May 29, 2020

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

Re: California Independent System Operator Corporation
Filing of CAISO Rate Schedule No. 6165
Docket No. ER20-____-000

Dear Secretary Bose:

The California Independent System Operator Corporation ("CAISO") submits for filing and acceptance an agreement ("Implementation Agreement") dated May 18, 2020, between the CAISO and Public Service Company of Colorado ("PSCo").[1] The Implementation Agreement sets forth the terms under which the CAISO will extend its existing real-time energy market systems to provide imbalance energy service to PSCo, pursuant to the CAISO's Energy Imbalance Market ("EIM") tariff.[2] Under the Implementation Agreement, PSCo will compensate the CAISO for its share of the costs of system changes, software costs, and other configuration activities. The CAISO requests that the Commission accept the Implementation Agreement effective July 31, 2020, so that the extension of the real-time energy market to include PSCo may proceed towards implementation no later than April 1, 2022.[3]

I. Background

The EIM provides other balancing authority areas the opportunity to participate in the real-time market for imbalance energy that the CAISO operates in its own balancing authority area. PacifiCorp's balancing authority areas (PacifiCorp East and PacifiCorp West) were the first two to join the EIM. The EIM market rules went into effect on October 24, 2014, for the first trading day November 1, 2014.[4]

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[1] The CAISO submits the Implementation Agreement pursuant to Section 205 of the Federal Power Act, 16 U.S.C. § 824d.

[2] The EIM tariff provisions are set forth primarily in Section 29 of the CAISO Tariff.

[3] *See* Implementation Agreement, Section 1; *see also* CAISO Tariff, Section 29.2(b).

[4] *See Cal. Indep. Sys. Operator Corp.*, 149 FERC ¶ 61,005 (2014).

The EIM has continued to develop and attract the interest of a diverse array of participants throughout the Western Interconnection. NV Energy joined on December 1, 2015, Puget Sound Energy Inc. and Arizona Public Service Company both began participating on October 1, 2016, Portland General Electric Company followed on October 1, 2017, and the Idaho Power Company joined concurrently with Powerex Corp. on April 4, 2018. The Balancing Authority of Northern California ("BANC") commenced phase 1 EIM participation in April 2019. Recently, the Salt River Agricultural Improvement and Power District and the City of Seattle, by and through its City Light Department, commenced EIM participation in April 2020. NorthWestern Energy, the City of Los Angeles Department of Water and Power, Public Service Company of New Mexico, and the Turlock Irrigation District intend to commence EIM participation in April 2021, concurrent with BANC phase 2 in April 2021. Other entities, including the Bonneville Power Administration, Avista, Tacoma Power, and Tucson Electric Power will commence EIM participation along with PSCo in the spring of 2022.[5]

II. The Implementation Agreement

The Implementation Agreement details the contractual terms, including the scope of work and the agreed-upon fee, under which the CAISO will take the steps necessary to incorporate PSCo into the EIM consistent with the identified key milestones and associated payment provisions.[6] The Implementation Agreement is modeled after implementation agreements previously accepted by the Commission and, therefore, adopts provisions substantially similar to those which have been filed with and accepted by the Commission.[7]

Under the Implementation Agreement, the CAISO and PSCo must complete a variety of project tasks necessary for implementation by April 1, 2022. The parties chose this date to provide sufficient time for completion of all expected activities based on the size, complexity, and compatibility of PSCo, including filing a certification of readiness with the Commission. The specific

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5 EIM participation materials are at https://www.westerneim.com/Pages/About/default.aspx.

6 *See* Implementation Agreement, Sections 3-4 and Exhibit A.

7 *See Cal. Indep. Sys. Operator Corp.*, 143 FERC ¶ 61,298 (2013); *Cal. Indep. Sys. Operator Corp.*, 147 FERC ¶ 61,200 (2014), *Cal. Indep. Sys. Operator Corp.*, 151 FERC ¶ 61,158 (2015), *Cal. Indep. Sys. Operator Corp.*, 152 FERC ¶ 61,090 (2015), *Cal. Indep. Sys. Operator Corp.*, 154 FERC ¶ 61,020 (2016); *Cal. Indep. Sys. Operator Corp.*, 155 FERC ¶ 61,311 (2016); Commission Letter Order, Docket No. ER17-868 (Mar. 14, 2017); Commission Letter Order, Docket No. ER17-1300 (May 18, 2017); Commission Letter Order, Docket No. ER17-2120 (Sept. 7, 2017); *Cal. Indep. Sys. Operator Corp.*, 160 FERC ¶ 61,058 (2017); Commission Letter Order, Docket No. ER17-2559 (Nov. 16, 2017); Commission Letter Order, Docket No. ER19-1080 (Apr. 5, 2019); and *Cal. Indep. Sys. Operator Corp.*, 170 FERC ¶ 61,168 (2020).

tasks may be modified by mutual agreement of the parties.[8]

The Implementation Agreement also includes a set of principles recognized by the parties regarding the implementation of PSCo's participation in the EIM, similar to how the CAISO proposed to accommodate specific circumstances with respect to the implementation of other entities.[9] These principles account for PSCo's transition to the EIM from the provisions of the Joint Dispatch Agreement among Platte River Power Authority ("PRPA"), Black Hills Colorado Electric, LLC ("BHCE"), the Colorado Springs Utilities ("CSU") and PSCo (collectively, the "JDA Parties") that facilitates the centralized intra-hour dispatch of the JDA Parties' resources within PSCo's balancing authority area.[10] Because the transition of operations from the Joint Dispatch Agreement to the EIM will necessitate termination of the Joint Dispatch Agreement, consideration of the Joint Dispatch Agreement's provisions as part of the EIM is essential to the JDA Parties' participation. Accordingly, prior to the implementation date, the CAISO, in cooperation with PSCo and other stakeholders, will pursue a new EIM relationship with the JDA Parties. The new EIM relationship with the JDA Parties will account for the separate scheduling and settlement procedures under which the JDA Parties have been operating pursuant to the Joint Dispatch Agreement.[11]

The parties intend to work towards implementation guided by these principles to support accommodation of the separate scheduling and settlement procedures under the Joint Dispatch Agreement. Establishing a new scheduling and settlement relationship between the CAISO and the JDA Parties will require authorization of PSCo as the balancing authority and EIM entity. This new relationship would also require that the other JDA Parties have the forecasting, telemetry, metering, and outage reporting capability sufficient to support accurate and separate scheduling and settlement of their load and non-participating resources. The JDA Parties would each individually need to meet the EIM financial security and other CAISO-related scheduling coordinator requirements associated with the separate scheduling and settlement of their load and non-participating resources. The other JDA Parties would also engage with the

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[8] Implementation Agreement, Section 3.

[9] *Id.*, Section 14; *see, e.g.*, *Cal. Indep. Sys. Operator Corp.*, 170 FERC ¶ 61,168 (2020) (accepting principles intended to guide parties during the EIM implementation of the Bonneville Power Administration).

[10] *Public Service Company of Colorado*, 154 FERC ¶ 61,107 (2016) (accepting the Joint Dispatch Agreement). The Commission most recently accepted revisions to the Joint Dispatch Agreement in Docket No. ER20-950. *See* Commission Letter Order, Docket No. ER20-950 (Mar. 18, 2020).

[11] *See* Implementation Agreement, Exhibit B (relating the Joint Dispatch Agreement provisions to the EIM design elements needed to support the JDA Parties' current scheduling and settlement procedures).

CAISO and participate in the project as necessary to support implementation of their separate scheduling and settlement, including execution of any necessary agreements developed through the implementation process to account for their relationship with the CAISO. In the event that any one of the JDA Parties other than PSCo is no longer separately scheduled and settled in the EIM for any reason, whether by choice or by default, PSCo, as the balancing authority and EIM entity, would assume responsibility under the EIM for such party.

The Implementation Agreement specifies that PSCo will pay a fixed implementation fee of $1,485,000, subject to completion of six specific milestones for recovery of the portion of the costs attributable to the CAISO's effort to configure its real-time market systems and incorporate PSCo into the EIM.[12] The methodology that the CAISO used to determine the implementation fee for PSCo is the same methodology that the CAISO used to determine all of the previously accepted implementation fees for the other EIM participants described above.

The implementation fee is based on the CAISO's estimate of the costs it will incur to configure its real-time energy market to function as the EIM available to all balancing authority areas in the Western Electricity Coordinating Council ("WECC").[13] The components of that estimate are described in the Declaration of April D. Gordon, the CAISO's Director of Financial Planning and Procurement, which is included with this filing as Attachment B, and are summarized below.

Implementation Costs (in thousands of dollars)	
Licenses	12,150
Energy management system upgrades	1,000
Data storage	2,000
Hardware upgrades	500
Production software modifications	1,000
Network configuration and mapping	500
Integration	500
Testing	1,500
System performance tuning	250
Training and operations readiness	150
Project management	100
Total	**$19,650**

12 *Id.*, Section 4.

13 The total estimated cost is a projection assuming the total work effort remains stable. Implementations either completed or underway are not considered in this estimate.

Using this estimate, the CAISO derived a rate that allocates the $19.65 million to potential entrants into the EIM according to their proportionate share of the total WECC load (excluding the CAISO's load), using updated data reported to WECC. The CAISO then applied this fee to PSCo's share of the updated WECC load (exclusive of the CAISO) to account for the PSCo implementation fee.

The $1,485,000 implementation fee is just and reasonable because it allocates a portion of the overall cost to PSCo in an amount proportionate to PSCo's share of the benefits that will ensue from the EIM, as measured by usage. In addition, as explained in Ms. Gordon's declaration, the CAISO confirmed the reasonableness of the resulting allocation by comparing it with an estimate of the costs the CAISO projects it will incur to configure its real-time energy market to function as the EIM that serves both the CAISO and PSCo. This comparison confirmed that the fee reasonably represents those costs, even though certain costs may not be triggered by the PSCo implementation but may instead be incurred by the CAISO to incorporate other entrants. In future implementations, the CAISO will confirm that the rate is reasonable by conducting a similar comparison of the total implementation costs with the individual entity costs.

The Implementation Agreement also provides for adjustment of the fixed implementation fee by mutual agreement of the parties in the event that the CAISO's actual or expected costs exceed the estimate that forms the basis of the implementation fee.[14] This provision allows for appropriate consideration of the allocation of costs associated with incorporation of PSCo into the EIM. At the same time, the requirement for PSCo to agree to any increase in the implementation fee ensures that PSCo's share of those costs remains reasonable. The Implementation Agreement therefore reflects a reasonable balance of the parties' interest in preserving a level of cost certainty for PSCo, while appropriately allocating the costs of implementing the EIM.

The Implementation Agreement represents a binding commitment of the parties. As such, it provides a workable framework for the parties to resolve any differences and to make course corrections along the way. On the other hand, the Implementation Agreement recognizes that the parties are entering into the agreement on a voluntary basis and circumstances may arise that interfere with the incorporation of PSCo into the EIM through the planned process. Accordingly, the Implementation Agreement allows either party to terminate the

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[14] Implementation Agreement, Section 4. *See also* Commission Letter Order, Docket No. ER14-1350 (Apr. 8, 2014) (accepting amendment to EIM implementation agreement between the CAISO and PacifiCorp, to increase the PacifiCorp implementation fee to cover additional scope identified in the stakeholder process). PacifiCorp's request for additional scope is the only instance thus far where an amendment of the implementation fee has been necessary.

agreement for any or no reason, provided it has first entered into good-faith discussions for 30 days in an effort to resolve any differences.[15] This and other related provisions mean that the parties must work closely together to achieve the goal of implementing PSCo into the EIM in a timely manner.

The Implementation Agreement also includes general provisions that round out the parties' commitments. These general provisions address confidentiality (Section 5), limitations of liability (Section 6), representations and warranties (Section 7), general provisions such as those regarding notices, amendments, *etc.* (Section 8), venue (Section 9), communication (Section 10), and dispute resolution (Section 11).

III. Next Steps

Following the Commission's acceptance of the Implementation Agreement, the CAISO will incorporate PSCo into the EIM. PSCo's implementation will be subject to the CAISO tariff readiness requirements and the filing of a certificate of readiness with the Commission.[16] The CAISO will also take into consideration lessons learned from the prior implementations, as the readiness criteria represent the baseline for measuring the readiness of each new EIM entity's processes and systems for EIM participation.

PSCo will engage with its customers in an effort to conclude its decisional process that will determine whether PSCo ultimately will participate in the EIM. The CAISO also expects that PSCo and the other JDA Parties will make any necessary modifications to their respective tariffs in advance of the implementation date. The CAISO recognizes that this effort will involve PSCo and the other JDA Parties working to facilitate implementation of the EIM, and the CAISO will engage in those efforts as appropriate.

IV. Effective Date

The CAISO requests that the Implementation Agreement be made effective on July 31, 2020.

V. Request for Waivers

The CAISO submits that the filing substantially complies with the requirements of section 35.13 of the Commission's rules applicable to filings of this type.[17] The CAISO respectfully requests waiver of any such requirement to

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[15] Implementation Agreement, Section 2.

[16] *See* CAISO Tariff, Section 29.2(b).

[17] 18 C.F.R. § 35.13.

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 implementation fee is a one-time fee that is not based on historical data in Period 1 schedules or on the projections in Period 2 schedules. In any event, good cause exists to waive filing requirements that are not material to the Commission's consideration of the Implementation Agreement.

VI. Service

The CAISO has served copies of this filing upon all scheduling coordinators, PSCo, the other JDA Parties, the California Public Utilities Commission, and the California Energy Commission. In addition, the CAISO has posted the filing on the CAISO website.

VII. Contents of Filing

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

Attachment A	Implementation Agreement; and
Attachment B	Declaration of April D. Gordon, Director of Financial Planning and Procurement

VIII. Correspondence

Pursuant to Rule 203(b)(3) of the Commission's Rules of Practice and Procedure,[18] the CAISO requests that all correspondence, pleadings, and other communications concerning this filing be served upon the following:

John C. Anders
Assistant General Counsel
California Independent System
Operator Corporation
250 Outcropping Way
Folsom, CA 95630
Tel: (916) 608-7287
E-mail: janders@caiso.com

IX. Conclusion

The CAISO respectfully requests that the Commission accept this filing and permit the Implementation Agreement, CAISO Rate Schedule No. 6165, to

[18] 18 C.F.R. § 385.203(b)(3).

be effective July 31, 2020, 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
John C. Anders
Assistant General Counsel
California Independent System
Operator Corporation
Tel: (916) 608-7287
Email: janders@caiso.com

Attorneys for the California Independent System Operator Corporation

Attachment A – Implementation Agreement

Rate Schedule No. 6165

California Independent System Operator Corporation

May 29, 2020

ENERGY IMBALANCE MARKET
IMPLEMENTATION AGREEMENT

This Implementation Agreement ("Agreement") is entered into as of May 18, 2020, by and between Public Service Company of Colorado, a Colorado corporation ("PSCo"), and the California Independent System Operator Corporation, a California nonprofit public benefit corporation ("ISO"). PSCo and the ISO are sometimes referred to in the Agreement individually as a "Party" and, collectively, as the "Parties."

RECITALS

A. WHEREAS, PSCo is an investor-owned utility providing electric service in the state of Colorado and operates the PSCo Balancing Authority Area ("BAA");

B. Whereas, PSCo has determined there is an opportunity to secure benefits for PSCo's customers through improved dispatch and operation of PSCo's generation fleet and through the efficient use and continued reliable operation of existing and future transmission facilities and desires to participate in the energy imbalance market operated by the ISO ("EIM");

C. WHEREAS, the ISO has determined there are benefits to ISO market participants through greater access to energy imbalance resources in real-time and through the efficient use and reliable operation of the transmission facilities and markets operated by the ISO, and desires to expand operation of the EIM to include PSCo;

D. WHEREAS, the Parties acknowledge that the rules and procedures governing the EIM are set forth in the provisions of the ISO tariff as filed with the Federal Energy Regulatory Commission ("FERC") and that participation in the EIM requires corresponding revisions to PSCo's Open Access Transmission Tariff ("PSCo Tariff") and the execution of associated service agreements;

E. WHEREAS, in operating the PSCo BAA PSCo provides service according to the Joint Dispatch Agreement and corresponding provisions in the PSCo Tariff and the Black Hills Colorado Electric, LLC ("Black Hills") tariff, and PSCo, Black Hills, the Platte River Power Authority ("Platte River") and Colorado Springs Utilities ("Colorado Springs") are parties (collectively the "JDA Parties") to the Joint Dispatch Agreement which will necessarily terminate upon implementation of the EIM; and

F. WHEREAS, the Parties are entering into this Agreement to set forth the terms upon which the ISO will timely configure its systems to incorporate PSCo into the EIM ("Project") on or before April 1, 2022 (" Implementation Date").

NOW THEREFORE, in consideration of the mutual covenants contained herein, and of other good and valuable consideration, the receipt and sufficiency of which are hereby acknowledged, the Parties agree as follows:

AGREEMENT

1. Effective Date and Term.

(a) This Agreement shall become effective upon the date the Agreement is accepted, approved or otherwise permitted to take effect by FERC, without condition or modification unsatisfactory to either Party ("Effective Date").

(b) In the event FERC requires any modification to the Agreement or imposes any other condition upon its acceptance or approval of the Agreement, each Party shall have ten (10) business days to notify the other Party that any such modification or condition is unacceptable to that Party. If no Party provides such notice, then the Agreement, as modified or conditioned by FERC, shall take effect as of the date determined under Section 1(a). If either Party provides such notice to the other Party, the Parties shall take any one or more of the following actions: (i) meet and confer and agree to accept any modifications or conditions imposed by such FERC order; (ii) jointly seek further administrative or legal remedies with respect to such FERC order, including a request for rehearing or clarification; or (iii) enter into negotiations with respect to accommodation of such FERC order, provided however, if the Parties have not agreed to such an accommodation within thirty (30) calendar days after the date on which such FERC order becomes a final and non-appealable order, such order shall be deemed an adverse order and the Parties shall have no further rights and obligations under the Agreement.

(c) The term of the Agreement ("Term") shall commence on the Effective Date and shall terminate upon the earliest to occur of (1) the date FERC permits all necessary revisions to the PSCo Tariff, and the service agreements under such Tariff to take effect, and the ISO tariff necessary for the commencement of PSCo's participation in the EIM have taken effect; (2) termination in accordance with Section 2 of this Agreement; or (3) such other date as mutually agreed to by the Parties ("Termination Date").

(d) This Agreement shall automatically terminate on the Termination Date and shall have no further force or effect, provided that the rights and obligations set forth in Sections 5 and 6 shall survive the termination of this Agreement and remain in full force and effect as provided therein.

2. Termination.

(a) The Parties may mutually agree to terminate this Agreement in writing at any time. In addition, either Party may terminate this Agreement in its sole discretion after conclusion of the negotiation period in Section 2(b) or as provided in Section 2(d) or 2(e) as applicable.

(b) If either the ISO or PSCo seeks to unilaterally terminate this Agreement, it must first notify the other Party in writing of its intent to do so ("Notice of Intent to Terminate") and engage in thirty (30) calendar days of good faith negotiations in an effort to resolve its concerns. If the Parties successfully resolve the concerns of the

Party issuing the Notice of Intent to Terminate, the Party that issued such notice shall notify the other Party in writing of the withdrawal of such Notice ("Notice of Resolution").

(c) At the time the Notice of Intent to Terminate is provided, or any time thereafter unless a Notice of Resolution is issued, PSCo may provide written notice directing the ISO to suspend performance on any or all work on the Project for a specified period of time ("Notice to Suspend Work"). Upon receipt of a Notice to Suspend Work, the ISO shall: (1) discontinue work on the Project; (2) place no further orders with subcontractors related to the Project; (3) take commercially reasonable actions to suspend all orders and subcontracts; (4) protect and maintain the work on the Project; and (5) otherwise mitigate PSCo's costs and liabilities for the areas of work suspended. The ISO will not invoice PSCo pursuant to Section 4(c) of this Agreement for any milestone payment following the issuance of a Notice to Suspend Work. To the extent a Notice of Resolution is issued pursuant to Section 2(b), the Notice to Suspend Work in effect at the time shall be deemed withdrawn and the ISO shall be entitled to invoice PSCo for any milestone completed as specified in Section 4(c) of this Agreement and PSCo shall pay such invoice pursuant to Section 4.

(d) Any time after thirty (30) days from the date of the Notice of Intent to Terminate under Section 2(b), issued by either Party, and prior to the date of a Notice of Resolution, the ISO may terminate this Agreement by providing written notice to PSCo that it is terminating this Agreement ("Termination Notice") effective immediately. The ISO may terminate this Agreement under the terms of this Section 2(d) at its sole discretion for any reason.

(e) Any time after thirty (30) days from the date of the Notice of Intent to Terminate under Section 2(b), issued by either Party, and prior to the date of a Notice of Resolution, PSCo may terminate this Agreement by providing written notice to the ISO that it is terminating this Agreement ("Termination Notice") effective immediately. PSCo may terminate this Agreement under the terms of this Section 2(e) at its sole discretion for any reason.

(f) In the event this Agreement is terminated by either or both of the Parties pursuant to its terms, this Agreement will become wholly void and of no further force and effect, without further action by either Party, and the liabilities and obligations of the Parties hereunder will terminate, and each Party shall be fully released and discharged from any liability or obligation under or resulting from this Agreement as of the date of the Termination Notice provided in Section 2(d) or 2(e), as applicable, notwithstanding the requirement for the ISO to submit the filing specified in Section 2(g). Notwithstanding the foregoing, the rights and obligations set forth in Sections 5 and 6 shall survive the termination of this Agreement and remain in full force and effect as specified in Sections 5 and 6, and any milestone payment obligation pursuant to Section 4(c) that arose prior to the Termination Notice in accordance with Section 2(d) or 2(e) shall survive until satisfied or resolved in accordance with Section 11.

(g) The Parties acknowledge that the ISO is required to file a timely notice of termination with FERC. The Parties acknowledge and agree that the filing of the notice of termination by the ISO with FERC will be considered timely if the filing of the notice of termination is made after the preconditions for termination have been met, and the ISO files the notice of termination within ten (10) days after the Termination Notice has been provided by either the ISO in accordance with Section 2(d) or PSCo in accordance with Section 2(e). This Agreement shall terminate upon acceptance by FERC of such a notice of termination.

3. Implementation Scope and Schedule.

(a) The Parties shall undertake the activities described in Exhibit A with the objective of completing the Project and implementing the EIM no later than the Implementation Date, subject to modification only as described in Sections 3(b) and 4(e) below.

(b) Either Party may propose a change in Exhibit A or the Implementation Date to the other Party. If a Party proposes a change in Exhibit A or the Implementation Date, the Parties shall negotiate in good faith to attempt to reach agreement on the proposal and any necessary changes in Exhibit A and any other affected provision of this Agreement, provided that any change in Exhibit A, or any change to the Implementation Date, must be mutually agreed to by the Parties. The agreement of the ~~Parties to a change in Exhibit A, or a change to the Implementation Date, shall be~~ memorialized in a revision to Exhibit A, which will then be binding on the Parties and shall be posted on the internet web sites of the ISO and PSCo, without the need for execution of an amendment to this Agreement. Changes that require revision of any provision of this Agreement other than Exhibit A, or as may be provided in Section 8(b), shall be reflected in an executed amendment to this Agreement and filed with FERC for acceptance.

(c) At least once per calendar month during the Term, the Parties' Designated Executives, or their designees, will meet telephonically or in person (at a mutually agreed to location) to discuss the status of the performance of the tasks necessary to achieve the milestones in Exhibit A and the continued appropriateness of Exhibit A to ensure that the Project can meet the Implementation Date. For purposes of this section, "Designated Executive" shall mean the individual identified in Section 8(g), or ~~her or his designee or successor~~.

4. Implementation Charges, Invoicing and Milestone Payments.

(a) As itemized in Section 4(c) below, PSCo shall pay the ISO a fixed fee of $1,485,000 for costs incurred by the ISO to implement the Project ("Implementation Fee"), subject to completion of the milestones specified in Section 4(c) and subject to adjustment only as described in Section 4(b).

(b) The ISO will provide prompt written notice to PSCo when the sum of its actual costs through the date of such notice and its projected costs to accomplish the balance of the Project exceed the Implementation Fee. The Implementation Fee shall be subject to adjustment only by mutual agreement of the Parties if the Parties agree to a change in Exhibit A, or a change to the Implementation Date, in accordance with Section 3(c) and the Parties agree that an adjustment to the Implementation Fee is warranted in light of such change.

(c) Upon completion of the milestones identified in Exhibit A, the ISO shall invoice PSCo for the Implementation Fee as follows:

i. $247,500 upon the Effective Date as further described in Section 1 of this Agreement and Exhibit A as Milestone 1;

ii. $247,500 upon deployment into the ISO test environment of the full network model database that includes the topology of the PSCo system as further described in Exhibit A as Milestone 2;

iii. $247,500 upon ISO promotion of market network model including PSCo area to non-production system with PSCo connection and data exchange data in advance of market simulation as further described in Exhibit A as Milestone 3;

iv. $247,500 upon commencement of EIM market simulation as further described in Exhibit A as Milestone 4;

v. $247,500 upon start of parallel operations as further described in Exhibit A as Milestone 5; and

vi. $247,500 upon the Implementation Date as further described in Exhibit A as Milestone 6.

(d) Following the completion of each milestone identified in Section 4(c)(i) through (vi), the ISO will deliver to PSCo an invoice which will show the amount due, together with reasonable documentation supporting the completion of the milestone being invoiced. PSCo shall pay the invoice no later than forty-five (45) calendar days after the date of receipt. Any milestone payment past due will accrue interest, per annum, calculated in accordance with the methodology specified for interest in the FERC regulations at 18 C.F.R. § 35.19a(a)(2)(iii).

(e) If a milestone has not been completed as described in Section 4(c)(i), (ii), (iii), (iv), or (v) and in Exhibit A, as Exhibit A may have been modified in accordance with Section 3(c), the Parties shall negotiate in good faith an agreed upon change to the Project Delivery Dates (as defined in Exhibit A) consistent with Section 3(c) such that the timing of milestone payments in Section 4(c) can be adjusted to correspond to the updated Exhibit A.

(f) If PSCo disputes any portion of any amount specified in an invoice delivered by the ISO in accordance with Section 4(c), PSCo shall pay its total amount of the invoice when due, and identify the disputed amount and state that the disputed amount is being paid under protest. Any disputed amount shall be resolved pursuant to the provisions of Section 11. If it is determined pursuant to Section 11 that an overpayment or underpayment has been made by PSCo or any amount on an invoice is incorrect, then (i) in the case of any overpayment, the ISO shall promptly return the amount of the overpayment (or credit the amount of the overpayment on the next invoice) to PSCo; and (ii) in the case of an underpayment, PSCo shall promptly pay the amount of the underpayment to the ISO. Any overpayment or underpayment shall include interest for the period from the date of overpayment, underpayment, or incorrect allocation, until such amount has been paid or credited against a future invoice calculated in the manner prescribed for calculating interest in Section 4(d).

(g) All costs necessary to implement the Project not provided for in this Agreement shall be borne separately by each Party, which -may be recovered through rates as may be authorized by the appropriate regulatory authorities.

(h) All milestone payments required to be made under the terms of this Agreement shall be made to the account or accounts designated by the Party which the milestone payment is owed, by wire transfer (in immediately available funds in the lawful currency of the United States).

5. Confidentiality.

(a) All written or oral information provided by a Party to the other Party in connection with this Agreement necessary to complete the Project and marked or otherwise identified at the time of communication by such Party as containing information that Party considers commercially sensitive or confidential shall constitute "Confidential Information" subject to the terms and conditions herein.

(b) Confidential Information does not include information that (i) is or becomes generally available to the public other than as a result of disclosure by either Party, its officers, directors, employees, agents, or representatives; (ii) is or becomes available to such Party on a non-confidential basis from other sources or their agents or representatives when such sources are not known by such Party to be prohibited from making the disclosure; (iii) is already known to such Party or has been independently acquired or developed by such Party without violating any of such Party's obligations under this Section 5; or (iv) is the subject of a mutual written agreement between the Parties, including an agreement evidenced through an exchange of electronic or other communications, to allow for such disclosure and designation as non-confidential or public information on a case-by-case basis, including information for discussion at any stakeholder meetings or during the stakeholder process, in accordance with Section 10 of this Agreement.

(c) The Confidential Information will be kept confidential by each Party and each Party agrees to protect the Confidential Information using the same degree of care, but no less than a reasonable degree of care, as a Party uses to protect its own confidential information of a like nature. Notwithstanding the preceding sentence, a Party may disclose the Confidential Information or portions thereof to those of such Party's officers, employees, partners, representatives, attorneys, contractors, advisors, or agents who need to know such information for the purpose of analyzing or performing an obligation related to the Project. Notwithstanding the foregoing, a Party is not authorized to disclose such Confidential Information to any officers, employees, partners, representatives, attorneys, contractors, advisors, or agents without (i) informing such officer, employee, partner, representative, attorney, contractor, advisor, or agent of the confidential nature of the Confidential Information and (ii) ensuring that such officer, employee, partner, representative, attorney, contractor, advisor, or agent is subject to confidentiality duties or obligations to the applicable Party that are no less restrictive than the terms and conditions of this Agreement. Each Party agrees to be responsible for any breach of this Section 5 by such Party or a Party's officers, employees, partners, representatives, attorneys, contractors, advisors or agents, subject to the limitations set forth in Section 6 below.

(d) In the event that a Party is required by a court of competent jurisdiction or regulatory authority (by law, rule, regulation, order, deposition, interrogatory, request for documents, data request issued as part of a regulatory process, subpoena, civil investigative demand or similar request or process) to disclose any of the Confidential Information, such Party shall (to the extent legally permitted) provide the other Party with prompt written notice of such requirement so that the other Party may seek a protective order or other appropriate remedy and/or waive compliance with the terms of this Section 5. In the event that such protective order or other remedy is not obtained, the disclosing Party hereby waives compliance with the provisions hereof with respect to such Confidential Information. In such event, the Party compelled to disclose shall (i) furnish only that portion of the Confidential Information which, in accordance with the advice of its own counsel (which may include internal counsel), is legally required to be furnished, and (ii) exercise reasonable efforts to obtain assurances that confidential treatment will be accorded the Confidential Information so furnished. Confidential Information disclosed under seal (or in such other manner as to be treated confidentially) in connection with a court or regulatory filing shall retain its status as Confidential Information under this Agreement.

(e) Notwithstanding the foregoing, the Parties acknowledge that they are required by law or regulation to report certain information that could embody Confidential Information from time to time, and may do so from time to time without providing prior notice to the other Party. Such reports may include models, filings, and reports of costs, general rate case filings, cost adjustment mechanisms, FERC-required reporting, investigations, annual state reports that include resources and loads, integrated resource planning reports, reports to entities such as FERC, the North American Electric Reliability Council ("NERC"), Western Electricity Coordinating Council ("WECC"), or similar or successor organizations, or similar or successor forms, filings, or reports, the specific names of which may vary by jurisdiction, along with supporting documentation. Additionally, in regulatory proceedings or investigations in all state and federal jurisdictions in which they may do business, the Parties will from time to time be required to produce Confidential Information, and each Party may do so without prior notice using its business judgment in compliance with all of the foregoing and including the appropriate level of confidentiality for such disclosures in the normal course of business.

(f) Each Party is entitled to seek equitable relief, by injunction or otherwise, to enforce its rights under this Section 5 to prevent the release of Confidential Information without bond or proof of damages, and may seek other remedies available at law or in equity for breach of this provision, subject to the limitations set forth in Section 6 below.

(g) Unless otherwise prevented by law, upon written request by a Party, the other Party shall promptly return to the requesting Party or destroy all Confidential Information it received, including all copies of its analyses, compilations, studies or other documents prepared by or for it, that contain the Confidential Information in a manner that would allow its extraction or that would allow the identification of the requesting Party as the source of the Confidential Information or inputs to the analysis. Notwithstanding the foregoing, neither Party shall be required to destroy or alter any computer archival and backup tapes or archival and backup files (collectively, "Computer Tapes"), provided that such Computer Tapes shall be kept confidential in accordance with the terms of this Agreement.

(h) Nothing in this Agreement shall be deemed to restrict either Party from engaging with third parties with respect to any matter and for any reason, specifically including the EIM, provided Confidential Information is treated in accordance with this Section 5.

(i) This Section 5, Confidentiality, applies for two years (24 months) after the Termination Date or the date of any expiration or termination of this Agreement.

6. Limitation of Liability; Indemnity.

(a) The Parties acknowledge and agree that, except as otherwise specified in Section 4(f) of this Agreement, neither Party shall be liable to the other Party for any claim, loss, cost, liability, damage or expense, including any direct damage or any special, indirect, exemplary, punitive, incidental or consequential loss or damage (including any loss of revenue, income, profits or investment opportunities or claims of third party customers), arising out of or directly or indirectly related to such other Party's decision to enter into this Agreement, such other Party's performance under this Agreement, or any other decision by such Party with respect to the Project.

(b) Each Party shall indemnify, defend and hold harmless each of the other Party and its officers, directors, employees, agents, contractors and sub-contractors, from and against all third-party claims, judgments, losses, liabilities, costs, expenses (including reasonable attorneys' fees) and damages for personal injury, death or property damage, to the extent caused by the negligence, willful misconduct, or breach of this Agreement of the indemnifying Party, its officers, directors, agents, employees, contractors or sub-contractors related to this Agreement; provided, that this indemnification shall be only to the extent such personal injury, death or property damage is not attributable to the negligence or willful misconduct related to this Agreement or breach of this Agreement of the Party seeking indemnification, its officers, directors, agents, employees, contractors or sub-contractors. The indemnified Party shall give the other Party prompt notice of any such claim. The indemnifying Party, in consultation with the indemnified Party, shall have the right to choose competent counsel, control the conduct of any litigation or other proceeding, and settle any claim, provided that any such settlement shall not impose costs upon the indemnified Party. The indemnified Party shall provide all documents and assistance reasonably requested by the indemnifying Party.

(c) The rights and obligations under this Section 6 shall survive the Termination Date and any expiration or termination of this Agreement.

7. Representation and Warranties.

(a) Representations and Warranties of PSCo. PSCo represents and warrants to the ISO as of the Effective Date as follows:

(1) It is duly formed, validly existing and in good standing under the laws of the jurisdiction of its formation.

(2) It has all requisite corporate power necessary to own its assets and carry on its business as now being conducted or as proposed to be conducted under this Agreement.

(3) It has all necessary corporate power and authority to execute and deliver this Agreement and to perform its obligations under this Agreement, and the execution and delivery of this Agreement and the performance by it of this Agreement have been duly authorized by all necessary corporate action on its part.

(4) The execution and delivery of this Agreement and the performance by it of this Agreement do not: (i) violate its organizational documents; (ii) violate any governmental requirements applicable to it; or (iii) result in a breach of or constitute a default of any material agreement to which it is a party.

(5) This Agreement has been duly and validly executed and delivered by it and constitutes its legal, valid and binding obligation enforceable against it in accordance with its terms, except as the same may be limited by bankruptcy, insolvency or other similar laws affecting creditors' rights generally and by principles of equity regardless of whether such principles are considered in a proceeding at law or in equity.

(6) All material governmental authorizations in connection with the due execution and delivery of this Agreement, have been duly obtained or made prior to the date hereof and are in full force and effect.

(b) Representations and Warranties of the ISO. ISO represents and warrants to PSCo as of the Effective Date as follows:

(1) It is duly formed, validly existing and in good standing under the laws of the jurisdiction of its formation.

(2) It has all requisite corporate power necessary to own its assets and carry on its business as now being conducted or as proposed to be conducted under this Agreement.

(3) It has all necessary corporate power and authority to execute and deliver this Agreement and to perform its obligations under this Agreement, and the execution and delivery of this Agreement and the performance by it of this Agreement have been duly authorized by all necessary corporate action on its part.

(4) The execution and delivery of this Agreement and the performance by it of this Agreement do not: (i) violate its organizational documents; (ii) violate any governmental requirements applicable to it; or (iii) result in a breach of or constitute a default of any material agreement to which it is a party.

(5) This Agreement has been duly and validly executed and delivered by it and constitutes its legal, valid and binding obligation enforceable against it in accordance with its terms, except as the same may be limited by bankruptcy, insolvency, regulatory authority, or other similar laws affecting creditors' rights generally and by principles of equity regardless of whether such principles are considered in a proceeding at law or in equity.

(6) All material governmental authorizations in connection with the due execution and delivery of, and performance by it of its obligations under this Agreement, have been duly obtained or made prior to the date hereof and are in full force and effect.

8. <u>General Provisions</u>.

(a) This Agreement, including Exhibit A and Exhibit B to this Agreement, constitutes the entire agreement between the Parties, and supersedes any prior written or oral agreements or understandings between the Parties, relating to the subject matter of this Agreement; provided, that nothing in this Agreement shall limit, repeal, or in any manner modify the existing legal rights, privileges, and duties of each of the Parties as provided by any other agreement between the Parties, or by any statute or any other law or applicable court or regulatory decision by which such Party is bound.

(b) This Agreement may not be amended except in writing hereafter signed by both of the Parties; provided, however, the Parties may mutually agree to changes in Exhibit A in accordance with Section 4(e), or the Parties may mutually agree to changes in Exhibit B withouth such changes being accepted by FERC provided the changes do not modify any provision of this Agreement.

(c) Any waiver by a Party to this Agreement of any provision or condition of this Agreement must be in writing signed by the Party to be bound by such waiver, shall be effective only to the extent specifically set forth in such writing and shall not limit or affect any rights with respect to any other or future circumstance.

(d) This Agreement is for the sole and exclusive benefit of the Parties. The provisions of this Agreement shall not impart rights enforceable by any person or entity not a Party or not a permitted successor or permitted assignee of a Party bound by this Agreement. This Agreement shall not be construed to create any third party beneficiary rights of any sort.

(e) Neither Party shall have the right to voluntarily assign its interest in this Agreement, including its rights, duties, and obligations hereunder, without the prior written consent of the other Party, which consent may be withheld by the other Party in its sole and absolute discretion. Any assignment made in violation of the terms of this Section 8(e) shall be null and void and shall have no force and effect.

(f) In the event that any provision of this Agreement is determined to be invalid or unenforceable for any reason, in whole or part, the remaining provisions of this Agreement shall be unaffected thereby and shall remain in full force and effect to the fullest extent permitted by law, and such invalid or unenforceable provision shall be replaced by the Parties with a provision that is valid and enforceable and that comes closest to expressing the Parties' intention with respect to such invalid or unenforceable provision.

(g) Whenever this Agreement requires or provides that (i) a notice be given by a Party to the other Party or (ii) a Party's action requires the approval or consent of the other Party, such notice, consent or approval shall be given in writing and shall be given by personal delivery, by recognized overnight courier service, email or by certified mail (return receipt requested), postage prepaid, to the recipient thereof at the address given for such Party as set forth below, or to such other address as may be designated by notice given by any Party to the other Party in accordance with the provisions of this Section 8(g):

If to PSCo:

Xcel Energy
1800 Larimer St.
Suite 1000
Denver, CO 80202
Attention: Mike Boughner, Director, Market Operations
E-Mail: Michael.L.Boughner@xcelenergy.com

If to the ISO:

California Independent System Operator Corporation
250 Outcropping Way
Folsom, CA 95630
Attention: Petar Ristanovic, Vice President, Technology
E-mail: PRistanovic@caiso.com

Each notice, consent or approval shall be conclusively deemed to have been given (i) on the day of the actual delivery thereof, if given by personal delivery, email sent by 5:00 p.m. Pacific Prevailing Time, or overnight delivery, or (ii) date of delivery shown on the receipt, if given by certified mail (return receipt requested). It is the responsibility of each Party to provide, in accordance with this Section, notice to the other Party of any necessary change in the contact or address information herein.

(h) This Agreement may be executed in one or more counterparts (including by facsimile or a scanned image), each of which when so executed shall be deemed to be an original, and all of which shall together constitute one and the same instrument.

(i) Nothing contained in this Agreement shall be construed as creating a corporation, company, partnership, association, joint venture or other entity with the other Party, nor shall anything contained in this Agreement be construed as creating or requiring any fiduciary relationship between the Parties. No Party shall be responsible hereunder for the acts or omissions of the other Party.

(j) The decision to execute an EIM service agreement and participate in the EIM remains within the sole discretion of PSCo and the decision whether to continue to offer EIM services (subject to Sections 1(c) and 2) remains within the sole discretion of the ISO.

(k) Nothing in this Agreement shall preclude a Party from exercising any rights or taking any action (or having its affiliates take any action) with respect to any other project.

(l) Unless otherwise expressly provided, for purposes of this Agreement, the following rules of interpretation shall apply: (i) any reference in this Agreement to gender includes all genders, and the meaning of defined terms applies to both the singular and the plural of those terms; (ii) the insertion of headings are for convenience of reference only and do not affect, and will not be utilized in construing or interpreting, this Agreement; (iii) all references in this Agreement to any "Section" are to the corresponding Section of this Agreement unless otherwise specified; (iv) words such as "herein," "hereinafter," "hereof," and "hereunder" refer to this Agreement (including Exhibit A to this Agreement) as a whole and not merely to a subdivision in which such words appear, unless the context otherwise requires; (v) the word "including" or any variation thereof means "including, without limitation" and does not limit any general statement that it follows to the specific or similar items or matters immediately following it; and (vi) the Parties have participated jointly in the negotiation and drafting of this Agreement and, in the event an ambiguity or question of intent or interpretation arises, this Agreement shall be construed as jointly drafted by the Parties and no presumption or burden of proof favoring or disfavoring any Party will exist or arise by virtue of the authorship of any provision of this Agreement.

(m) The above-stated recitals are incorporated into and made a part of this Agreement by this reference to the same extent as if these recitals were set forth in full at this point.

9. Venue. Venue for any action hereunder shall be FERC, where subject to its jurisdiction, or otherwise any state or federal court with jurisdiction within the State of Colorado.

10. Communication. The Parties shall develop a communication protocol for the dissemination of material information associated with the Project, which shall be approved by PSCo and the ISO. Pursuant to the communication protocol, the individual identified in Section 8(g), or their designee or successor, shall provide reasonable advance notice to the other Party of planned press releases, public statements, and meetings with the public or governmental authorities in which material information concerning the Project or PSCo's involvement will be shared. The Parties shall mutually consult with each other as provided in the communication protocol prior to making such public statements or disclosures; provided that nothing herein shall prevent, limit, or delay either Party from making any disclosure required by applicable law or regulation, subject to the provisions of Section 5 hereof. In the event either Party engages in material unplanned communications about the Project that otherwise should have been subject to this Section and the communication protocol, such Party shall provide notice to the other Party as promptly as possible of the nature and content of such communication.

11. Dispute Resolution. Unless otherwise provided herein, each of the provisions of this Agreement shall be enforceable independently of any other provision of this Agreement and independent of any other claim or cause of action. In the event of any dispute arising under this Agreement, the Parties shall, to the extent practicable, first attempt to resolve the matter through direct good faith negotiation between the Parties, including a full opportunity for escalation to executive management within the Parties' respective organizations. If the Parties are unable to resolve the issue within thirty (30) days after such escalation of the dispute, then for matters subject to FERC jurisdiction either Party shall have the right to file a complaint under Section 206 of the Federal Power Act. For all other matters, then:

(a) To the fullest extent permitted by law, each of the Parties hereto waives any right it may have to a trial by jury in respect of litigation within the federal or state courts located within Colorado as specified herein in Section 9, directly or indirectly arising out of, under or in connection with this Agreement. Each Party further waives any right to consolidate, or to request the consolidation of, any action in which a jury trial has been waived with any other action in which a jury trial cannot be or has not been waived.

(b) If a waiver of jury trial is deemed by any court of competent jurisdiction within the State of Colorado as specified herein in Section 9 to not be enforceable for any reason, then to the fullest extent permitted by law, each of the Parties hereto agrees to attempt to settle amicably through non-binding arbitration. Notwithstanding the foregoing, either Party may seek provisional legal remedies if, in such Party's judgment, such action is necessary to avoid irreparable damage or preserve the status quo.

12. Third Party Agreements. The Parties may engage in discussions with third parties, either jointly or unilaterally, to facilitate the Project. Each Party may adopt or modify tariffs or enter into or modify binding agreements between such Party and third parties to implement the approved terms and conditions of the Project or EIM as necessary and appropriate.

13. Compliance. Each Party shall comply with all applicable federal, state, local or municipal governmental authority; any governmental, quasi-governmental, regulatory or administrative agency, commission, body or other authority exercising or entitled to exercise any administrative, executive, judicial, legislative, policy, regulatory or taxing authority or power, including FERC, NERC, WECC; or any court or governmental tribunal; in each case, having jurisdiction over either Party in connection with the execution, delivery and performance of its obligations under this Agreement. This Agreement is not intended to modify, change or otherwise amend the Parties' current functional responsibilities associated with compliance with WECC and NERC Reliability Standards; provided, however, the Parties may enter into separate mutually agreed to arrangements to clarify roles and responsibilities associated with compliance with WECC and NERC Reliability Standards in respect of this Agreement.

14. PSCo's EIM Implementation Principles. The Parties recognize that participation in the EIM will require a transition from service pursuant to the Joint Dispatch Agreement, and that the structure of the EIM does not currently account for the separate scheduling and settlement of the JDA Parties' load and non-participating resources as provided under the Joint Dispatch Agreement and PSCo's and Black Hills' associated tariff provisions. Accordingly, prior to the Implementation Date, the ISO, in cooperation with PSCo and other stakeholders, will pursue a new EIM relationship with the JDA Parties. The Parties intend that the JDA Parties will have the opportunity to participate in discussions between CAISO and PSCo regarding performance of the tasks necessary to achieve the milestones in Exhibit A. The new EIM scheduling and settlement procedures will take into consideration the JDA Parties' rights and obligations under the Joint Dispatch Agreement. The Parties intend to consider the following principles to guide implementation of the Project.

(a) Establishing a new scheduling and settlement relationship between the ISO and the JDA Parties will require authorization of PSCo as the balancing authority and EIM entity.

(b) The JDA Parties would have the forecasting, telemetry, metering, and outage reporting capability sufficient to support accurate and separate scheduling and settlement of their load and non-participating resources.

(c) The JDA Parties would each individually meet the EIM financial security and other ISO related scheduling coordinator requirements associated with the separate scheduling and settlement of their load and non-participating resources.

(d) Black Hills, Platte River and Colorado Springs would participate in the Project as necessary to support implemetion of their separate scheduling and settlement with the ISO by the Implementation Date, including execution of any necessary agreements to account for their relationship with the ISO.

(e) In the event that Black Hills, Platte River or Colorado Springs is no longer separately scheduled and settled in the EIM for any reason, whether by choice or by default, PSCo, as the balancing authority and EIM entity, will assume responsibility under the EIM for such party.

(f) Exhibit B illustrates the relationship between key areas of the Joint Dispatch Agreement and the EIM scheduling and settlement roles and responsibilities that will need to be developed between the ISO and the JDA Parties consistent with this Section 14, and provides additional detail to guide implementation of the Project.

IN WITNESS WHEREOF, each of the Parties has caused its duly authorized officer to execute this Implementation Agreement as of the date first above written.

Public Service Company of Colorado

By: ______________________

Name: Alice K. Jackson
Title: President, Public Service Company of Colorado

California Independent System Operator Corporation

By: ______________________

Name: Petar Ristanovic
Title: Vice President, Technology

EXHIBIT A: PROJECT SCOPE AND SCHEDULE

The Project consists of the activities and delivery dates identified in this Exhibit A, implemented in accordance with the Agreement. The Parties have included a schedule for the Implementation Date to coordinate their efforts required for completion of the Project on a milestone track.

The Parties understand that input received from stakeholders during the course of implementing the Project, conditions imposed or questions raised in the regulatory approval process, and the activities of the Parties in implementing the Project may cause the Parties to determine that changes in the Project are necessary or desirable. Accordingly, this Exhibit A may be modified in accordance with Section 3(b) of the Agreement.

Each Party is responsible for performing a variety of tasks necessary to achieve the milestones on the scheduled dates specified in the table below ("Project Delivery Dates") and shall plan accordingly. The Parties shall communicate and coordinate as provided in the Agreement to support the planning and execution to complete the Project.

Project Scope and Milestones	**Project Delivery Dates supporting April, 2022**
Detailed Project Management Plan – The Parties will develop and initiate a final project management plan that describes specific project tasks each Party must perform, delivery dates, project team members, meeting requirements, and a process for approving changes to support completion of the Project. This phase will include a detailed IT system review to assist PSCo in development of a detailed metering plan, bid-to-bill system, and coordination with PSCo EMS. Work will be initiated on the PSCo staff training program using the foundational and detailed system computer-based training module, as well as on the resource data templates needed during Milestone 2.	January 2020-April, 2020
• **Milestone 1** – This milestone is completed when the Agreement has been made effective in accordance with Section 1 of the Agreement.	April 2020

Full Network Model Expansion – Full Network Model expansion for PSCo and EMS/SCADA, including, proof of concept of export/import of EMS data; complete model into the ISO test environment; complete validation for all SCADA points from PSCo; testing of the new market model; and validation of the Outage and State Estimator applications.	November 2020
• **Milestone 2** - This milestone is completed when the ISO has succeeded in modeling PSCo into the ISO Full Network Model through the EMS which will be deployed into a non-production test environment using the ISO's network and resource modeling process.	July 2021
System Implementation and Connectivity Testing – System requirements and software design, the execution of necessary software vendor contracts, development of Market network model including PSCo, allowPSCo to connect to a non-production test system.	August 2021
• **Milestone 3** - This milestone is completedwhen the ISO has developed a market network model including PSCo area to non-production system, and PSCo is able to connect and exchange data in advance of Market Simulation.	September 2021
Construction, Testing and Training in Preparation for Market Simulation – This task includes IT infrastructure upgrades, security testing, training, Day-in-life simulation, and functional testing.	September 2021
• **Milestone 4a** – Start of Joint Integration Testing with ISO, Interface testing with minimum data requirements and functional integration testing. ISO will make the test environment available for PSCo connectivity testing prior to the delivery date assuming PSCo has provided all requisite data and non-production system availability does not conflict with ISO production system Spring Release schedule.	September 2021
• **Milestone 4b –Begin 'Day in the Life' scenario testing**	November 2021
• **Milestone 4c – Begin Structured Market simulation (Milestone 4 payment due at this point)**	December 2021
Activate Parallel Operations – During January 2022, the ISO will activate a parallel operation environment to practice production grade systems integration as well as market processes and	January 2022

operating procedures in anticipation of the impending PSCo activation as an EIM Entity and to confirm compliance with the EIM readiness criteria set forth in the ISO tariff.	
• **Milestone 5** – This milestone is completed on the start of parallel operations	February 2022
System Deployment and Go Live – Implementing the Project and going live will include resource registration, operating procedures and updates, execution of service agreements, completion of the PSCo tariff process, applicable board approvals, the filing and acceptance of service agreements and tariff changes with FERC, and completion and filing of a readiness criteria certification in accordance with the ISO tariff.	March 2022
• **Milestone 6** – This milestone is complete upon the first production PSCo energy imbalance market trade date.	April 1, 2022

Exhibit B
Functional description of shift from JDA to EIM

Function/Role	JDA	EIM
Delineation of LSEs	JDA participant for each LSE provides market inputs and has visibility to market results via JDA portal.	Sub-areas for LSEs provide market inputs and have visibility to detailed market results, via EIM Entity. Multiple LAPS created.
Load forecasting	Each JDA participant responsible for its own demand forecast.	Each sub-area responsible for its demand forecast for each LAP area (if not using the CAISO demand forecast).
Scheduling	JDA participants submit resource offer and resource participation data via JDA portal prior to each hour. Generation and load is not scheduled in advance. Energy Imbalance determined after the fact.	Participating resource SC completes pre-market submittal of base schedules into BSAP and bids into SIBR directly to the CAISO. EIM Entity SC completes pre-market submittal of base schedules for non-participating resources, approval of participating resource base schedules.
Balancing and resource sufficiency tests	JDA participants are required to be resource sufficient during each hour. Failure results in Surplus or Deficit Energy penalties.	One aggregated demand forecast. Balancing at the BAA level. No sub-area balancing required at start of hour. Resource sufficiency tests conducted at EIM Entity BAA level.
Metering	JDA participant submits meter data for all resources and obligations to PSCo.	Participating and non-participating SC submits meter data.
Settlements	Settlements of imbalance and surplus/deficit energy charges calculated by PSCo as market operator for each JDA Participant.	Energy settlement for non-participating load by sub-areas via EIM Entity's child SC IDs. Other settlements attributable by sub—area (offsets, UFE, BCR) assigned to EIM entity for sub-allocation to individual sub-areas based on OATT.
Statements and Invoicing	JDA participant receives statement and invoice of charges/credits from directly from other JDA participants.	EIM Entity receives statements and invoices of assigned costs (uplift charges) to EIM Entity SC and non-participating resources by child SC. Participating Resource SC receives statements and invoices for participating resources.
Systems	Web Based JDA portal and PSCo EMS.	Participating Resource SC and child SCs responsible for subset of system interfaces. EIM Entity responsible for all system interfaces with the CAISO.

Attachment B – Declaration of April D. Gordon,

Director of Financial Planning and Procurement

Rate Schedule No. 6165

California Independent System Operator Corporation

May 29, 2020

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

California Independent System Operator Corporation	))	**Docket No. ER20-___-000**

DECLARATION OF APRIL D. GORDON
ON BEHALF OF THE
CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION

I, April D. Gordon, state as follows:

1. I am employed as Director of Financial Planning and Procurement for the California Independent System Operator Corporation (the CAISO). My business address is 250 Outcropping Way, Folsom, California 95630. As part of my duties at the CAISO, I oversee the development of the CAISO's grid management charge. I also oversee the CAISO's budget preparation and management, long-term financial planning, and corporate procurement and contract management. I received an undergraduate degree in Business Administration with a major in accounting from the California State University of Sacramento. Prior to my current position, I was a Financial Analyst at the CAISO from 2010 to 2014. Prior to the CAISO, I was a Senior Accountant at the California Association of Hospitals and Health Systems (2003 – 2010) and an Accountant at Enterprise Resource Group (1999 – 2003).

2. The purpose of my declaration is to provide cost support for the fixed implementation fee that the CAISO proposes to charge Public Service Company of Colorado, a Colorado corporation (PSCo), for the development and implementation of the Energy Imbalance Market (EIM) under the Implementation

Agreement that the CAISO is filing today.

The Implementation Fee

3. The implementation fee is based on the CAISO's estimate of the start-up cost of implementing an EIM that could ultimately accommodate the entire Western Electric Coordinating Council (WECC), should the WECC utilities all choose to participate.

4. As explained below, the CAISO estimates that the total start-up cost for the EIM would be $19.6 million. (Throughout this declaration I round millions of dollars to a single decimal point.) The CAISO would not incur this entire cost up front, however. Rather, the CAISO would incur the costs incrementally as the imbalance energy activity from additional balancing authority areas is incorporated into the market.

5. This total estimated cost of $19.6 million comprises the estimated costs of eleven components: (1) licenses, $12.15 million; (2) energy management system upgrades, $1.0 million; (3) data storage, $2.0 million; (4) hardware upgrades, $500,000; (5) production software modifications, $1.0 million; (6) network configuration and mapping, $500,000; (7) integration, $500,000; (8) testing, $1.5 million; (9) system performance tuning, $250,000; (10) training and operations readiness, $150,000; and (11) project management, $100,000.

Licenses

6. To estimate the license costs, the CAISO used the costs for its existing licenses for software systems development for scheduling infrastructure, integrated forward market, real-time market and market quality system, and settlements

software. The total base fees for the contracts covering these services are $4.5 million. The fees in certain cases include a provision for a fee increase for each specified increment of additional CAISO peak demand. The details of these contracts are confidential, so I will need to describe the process without identifying the specific data.

7. Because the information on peak loads was not readily available, the CAISO decided to estimate costs by applying the 10 percent incremental cost to annual net energy for loads. The definition of "net energy for load" is posted on the WECC website. It comprises imports plus generation less exports with specific exclusions. Net energy for load, which I will hereafter refer to as load, is reported to WECC annually by each balancing authority area and used by the North American Electric Reliability Corporation (NERC) to allocate its annual charges to its load-serving regional entities. Load is the most consistent and available data on the majority of balancing authority areas within WECC. The CAISO used the 2013 annual load, which was included in the 2015 billing, for this allocation. The 2013 annual load for the CAISO was 232.3 million megawatt-hours (MWh). Using this data, the CAISO estimated the increment in CAISO load that would occasion a specific amount of additional license costs.

8. The WECC load, exclusive of the CAISO, was 636.2 million MWh. The CAISO calculated that this is a particular multiple of the load increments used in the license contracts. The CAISO calculated the product of this multiple and the increased costs associated with the contractual increment. Using this

methodology, the CAISO estimates the license costs for implementing a WECC-wide EIM would be 27 times $450,000, or $12.15 million.

Data Storage

9. The CAISO will need to procure additional data storage to account for the expanded data requirements associated with integrating all WECC balancing authority areas into CAISO systems. The procured storage will provide the required highly available and redundant storage as well as cover long-term archiving.

10. Currently, storage for CAISO production requires 200 terabytes at a cost of approximately $7.5 million. The CAISO estimates that it will require a 10 percent increase for additional storage and faster retrieval, which would equate to $750,000 at the same rate. Additional cabinets and ports will cost $500,000 and licensing for databases, monitoring, storage, backups, etc. will be $750,000, for a total cost of $2.0 million.

Hardware Upgrades

11. Hardware upgrades will be necessary to meet the market timeline requirements, including 5-minute dispatch. These upgrades include servers and supporting network systems to provide the needed availability, reliability, and performance.

12. The CAISO currently uses about 100 servers. The CAISO estimates that it will need an additional 10 percent, or ten servers, with an estimated cost of $30,000 each, for a total of $300,000. The CAISO also estimates $200,000 in networking and data acquisition costs, for a total hardware upgrade cost of $500,000.

Network Configuration and Mapping, Integration, and System Performance Tuning

13. The CAISO will need to include the other EIM balancing authority areas in its network model and market model. The CAISO must also (1) integrate system interfaces to enable data exchange between systems to meet business and system requirements, and (2) measure and analyze performance in a non-production environment and mitigate any identified performance issues to ensure that production performance is as expected.

14. The CAISO project management team determined the costs of these activities in consultation with the relevant directors and managers of the affected departments by estimating the level of effort required based on an extrapolation from the level of effort necessary for similar past activities. The staff consulted has extensive experience in estimating costs in this area. In particular, the CAISO in 2009 completed a $200 million implementation of a new market design and annually thereafter has carried out software implementation, modification, and redesign projects averaging about $20 million each.

Energy Management System Upgrades, Production Software Modifications, and Testing

15. To build the EIM for the entire WECC region, the CAISO will need to improve the existing energy management system, which currently supports the CAISO control area with a peak demand of approximately 50,000 megawatts (MW). These system improvements will enable the CAISO to integrate the imbalance energy for the additional balancing authority areas within a four-second data resource time.

16. The CAISO will also require production software modifications to support new inputs and outputs associated with the EIM, including base schedules.

17. Following the system integration described above, the CAISO will need to conduct testing to ensure that it meets all EIM business and system requirements.

18. The CAISO project management team determined the costs of these activities in consultation with the relevant directors and managers of the affected departments by estimating the resources (contractors and consultants) needed based on an extrapolation from the resources that the CAISO has required for recent software changes and modifications. As described above, the staff consulted has extensive experience in estimating costs in this area.

Training and Operations Readiness, and Project Management

19. Similarly, the CAISO project management team determined the costs of activities associated with training and operations readiness and project management, in consultation with the relevant directors and managers of the affected disciplines, by estimating the level of effort required based on an extrapolation from the level of effort necessary for similar past activities. As described in paragraph 14 above, the staff consulted has extensive experience in estimating costs in this area.

Derivation of Implementation Fee

20. Having determined that the total cost of implementing the WECC-wide EIM would be $19.6 million as described above, the CAISO proceeded to develop a rate that could be used for individual participants. To do so, the CAISO divided the $19.6

million total cost by the 636.2 million MWh of non-CAISO net energy for load in the WECC, for a rate of $0.031/MWh.

21. Finally, to determine the implementation fee for PSCo as set forth in the Implementation Agreement, the CAISO applied the rate described above to PSCo's reported net energy for load for 2017 of 47,886 million MWh, for a rounded total of $1,485,000.

Comparison of PSCo Fee to Generic Rate

22. Although the CAISO intends to base the implementation fee on a generic rate that would reasonably allocate the costs of a WECC-wide EIM to all potential participants, the CAISO thought it worthwhile to compare PSCo's fee based on the $0.031/MWh rate with an estimate of the specific costs of expansion of the existing EIM to include PSCo. Using the same process described above, the CAISO estimated the costs (in thousands of dollars) that appear in the following table:

Estimated Costs **($ in thousands)**	
Software licenses	$900
Production software modification	200
Project management	150
Hardware and servers upgrades	50
Network configuration and mapping	50
Testing	50
Training and operations readiness	35
EMS System improvements	25
Data storage	25
Total	**$1,485**

23. As is readily apparent, although the total costs are the same, the proportion of the total PSCo-specific costs that each component represents differs from proportion of the WECC-wide costs that the component represents. For example, the CAISO does not anticipate incurring any additional costs associated with integration and system performance tuning, but to integrate PSCo, the CAISO will need to incur costs such as additional software licenses, project management, and data storage. Although the PSCo-specific costs are the same as the PSCo fee based on the generic rate, the CAISO cannot determine at this time if this will be the case with regard to all future EIM participants. Nonetheless, the CAISO has concluded that the generic fee represents the most equitable methodology of allocating the costs of a WECC-wide EIM.

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: May 26, 2020

/s/ April D. Gordon
April D. Gordon