers will be paying for the number of months in 2019 for which the ISO was the RC of record and for the 12 months in 2020 for which they will receive RC Services.

CONCLUSION

Management requests the ISO Board of Governors approve the proposal to provide RC services to all transmission operators within its BA area, followed by offering other interested balancing authorities and transmission operators in those balancing authority areas RC services. Management anticipates providing RC services to its balancing authority area on July 1, 2019 and to other interested entities no earlier than the fall of 2019. Approval allows the project to proceed on a schedule that will support the transition of the ISO and a significant portion of the load represented by balancing authorities in the Western Interconnection within 2019.



Reliability Coordinator Rate Design, Terms and Conditions

Draft Final Proposal

June 20, 2018



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1. Introduction

The Reliability Coordinator Services Rate Design, Terms and Conditions stakeholder initiative will determine the necessary tariff changes to describe the rates, terms and conditions that support the California Independent System Operation's (CAISO) proposal to become a Reliability Coordinator (RC). The draft final proposal represents the next step in the CAISO stakeholder process, where we are committed to providing ample opportunity for stakeholder input into the design, implementation and planning activities. This process will lead to tariff changes that support the specific provisions which allow the CAISO to charge for just and reasonable rates for its RC services.

This draft final proposal modifies the straw proposal by incorporating changes that were requested by stakeholders where applicable. Following the April 5, 2018 posting of the straw proposal the CAISO received comments during an April 12th stakeholder meeting. In addition, written comments were received by stakeholders on May 7th. On May 31st, the CAISO posted comprehensive responses to stakeholders' comments; the responses provide valuable background behind the changes being proposed in this document. Finally, this updated proposal provides additional details on the RC services rate design, terms and conditions as well as the additional services the CAISO will provide, such as hosted advanced network applications (HANA).

After the stakeholder meeting scheduled for June 27th, the CAISO invites stakeholders to provide any supplemental comments by July 11th. The CAISO will then present the draft final proposal to the CAISO Board of Governors at its public meeting on July 25th for their review and approval. The CAISO will also post its initial draft of the tariff on July 18th. After approval by the Board, the CAISO will finalize the relevant tariff amendments to be filed with the Federal Energy Regulatory Commission (FERC). The CAISO will review the tariff language with stakeholders for comment after the Board meeting and prior to the FERC filing.

For background purposes, the CAISO currently receives reliability coordinator services from Peak Reliability (Peak). On January 2, 2018, the CAISO provided Peak with notice that it will no longer take service from, or fund, Peak after September 2, 2019. Prior to that termination date, the CAISO intends to be certified by the North American Electric Reliability Corporation (NERC) and Western Electricity Coordinating Council (WECC) as a reliability coordinator within its balancing authority (BA) area. All transmission operators (TOPs) within the CAISO BA will become reliability coordinator (RC) service customers of the CAISO at that time. The CAISO RC services will also be offered to BAs outside of the CAISO BA area and to TOPs within those external BAs.

The CAISO is also working in parallel with the TOPs in the CAISO BAs, as well as with BAs and TOPs outside of the CAISO BA area that have provided a letter of intent and executed a non-disclosure agreement with the CAISO. This parallel effort allows for the development of the operating procedures, specific technical requirements, and other technical elements necessary to implement the reliability standards associated with CAISO RC services. This effort began with the formation of working groups comprised of subject matter experts from the BAs and TOPs interested in receiving CAISO RC services. The technical materials developed through this process will support the RC certification process and will eventually be incorporated into the CAISO business practices and operating procedures.

¹ The CAISO responses to comments can be found here, <http://www.caiso.com/Documents/Comments-Responses-DraftAgreement-RCRateDesign-Terms-ConditionsStrawProposal.pdf>.



The CAISO plans to be certified as an RC and be operational by July 1, 2019. At that time, the CAISO anticipates first providing RC services to all entities and TOPs within its BA area, followed by adding other interested BA areas or TOPs outside of the CAISO BA area in the fall of 2019. Throughout this time, the CAISO will stay closely coordinated with Peak and any other RC within the Western Interconnection. The ISO will also work with interested BAs, TOPs and other stakeholders on a thoughtful and rational schedule for the transition.

2. Reliability Coordinator Scope of Services

The CAISO has notified WECC that it will seek certification to perform the functions of an RC. In the NERC functional model, the RC is the entity that constitutes the highest level of authority responsible for the reliable operation of the bulk electric system (BES), has the wide area view of the BES, and has the operating tools, processes and procedures necessary to do so. The RC is vested with the authority to prevent or mitigate emergency operating situations in both next-day analysis and real-time operations through instructions issued to participating BAs and TOPs.

The CAISO will provide RC services to all entities and TOPs within its current BA area, BAs outside of its BA area that decide to take services from the CAISO and, through those BAs, the TOPs within those BA areas. These entities are collectively referred to as RC Customers. As discussed in more detail below, the CAISO will also separately offer services such as hosted advanced network applications and other reliability services to interested RC Customers.

The CAISO proposes to offer a full scope of reliability services. The core RC services are those required by the standards as explained below. These services will be offered at the RC services rate also explained in Section 6: Reliability Coordinator Funding Requirement and Rate Design. The RC services provided by the CAISO will consist of the tasks and functions required of reliability coordinators by the applicable reliability standards, including, but not limited to the items in the table below. These are services that are provided by Peak Reliability now, as well as any other RC certified by NERC.



Core Services	Customer Type			
	BA	Generation Only BA	TOP	TOP with Assets but No Load
Outage Coordination	X	X	X	X
Next Day Operations Planning Analysis	X	X	X	X
Real Time Situational Awareness	X	X	X	X
Data Exchange to support Operations Planning Analysis and Real-Time Assessments	X	X	X	X
System Operating Limit (SOL) Methodology	X		X	
System Restoration Coordination and Training (EOP-006)	X		X	X
Centralized Messaging for RC Area	X	X	X	X
Stakeholder/ Working Group Processes	X	X	X	X
Secured Document Exchange (Plans, Procedures, Studies, Reports)	X	X	X	X
Data Exchange Services	X	X	X	X
Plan Reviews/ Approvals (EOP-005, 010 and 011)	X	EOP-011	X	X
Power System Network Modeling	X	X	X	X
Unscheduled Flow Mitigation Process	X	X	X	X

To elaborate, the CAISO RC will provide the following core RC services:

- Outage Coordination
 - Develop outage coordination processes for its RC area in accordance with the applicable reliability standards;
 - Review, assess, and provide approval or denial of outage requests in accordance with the outage coordination process; and
 - Provide access to an outage management system for its RC Customers as the means to exchange outage information.
- Next Day Operations Planning Analysis
 - Develop an operations planning analysis process for its RC area in accordance with the applicable reliability standards;
 - Perform operations planning analysis in accordance with the applicable reliability standards; and



- Provide a secure platform for its RC Customers to utilize as a means to exchange operations planning analysis information.
- Real-Time Assessment, Monitoring, and Situational Awareness
 - Develop operations procedures and processes for its RC area in accordance with the applicable reliability standards;
 - Perform real-time assessment and monitoring in accordance with the applicable reliability standards; and
 - Provide a wide-area view for situational awareness in accordance with the applicable reliability standards.
- System Operating Limit (SOL) Methodology
 - Develop an SOL methodology for its RC area in accordance with the applicable reliability standards so that each TOP in its RC area will be able to establish its SOL that meets the applicable reliability standards.
- System Restoration Coordination and Training
 - Develop a system restoration plan for its RC area in accordance with the applicable reliability standards;
 - Provide system restoration drills for RC Customers in accordance with the applicable reliability standards;
 - Develop a review process for TOP's system restoration plans for its RC area in accordance with the applicable reliability standards; and
 - Review and approve each TOP's system restoration plan for its RC area in accordance with its approval process.
- Centralized Messaging for BAs and TOPs within CAISO's RC Area
 - Provide an application for the BAs and TOPs within the RC area to have the ability for exchanging system operations related messages in real-time.
- Stakeholder/ Working Group Processes
 - Support working group processes to implement operating procedures to support the NERC Reliability Standards required for RC operations.
- Secured Document Exchange (Plans, Procedures, Studies, Reports)
 - Provide a secured site for BA/TOPs within RC area to be able to exchange Operating Plan, Operating Procedure, studies, and reports in support for BA/TOPs operations coordination as needed to meet NERC Reliability Standards.
- Data Exchange Services
 - CAISO will provide platform and ability for BA/TOP to exchange data needed to monitor and assess the operation within the CAISO RC Area.
- Plan Reviews/ Approvals
 - CAISO will provide a secure site for the RC to facilitate BA and TOP plan reviews and approvals for EOP-005, EOP-010 and EOP-011.



- **Unscheduled Flow Mitigation Process**
 - CAISO will provide operations management of the unscheduled flow transmission relief process for the Qualified Transfer Path within the CAISO RC area as required by IRO-006-WECC reliability standard. This will be provided by utilization of Enhanced Curtailment Calculator

The RC services provided by the CAISO will conform to the requirements of the in-effect CAISO reliability plan that will be provided to NERC as part of its certification, as well as NERC's RC standards of conduct.

In addition to the responsibilities required by NERC standards, the CAISO will also facilitate the continuation of the Western Interconnection tools such as Western Interchange Tool (WIT). As a Balancing Authority, the CAISO understands the importance of the WIT in the Western Interconnection daily operations.

The CAISO also understands that historically this type of tool has been centrally managed by either WECC or the Reliability Coordinator. Although the Interchange Authority function has been removed from the NERC Functional Model, the CAISO agrees that this tool needs to continue to be used in the Western Interconnection, without any disruption to service. The CAISO is actively working with Peak, AESO, SPP, WECC and NERC to develop a transition plan to ensure that these tools continue to be centrally managed and available. Several options are being considered for the initial transition and the long term. The current and future management and development of the tools as well as the allocation of the associated costs will be documented in agreements with the other Reliability Coordinators. More information will be shared as it becomes available at future WECC meetings and in the CAISO RC project steering committee and working group meetings that are ongoing with interested balancing authorities and transmission operators that have signed a non-disclosure agreement with the CAISO.

The costs for WIT will be included in the core RC services rate based upon the scope of the CAISO RC service area.

3. Reliability Coordinator Oversight

The CAISO has established a senior management level interim committee, the Reliability Coordinator Project Steering Committee (RPSC). This committee includes a representative from each BA and TOP that has expressed interest in RC services and has executed a letter of intent and non-disclosure agreement, as well as a representative from the CAISO. Each representative is to have responsibility within their respective organization for maintaining reliability. The committee, via working groups, is developing, reviewing and commenting on procedures and practices relating to the CAISO's implementation and certification of its RC function. The RPSC is providing input and guidance regarding the establishment and role of a future RC oversight committee that will provide oversight of the RC function and is comprised of BAs and TOPs that elect to take RC service from the CAISO. The tariff will reference the oversight committee and provide that the committee's operation will be governed by a charter established by the CAISO and the BAs and TOPs that have elected to take RC service from the CAISO. This oversight committee will provide input and guidance to CAISO management on various issues relating to the RC function, including operational issues and overarching reliability coordinator policies and procedures.



The CAISO recognizes the importance of transparency. To that end, the oversight committee will hold at least one public meeting per year that will focus on any matters regarding the CAISO's performance of the RC function. This can help to serve the interests of stakeholders, including state and federal regulators and regional advisory bodies, such as the Western Interconnection Regional Advisory Board (WIRAB). CAISO staff will also maintain regular contact and interaction with such entities, including WIRAB, to ensure that state and federal regulators and regional advisory bodies are kept informed of matters relating to RC service and have a ready means to provide input and guidance on such matters.

4. Reliability Coordinator Service Agreements

All Balancing Authorities and Transmission Operators who wish to receive RC services from the CAISO must enter into a *pro forma* Reliability Coordinator Service Agreement (RCSA) with the CAISO. Adding Transmission Operators as specific signatories to the RCSA, including Transmission Operators in the CAISO balancing authority area, is necessary because Transmission Operators have specific obligations to provide data to the CAISO RC and will need to follow procedures that are not applicable to the Balancing Authorities. The *pro forma* RCSA will serve both Balancing Authorities and Transmission Operators and will be filed with FERC in August 2018; Once the *pro forma* agreement is accepted by FERC, individual service agreements with RC Customers will be executed and recorded in FERC's electronic quarterly reports.²

All Transmission Operators in the CAISO BA area will be required to execute the RCSA in November 2018 so that they are included within the CAISO RC when it begins operations on July 1, 2019. The RCSA will reflect that the RC of record effective July 1, 2019 is CAISO for the Transmission Operators in the CAISO BA area. Any RC Customers who wish to participate in the first onboarding on September 1, 2019 must initiate the RCSA process with the CAISO in November 2018 and execute the RCSA no later than December 2018. Execution of the RCSA facilitates the exchange of information and models that will be used in the set-up process and preparation for shadow operation. The RCSA will reflect that the RC of record effective September 1, 2019 is CAISO for the RC Customers in the first onboarding. After the first onboarding, future RC Customers will notify the CAISO of the date that they would like to begin receiving RC services; Schedule 1 of the RCSA will be amended to incorporate the date agreed upon by the CAISO. The CAISO will become the RC of record for a particular RC Customer on the date that the customer begins to actually receive RC services from the CAISO.

The Initial Term of the RCSA will be 18 months. Thereafter, the agreement will renew annually for consecutive one year terms until terminated by the RC Customer or the CAISO pursuant to the RCSA.

An RC Customer may terminate its agreement with the CAISO, without penalty, by giving not less than twelve (12) months' written notice to the CAISO after completion of the Initial Term; provided, such notice will be required to be aligned with the annual April exit window discussed below. An early termination fee will apply, equal to the balance of estimated service fees and HANA services, if applicable, remaining on the greater of the required notice period or payment period, if an RC Customer terminates its agreement before the expiration of said notice period. This fee reasonably ensures recovery of any costs incurred by the CAISO for the initial integration and subsequent

² A draft of the *pro forma* Reliability Coordinator Services Agreement was posted to the CAISO website on May 31, 2018 as part of the CAISO responses to comments.



termination of service to the RC Customer. If the RC Customer is receiving HANA services then the remaining initial set-up charge and the balance of the committed period for HANA services will need to be paid. The RC Customer's responsibility for any outstanding balances owed under the RCSA will survive the termination of the agreement.

After the initial start-up, based on comments received from stakeholders, the CAISO proposes to have one window each year, in April, for entering and exiting RC Services. This fixed window is to ensure adequate preparation and resources, appropriate WECC recertification processes, as well as to recognize seasonal challenges during the winter and summer months. As also discussed in the comments released May 31st, the CAISO will reasonably assist the RC Customer to transition to another Reliability Coordinator if requested by the RC Customer, provided the CAISO is reimbursed for reasonable costs incurred for the transition service. Be advised that in order to begin taking RC services within the annual April window, the RCSA must be executed well in advance to allow adequate time for the transfer of information and models along with a period for training and shadow operations in accordance with timelines laid out in the onboarding process.

The agreement obligates the CAISO to provide the RC services and the RC Customer to pay for the RC services it receives from the CAISO pursuant to the rate design, terms and conditions included in the CAISO tariff.

The RCSA will consist primarily of references to the applicable CAISO tariff provisions that will be developed for RC services and the applicable reliability standards relating to the RC function, and will also include common general contractual terms appropriate for the provision of RC services. Additional detail regarding the hosted services and physical security review is included in Appendix 3: Supplemental Services. The RCSA will also specifically establish the RC Customer responsibilities to follow the applicable provisions of the CAISO tariff,³ and the type of RC Customer – Balancing Authority or Transmission Operator – will be identified in the agreement to ensure that the appropriate obligations are requested and performed. For sake of clarity, each RC Customer will be required to specifically list the Transmission Operators and Transmission Owners that they are representing. This clarification will allow the CAISO to ensure that all Transmission Owners are accounted for in each of the BA areas taking RC services.

Knowing that operational information is constantly changing, the proposed RCSA states that any information provided either by the CAISO or the RC Customer is accurate to the extent of the party's knowledge at the time of receipt. To ensure reliability of the grid, this measure of data exchange is critical for trust between the parties and good utility practice.

To accommodate the Federal Power Marketing Administrations, we have included the current federal government contracting provisions within the proposed RCSA. These provisions are only applicable to federal entities if and to the extent required by applicable law.

³ The CAISO anticipates that its tariff will largely defer to the reliability standards in terms of the scope of core RC services to be provided, focusing instead on the rates, terms and conditions of providing those services. The functional responsibilities of an RC are defined by the applicable reliability standards, which are subject to enforcement under those rules and are likely to change over time, and repeating something addressed by a reliability standard in the tariff would create a potential for inconsistency. Accordingly, the tariff will include order of precedence language to ensure that the core RC services remain consistent with the reliability standards over time.



5. Reliability Coordinator Onboarding

The CAISO intends to make both the onboarding and future termination processes for CAISO RC services practical, efficient, and straight-forward for its RC Customers.

The CAISO will provide Reliability Coordinator services to TOPs in its BA area and will offer to provide the same services to BAs and TOPs outside of its BA area. The CAISO will develop and publish a detailed onboarding transition plan to ensure proper coordination among the RCs, BAs, and TOPs.

The goal of the CAISO’s onboarding process is to ensure that each RC Customer is prepared, informed, and engaged in all aspects of receiving RC services. The RC Customers in the CAISO BA area will be required to execute the RCSA in November 2018 to start the CAISO RC on July 1, 2019. The remaining RC Customers will need to initiate the RCSA process in November 2018 and execute the RCSA no later than December 2018 to be eligible for the first onboarding on September 1, 2019. Execution of the agreement facilitates the exchange of information and models to begin the set-up process and preparation for shadow operation.

This preliminary onboarding process includes technology integration and customer service related tracks. This process will be initiated by the CAISO in parallel with this stakeholder initiative. The onboarding plan will provide information regarding processes and timing, as well as, a status of all entities and their participation plans. Each entity will be individually responsible to meet specific readiness criteria, as defined in the business practice manual, and to ensure that it completes the tasks to support its onboarding process and to certify its readiness.

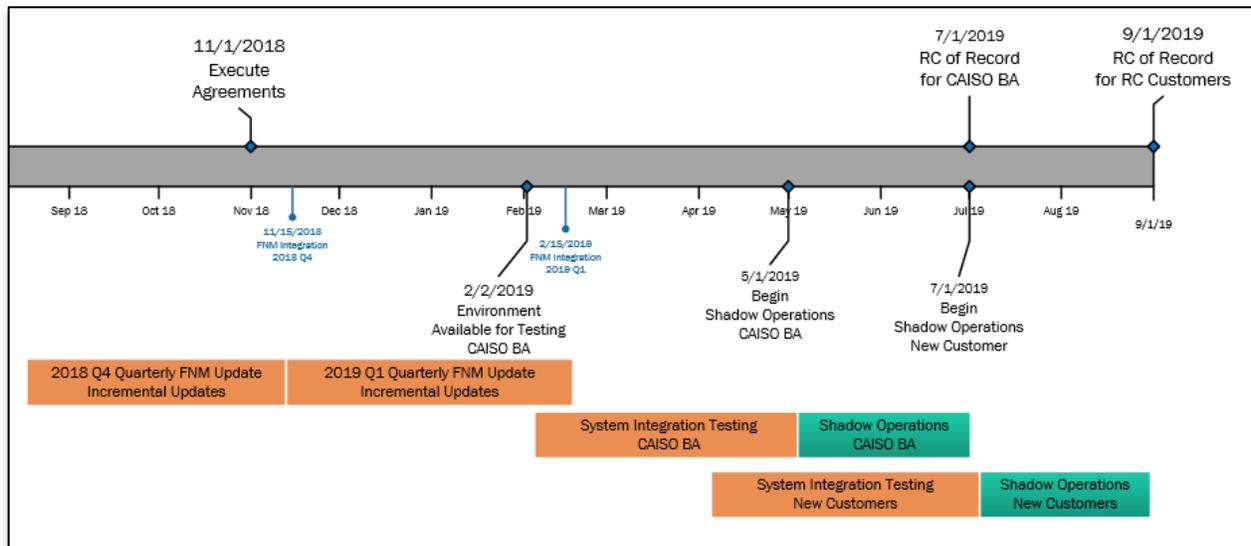


Figure 1: Reliability Coordinator Customer Onboarding Timeline

The CAISO will become the RC of record for transmission operators within its BA area in July 2019. The CAISO understands that interested BAs and TOPs outside of its BA area are considering a single date in the fall of 2019 for the CAISO to become the RC of record on their behalf. The CAISO supports this effort and will be ready to be the RC of record on their behalf on or after September 1, 2019. However, the CAISO will need to know the scope of RC Customers and the



date they wish to receive the services by the end of 2018. The CAISO *pro forma* Reliability Coordinator Service Agreement will be available in November 2018 which will document the RC services date. Additionally, an RC Business Practice Manual (BPM) will be published by the end of 2018.

As part of the initial RC offering, the CAISO proposes a staggered network model integration as part of the set-up required for multiple RC Customers. Even though the onboarding set-up process is staggered, there will be a mutually agreed upon single start date in the fall of 2019. For future years, the CAISO proposes to onboard RC Customers once a year in April. There will be no implementation cost to obtain RC services from the CAISO.

Readiness implementation periods could run between 6 to 12 months depending upon whether or not the BA is already in the CAISO full network model (FNM), the complexity of the RC Customer's resource configuration and system topology, and the maturity of the RC Customer's Common Informational Model (CIM). The CAISO, along with the RC customer, will determine the implementation based on these assessments.

RC Customers will execute the RCSA once the form of that agreement and the associated tariff provisions have been accepted by FERC. TOPs within the CAISO BA area will also enter into RCSA at that time.

The CAISO's Customer Service team will provide a coordinated readiness and training program for all RC Customers. In parallel with the onboarding process, RC Customers will also be integrated into the CAISO's RC Customer Service model for ongoing support services. The CAISO will track specific criteria that measure the readiness of the systems and processes of RC Customers, which will culminate in a certification of readiness.

6. Reliability Coordinator Funding Requirement and Rate Design

The CAISO will leverage its existing rate design model and activity based costing (ABC) system to determine the amount it will charge for its RC services. The model is based on seven guiding ratemaking principles⁴ which are cost causation, focus on use of services, transparency, predictability, forecastability, flexibility and simplicity. This is the same model used by the CAISO to determine its other rates, including the Grid Management Charges (GMC) and Energy Imbalance Market (EIM) administrative fees.

The current GMC rate design was updated in 2014; the amendment was approved by FERC December 18, 2014 and became effective January 1, 2015. The rate design requires the CAISO to complete a cost of service study every three years to ensure it is properly allocating costs to its cost categories. The revenue requirement is allocated into three service categories: market services, system operations and congestion revenue rights (CRR) services based on

⁴Visit http://www.aiso.com/Documents/DraftFinalProposal-2012GridManagementChargeFeb15_2011.pdf for more information regarding the CAISO's GMC rate structure.



percentages developed in the latest cost of service study. The latest cost of service study was completed in 2017 using 2016 data. The CAISO uses ABC to track employee time and expenses by processes.⁵

The GMC and other administrative rates are the means through which the CAISO recovers its annual Revenue Requirement from the entities that use CAISO services. The Revenue Requirement represents the CAISO's operating, administrative, and capitals costs; it is developed in collaboration with the stakeholders in the preceding year.

The components of the Revenue Requirement include the following:

- Operations and Maintenance Budget (O&M),
- Debt Service,
- Cash Funded Capital,
- Other Costs and Revenues, and
- Operating Costs Reserve Adjustments.

The process to develop the annual Revenue Requirement begins with a stakeholder meeting, generally scheduled during the second quarter of the year. At this time, the CAISO discusses with stakeholders budgeting assumptions for the upcoming year, including (1) controlling costs, (2) capital projects for consideration, and (3) reordering CAISO expenditure priorities. The CAISO then spends the next few months to develop its budgetary needs for the upcoming year based on the CAISO's strategic plan and stakeholder feedback. During the early part of the fourth quarter, a draft of the Revenue Requirement is posted on the CAISO website; the document is titled, "Budget and Grid Management Charge Rates"⁶. The CAISO then conducts a follow up stakeholder meeting to discuss the highlights of the Revenue Requirement. Additionally, the draft is presented to the CAISO Board of Governors for their review and feedback. The CAISO provides stakeholders with at least one full governing board cycle to prepare comments on the proposed Revenue Requirement and present them at the next board meeting, which usually takes place in December. Before the CAISO presents the proposed Revenue Requirement to the Board for approval, it responds to all stakeholder comments and posts responses on the website. After Board approval, the CAISO posts the final version of the Revenue Requirement (posted as the "Budget and Grid Management Charge Rates Book") to be effective during the subsequent fiscal year. This documentation includes details such as the billing volumes used to develop the rate for each component of the GMC, together with work papers showing the rate calculations.

The Budget and Grid Management Charge Rates Book typically contains (1) a summary of the components of the revenue requirement compared to the prior year, (2) alignment with the

⁵ Currently, the ABC analysis has disaggregated CAISO activity into nine core processes (level 1 activities). Each of the core activities are further broken down into major processes (level 2 activities) which are then mapped to the level one activity. There are 140 level 2 activities included in the 2016 cost of service study. More on the 2016 Cost of Service Study and 2018 GMC Update can be found here, http://www.aiso.com/Documents/2016Cost_ServicesStudy_2018GMCUpdate.pdf

⁶ Visit <http://www.aiso.com/informed/Pages/StakeholderProcesses/Budget-GridManagementCharge.aspx> for more information regarding the annual Budget and Grid Management Charge Rates books.



CAISO’s strategic plan, (3) a breakdown of the CAISO’s O&M budget by process, (4) a breakdown of the O&M budget, broken down by resource compared to the prior year, (5) a breakdown of the O&M budget, broken down by division compared to the prior year, (6) details of debt service compared to the prior year, (7) description of capital and cash funded capital compared to the prior year, with a proposed listing of capital projects, (8) detail of other costs and revenues compared to the prior year, (9) detail of the operating cost reserve adjustment compared to the prior year, and (10) a rate calculation for the current year. Exhibits filed with the book include a forecast of billing volumes for the next year and a schedule of the calculation of the operating cost reserve adjustment.

Since 2007, the CAISO Revenue Requirement has averaged an annual increase of less than 1% and remains 17% lower than the highest Revenue Requirement in 2003. The CAISO has absorbed several major initiatives during this time with no material impact to the Revenue Requirement, which included the launching of its new market, construction of its now primary and secondary business locations, and the implementation of the Western Energy Imbalance Market.

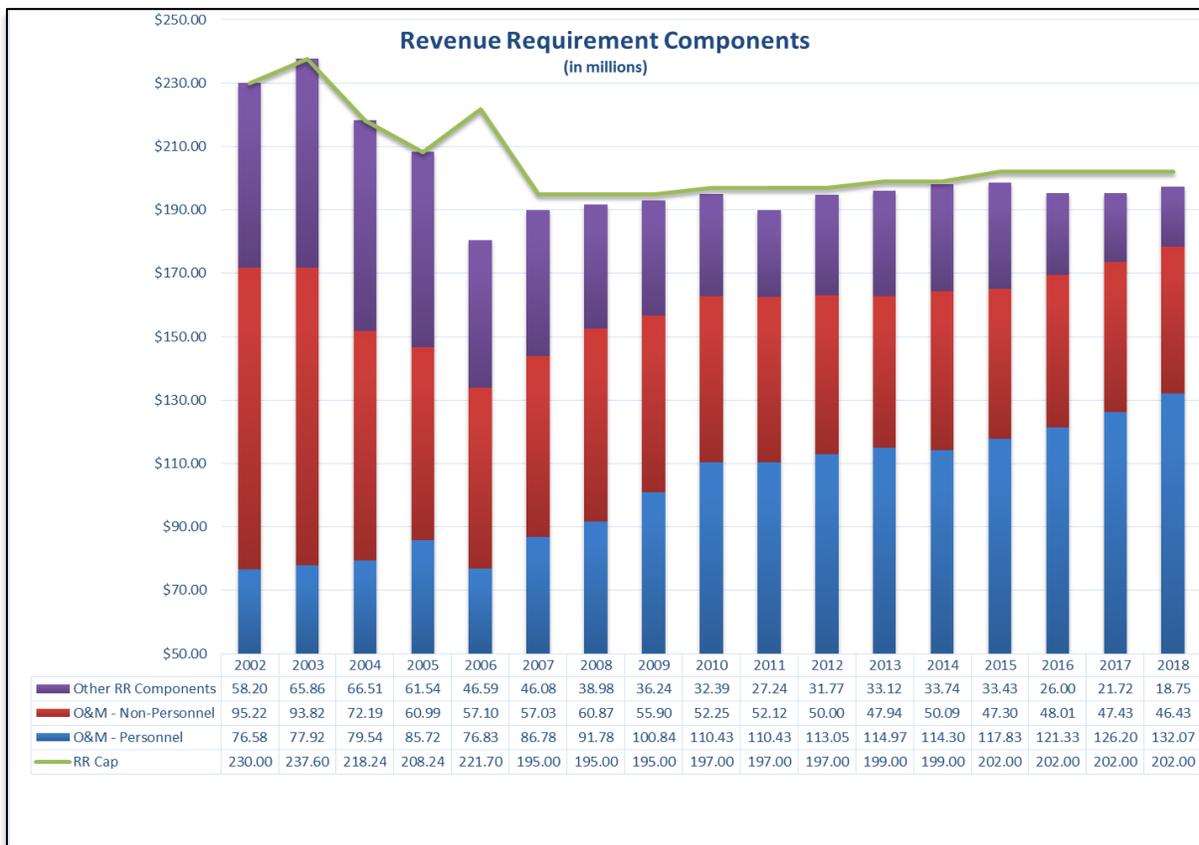


Figure 2: CAISO 17-Year Revenue Requirement History



6.1 RC Funding Requirement

The CAISO proposes to develop an annual RC Funding Requirement. The Funding Requirement, as discussed further below, will be the product of the CAISO's annual Revenue Requirement multiplied by the RC Percentage as determined as part of the triennial cost of service study. This approach allows the RC Funding Requirement to leverage against the stability of the CAISO's annual Revenue Requirement thus benefiting both the RC Customers and the existing GMC Customers. The RC Funding Requirement will be used as the numerator in order to calculate the RC Rate per MWh for BAs and TOPs.

The RC Funding Requirement will be calculated as follows:

$$\text{Annual Revenue Requirement} * \text{RC Percentage}$$

The RC percentage will represent the direct and indirect time and expense necessary for the CAISO to perform its RC services and functions. The percentage will be updated as part of the triennial cost of service study the CAISO completes as part of its tariff requirements.

As a starting point, the CAISO set a base line to determine the initial RC percentage. The base line was established by examining the roles and responsibilities associated with providing RC services and the necessary resources to support them. The existing CAISO ABC process codes and tasks codes were examined to identify the direct roles and responsibilities of the Reliability Coordinator Services function; in some cases this required new tasks to be developed.

Labor will be the largest expense related to the CAISO's RC service. In the scenario where the CAISO RC is providing service to most of the western interconnection, the CAISO projects that approximately 55 full time equivalent (FTE) positions will be needed to support the RC service. The 55 FTE represents the effort of FTEs considered in a direct supporting role and those considered in an indirect supporting role. The CAISO proposes to allocate a proportionate amount of its other indirect expenses to the RC budget as well. The indirect expenses include other components of the CAISO's Revenue Requirement such as administrative tools and capital. This indirect expense allocation allows RC services related projects to be considered during the annual capital budget planning process.

To calculate the RC percentage, the CAISO first estimated the direct RC operating expenses. As part of this effort the CAISO determined the number of direct hours associated with each RC-related ABC task code performed by staff. In addition, the CAISO paired these hours with the personnel expenses of each of the FTE included in the analysis. The second part of this effort was identifying the projected non-labor related costs and mapping these costs to the RC-related ABC task codes; these costs include RC specific tools and applications included in the core RC offering as well as in support of the supplemental RC services.

The indirect portion of the estimated RC expense was determined by allocating the indirect expenses identified in the Revenue Requirement proportionately based on the direct cost percentages.

The sum of the direct and indirect expenses less any RC-related supplemental revenue, such as for HANA, is the projected RC operating budget. The operating budget was then be backed into the Revenue Requirement to determine the RC percentage.



The RC percentage will be calculated as follows:

$$RC \text{ Operating Budget} / \text{Revenue Requirement (sub-total before RC Income Allocation)}$$

The CAISO proposes to develop the RC operating budget as part of the annual O&M budget, annually, in connection with the general CAISO annual Revenue Requirement process, following the requirements and schedule set forth in the CAISO tariff (Appendix F, Schedule 1, and Part D – Budget Schedule).

The RC percentage will be updated as part of the triennial cost of service study by analyzing the hours and resources tracked against the RC-related ABC process and task codes.



See Appendix 1 for a list of RC related ABC Process Codes and Tasks as well as for RC Annual Funding Requirement and Rate Examples.

FERC, NERC, and WECC Penalties

Section 14.7 of the CAISO tariff sets forth a process by which the CAISO may seek, with FERC approval, to allocate reliability-related penalty costs assessed by FERC, NERC and/or WECC to specific entities whose conduct was found to have contributed to such penalty and to recover costs associated with such penalties from CAISO RC Customers. This provision was established pursuant to an order issued by FERC that sets forth the requirements and process that ISOs/RTOs must follow for allocation of such penalties.⁷ Because this provision refers broadly to penalties levied against the CAISO “as the Registered Entity for the violation of one or more NERC Reliability Standards,” it would apply to any penalties that the CAISO might receive in connection with performing the RC function. However, the CAISO plans to clarify in the tariff and/or Reliability Coordinator Services Agreement the application of this language to the RC function. As required by FERC in its Guidance Order, any such proposed allocation must be submitted to FERC for its review and approval.

The CAISO will not have an RC services specific operating reserve account and will instead rely upon the general CAISO operating reserves funded by RC Customers through their share of indirect cost allocations (see the Revenue Requirement section above for more details). The CAISO would therefore be able to pay fines received from FERC/NERC/WECC for failure to comply with a reliability standard from a single operating reserve, regardless of which function may have been penalized. This would avoid the complication of allocating reliability standard compliance penalties based on function, which would likely be difficult if not impossible and highly contentious in any event. The general CAISO operating reserve account is funded at 15% of the CAISO’s Operating and Maintenance Budget and should be adequate to cover virtually any potential penalty levied upon the CAISO for any reliability standard compliance violation. In such a circumstance, the CAISO would apply an increase in the overall Revenue Requirement for the following year to cover the shortfall in operating reserves, which would then be recovered from all CAISO participants according to their share of the Revenue Requirement.

⁷ See Order Providing Guidance on Recovery of Reliability Penalty Costs by Regional Transmission Organizations and Independent System Operators, 122 FERC ¶61,247 (2008)(Guidance Order).



This approach will reduce or more likely eliminate the need to ever invoke the tariff provisions associated with reliability standard compliance penalty allocation, which the CAISO has in fact never used. Nonetheless, the CAISO is not in a position to exempt RC Customers from this requirement because it is necessary to comply with FERC's guidance order on penalty allocations by Independent System Operators (ISO) and Regional Transmission Owners (RTO), which established a set of prescriptive requirements for penalty allocation that all ISOs and RTOs must follow. In reality, the penalty allocation provision would be invoked only if there were an extremely substantial penalty that could not be covered by reserves or, if in the CAISO's discretion, there were a need to pursue a direct allocation or indirect allocation as permitted under the provisions currently included in the CAISO tariff. All parties, including specifically federal entities, would have an opportunity to intervene and comment on the CAISO filing seeking FERC authorization to recover penalties incurred by the CAISO directly or indirectly from RC Customers.

6.2 RC Billing Data

The CAISO proposes to use Net Energy for Load MWh volumes as its RC billing data. As an alternative for generation only BAs and TOPs as defined by WECC, the CAISO proposes to use Net Generation MWh volumes. In cases where the submitted MWh volumes yield a charge less than the established minimum charge, the RC Customer will be charged the minimum charge.

Net Energy for Load (NEL), as defined by NERC⁸, is net balancing authority area generation, plus energy received from other balancing authority areas, less energy delivered to BA areas through interchange. It includes BA area losses but excludes energy required for storage at energy storage facilities.

Net Energy for Load calculation is:

$$\text{Net BA Generation} + \text{Imports into BA} - \text{Exports from BA} - \text{Energy for Storage}$$

Net Generation (NG), as defined by WECC⁹, is net power available from a generator to be fed to the power system. Net generation is equal to gross generation minus the generator's internal power usage (station service).

Net Generation calculation is:

$$\text{Net Generation at high side of transformer}$$

⁸ Visit

http://www.nerc.com/pa/Stand/Version%200%20Reliability%20StandardsRD/Glossary_Clean_11-3-04.pdf for NERC's glossary of terms used in reliability standards.

⁹ Visit

<https://www.wecc.biz/layouts/15/WopiFrame.aspx?sourcedoc=/Administrative/Glossary.pdf&action=default&DefaultItemOpen=1> for WECC's glossary of terms.



Minimum Charge

The CAISO recognizes there will be funding entities that do not have any reported NEL or NG but still require RC services. The CAISO believes a basic funding principle should note that regardless of whether an entity has load tracked through its RC footprint or not it will still require a constant, although minimal, amount of administrative attention from its RC service provider. For this reason, the CAISO proposes to charge a minimum annual charge of \$5,000 to entities that fall into this category, such as a BA that has low MWh volumes of generation only or a TOP with transmission assets but no load. The amount represents the effort (in time and dollars) the CAISO projects it will spend towards providing outage coordination, dispatch, and other services to such entities with zero or a very low level of NEL or NG.

The minimum charge amount will be updated as part of the triennial cost of service study by analyzing the hours and resources tracked against the RC-related ABC process and task codes.

Billing Data Submission

The CAISO Market Results Interface - Settlements (MRI-S) system will be enhanced to provide RC Customers with the ability to electronically submit their data and receive their settlement statements.

6.3 RC Annual Rate

RC rates will be determined by dividing the RC Funding Requirement (adjusted for any known minimum charge billings) by the annual RC projected volumes. The projected volumes will be determined using the RC membership's submitted volumes for the applicable year (as discussed in the next section), as well as taking into consideration the planned RC Customer entries and exits over the course of the applicable year.

The RC annual rate will go into effect January 1. This date is consistent with the effective dates for the CAISO's other annually recalculated rates.

7. Reliability Coordinator Settlements Process

The RCSA will require the RC Customer to submit RC billing data in accordance with the CAISO tariff (i.e. NEL, NG, or minimum charge). In addition, the agreement will require the RC Customer to state for billing purposes what category they represent:

- Balancing Authority
- Transmission Operator (direct billing elected)
- Transmission Operator (billed to Balancing Authority); or
- Transmission Operator within the CAISO BA area

The CAISO proposes to invoice RC Customers annually on January 1st for RC services provided that calendar year. Payment will be due by January 31st of that same year. Federal entities will have an option to make monthly payments of 1/12 of the annual invoiced amount; in which case, the monthly payments will be due by the last business day of the month. In addition, the CAISO will



have the ability to directly invoice TOPs located within a BA area that are RC Customers. There will be a modified invoice process during the transition year of 2019.

In accordance with the RC meter submittal timeline as defined by the CAISO tariff, the RC billing data will be due prior to the RC service year. RC Customers will be required to submit their RC billing data volumes for the following year into MRI-S by September 30th; the RC billing data volumes will be for the preceding July 1st thru June 30th period. If the RC Customer does not submit any data, the CAISO will estimate the data and apply a default charge as discussed below.

An informational statement containing RC billing data volumes submitted by the RC Customers will be published by October 30th. RC Customers should use this statement to verify the submitted values for accuracy. The RC invoice will be calculated using the latest RC billing data volumes present in MRI-S as of December 31st.

The RC invoice charges will be based on the CAISO's current RC rate per MWh multiplied by the RC billing data in MRI-S (annual NEL or annual NG or annual minimum charge) or the default RC charge if data is not provided. If the BA or TOP does not provide any NEL volumes or NG volumes data through the MRI-S, the CAISO will estimate the default NEL volumes or default NG volumes based on the following:

- Default NEL MWh volumes will be based on the previous year's data provided by the NERC/WECC report on NEL for LSEs (Load Serving Entity).
- Default NG MWh volumes will be based on the sum of the RC Customer's generator(s) install capacity times 90% capacity factor times 8,760 hours per year.

Depending on the default NEL or default NG volumes, the RC Customer will be charged the greater of the default RC services charge or the RC minimum charge. The default RC services charge is a product of the RC rate and 125% of the default NEL or default NG volumes estimated by the CAISO above. The value of 125% was chosen as an incentive for RC Customers to provide their NEL or NG volumes but not significant enough to skew the overall allocation to the other RC Customers and impact their budgeting process.

The CAISO will also have a right to audit the NEL or NG data provided by the RC Customer.

RC Customers that are not in the first onboarding in 2019 will be required to make payments similar to the RC Customers in the first onboarding. As an example, an entity that wants to be an RC Customer on April 1, 2021 will need to execute the RCSA by July 1, 2020, to allow for system integration and at least two months of shadow operations. The RC Customer will be charged in January 2021 $\frac{3}{4}$ of the annual RC services charge for the first year (April 1, 2021 – December 31, 2021). If the RC Customers wants HANA services they must make their election similar to other RC Customers 90 calendar days in advance of starting shadow operation and will be charged similar to the other RC Customers as discussed in Appendix 3: Supplemental Services.



The diagram below reflects the proposed billing process from the CAISO to BA and TOPs.

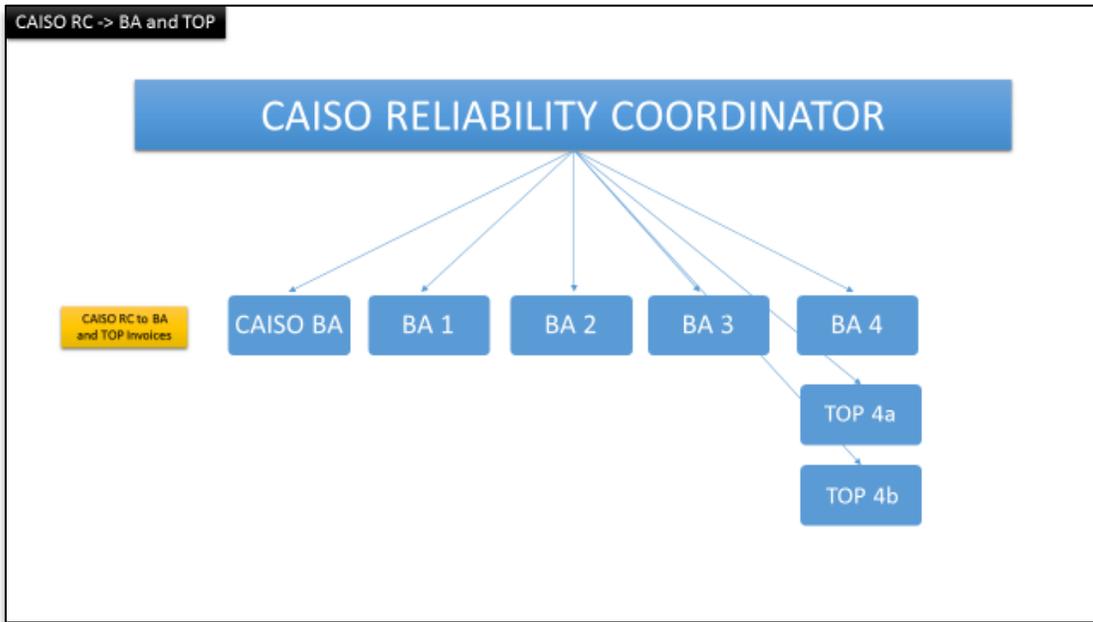


Figure 3: CAISO RC to BA and TOP Billing Model



See Appendix 2 for information regarding the Reliability Coordinator Services Billing to CAISO Scheduling Coordinators.

7.1 Invoice Validation Process

An RC settlements schedule will be published on the CAISO website containing the dates of RC settlement statements, invoices, and payment due dates. RC Customers will be invoiced in accordance with this schedule.

RC Customers have the ability to correct their RC billing data after receiving the informational statement and provide updated NEL and NG volumes as deemed necessary. Valid corrections will be reflected in the RC invoice.

7.2 Payment Default

RC Customers, with the exception of the Federal entities that choose to pay their annual charges over the course of the year, will be required to pay their invoice by January 31st following invoice issuance. If payment is not received by January 31st, the RC Customer will be charged a \$1,000 late payment fee. In addition, the RC Customer will be in default and the CAISO will notify all RC Customers of a potential supplemental invoice due to a pending default. The CAISO reserves the right to suspend its role as the RC of record for the defaulting customer until such time payment is received; however, the CAISO will continue to perform all RC services to ensure reliability of CAISO



RC area including the area in default. In addition, the CAISO will send out a supplemental invoice to all active RC Customers for their proportionate amount of the invoice in default. Finally, the CAISO will also notify NERC and WECC of the default.

8. Business Practice Manuals

The table below lists the Business Practice Manuals¹⁰ (BPM) that will be impacted by the addition of RC services.

BPM	Description of Impact(s)
Managing Full Network Model	Updates and modeling of RC Customers
Outage Management	New RC Customers entering own outages
NEW: Reliability Coordination	Describes the roles and responsibilities of the CAISO RC and its customers
Settlements and Billing	RC services settlement updates

Changes made to existing BPMs will go thru a BPM change management stakeholder review process. The RC services BPM will not establish the operating procedures and practices that apply to the CAISO's RC function. The RC operating procedures and practices will be developed and adopted through the RC services oversight process described in the body of this proposal. Operating procedures and practices described or referenced in the BPM will be for reference purposes only.

¹⁰ CAISO Business practice manuals are available at:
<http://www.caiso.com/rules/Pages/BusinessPracticeManuals/Default.aspx>



9. Next Steps

The RC Rate Design, Terms and Conditions initiative has two proposals, a straw proposal and a draft final proposal. The ISO stakeholder process provides for both proposals to be presented and discussed with stakeholders, followed by an opportunity to provide written comments. Afterwards, ISO management will present the draft final proposal and summarized stakeholder comments to the CAISO Board of Governors for their review and approval. Upon approval by the Board, the CAISO will develop the relevant tariff amendments to be filed with FERC. The CAISO will review these amendments with stakeholders for comment prior to the FERC filing.

The tentative 2018 milestone schedule for the RC Rate Design, Terms and Conditions initiative follows.

Date	Milestone
April 12, 2018	Initial stakeholder meeting on RC Rate Design, Terms and Conditions straw proposal
May 4	Stakeholder written comments due on straw proposal
June 20	CAISO will post draft final proposal
June 27	2nd stakeholder meeting on RC Rate Design, Terms and Conditions draft final proposal
July 11	Stakeholder comments due on draft final proposal
July 18	CAISO will post draft tariff language
July 25	Present draft final proposal to ISO Board of Governors
August 1	Stakeholder written comments due on draft tariff language
August 8	Conduct stakeholder call to discuss tariff language and comments
August 31	CAISO will file tariff language with FERC
November	FERC ruling on RC Rate Design
November 2018	CAISO will execute RC Service Agreements



Appendices

Appendix 1: Reliability Coordinator Business Processes, Funding Requirement and Rate

RC Business Processes and Tasks

Process Code	Process	Task Code	Task
80004	Manage Market & Reliability Data & Modeling (MMR)	301	Manage Full Network Model (FNM) Maintenance
80004	Manage Market & Reliability Data & Modeling (MMR)	311	Manage Operations Planning
80004	Manage Market & Reliability Data & Modeling (MMR)	314	Manage & Facilitate Procedure Maintenance
80004	Manage Market & Reliability Data & Modeling (MMR)	316	Operations Systematic Approach to Training
80004	Manage Market & Reliability Data & Modeling (MMR)	317	Execute & Track Operations Training
80004	Manage Market & Reliability Data & Modeling (MMR)	320	Provide Stakeholder Training
80004	Manage Market & Reliability Data & Modeling (MMR)	321	SC Management (Certification)
80005	Manage Markets & Grid (MMG)	355	Manage Outages
80005	Manage Markets & Grid (MMG)	362	Manage Operations Engineering Support
80005	Manage Markets & Grid (MMG)	365	Manage Real Time Operations - Transmission & Electric System
80005	Manage Markets & Grid (MMG)	366	Manage Real Time Interchange Scheduling
80005	Manage Markets & Grid (MMG)	367	Manage Annual Operational Assessment
80005	Manage Markets & Grid (MMG)	369	Manage Real Time Operations Generation
80005	Manage Markets & Grid (MMG)	3xx	NEW TASK - Manage Real Time Reliability Coordination
80007	Manage Operations Support & Settlements (MOS)	412	Manage Market Billing & Settlements
80009	Support Business Services (SBS)	511	IT Incident Management - General
80009	Support Business Services (SBS)	517	IT Systems Maintenance Support
80009	Support Business Services (SBS)	523	Plan & Manage Business Continuity
80009	Support Business Services (SBS)	545	Manage Business Processes & Continuous Improvement
80009	Support Business Services (SBS)	547	Develop & Maintain Policies, Procedures & Standards
80009	Support Business Services (SBS)	550	NERC Compliance
80009	Support Business Services (SBS)	51X	NEW TASK - IT Incident Management - Markets / Grid
80010	Support Customers & Stakeholders (SCS)	601	Client Inquiries
80010	Support Customers & Stakeholders (SCS)	602	Account Management
80010	Support Customers & Stakeholders (SCS)	603	Stakeholder Processes



The processes and task identified above will contribute to the CAISO RC services. For example, the time and expense coded to Process Code 80004-Manage Market & Reliability & Modeling, Task 311-Manage Operations Planning directly contribute to the following RC services the CAISO will provide:

- Data Exchange to support Operations Planning Analysis and Real-Time Assessments
- Document Exchange (Plans, Procedures, Studies, Reports)
- IRO-010 Data Request
- Plan Reviews/ Approvals (EOP-005, 010 and 011)
- Seasonal Planning
- SOL Methodology

As mentioned, most of the codes are already included in the CAISO ABC process and task codes; however, they are not currently directly identified as a RC Services function. To address this, the CAISO will map the tasks identified as contributing to RC services to a new cost category, Reliability Coordinator Services, by means of percentage allocation.

Cost Categories Used in Revenue Requirement						
Cost Categories	Market Services		System Operations		CRR Services	NEW Reliability Coordinator Services
Sub-Category (level 1)	Real-Time Market	Day Ahead Market	Real-Time Dispatch	Balancing Authority Services		

For example, in the latest cost of service study, Process Code 80004-Manage Market & Reliability & Modeling, Task 311-Manage Operations Planning was allocated 100% to the System Operations cost category with an allocation of 20% to Real-Time Dispatch and 80% to Balancing Authority Services. Under the revised allocation, the task will be allocated 50% to the System Operations cost category and 50% to the NEW - Reliability Coordinator Services cost category; the level 1 allocation for System Operations will remain 20% to Real-Time Dispatch and 80% to Balancing Authority Services.

Mapping of Process Code 80004-Manage Market & Reliability & Modeling, Task 311-Manage Operations Planning			
Cost Category	System Operations		Reliability Coordinator Services
Sub-Category (level 1)	Real-Time Dispatch	Balancing Authority Services	
	20%	80%	
	50%		50%



RC Funding Requirement

Assuming RC for a significant portion of the western interconnection.

The following scenario is intended to illustrate how the CAISO proposes to calculate the annual RC Funding Requirement and rate/MWh if it were the RC for a significant portion of the western interconnection. The model presented assumes the CAISO RC services will support RC activity in its BA area and several of its EIM members’ BA areas. If the actual CAISO RC footprint expands past these projected areas, the RC cost will not change. If the actual CAISO footprint is less than the projected areas, the RC cost will decrease. The actual RC rate will depend on committed RC Customers’ MWh volumes.

Modified Revenue Requirement						
Component	Budget	Market Services	System Operations	CRRs	RC Services	Indirect
<i>(\$ amounts in thousands)</i>						
Direct Costs	\$ 147,347	\$ 41,512	\$ 64,095	\$ 4,194	\$ 9,781	\$ 27,765
Indirect Costs	\$ 15,690	\$ -	\$ -	\$ -	\$ -	\$ 15,690
Non-ABC Costs	\$ 29,558	\$ 1,386	\$ 1,485	\$ 50	\$ 2,055	\$ 24,582
Total O&M	\$ 192,595	\$ 42,898	\$ 65,580	\$ 4,244	\$ 11,836	\$ 68,037
Debt Service 2013 Bonds	\$ 16,900	\$ -	\$ -	\$ -	\$ -	\$ 16,900
Cash Funded Capital	\$ 22,000	\$ -	\$ -	\$ -	\$ -	\$ 22,000
Total Debt Service and Capital	\$ 38,900	\$ -	\$ -	\$ -	\$ -	\$ 38,900
Other Income (without RC Core Services Income)	\$ (18,600)	\$ (1,430)	\$ (4,130)	\$ -	\$ (1,240)	\$ (11,800)
Operating Cost Reserve Adj	\$ (7,800)	\$ -	\$ -	\$ -	\$ -	\$ (7,800)
Total Other Revenue and Operating Costs Reserve Adj	\$ (26,400)	\$ (1,430)	\$ (4,130)	\$ -	\$ (1,240)	\$ (19,600)
Revenue Requirement Sub-Total Before Indirect Allocations	\$ 205,095	\$ 41,468	\$ 61,450	\$ 4,244	\$ 10,596	\$ 87,337
Allocate Indirect Costs Based on Direct Cost %	\$ -	\$ 30,755	\$ 45,575	\$ 3,148	\$ 7,859	\$ (87,337)
Revenue Requirement Sub-Total Before RC Income Allocation	\$ 205,095	\$ 72,223	\$ 107,025	\$ 7,392	\$ 18,455	\$ -
Other Income: RC Core Services Income	\$ (18,455)	35%	52%	4%	9%	\$ (18,455)
Total Revenue Requirement	\$ 186,641	\$ 72,223	\$ 107,025	\$ 7,392	\$ -	\$ -

Figure 4: Modified Revenue Requirement assuming a significant portion of the western interconnection footprint

As mentioned earlier, the CAISO projects it will need approximately 55 FTEs to fulfill the roles and responsibilities of an RC provider for a significant portion of the western interconnection. The FTEs represent the aggregate number of employees (new and existing) that will contribute to directly supporting and indirectly supporting RC functions and responsibilities. The FTEs also represent multiple areas within the CAISO such as Operations, Technology, General Counsel, Customer and State Affairs, Human Resources, and Finance. The budget to support the new positions and other RC services-related expenses, such as WIT and ECC expenses, will be included in the O&M



budget beginning with the 2019 Revenue Requirement. The projected 55 FTEs were used as the basis to determine the initial RC percentage as illustrated in Figure 4.

The projection uses a forward looking Revenue Requirement that includes the cost projections for the FTEs along with non-labor cost projections. The 2016 Revenue Requirement was used as the basis because it is the Revenue Requirement used in the latest cost of service study however it was modified to include impacts expected with the new RC service offering and other non-RC planned projections. In this illustration, 9% of the Revenue Requirement represents the net costs necessary to support the RC services assuming the CAISO supports a significant portion of the western interconnection. The projection assumes the direct costs offset by direct revenue will be \$10,596,000. The indirect costs of \$7,859,000 are determined by multiplying the direct costs percentage against the Revenue Requirement (sub-total before RC Core Services Income). The direct and indirect costs combined total \$18,455,000. This amount represents 9% of the annual Revenue Requirement. This percentage will be considered the RC Percentage used to determine the annual RC Funding Requirement. The RC Funding Requirement will be determined by multiplying the current year's Revenue Requirement (Sub-Total before RC Income) by the RC percentage. The RC Percentage will be reexamined and adjusted accordingly as part of the triennial cost of service study.

Assuming RC for CAISO BA only.

The following scenario is intended to illustrate how the CAISO proposes to calculate the annual RC Funding Requirement and rate/MWh for its BA footprint only. The RC percentage calculated under this scenario will be used in the 2019 Revenue Requirement and will remain in place until either the RC footprint expands beyond the CAISO BA or the RC percentage is updated as part of the next cost of service study.

Under this scenario, the CAISO projects it will need approximately 12 FTEs to fulfill the roles and responsibilities of an RC provider for its BA footprint. Again, the FTEs represent the aggregate number of employees (new and existing) that will contribute to directly supporting and indirectly supporting RC functions and responsibilities.



Modified Revenue Requirement						
Component	Budget	Market Services	System Operations	CRRs	RC Services	Indirect
<i>(\$ amounts in thousands)</i>						
Direct Costs	\$ 141,847	\$ 41,541	\$ 66,263	\$ 3,686	\$ 2,599	\$ 27,758
Indirect Costs	\$ 17,058	\$ -	\$ -	\$ -		\$ 17,058
Non-ABC Costs	\$ 27,643	\$ 1,390	\$ 1,515	\$ 50	\$ 106	\$ 24,582
Total O&M	\$ 186,548	\$ 42,931	\$ 67,778	\$ 3,736	\$ 2,705	\$ 69,398
Debt Service 2013 Bonds	\$ 16,900	\$ -	\$ -	\$ -	\$ -	\$ 16,900
Cash Funded Capital	\$ 22,000	\$ -	\$ -	\$ -	\$ -	\$ 22,000
Total Debt Service and Capital	\$ 38,900	\$ -	\$ -	\$ -	\$ -	\$ 38,900
Other Income (without RC Core Services Income)	\$ (18,150)	\$ (1,470)	\$ (4,390)	\$ -	\$ (490)	\$ (11,800)
Operating Cost Reserve Adj	\$ (7,800)	\$ -	\$ -	\$ -	\$ -	\$ (7,800)
Total Other Revenue and Operating Costs Reserve Adj	\$ (25,950)	\$ (1,470)	\$ (4,390)	\$ -	\$ (490)	\$ (19,600)
Revenue Requirement Sub-Total Before Indirect Allocations	\$ 199,498	\$ 41,461	\$ 63,388	\$ 3,736	\$ 2,215	\$ 88,698
Allocate Indirect Costs Based on Direct Cost %	\$ -	\$ 33,191	\$ 50,744	\$ 2,991	\$ 1,773	\$ (88,698)
Revenue Requirement Sub-Total Before RC Income Allocation	\$ 199,498	\$ 74,652	\$ 114,132	\$ 6,727	\$ 3,988	\$ -
Other Income: RC Core Services Income	\$ (3,988)	37%	57%	3%	2%	\$ (3,988)
Total Revenue Requirement	\$ 195,510	\$ 74,652	\$ 114,132	\$ 6,727	\$ -	\$ -

Figure 5: Modified Revenue Requirement assuming a CAISO BA footprint only

In this illustration, 2% of the Revenue Requirement represents the net costs necessary to support the RC services. The projection assumes the direct costs offset by direct revenue will be \$2,215,000. The indirect costs of \$1,773,000 are determined by multiplying the direct costs percentage against the Revenue Requirement (sub-total before RC Core Services Income). The direct and indirect costs combined total \$3,988,000. This amount represents 2% of the annual Revenue Requirement. This percentage will be considered the RC Percentage used to determine the annual RC Funding Requirement. The RC Funding Requirement will be determined by multiplying the current year's Revenue Requirement (Sub-Total before RC Income) by the RC percentage. As mentioned earlier, the RC percentage calculated under this scenario will be used in the 2019 Revenue Requirement and will remain in place until either the RC footprint expands beyond the CAISO BA or the RC percentage is updated as part of the next cost of service study.



For illustrative purposes we will use the forward looking Revenue Requirement assuming the CAISO is the RC for a significant portion of the western interconnection in our following examples.

Rate Calculation

The RC Funding Requirement is projected to be somewhere between \$5 million and \$19 million

RC Funding Requirement	
Revenue Requirement (Sub-Total Before RC Income)	\$ 205,095,000
RC %	9%
RC Funding Requirement	\$ 18,458,550

depending on the actual RC footprint. Dividing this amount by the projected volumes in the RC area yields an estimated rate somewhere near the \$0.02/MWh to \$0.06/MWh range.

BA and TOP RC Charge

The annual RC service charge will be calculated by multiplying the RC rate/MWh by the MWh volumes submitted.

In this example, RC Customer A’s annual MWh volumes are 24,559,000. The calculated annual charge is \$944,424.

	Annual
Customer A's NEL or NG MWh Volumes	24,559,000
RC Rate	\$ 0.0385
Annual Charge	\$ 944,424

Minimum Charge

If the MWh volumes submitted yield a charge that is less than the annual minimum charge, the customer will be charged the annual minimum charge amount.

In this example, RC Customer B’s annual MWh volumes are 110,000. As the MWh volumes yield a calculated charge less than the minimum charge by \$770, RC Customer B will be charged the annual minimum charge of \$5,000.

	Annual
Minimum Charge	\$ 5,000
Customer B's NEL or NG MWh Volumes	110,000
RC Rate	\$ 0.038
RC Services Charge	\$ 4,230
Delta between Minimum Charge and Calculated Charge	\$ 770

Default Charge

If the BA or TOP does not provide any NEL or NG MWh volumes through the MRI-S, the CAISO will estimate the default NEL volumes or default NG volumes based on the following:

- Default NEL MWh volumes will be based on the previous year’s data provided by the NERC/WECC report on NEL for LSEs.



- Default NG MWh volumes will be based on the sum of the RC Customer’s generator(s) install capacity times 90% capacity factor times 8,760 hours per year.

Depending on the default NEL or default NG MWh volumes the RC Customer will be charged the greater of the default RC services charge or the RC minimum annual charge. The default RC services charge is a product of the RC rate and 125% of the default NEL or default NG MWh volumes estimated by the CAISO above. The value of 125% was chosen as an incentive for RC Customers to provide their NEL or NG volumes but not significant enough to skew the overall allocation to the other RC Customers and impact their budgeting process.

In this example, RC Customer C does not provide their NEL MWh volume and CAISO uses the default volumes of 110,000 MWh. In this case the default charge is greater than the minimum charge and RC Customer C will be charged the default charge of \$5,288.

	<u>Annual</u>
Minimum Charge	\$ 5,000
Customer C's Estimated NEL MWh Volumes	110,000
plus 25%	27,500
Customer C's Estimated Default MWh Volumes	\$ 137,500
RC Rate	\$ 0.0385
Default NEL Charge	\$ 5,288
Delta between Minimum Charge and Default Charge	\$ 288

In this example, RC Customer D does not provide their NG MW volumes and CAISO estimates 1,000 MW. In this case the default charge is greater than the minimum charge and RC Customer D will be charged \$378,977.

	<u>Annual</u>
Minimum Charge	\$ 5,000
Customer D's Estimated NG MW Volumes	1,000
Multiplied by Default Capacity Factor	90%
Estimated NG MW	900
Multiplied by Hours/Year	8,760
Estimated NG MWh Volumes	7,884,000
plus 25%	1,971,000
Customer D's Estimated Default MWh Volumes	9,855,000
RC Rate	\$ 0.0385
Default NG Charge	\$ 378,977
Delta between Minimum Charge and Default Charge	\$ 373,977



Appendix 2: Reliability Coordinator Services Billing to CAISO Scheduling Coordinators

Existing CAISO Scheduling Coordinators will continue to be receive an annual RC services invoice under their existing Schedule Coordinator ID number. The CAISO tariff invoicing and settlement procedures will apply to all load and transmission operator Scheduling Coordinators within the CAISO BA area. The CAISO Settlement System will calculate an annual total CAISO BA NEL and each Scheduling Coordinator’s pro-rata portion of that total. The CAISO RC will use each Scheduling Coordinator’s pro-rata portion of CAISO NEL as its billing data to generate invoices.

In addition, the CAISO proposes to bill a minimum charge of \$5,000 to TOPs with zero to very low NEL volumes. The minimum charges collected from these entities will be deducted from the amount allocated to the remaining CAISO Scheduling Coordinators with load or generation.

Invoice Dispute Process

Scheduling Coordinators shall be prohibited from disputing any RC charges, except on grounds that an error in the invoice is due to a typographical or other ministerial error by the CAISO. Any dispute of an invoice type specified above shall be submitted and processed in accordance with the dispute procedure for RC charges.

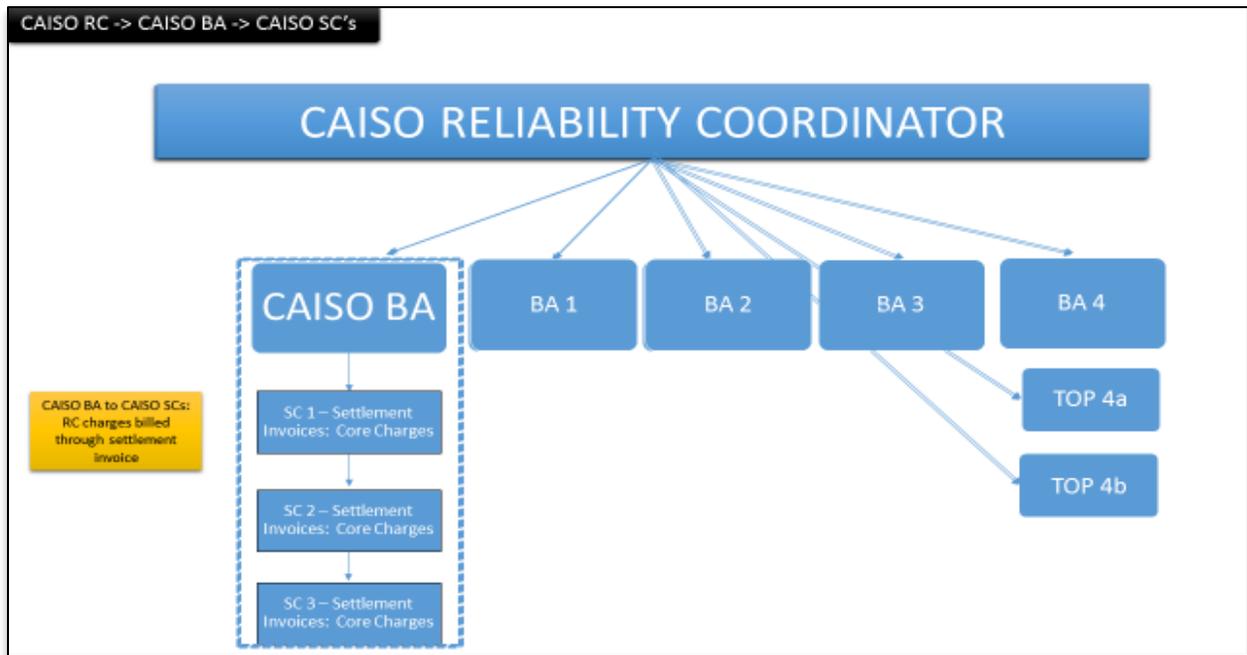


Figure 6: CAISO RC to CAISO BA and SC Billing Model

Payment Default

In the event a Scheduling Coordinator defaults on the payment of all or any portion of the RC charges invoiced, the CAISO will have the right to enforce the financial security provided by the defaulting Scheduling Coordinator, and to take any such other action as necessary to obtain



payment for the default amount. If a default invoice is issued, the CAISO Scheduling Coordinators must make timely payment to the CAISO within 5 business days of the default invoices' issuance.

Appendix 3: Supplemental Services

The CAISO proposes to offer other services that will enhance its core RC services at an additional cost. These additional services include, but are not limited to, Hosted Advanced Network Applications (HANA) and Physical Security assessments (CIP-014). The CAISO will work with the RC Oversight Committee to identify supplemental services that will enhance the CAISO RC service offerings and to determine the best ways to fund them.

Hosted Advanced Network Applications

To help entities meet applicable standards requirements, the CAISO RC will also offer high-quality, low cost web-based HANA services to its RC Customers. Customers who select these HANA services will be able to view ratings, contingencies, remedial action schemes (RAS), one-line diagrams, along with real-time state estimation and real-time security assessments. HANA services will be further enhanced by the ability to filter contingency areas, define alarming options, and save study cases retained on-line for a period of 3 years. Accessing HANA services will be facilitated by the use of a CAISO RC-issued digital security certificate.

The CAISO RC will work with interested parties, in parallel to this stakeholder initiative, to ensure the scope of the HANA addresses the interested parties' needs. Responses to the CAISO questionnaire sent out an early April 2018 and other direct input collected will help the CAISO determine the scope of these services.

HANA will be available to TOPs and BAs that take RC services from CAISO. This service includes:

1. Read-only access and view to real-time State Estimator application.
2. Read-only access and view to Real Time Contingency Analysis (RTCA).
3. Access and ability to perform study powerflow utilizing CAISO's advanced network applications.
4. Access and ability to perform study Contingency Analysis utilizing CAISO's advanced network applications.

The CAISO requires a 3-year initial commitment for this service; the initial 3-year cost will include a one-time start-up fee and an annual ongoing fee for the software license and CAISO support. Annual enrollment in HANA services will continue unless the RC Customer submits a 12-month exit notification in writing; the exit notification must align with the RC Customers' anniversary period. After the initial 3-years of HANA service the annual cost to the RC Customer will be the annual ongoing fee.

The RC Customer must notify the CAISO in writing 90 calendar days prior to the start of their RC shadow operation period as to which HANA services it is electing to take.



The CAISO will invoice the RC Customer for their HANA services at the start of their shadow operation period then every year thereafter on their anniversary date. Payment will be due within twenty-one (21) business days from the date of the invoice.

The estimated cost for HANA services is as follows:

- One-Time Start-up Fee
 - A one-time charge of \$35,000 - \$70,000, depending upon the number of RC Customers taking the services
 - Note: This amount will be charged over the initial 3-year term in equal installments. For example, if the charge is \$70,000 then the amount included in the initial 3-year invoices will be \$23,333.
- Annual Ongoing Fee
 - Software License(s): CAISO will collect an amount equal to the vendor license costs which will vary per RC Customer depending upon the number of users.
 - CAISO support: \$45,000 per RC Customer. CAISO support includes hardware for hosting the service, operation and maintenance, technical support, security and administrative costs.

CIP-014 Physical Security

The purpose of Critical Infrastructure Protection Standard 014 (CIP-014) is to identify and protect transmission stations and substations, and their associated primary control centers that if rendered inoperable or damaged as a result of a physical attack could result in instability, uncontrolled separation, or cascading within an Interconnection. Requirement R1 of the standard requires each TOP to perform periodic risk assessments of its transmission stations and substations that meet the criteria specified in the applicability section of the standard. The risk assessments consist of transmission analyses designed to identify the critical transmission stations and substations. Requirement R2 of the standard further requires each TOP to have an unaffiliated third party, such as a registered PC or RC, verify the risk assessment it performed under Requirement R1.

The CAISO currently provides this risk assessment verification service to its Participating Transmission Owners (PTOs). The CAISO will extend this service to TOPs who are RC Customers, if requested.

This service will be offered at cost of service and billed separate from the RC function. If the RC Customer desires this service, it will need to provide a \$50,000 deposit and a written request to review a risk assessment to the CAISO. The CAISO will use the same process and criteria to review the risk assessment(s). In response to the request, the CAISO will evaluate the risk assessment which may include recommendations for the addition or deletion of a transmission station(s) or transmission substation(s). Once the evaluation of the risk assessment is completed, the CAISO will provide a report of its recommendations and meet with the RC Customer, if requested. The CAISO shall issue to the RC Customer one or more invoices for the assessment that include a detailed and itemized accounting of each assessment expense incurred (including those incurred by the CAISO and/or third parties) and corresponding amounts due. The CAISO shall draw from the risk assessment deposit any undisputed costs by the RC Customer within thirty (30) calendar days of issuance of an invoice.



Whenever the actual cost of performing the risk assessment exceeds the risk assessment deposit, the invoice will direct the RC Customer to pay the excess amount, and the RC Customer shall pay the undisputed amount in accordance with the invoice within thirty (30) calendar days. If the RC Customer fails to timely pay the actual costs exceeding the deposit and such costs have not been disputed, the default provisions, Section 5.3 of the Reliability Coordinator Services Agreement will invoke the CAISO tariff default provisions. The CAISO is not obligated to continue to conduct the risk assessment unless and until the RC Customer has paid all undisputed amounts.



Appendix 4: Acronyms

Below is a list of acronyms that appear in this document. Definitions are provided when they are helpful in setting the context of this document¹¹.

Acronym	Term
ABC	Activity Based Costing
BA	Balancing Authority
BPM	Business Practice Manual
BES	Bulk Electric System
CAISO	California Independent System Operator Corporation
CIM	Common Informational Model
CIP	Critical Infrastructure Protection
CRR	Congestion Revenue Rights
ECC	Enhanced Curtailment Calculator
EIM	Energy Imbalance Market
FERC	Federal Energy Regulatory Commission
FNM	Full Network Model
FTE	Full Time Equivalent
GMC	Grid Management Charge
HAA	Hosted Advanced Application
HANA	Hosted Advanced Network Applications
ISO	Independent System Operator
LSE	Load Serving Entity
MRI-S	Market Results Interface - Settlements
MW	Mega Watt
MWh	Mega Watt Hours
NEL	Net Energy for Load
NG	Net Generation
NERC	North American Electric Reliability Corporation
PC	Planning Coordinator
Peak	Peak Reliability, Inc.
PTO	Participating Transmission Owner
RAS	Remedial Action Scheme
RC	Reliability Coordinator
RCSA	Reliability Coordinator Service Agreement
RPSC	Reliability Coordinator Project Steering Committee
RTO	Regional Transmission Owner
SC	Scheduling Coordinator
SOL	System Operating Limits
TO	Transmission Owner
TOP	Transmission Operator
WECC	Western Electricity Coordinating Council
WIT	Western Interchange Tool

¹¹ A complete listing of the CAISO's definition and acronyms are available at:
<https://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Definitions and Acronyms>



Decision on reliability coordinator services rate design, terms, and conditions

Phil Pettingill

Director, Regional Integration

Ryan Seghesio

VP, Chief Financial Officer and Treasurer

Board of Governors Meeting

General Session

July 26, 2018

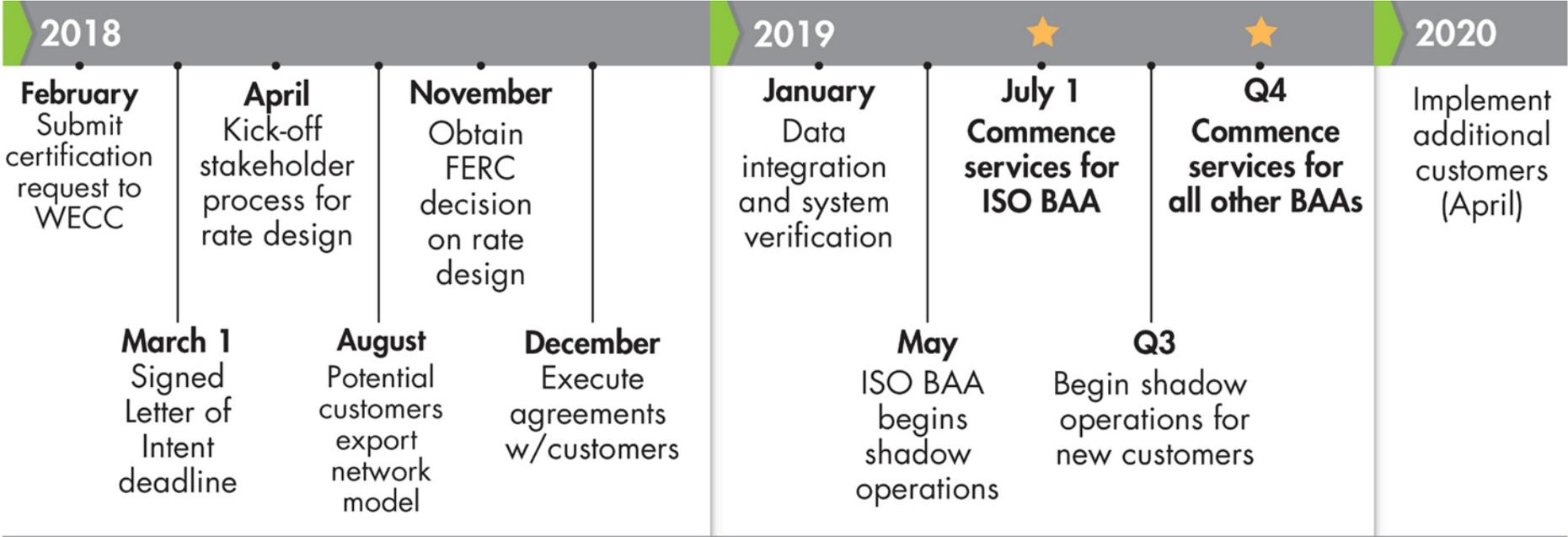
The ISO is uniquely positioned to provide quality Reliability Coordination services

- ISO can leverage existing capabilities in the Western Interconnection:
 - operating a large Balancing Authority Area and an EIM market area that is expected to serve 65% of the load
 - maintaining a detailed network model for most of west
 - utilizing sophisticated analytical tools that can easily be extended across a large reliability coordination area
 - integrating data communications that already support a mature and robust data platform
- ISO can provide high quality RC service for roughly 40% of current costs

ISO plans to become Reliability Coordinator in 2019 through three parallel tracks

- Track 1: Development of Reliability Coordinator rate design, terms, and conditions through the open ISO stakeholder process, including tariff and agreement
- Track 2: Development of key deliverables required for WECC certification, coordination by Reliability Coordinator Project Steering Committee, working groups and task force teams
- Track 3: Onboarding, implementation of tools and technology to integrate applications, readiness criteria, training, and customer service

RC Implementation Timeline



Leveraging our existing rate design framework, a percentage allocation of the revenue requirement will be used to fund RC services.

- Percentage is based upon modified cost of service study assessing impacts of RC services and will be phased with planned implementation schedule.
 - 2% beginning July 1, 2019 (initial RC area)
 - 9% beginning November 1, 2019 (full RC area)
 - Percentages remain fixed until next triennial cost of service study (to be conducted in 2020 for 2021 rates)

RC revenue streams will reduce GMC and EIM rates.

Revenue Requirement Component <i>(\$ in millions)</i>	Modified Cost of Service Study
Operations & Maintenance Budget	\$192.6
Debt Service (including 25% reserve)	16.9
Cash Funded Capital	22.0
Other Costs and Revenues	(18.6)
Operating Costs Reserve Adjustment	(7.8)
Revenue Requirement sub-total prior to RC funding	\$205.1
RC Core Service Income (9%)	(18.5)
GMC Revenue Requirement	\$186.6

Other rate design elements:

- Annual billing in January based upon Net Energy for Load, Net Generation, or Minimum Charge
- Payments due 21 business days after invoice to avoid late fees and default procedures
- Billing for 2019 services will be included on January 2020 invoice
- Voluntary supplemental services to be billed separately
 - Hosted Advanced Network Applications, CIP-014

RC Services Agreement (RCSA)

- Pro-Forma FERC approved agreement
 - For Balancing Areas and Transmission Operators
- Term of service
 - Initial period of 18 months
 - Annual renewal
 - 12 month notice for Entry and Exit - April each year
- RC Services
 - Core RC services
 - Selection of supplemental services

Stakeholders are broadly supportive of the rate design.

- Many of the provisions in the proposal are a result of stakeholder feedback
- Some customers still seeking clarity and understanding
- A number of customers would like stronger cost containment measures
 - Management believes current cost containment measures are adequate

Management recommends Board approve the RC services rate design, terms, and conditions.

- Broadly supported by stakeholders
- Prepared to initiate RC services during 2019
- The current proposal is flexible enough to support the phased implementation and varied number of potential customers
- Upon FERC approval, the ISO will be able to initiate the execution of the RC Services Agreements



Board of Governors

July 26, 2018

Decision on Reliability Coordinator services, rate design, terms and conditions

General Session

Motion

Moved, that the ISO Board of Governors approves the proposal to implement the reliability coordinator services as described in the memo dated July 18, 2018; and

Moved, that the ISO Board of Governors authorizes Management to make all necessary and appropriate filings with the Federal Energy Regulatory Commission to implement the proposal described in the memorandum, including any filings that implement the overarching initiative policy but contain discrete revisions to incorporate Commission guidance in any initial ruling on the proposed tariff amendment.

Moved: Ferron

Second: Galiteva

Board Action: Passed	Vote Count: 5-0
Bhagwat	Y
Ferron	Y
Galiteva	Y
Mullin	Y
Olsen	Y

Motion Number: 2018-07-G6