

November 3, 2017

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. 100  
Powerex Canadian EIM Entity Scheduling Coordinator  
Agreement  
Docket No. ER18-\_\_\_\_ -\_\_\_\_**

Dear Secretary Bose:

The California Independent System Operator Corporation (“CAISO”) submits for filing and acceptance, the Powerex Canadian EIM Entity Scheduling Coordinator Agreement, a non-conforming EIM Entity Scheduling Coordinator Agreement (“Agreement”), between the CAISO and Powerex Corp., a British Columbia corporation (“Powerex”) (together, “Parties”).<sup>1</sup> The Agreement sets forth the legal obligations and operational rules that will govern Powerex’s scheduling coordinator for its participation in the CAISO’s Energy Imbalance Market (“EIM”). The EIM is the vehicle by which entities outside the CAISO’s balancing authority participate in the CAISO’s real-time market. Under the Agreement, Powerex will comply with the CAISO tariff provisions applicable to EIM entities as the terms and provisions of the tariff may be modified by the Powerex Canadian EIM Entity Agreement, which the CAISO is filing contemporaneously with this Agreement. For explanatory purposes, the CAISO is including the transmittal letter for the Powerex Canadian EIM Entity Agreement as Attachment B to this filing.

Powerex will participate in the EIM using residual capability<sup>2</sup> of the system of Powerex’s parent company, the British Columbia Hydro & Power Authority (“BC Hydro”), a provincially-owned Crown corporation subject to the jurisdiction of the British Columbia Utilities Commission (“BCUC”). The CAISO requests that the Federal Energy Regulatory Commission (“Commission”) accept the

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<sup>1</sup> The CAISO submits the Agreement pursuant to Section 205 of the Federal Power Act, 16 U.S.C. § 824d.

<sup>2</sup> The term “residual capability” in the context of Powerex’s EIM participation means the ability of resources located in British Columbia to deliver or consume energy in excess of or to meet BC Hydro’s needs.

Agreement effective February 15, 2018, so the CAISO and Powerex can timely complete all necessary actions to enable Powerex to commence participation in the EIM on April 4, 2018.

The CAISO is filing the Agreement concurrently with three other agreements in addition to the Powerex Canadian EIM Entity Agreement. Together, these five agreements provide the contractual support for the Powerex EIM participation framework, which was discussed in the Commission's order accepting the Powerex EIM Implementation Agreement.<sup>3</sup> Two of the three other agreements are between the CAISO and Powerex, namely a Powerex EIM Participating Resource Agreement and an EIM Participating Resource Scheduling Coordinator Agreement. The other agreement is the CAISO-BC Hydro Data Sharing Agreement between the CAISO and BC Hydro.

These agreements apply the EIM market rules and tariff provisions, including market power mitigation, to Powerex so that Powerex will participate in the EIM in a manner comparable to participation by EIM entities and participating resources located in the United States ("U.S."). The agreements include only such differences as are necessary to accommodate Powerex's EIM participation with residual capability of the BC Hydro system, the location of the loads, resources, and transmission that will support Powerex's participation, and Canadian provincial jurisdiction over BC Hydro.<sup>4</sup> The agreements provide Powerex with no competitive advantage.

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<sup>3</sup> *Cal. Indep. Sys. Operator Corp.*, 160 FERC ¶ 61,058 (2017) at P 26 ("September 7 Order") (noting that the Powerex participation agreements would be separately filed by the CAISO pursuant to section 205 of the Federal Power Act).

<sup>4</sup> The CAISO has also developed several features that enhance the operation of the EIM and support the Powerex EIM participation framework, including (1) an auto-match of changes in intertie schedules after the close of the base schedule deadline at T-40; (2) an automatic mirroring of schedules at CAISO interties; (3) the provision of settlement information for schedule changes in EIM transfers between EIM entity balancing authority areas; (4) the ability to submit base Generation Distribution Factors for aggregate EIM non-participating resources; and (5) the option for resources with the capability to both generate and consume energy to operate in a continuous dual operating mode. Commenters on the Powerex EIM Implementation Agreement sought clarification that any changes to EIM market rules would be applied uniformly to all EIM participants. See September 7 Order at P 14. Consistent with that request, these features are not unique to participation by a Canadian entity and will apply to all EIM entities. See Consolidated EIM Initiatives page on the CAISO website: <http://www.caiso.com/informed/Pages/StakeholderProcesses/ConsolidatedEnergyImbalanceMarketInitiatives.aspx>. The CAISO will file these enhancement features with the Commission as an amendment to the CAISO tariff and will request a February 15, 2018 effective date for these tariff changes, concurrent with the requested effective date of the Agreement, in support of the planned April 4, 2018 Powerex EIM implementation. Interested parties will be able to submit comments on these changes with the Commission. Although the Agreement is not contingent upon the Commission's acceptance of these amendments, these enhancements are necessary for Powerex's participation in the EIM.

At the same time, the agreements ensure that the EIM area remains entirely within the U.S., and, thus, subject to the exclusive jurisdiction of the Commission under the Federal Power Act. Similarly, the agreements do not extend the CAISO's legal and regulatory obligations or its U.S.-regulated activity into a Canadian province or subject the CAISO to the jurisdiction of Canadian or British Columbia legal or regulatory authorities.

## **I. Background**

The complete background of this filing is discussed in the Powerex Canadian EIM Entity Agreement transmittal letter, which is included with this filing as Attachment B. That letter includes a description of the negotiation process for the agreements as well as the CAISO's and Powerex's outreach to stakeholders in advance of this filing.

As also discussed therein, Powerex markets residual capability of the BC Hydro system and is a key participant in energy markets across North America. Its activities benefit BC Hydro's shareholder, the Province of British Columbia, by helping to balance the BC Hydro system efficiently and yielding trade revenues that benefit BC Hydro's ratepayers. BC Hydro operates in the Province of British Columbia under the regulatory authority of the BCUC and is responsible for providing customers within the Province with safe and reliable service on a non-discriminatory basis. Thus, Powerex is the Canadian entity that participates in U.S. wholesale electricity markets under market-based authorization from the Commission, while BC Hydro is the entity that owns and operates provincial generation and transmission facilities in British Columbia and serves demand within the Province.

Powerex will voluntarily participate in the EIM with residual capability of the BC Hydro system; the resources, transmission and loads that will support Powerex's EIM participation are located wholly outside of the U.S. As a result of the legal and regulatory considerations described in the Powerex Canadian EIM Entity Agreement filing, Powerex will be the Canadian EIM Entity participating in the EIM; BC Hydro will not participate in or undertake any commercial activities in the EIM; and the EIM area will not extend into Canada. Powerex's participation will be subject to U.S. law and Commission jurisdiction, as its sales and purchases in the U.S. are today, while BC Hydro will continue to operate as a wholly Canadian provincial governmental balancing authority, transmission owner, transmission operator, transmission service provider, and generation owner and operator for the BC Hydro system.

Powerex does not, however, have access to all of the data that the CAISO needs to operate the EIM. To address this issue, BC Hydro is willing, pursuant to the CAISO-BC Hydro Data Sharing Agreement, to communicate such data and information as is necessary for Powerex's EIM participation.

The agreements allow Powerex's EIM participation while preserving all CAISO functional tariff obligations necessary for EIM operation. The agreements achieve this without modifying or affecting BC Hydro's ability to comply with provincial and Canadian law and without subjecting BC Hydro to the Commission's jurisdiction under the Federal Power Act. Similarly, the agreements do not extend the CAISO's legal and regulatory obligations, or its U.S.-regulated activity, into a Canadian province or subject the CAISO to the jurisdiction of Canadian or British Columbia legal or regulatory authorities.

## **II. Powerex Canadian EIM Entity Scheduling Coordinator Agreement**

The Agreement provides for Powerex's scheduling coordinator's participation in the EIM. It conforms to the pro forma EIM Entity Scheduling Coordinator Agreement with a limited number of exceptions. These adaptations are not unduly discriminatory. They are necessary to accommodate the novel legal and regulatory issues presented by Powerex's EIM participation with the capability of resources, transmission, and load located wholly outside the U.S. These differences also reflect that Powerex is not similarly situated to EIM entities,<sup>5</sup> which are U.S. balancing authorities and transmission service providers and participate with resources, transmission, and load located exclusively in the U.S.

The first difference in the Agreement is in the recitals. The revised recitals refer to Powerex's EIM participation pursuant to the CAISO tariff and the Powerex Canadian EIM Entity Agreement. The recitals also describe Powerex's certification by the CAISO, pursuant to applicable provisions of section 29 of the CAISO tariff, to serve as its own scheduling coordinator. While the pro forma EIM Entity Scheduling Coordinator provides services for an EIM entity that has executed an EIM Entity Agreement, the framework for the Agreement arises from the CAISO tariff and the Powerex Canadian EIM Entity Agreement.

The next differences are in section 1.2 of the Agreement, rules of interpretation. The participation of Powerex in the EIM requires certain modifications and limitations to CAISO tariff provisions. These are explained in detail in the attached transmittal letter for the Powerex Canadian EIM Entity Agreement. Because these modifications and limitations are necessary for Powerex's participation, subsection (a) provides for construing references to terms and conditions of the CAISO tariff as references to such terms and conditions as they may be modified by the Powerex Canadian EIM Entity Agreement. For the same reason, subsection (b)(1) provides that the CAISO tariff and the Powerex Canadian EIM Entity Agreement will prevail in the case of

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<sup>5</sup> Undue discrimination is differential treatment of similarly situated entities that is not justified by some legitimate factor. See, e.g., *Cal. Indep. Sys. Operator Corp.*, 132 FERC ¶ 61,148 at P 40 (2010).

inconsistency between either of those documents and the Agreement, and subsection (b)(2) provides that the Agreement will prevail in the case of inconsistency between it and the CAISO tariff.

Also, section 2.1.1 of the Agreement provides that section 29 of the CAISO tariff, as applied by the Powerex Canadian EIM Entity Agreement, will govern Powerex's submission of information. Under sections 2.1.2 and 2.1.3 of the Agreement, Powerex will abide by the obligations imposed on EIM entity scheduling coordinators, and it will have the responsibility as principal for all payment obligations under section 29 of the CAISO tariff as applied by the Powerex Canadian EIM Entity Agreement. Section 2.1.4 of the Agreement establishes that Powerex's status as a Canadian EIM entity scheduling coordinator is subject to section 29 of the CAISO tariff, as applied by the Powerex Canadian EIM Entity Agreement.

The Powerex Canadian EIM Entity Scheduling Coordinator Agreement also omits section 2.1.3 of the pro forma EIM Entity Scheduling Coordinator Agreement that requires the scheduling coordinator to ensure that each EIM entity it represents is represented by a pro forma EIM Entity Agreement. This requirement is unnecessary because Powerex will not be representing any EIM entities under the Agreement. Instead, Powerex will be representing a Canadian EIM entity under the Agreement.

Section 3.2 of the Agreement, concerning termination, describes obligations that survive termination, including those that may have arisen under the Powerex Canadian EIM Entity Agreement.

Section 5.1 of the Agreement modifies the incorporation of section 29 of the CAISO tariff, to refer to section 29 as applied by the Powerex Canadian EIM Entity Agreement to the Powerex Canadian EIM entity and the Powerex Canadian EIM entity scheduling coordinator. It also ensures that the rules of interpretation in section 1.2(a) of the Agreement will apply to any inconsistency between the governing documents in this regard.

The last difference concerns governing law. In the pro forma EIM Entity Scheduling Coordinator Agreement, California law governs. In recognition of Powerex's status as a foreign entity, however, actions will not be brought before California courts, but only in federal courts located in California or before the Commission. Powerex also specifically retains its right to a bench trial under the Foreign Sovereign Immunities Act, other than for arbitrations and actions before the Commission.

### **III. Effective Date**

The CAISO requests that the Powerex Canadian EIM Entity Scheduling Coordinator Agreement be made effective on February 15, 2018. The Powerex EIM implementation date is targeted for April 4, 2018, and the CAISO and Powerex must engage in activities that support a certification of readiness at least 30 days prior to the implementation date.<sup>6</sup> Having the Agreement effective on February 15, 2018 will allow the Parties to certify their readiness in a timely manner.

### **VI. Service**

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

### **V. Contents of Filing**

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

Attachment A	Executed Powerex Canadian EIM Entity Scheduling Coordinator Agreement; and
Attachment B	Powerex Canadian EIM Entity Agreement transmittal letter.

### **VI. Correspondence**

Pursuant to Rule 203(b) of the Commission's Rules of Practice and Procedure,<sup>7</sup> 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  
Fax: (916) 608-7222  
E-mail: [janders@caiso.com](mailto:janders@caiso.com)

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

<sup>6</sup> See sections 29.2(b)(6) and 29.2(b)(7) of the CAISO tariff.

<sup>7</sup> 18 C.F.R. § 385.203(b).

## VII. Conclusion

The CAISO respectfully requests that the Commission accept this filing and permit this Agreement, CAISO Rate Schedule No. 100, to be effective February 15, 2018, as requested. If there are any questions concerning this filing, please contact the undersigned.

Respectfully submitted,

**By: /s/ John C. Anders**

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Attorneys for the *California Independent  
System Operator Corporation*

**Attachment A – Executed Powerex Canadian EIM Entity  
Scheduling Coordinator Agreement  
California Independent System Operator Corporation  
CAISO Rate Schedule No. 100**

**CALIFORNIA INDEPENDENT SYSTEM  
OPERATOR CORPORATION**

**AND**

**POWEREX CORP.**

**CANADIAN EIM ENTITY SCHEDULING  
COORDINATOR AGREEMENT  
FOR POWEREX EIM PARTICIPATION**

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## SCHEDULING COORDINATOR AGREEMENT FOR POWEREX EIM PARTICIPATON

**THIS SCHEDULING COORDINATOR AGREEMENT FOR POWEREX EIM PARTICIPATION (“AGREEMENT”)** is established this 1<sup>st</sup> day of November, 2017, and is accepted by and between:

- (1) **Powerex Corp.**, (“Powerex”), a British Columbia corporation having its registered and principal executive office at 1300-666 Burrard St., Vancouver BC V6C2X8,  
and
- (2) **CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION**, 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 “CAISO”).

Powerex and the CAISO are hereinafter referred to as the “Parties.”

**Whereas:**

- A.** Powerex and the CAISO have executed the Powerex Canadian EIM Entity Agreement under which Powerex will participate in the CAISO’s Energy Imbalance Market and will abide by various provisions of the CAISO Tariff applicable to EIM Entities.
- B.** Powerex has applied for certification or has been certified by the CAISO under the certification procedure for EIM Scheduling Coordinators referred to in Section 29 of the CAISO Tariff.
- C.** Powerex wishes to represent itself under the terms and conditions set forth in Section 29 of the CAISO Tariff applicable to EIM Entity Scheduling Coordinators as set forth in the Powerex Canadian EIM Entity Agreement.

**NOW IT IS HEREBY AGREED as follows:****1. Definitions and Interpretation.**

**1.1 Master Definitions Supplement.** All terms and expressions used in this Agreement shall have the same meaning as those contained in the Master Definitions Supplement to the CAISO Tariff.

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

(a) (1) if there is any inconsistency between this Agreement on the one hand, and either the CAISO Tariff or provisions of the Powerex Canadian EIM Entity Agreement applicable to EIM Entity Scheduling Coordinators on the other hand, the CAISO Tariff and applicable provisions of the Powerex Canadian EIM Entity Agreement, as applicable to EIM Entity Scheduling Coordinators, will prevail to the extent of the inconsistency;

(2) under the circumstances described in paragraph (1) of this subsection, if the CAISO Tariff and the applicable provisions of the Powerex Canadian EIM Entity Agreement would result in different resolutions of the inconsistency, section 1.2(a) through 1.2(c) of the Powerex Canadian EIM Entity Agreement shall govern the resolution;

(b) the singular shall include the plural and vice versa;

(c) the masculine shall include the feminine and neutral and vice versa;

(d) “includes” or “including” shall mean “including without limitation”;

(e) references to a Section, Article or Schedule shall mean a Section, Article or Schedule of this Agreement, as the case may be, unless the context otherwise requires;

(f) a reference in this Agreement to a given agreement or instrument shall be construed as a reference to that agreement or instrument as it may be modified, amended, supplemented or restated and any reference in this Agreement to a section, article, or schedule of such an agreement or instrument shall be a reference to that section, article, or schedule, as it may subsequently be renumbered, modified, amended, or supplemented;

(g) unless the context otherwise requires, references to any law or governmental regulation shall be deemed references to such law as it may be amended, replaced or restated from time to time and any

reference to a section, article, or schedule of such law or governmental regulation shall be a reference to that section, article, or schedule, as it may be renumbered, modified, amended, or supplemented;

- (h) unless the context otherwise requires, any reference to a “person” includes any individual, partnership, firm, company, corporation, joint venture, trust, association, organization or other entity, in each case whether or not having separate legal personality;
- (i) unless the context otherwise requires, any reference to a Party includes a reference to its permitted successors and assigns;
- (j) any reference to a day, week, month or year is to a calendar day, week, month or year;
- (k) unless the context requires otherwise, “or” is used in the conjunctive sense; and
- (l) the captions and headings in this Agreement are inserted solely to facilitate reference and shall have no bearing upon the interpretation of any of the terms and conditions of this Agreement.

## **2. Covenant of the Canadian EIM Entity Scheduling Coordinator.**

### **2.1 Powerex agrees that:**

- 2.1.1** CAISO Tariff Section 29, as applied to the Powerex Canadian EIM Entity Scheduling Coordinator by the Powerex Canadian EIM Entity Agreement, governs all aspects of Powerex’s submission of Energy Imbalance Market information as an EIM Entity Scheduling Coordinator, including the financial and technical criteria for Base Schedule submissions, Settlement, information reporting requirements, and confidentiality restrictions;
- 2.1.2** Powerex will abide by and will perform all of the obligations imposed on EIM Entity Scheduling Coordinators by Section 29 of the CAISO Tariff as applied to the Powerex Canadian EIM Entity Scheduling Coordinator by the Powerex Canadian EIM Entity Agreement, including ongoing obligations in respect of scheduling, Settlement, system security policy and procedures to be developed by the CAISO from time to time, billing and payments, confidentiality and dispute resolution;
- 2.1.3** Powerex shall have the primary responsibility to the CAISO, as principal, for all EIM Entity Scheduling Coordinator payment obligations under Section 29 of the CAISO Tariff, as applied to the Powerex Canadian EIM Entity Scheduling Coordinator by the Powerex Canadian EIM Entity Agreement; and

**2.1.4** Powerex's status as an EIM Entity Scheduling Coordinator is at all times subject to Section 29 of the CAISO Tariff, as applied to the Powerex Canadian EIM Entity Scheduling Coordinator by the Powerex Canadian EIM Entity Agreement.

**3. Term and Termination.**

**3.1** This Agreement shall commence on the later of (a) the date of execution of this Agreement, (b) the date Powerex is certified by the CAISO as a Scheduling Coordinator under this Agreement, or (c) the date Federal Energy Regulatory Commission ("FERC") accepts this agreement for filing and makes it effective.

**3.2** This Agreement may be terminated in accordance with the provisions of Sections 4.5.4.4 and 4.5.4.5 of the CAISO Tariff or upon termination of the Powerex Canadian EIM Entity Agreement; provided, however, that any outstanding financial right or obligation or any other right or obligation or Powerex under the CAISO Tariff or the Powerex Canadian EIM Entity Agreement that may have arisen under this Agreement, and any provision of this Agreement necessary to give effect to such right or obligation, shall survive such termination until satisfied. The CAISO shall timely file any notice of termination with FERC, if this Agreement has been filed with FERC, or must otherwise comply with the requirements of FERC rules regarding termination.

**4. Settlement Account.**

**4.1** Powerex shall maintain at all times an account with a bank capable of Fedwire transfer and, at its option, may also maintain an account capable of ACH transfers, to which credits or debits that arise under Section 29 of the CAISO Tariff shall be made in accordance with the billing and Settlement provisions of Section 11 of the CAISO Tariff. Such account shall be the account as notified by Powerex to the CAISO from time to time by giving at least 20 days written notice before the new account becomes operational, together with all information necessary for the CAISO's processing of a change in that account.

**5. Agreement to be bound by CAISO Tariff.**

**5.1** Section 29 of the CAISO Tariff, as applied by the Canadian EIM Entity Agreement to the Powerex Canadian EIM Entity and the Powerex Canadian EIM Entity Scheduling Coordinator, is incorporated herein and made a part hereof. In the event of a conflict between the terms and conditions of this Agreement, the CAISO Tariff, and applicable provisions of the Powerex Canadian EIM Entity Agreement, the rules of interpretation in section 1.2(a) of this Agreement shall govern the resolution.

**6. Electronic Contracting.**

**6.1** All submitted information, applications, schedules, Bids, confirmations, changes to information on file with the CAISO and other communications conducted via electronic transfer (e.g. direct computer link, FTP file transfer, bulletin board, e-mail, facsimile or any other means established by the CAISO) shall have the same legal rights, responsibilities, obligations and other implications as set forth in the terms and conditions of Section 29 of the CAISO Tariff as if executed in written format.

**7. Penalties and Sanctions.**

**7.1** Powerex shall be subject to all penalties made applicable to EIM Entity Scheduling Coordinators set forth in Section 29 of the CAISO Tariff.

**8. Costs.**

**8.1** Powerex shall be responsible for all its costs incurred for the purpose of meeting its obligations under this Agreement.

**9. Dispute Resolution.**

**9.1** The Parties shall 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 shall adhere to the CAISO ADR Procedures set forth in Section 13 of the CAISO Tariff, which is incorporated by reference, except that any reference in Section 13 of the CAISO Tariff to Market Participants shall be read as a reference to Powerex and references to the CAISO Tariff shall be read as references to this Agreement.

**10. Representation and Warranties.**

**10.1** 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.

**11. Liability.**

**11.1** The provisions of Section 14 of the CAISO Tariff will apply to liability arising under this Agreement, except that all references in Section 14 of the CAISO Tariff to Market Participants shall be read as references to Powerex and references to the CAISO Tariff shall be read as references to this Agreement.

**12. Uncontrollable Forces.**

**12.1** Section 14.1 of the CAISO Tariff shall be incorporated by reference into this Agreement except that all references in Section 14.1 of the CAISO Tariff to

Market Participants shall be read as a reference to the Powerex and references to the CAISO Tariff shall be read as references to this Agreement.

**13. Miscellaneous.**

**13.1 Assignments.** Either Party may assign or transfer any or all of its rights and/or obligations under this Agreement with the other Party's prior written consent in accordance with Section 22.2 of the CAISO Tariff and no Party may assign or transfer any or all of its rights or obligations under this Agreement without such consent. Such consent shall not be unreasonably withheld. Any such transfer or assignment shall 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.

**13.2 Notices.** Any notice, demand or request which may be given to or made upon either Party regarding this Agreement shall be made in accordance with Section 22.4 of the CAISO Tariff, provided that all references in Section 22.4 of the CAISO Tariff to Market Participants shall be read as a reference to Powerex and references to the CAISO Tariff shall be read as references to this Agreement, and unless otherwise stated or agreed shall be made to the representative of the other Party indicated in Schedule 1. A Party must update the information in Schedule 1 of this Agreement as information changes. Such changes shall not constitute an amendment to this Agreement.

**13.3 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, shall 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 shall not constitute or be deemed a waiver of such right.

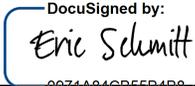
**13.4 Governing Law and Forum.** This Agreement shall be deemed to be a contract made under, and for all purposes shall be governed by and construed in accordance with, the laws of the State of California, except its conflict of law provisions. The Parties irrevocably agree and consent that any legal action or proceeding arising under or relating to this Agreement to which the CAISO ADR Procedures do not apply, shall be brought only in any of the following forums, as appropriate: any federal court of the United States of America located in the State of California, or, where subject to its jurisdiction, the FERC. The Parties further agree that nothing in this Agreement affects Powerex's right in any legal action not subject to the jurisdiction of the FERC, or covered by the CAISO ADR Procedures, to a bench trial in a federal court of the United States of America under the Foreign Sovereign Immunities Act.

- 13.5 Consistency with Federal Laws and Regulations.** This Agreement shall incorporate by reference Section 22.9 of the CAISO Tariff, provided that all references to the CAISO Tariff shall be read as references to this Agreement.
- 13.6 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.
- 13.7 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 shall 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 shall not be affected thereby, but shall remain in force and effect and the Parties shall 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.
- 13.8 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 shall not take effect until FERC has accepted such amendments for filing and made them effective. Nothing contained herein shall 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 Federal Power Act ("FPA") and pursuant to FERC's rules and regulations promulgated thereunder and the right of Powerex 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 shall 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 shall 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.
- 13.9 Counterparts.** This Agreement may be executed in one or more counterparts at different times, each of which shall be regarded as an original and all of which, taken together, shall constitute one and the same Agreement.

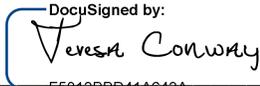


**IN WITNESS WHEREOF**, the Parties have caused this Agreement to be executed by their respective authorized officials.

**California Independent System Operator Corporation**

By:   
Name: Eric Schmitt  
Title: VP, Operations  
Date: 11/1/2017

**Powerex Corp.**

By:   
Name: Teresa Conway  
Title: President and CEO  
Date: 11/1/2017

## SCHEDULE 1

### NOTICES

#### [Section 13.2]

#### Powerex

Name of Primary

Representative: Kim Craven  
Title: Compliance Manager  
Company: Powerex Corp.  
Address: 1300-666 Burrard Street  
City/State/Zip Code: Vancouver, BC, Canada V6C 2X8  
Email Address: kim.craven@powerex.com  
Phone: 604-891-5081  
Fax No: 604-891-5006

Name of Alternative

Representative: Jay Ratzlaff  
Title: Chief Legal Officer  
Company: Powerex Corp.  
Address: 1300-666 Burrard Street  
City/State/Zip Code: Vancouver, BC, Canada V6C 2X8  
Email Address: jay.ratzlaff@powerex.com  
Phone: 604-895-7067  
Fax No: 604-891-5006



**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  
Fax: (916) 608-5063

Name of Alternative Representative: Christopher J. Sibley  
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**Attachment B – Powerex Canadian EIM Entity Agreement Transmittal Letter**

**Powerex Canadian EIM Entity Scheduling Coordinator Agreement**

**California Independent System Operator Corporation**

**CAISO Rate Schedule No. 100**

November 3, 2017

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. 99  
Docket No. ER18-\_\_\_\_-000**

Dear Secretary Bose:

The California Independent System Operator Corporation (“CAISO”) submits for filing and acceptance the Powerex Canadian EIM Entity Agreement (“Agreement”) between the CAISO and the Powerex Corp., a British Columbia corporation (“Powerex”) (together, “Parties”).<sup>1</sup> The Agreement sets forth the legal obligations and operational rules that will govern Powerex’s participation in the CAISO’s Energy Imbalance Market (“EIM”). The EIM is the vehicle by which entities outside the CAISO’s balancing authority participate in the CAISO’s real-time market. Under the Agreement, Powerex will comply with the CAISO tariff provisions applicable to EIM entities, with certain exceptions and modifications to account for Powerex’s EIM participation using residual capability<sup>2</sup> of the system of Powerex’s parent company, the British Columbia Hydro & Power Authority (“BC Hydro”), a provincially-owned Crown corporation subject to the jurisdiction of the British Columbia Utilities Commission (“BCUC”). The CAISO requests that the Federal Energy Regulatory Commission (“Commission”) accept the Agreement effective February 15, 2018, so the CAISO and Powerex can timely complete all necessary actions to enable Powerex to commence participation in the EIM on April 4, 2018.

The CAISO is filing this Agreement concurrently with four other agreements. Together, these five agreements provide the contractual support for the Powerex EIM participation framework, which was discussed in the

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<sup>1</sup> The CAISO submits the Agreement pursuant to Section 205 of the Federal Power Act, 16 U.S.C. § 824d.

<sup>2</sup> The term “residual capability” in the context of Powerex’s EIM participation means the ability of resources and loads located in British Columbia to deliver or consume energy in excess of or to meet BC Hydro’s needs.

Commission's order accepting the Powerex EIM Implementation Agreement.<sup>3</sup> Three of the four other agreements are between the CAISO and Powerex, namely a Canadian EIM Entity Scheduling Coordinator Agreement, an EIM Participating Resource Agreement, and an EIM Participating Resource Scheduling Coordinator Agreement. The fourth agreement is the CAISO-BC Hydro Data Sharing Agreement between the CAISO and BC Hydro.

These agreements apply the EIM market rules and tariff provisions, including market power mitigation, to Powerex so that Powerex will participate in the EIM in a manner comparable to participation by EIM entities and participating resources located in the United States ("U.S."). The agreements include only such differences as are necessary to accommodate Powerex's EIM participation with residual capability of the BC Hydro system, the location of the loads, resources, and transmission that will support Powerex's participation, and Canadian provincial jurisdiction over BC Hydro.<sup>4</sup> The agreements provide Powerex with no competitive advantage.

At the same time, the Agreement ensures that the EIM area remains entirely within the U.S., and, thus, subject to the exclusive jurisdiction of the Commission under the Federal Power Act. Similarly, the Agreement does not extend the CAISO's legal and regulatory obligations or its U.S.-regulated activity into a Canadian province or subject the CAISO to the jurisdiction of Canadian or British Columbia legal or regulatory authorities.

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<sup>3</sup> *Cal. Indep. Sys. Operator Corp.*; 160 FERC ¶ 61,058 (2017) at P. 26 ("September 7 Order"), (noting that the Powerex participation agreements would be separately filed by the CAISO pursuant to section 205 of the Federal Power Act).

<sup>4</sup> The CAISO has also developed several features that enhance the operation of the EIM and support the Powerex participation framework, including: (1) an auto-match of changes in intertie schedules after the close of the base schedule deadline at T-40; (2) an automatic mirroring of schedules at CAISO interties; (3) the provision of settlement information for schedule changes in EIM transfers between EIM entity balancing authority areas; (4) the ability to submit base generation distribution factors for aggregate EIM non-participating resources; and (5) the option for resources with the capability to both generate and consume energy to operate in a continuous dual operating mode. See Consolidated EIM Initiatives page on the CAISO website: <http://www.caiso.com/informed/Pages/StakeholderProcesses/ConsolidatedEnergyImbalanceMarketInitiatives.aspx>. Commenters on the Powerex EIM Implementation Agreement sought clarification that any changes to EIM market rules would be applied uniformly to all EIM participants. See September 7 Order at P 14. Consistent with that request, these features are not unique to participation by a Canadian entity and will apply to all EIM entities. The CAISO will file these enhancement features with the Commission as an amendment to the CAISO tariff and will request a February 15, 2018 effective date for these tariff changes, concurrent with the requested effective date of the Agreement, in support of the planned April 4, 2018 Powerex implementation. Interested parties will be able to provide comments on these changes in those dockets. Although the Agreement is not contingent upon the Commission's acceptance of these amendments, these enhancements are necessary for Powerex's participation in the EIM.

## I. Background

The EIM provides other balancing authority areas in the Western Interconnection with the opportunity to participate in the real-time market for imbalance energy that the CAISO operates in its own balancing authority area. PacifiCorp's two balancing authority areas (PacifiCorp East and PacifiCorp West) were the first to join the EIM. The CAISO's market rules allowing that participation went into effect on October 24, 2014, for the first trading day November 1, 2014. NV Energy joined on December 1, 2015.

The EIM has continued to develop and attract the interest of a diverse array of participants throughout the Western Interconnection. Puget Sound Energy and Arizona Public Service Company began participation on October 1, 2016. Portland General Electric followed on October 1, 2017, and the Idaho Power Company will join concurrently with Powerex in April 2018.<sup>5</sup> The City of Seattle, by and through its City Light Department, the Balancing Authority of Northern California on behalf of the Sacramento Municipal Utility District, and the City of Los Angeles, Department of Water and Power will commence EIM participation on April 1, 2019. The latest entity scheduled to join the EIM is the Salt River Agriculture Improvement and Power District, which will begin participation in the spring of 2020.

Powerex markets residual capability of the BC Hydro system and is a key participant in energy markets across North America. Its activities benefit BC Hydro's shareholders, the Province of British Columbia, by helping to balance the BC Hydro system efficiently and yielding trade revenues that benefit BC Hydro's ratepayers. BC Hydro operates in the Province of British Columbia under the regulatory authority of the BCUC and is responsible for providing customers within the Province with safe and reliable service on a non-discriminatory basis. Thus, Powerex is the Canadian entity that participates in U.S. wholesale electricity markets under market-based authorization from the Commission, while BC Hydro is the entity that owns and operates provincial generation and transmission facilities in British Columbia and serves demand within the Province.

In late 2016, Powerex informed the CAISO that it was interested in exploring participation in the EIM, utilizing residual capability of the BC Hydro system. Unlike other EIM entities, however, Powerex is not a balancing authority

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<sup>5</sup> The CAISO filed the Powerex Implementation Agreement with the Commission on June 9, 2017. On August 9, 2017, pursuant to the authority delegated to the Director, Division of Electric Power Regulation – West, Office of Energy Market Regulation, in the Commission's February 3, 2017 *Order Delegating Further Authority to Staff in Absence of Quorum*, the Commission accepted the EIM Implementation Agreement for filing, subject to refund and further Commission order, and suspended it for a nominal period. On September 7, 2016, the Commission accepted the CAISO's filing, effective August 15, 2017. *Id.*

or a transmission service provider. Moreover, BC Hydro, the balancing authority and transmission service provider for the resources, transmission, and load in British Columbia, would support Powerex's EIM participation, is subject to the authority of the BCUC, pursuant to the Utilities Commission Act, and applicable Canadian and Provincial law. BC Hydro is not subject to the jurisdiction of the Commission or U.S. law. Because of these factors, neither BC Hydro nor Powerex can enter into the EIM entity agreement specified under section 29 of the CAISO tariff (which section provides the rules for the EIM).<sup>6</sup>

Powerex and the CAISO commenced negotiations to develop a framework under which Powerex could participate in the EIM despite the jurisdictional and regulatory obstacles. The basic understandings include the following: Powerex will voluntarily participate in the EIM with residual capability of the BC Hydro system; the resources, transmission and loads that will support Powerex's EIM participation are located wholly outside of the U.S.; Powerex will be the Canadian EIM Entity participating in the EIM; BC Hydro will not participate in or undertake any commercial activities in the EIM; and the EIM area will not extend into Canada. Powerex's participation will be subject to U.S. law and Commission jurisdiction, as its sales and purchases in the U.S. are today, while BC Hydro will continue to operate as a wholly Canadian provincial governmental balancing authority, transmission owner, transmission operator, transmission service provider, and generation owner and operator for the BC Hydro system.

Powerex does not, however, have access to all of the balancing authority data that the CAISO needs to operate the EIM. To address this issue, BC Hydro is willing, pursuant to the CAISO-BC Hydro Data Sharing Agreement, to communicate such data and information as is necessary for Powerex's participation under the condition that nothing in this Agreement, the CAISO-BC Hydro Data Sharing Agreement, or Powerex's EIM participation more generally, will create an agency relationship between Powerex and BC Hydro or subject BC Hydro to the jurisdiction of the Commission or any other federal or state legal or regulatory authority in the U.S.

With these understandings, the CAISO and Powerex first negotiated and entered into an EIM Implementation Agreement, which the Commission accepted.<sup>7</sup> The Powerex EIM Implementation Agreement detailed the contractual terms, including the scope of work and the agreed-upon fee, under which the CAISO would take the steps necessary to enable Powerex's participation in the EIM consistent with the identified key milestones and associated payment provisions. The Powerex EIM Implementation Agreement also included eight principles to guide the negotiation and implementation of the

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<sup>6</sup> All references to section 29 and subsections of section 29 in this letter are references to the CAISO tariff.

<sup>7</sup> September 7 Order.

agreements necessary to support Powerex's participation in the EIM and to set forth the anticipated role of BC Hydro in sharing data with the CAISO. Based on these eight guiding principles, the parties negotiated this Agreement and the other three agreements that constitute the Powerex EIM participation framework, and the CAISO negotiated, and entered into, a data sharing agreement with BC Hydro.

Consistent with its commitment in the proceedings on the Powerex EIM Implementation Agreement,<sup>8</sup> prior to finalizing the Agreement, the CAISO on October 3, 2017, hosted a stakeholder web and telephone conference to brief stakeholders on the implementation framework for Powerex's participation in the EIM, to answer questions and to consider comments. The CAISO and Powerex provided an overview of Powerex's participation and the technical aspects of including Powerex in the EIM.<sup>9</sup> Leading up to this public meeting, the CAISO and Powerex also engaged in targeted stakeholder outreach to respond to specific questions and to develop a common understanding of the EIM participation framework.

The Agreement allows Powerex's EIM participation while preserving all CAISO functional tariff obligations necessary for EIM operation. The Agreement achieves this without modifying or affecting BC Hydro's ability to comply with Provincial and Canadian law and without subjecting BC Hydro to the Commission's jurisdiction under the Federal Power Act. Similarly, the Agreement does not extend the CAISO's legal and regulatory obligations, or its U.S.-regulated activity, into a Canadian province or subject the CAISO to the jurisdiction of Canadian or British Columbia legal or regulatory authorities.

## **II. Powerex Canadian EIM Entity Agreement**

The Agreement provides for Powerex's participation in the EIM with (1) voluntary offers sourced from residual BC Hydro flexible generation; (2) intra-hour deviations in load and generation in the BC Hydro balancing authority area; and (3) transmission arrangements to support EIM transfers. The Parties intend that Powerex's EIM participation and the CAISO's activity as the market operator remain fully subject to the Commission's jurisdiction, without disrupting or altering the legal and regulatory structures and requirements applicable to BC Hydro's actions within British Columbia.

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<sup>8</sup> See September 7 Order at P 26.

<sup>9</sup> The Powerex Energy Imbalance Market Implementation presentation at [http://www.caiso.com/Documents/Agenda\\_Presentation\\_PowerexEnergyImbalanceMarketImplementation.pdf](http://www.caiso.com/Documents/Agenda_Presentation_PowerexEnergyImbalanceMarketImplementation.pdf) and the Powerex EIM Implementation Agreement presentation at <http://www.caiso.com/Documents/PowerexPresentation-PowerexEIMImplementationAgreementOverview.pdf>, which are available on the CAISO's website.

Toward this end, the Agreement adapts the existing EIM structure, which the CAISO has implemented solely within the U.S., as necessary to account for Powerex's EIM participation supported by resources, load, and transmission located in a Canadian balancing authority area. The Agreement and the Canadian EIM Entity Scheduling Coordinator Agreement provide the framework for applying the EIM rules applicable to EIM entities to Powerex. Under the EIM Participating Resource Agreement and the EIM Participating Resource Scheduling Coordinator Agreement Powerex will be subject to the same rules as other entities that have entered into EIM participating resource agreements. For these reasons, Powerex's EIM participation is not equivalent to bidding at external EIM interties, which has been a subject of controversy.<sup>10</sup>

The adaptations included in this participation framework enable Powerex to participate in the EIM even though it is not a balancing authority or transmission service provider. These adaptations are not unduly discriminatory because Powerex is not similarly situated to EIM entities,<sup>11</sup> which are U.S. balancing authorities and transmission service providers. The Commission has previously concluded that a Canadian Crown corporation faces legal barriers that justify differential treatment and that such treatment is not unduly discriminatory.<sup>12</sup> The adaptations are carefully tailored to address such considerations, without affording Powerex any competitive advantage.

#### **A. Participation Framework**

The Agreement creates an EIM participation framework that respects the mutually exclusive legal and regulatory jurisdictions of the BCUC and the Commission, consistent with Powerex's current participation in U.S. wholesale electricity markets – including CAISO markets – utilizing residual capability of the BC Hydro system. Powerex's current U.S. sales and purchases are subject to Commission jurisdiction; BC Hydro is subject to BCUC jurisdiction. Powerex is the entity that participates in markets outside the Province of British Columbia using BC Hydro residual capability; BC Hydro engages in generation, transmission and balancing authority operations inside the Province of British Columbia. Title transfers between Powerex and BC Hydro occur at the BC-U.S. border. Powerex's EIM participation is designed to be consistent with this established framework that has enabled Powerex to participate in U.S. energy markets since 1997, with BC Hydro continuing to maintain legal, regulatory, and operational autonomy.

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<sup>10</sup> See FERC Docket No. ER16-1518.

<sup>11</sup> Undue discrimination is differential treatment of similarly situated entities that is not justified by some legitimate factor. See, e.g., *Cal. Indep. Sys. Operator Corp.* 132 FERC ¶ 61,148 at P 40 (2010).

<sup>12</sup> *Midcontinent Indep. Sys. Oper., Inc.*, 129 FERC ¶ 61,282, at P 30 (2009).

Under the Agreement, Powerex, not BC Hydro, will join and participate in the EIM, be subject to the EIM-related provisions of the CAISO tariff, and settle EIM transactions with the CAISO. BC Hydro will enter into the CAISO-BC Hydro Data Sharing Agreement to support Powerex's EIM participation; BC Hydro, however, will not assume any participant role or undertake any commercial activities in the EIM. Nothing in the Agreement interferes with BC Hydro's compliance with Provincial and Canadian law, interferes with the BCUC's regulatory oversight or jurisdiction over BC Hydro, or alters BC Hydro's non-U.S. jurisdictional status in any way. Nothing in the Agreement extends U.S. legal and regulatory obligations or U.S.-regulated activity into a Canadian province. The Agreement reflects the CAISO and Powerex's expectation that BC Hydro will continue to operate as a wholly Canadian Provincial governmental balancing authority, transmission owner, operator, and service provider, and generation owner and operator for the BC Hydro system. BC Hydro will continue to manage transmission congestion within its service territory and will retain all balancing authority responsibilities in British Columbia. Powerex's EIM transactions are defined to occur at the BC-U.S. border, such that the EIM area will not extend into Canada and will remain entirely within the U.S., subject to the Commission's exclusive jurisdiction.<sup>13</sup> The CAISO will create an EIM pricing node at the BC-U.S. border, but will not create or publish market prices inside British Columbia. The CAISO will model power flows inside British Columbia and inform BC Hydro of any resulting modeled congestion inside British Columbia, but the CAISO will not manage congestion or dispatch physical resources inside British Columbia.

Although Powerex is not a balancing authority or transmission service provider, its participation in the EIM will be fundamentally consistent with the participation of other EIM entities, all of which are U.S. balancing authorities and transmission providers. Consistent with the current participation model for EIM entities, the CAISO's full network model will include all relevant information associated with the operation of the BC Hydro balancing authority area, including (1) data on generation, transmission, load, interchange, base schedules; and (2) telemetry and settlement quality meter data. In the vast majority of instances, existing CAISO tariff provisions can accommodate Powerex's EIM participation supported by resources, transmission, and load located in Canada if Powerex is subject to the same tariff provisions as are applicable to other EIM entities. The Agreement reflects this as the general rule.

For example, Powerex must submit base schedules just like every other EIM entity. The CAISO will subject the base schedules, along with bids from EIM participating resources, to its resource sufficiency evaluations in the same

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<sup>13</sup> The CAISO notes that BC Hydro has independently filed with the BCUC amendments to its open access transmission tariff to allow bi-directional dynamic transfers at the border, including, but not limited to, EIM transactions. BC Hydro OATT-Dynamic Scheduling Amendments Application, BCUC File No. 56111 (Oct. 2, 2017), available at <http://www.bcuc.com/ApplicationView.aspx?ApplicationId=602>.

manner as it does for any EIM entity. Powerex will be metered and settled under the same rules that apply to EIM entities and will be subject to all imbalance energy settlement, uplift allocations, and administrative fees with one narrow exception for non-EIM transactions that take place wholly outside of the U.S.

Powerex, however, will not be obligated to provide forecast data, interchange schedules or other non-binding resource information used by the CAISO to prepare EIM resource plans in advance of T-75 pursuant to section 29.34(e)(1)-(2). This additional information is not necessary because the CAISO will not be performing unit commitment processes in the BC Hydro balancing authority area or associated with Powerex's EIM participation, and the CAISO will not be providing congestion management services inside the BC Hydro balancing authority area. BC Hydro will continue to retain full authority and autonomy over its system and resources following Powerex's integration into the EIM. Furthermore, any forecast data in advance of T-75 for the BC Hydro balancing authority area may have limited value as a result of the potential for net interchange schedules to and from the BC Hydro balancing authority area to be substantially modified in real-time, supported by the fast-ramping hydro resources that characterize the BC Hydro balancing authority area. Instead, Powerex will make reasonable efforts to supply the CAISO with financially non-binding forecast data, interchange schedules, and other information to support the CAISO's short-term unit commitment process for the EIM area to the extent that such information is available. In addition, the CAISO will populate a Powerex EIM resource plan, to be used in its day-ahead market solution, using historic and current information available to the CAISO at the time.

Powerex's EIM participation will adhere to the standards of conduct for transmission providers. BC Hydro will communicate necessary information covered under the standards of conduct directly to the CAISO. The CAISO will not provide Powerex access to transmission function information (including through CAISO software interfaces), and Powerex will not have the ability to affect the BC Hydro load forecast used in CAISO market operations. BC Hydro will communicate BC Hydro's 15-minute and 5-minute load forecast directly to the CAISO, and the CAISO will use this data for Powerex's EIM participation. For power flow modeling and market operation purposes, the CAISO will distribute BC Hydro forecasted load to load nodes within the BC Hydro balancing authority area using load distribution factors in the same manner as it does for other EIM entities. The CAISO will not use load biasing for the BC Hydro balancing authority area.

In addition, Powerex will not issue manual dispatch instructions in the same manner as an EIM entity, but the CAISO will receive information regarding the forecast and actual output of physical resources in the BC Hydro balancing authority area. As is the case with other EIM entities, any deviations between 15-minute and 5-minute load forecasts and the hourly base schedules submitted

by Powerex will be included in the EIM optimization process, resulting in the optimal dispatch of EIM participating resources. And just like with other EIM entities, Powerex will settle with the CAISO any load and resource deviations from hourly base schedules.

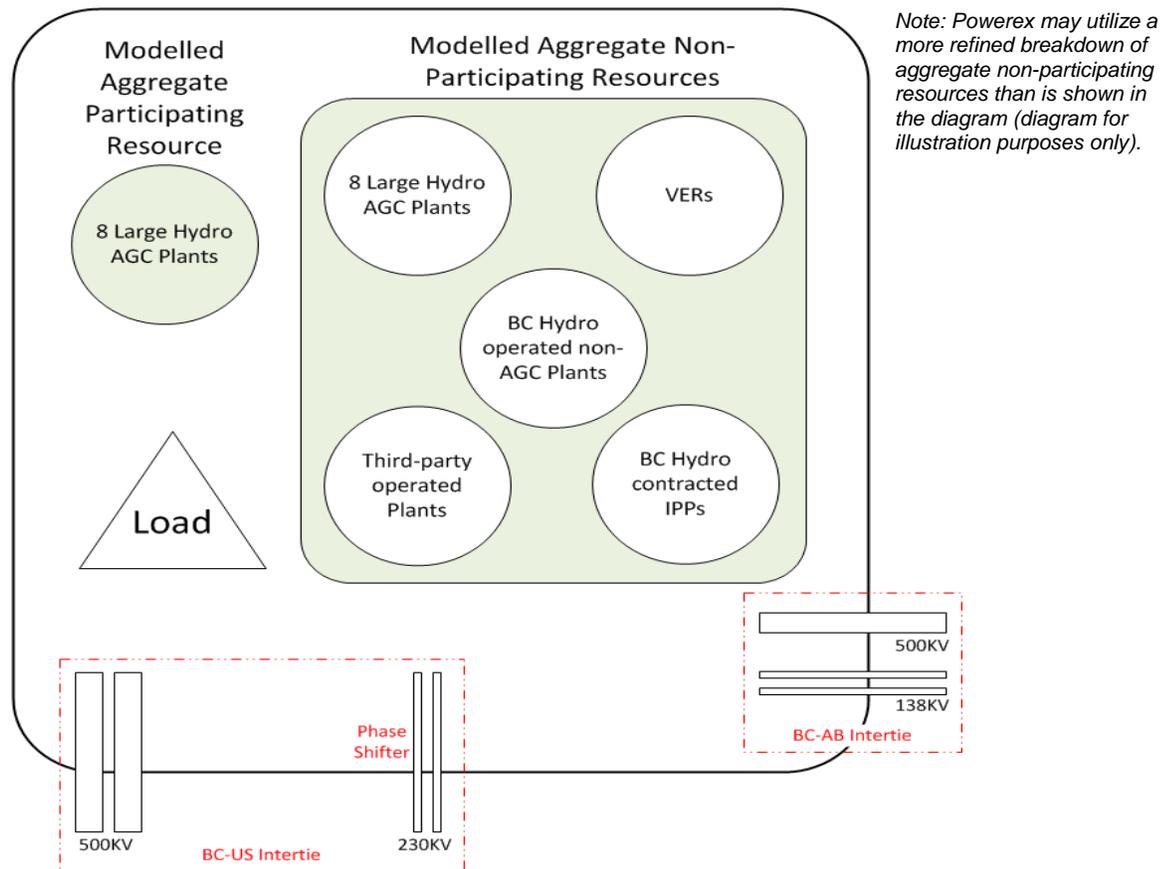
The CAISO network model will incorporate data from the BC Hydro balancing authority area and account for EIM transfers between Canada and the U.S. The CAISO will provide dispatch information for Powerex's participating aggregate resources. The CAISO will model Powerex's participating aggregate resources as distributed to physical locations based on generation distribution factors established by BC Hydro. The CAISO will not dispatch individual BC Hydro physical resources. The CAISO will model load associated with the BC Hydro balancing authority area as a single aggregate load registered as an EIM load aggregation point. The current rules for aggregating loads and resources apply to the modeling of the BC Hydro loads and resources, and Powerex will use the CAISO's existing framework for aggregation of electrically-similar resources, as applied for the BC Hydro balancing authority area.

Powerex will register an aggregate participating resource representing residual capability made available to the EIM from eight Provincial hydroelectric facilities that are capable of responding to intra-hour changes in generation, load, and interchange. Powerex will register an aggregate non-participating resource representing the remainder of the capability of these same eight BC Hydro facilities. The CAISO will ensure that the bids and market dispatch for these registered logical resources are within the physical resource capabilities for purposes of any resource sufficiency evaluation, pricing, or settlement. Powerex will also register aggregate non-participating resources to represent variable energy resources and other non-variable energy resource generation facilities. BC Hydro will determine generation distribution factors for each upcoming hour for the aggregated participating and non-participating resources, which will be communicated to the CAISO by Powerex. These generator distribution factors will enable the CAISO to accurately model power flows from individual generating facilities/units. In fact, separating the aggregate participating and non-participating resources representing the same eight hydro plants enables different generation distribution factors to be used for base schedules from those used for intra-hour EIM dispatch, improving modeling accuracy.

The CAISO's logical representation of Powerex's resource aggregation meets the CAISO's existing requirements for aggregation of electrically-similar resources primarily because the BC Hydro balancing authority area is largely radially connected to the US (see illustration below). This illustration below shows the two western parallel 500 kV connections between British Columbia and the U.S., and two eastern parallel 230 kV facilities with power flow on the eastern path regulated by a phase shifter. This configuration results in transfers between the BC Hydro system and the U.S. that are, in effect, largely radial. As

a result, the shift factors of BC Hydro resources on U.S. transmission facilities are highly similar, *i.e.*, BC Hydro resources are all electrically similarly situated with respect to the EIM area, allowing system-wide resource aggregation, consistent with the CAISO's general approach to resource aggregation.

### BC Hydro BAA



Thus, the CAISO expects any potential departure from hourly generation distribution factors will have negligible impact on power flows in the EIM area. In addition, because the CAISO will continue to manage congestion within the EIM area, as well as EIM transfers to and from British Columbia, the CAISO will be able to accurately dispatch participating resources, calculate locational marginal prices, and apply the market power mitigation procedures to Powerex's aggregate participating resource. Moreover, with BC Hydro continuing to manage congestion inside the BC Hydro balancing authority area, the CAISO's network model will not enforce transmission constraints among these resources or anywhere in British Columbia. This means that the only possible price differential between the resource locations would be due to transmission losses, which will be considered in the CAISO's dispatch, price formation, and settlement processes. Although BC Hydro will not use the CAISO's congestion

management services, Powerex's resource plans must be feasible, and the CAISO will inform BC Hydro of any resulting modelled congestion or infeasibilities it identifies (if and when they arise). Powerex will be subject to the same resource sufficiency requirements as other EIM entities, with the CAISO applying its balancing test, capacity test, and flexible ramping sufficiency test.

The CAISO will enforce the EIM transfer limits and associated constraints in the same manner as it does for all other EIM transfer limits, thus ensuring that Powerex will be subject to market power mitigation under section 29.39 relative to transfers with the U.S. in the same manner as other EIM entities.<sup>14</sup> The CAISO will test each Powerex power balance constraint for competitiveness whenever the constraint is binding. If market power exists, the CAISO will apply mitigation to Powerex's aggregate resources. The CAISO's market power mitigation will apply solely to Powerex's jurisdictional transactions at the BC-U.S. border, consistent with the fact that the EIM does not extend into Canada, the CAISO is not managing congestion within British Columbia, and rates in British Columbia fall outside the Commission's jurisdiction.

Consistent with one of the eight guiding principles in the EIM Implementation Agreement – Principle (f) – Powerex will continue to be able to enter into non-EIM transactions, including transactions after EIM base scheduling timelines. This activity is consistent with the current EIM design and rules, which permit all EIM participants to enter into transactions outside of the EIM at any time, and therefore does not require any exception to or limitation of any provision of section 29. In comments on the Powerex EIM Implementation Agreement, commenters asked for clarification on Principle (f), noting that while EIM entities may enter into transactions after base scheduling timelines, such transactions could create an energy imbalance and an associated payment obligation.<sup>15</sup> Importantly, Powerex's non-EIM transactions will not create energy imbalance that must be served by the EIM, as long as they utilize additional residual capability of the BC Hydro system that has not been offered into the EIM. In fact, when such transactions occur, to the extent they are offset by changes to non-participating resources they do not create any net imbalance energy that needs to be served by the EIM, other than for transmission losses. If they are not offset by such changes, imbalance charges will apply to Powerex. In view of Principle (f), the CAISO is proposing a tariff amendment to implement a new EIM functionality that would allow Powerex *or any EIM entity*, to have the market automatically informed of such changes to non-participating resources that offset interchange transactions outside of the EIM after the close of the real-time market at T-40. The result of such automation would be to communicate

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<sup>14</sup> The CAISO understands that Powerex intends to establish default energy bids and also intends to file with the Commission to update its market based rate authority in a timeframe that would support implementation on April 4, 2018.

<sup>15</sup> See September 7 Order at PP 15-16.

changes to intertie schedules with an offsetting dispatch of a non-participating resource, leaving just the differences in locational marginal prices between the intertie schedule and the non-participating resource to be settled by the EIM.<sup>16</sup>

In addition, certain adaptations of the existing EIM structure are necessary to accommodate Powerex's EIM participation supported by resources, load, and transmission located in a Canadian balancing authority area because Powerex is not a balancing authority or transmission service provider. For example, because Powerex is not authorized to have, and will not have, access to all of the data required by the CAISO from participating EIM entities for the CAISO's operation of the EIM, the Agreement relieves Powerex of certain data provision obligations to the extent those obligations are satisfied with BC Hydro supplying necessary data and information. To this end, the Agreement is contingent upon the effectiveness of the CAISO-BC Hydro Data Sharing Agreement, which the CAISO is concurrently filing with the Commission. The CAISO-BC Hydro Data Sharing Agreement addresses the details of the data elements and the methods by which BC Hydro will provide necessary data to the CAISO. Collectively, the information provided by Powerex and BC Hydro will provide the CAISO with the same information that it receives from other EIM entities. The remaining adaptations of the tariff are discussed in the next section.

## **B. Participation Agreement**

The recitals to the Agreement set forth the nature of the EIM, the Parties, and BC Hydro. They also describe the purpose of the Agreement.

Article I adopts the definitions in the CAISO tariff for the Agreement and sets forth rules of interpretation and conventions applicable to the Agreement. Of particular importance, (1) if a matter is specifically addressed by a provision of the Agreement, that provision governs notwithstanding any inconsistent provisions of the CAISO tariff; (2) if the Agreement provides that a matter shall be determined in accordance with the applicable provisions of the CAISO tariff, the applicable provisions of the CAISO tariff govern; and (3) to the extent possible, the Agreement will be construed consistently with the participation requirements in Article II. This is necessary for the Agreement to accommodate the differences outlined above.

Article II sets out key aspects of the framework discussion above, including fundamental and overarching requirements that guide the specific modifications set forth in Article IV, which are necessary to permit Powerex participation in the EIM utilizing residual capability of the BC Hydro system. Powerex will participate on its own behalf using BC Hydro residual capability and

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<sup>16</sup> The support for an auto-matching feature will be submitted by the CAISO shortly for consideration by the Commission as explained *supra*, footnote 4.

intra-hour variations of load and generation from base schedules. Powerex will make available transmission rights it holds on the systems of U.S. transmission service providers. Powerex will have the ability to voluntarily determine the price and volume of EIM bids and offers consistent with the voluntary nature and current structure of the EIM. In addition, Powerex will determine the available quantity of transmission rights in British Columbia to facilitate its activity in the EIM. Powerex shall have the right to elect not to make any interchange transmission rights available for use in the EIM in a particular operating hour. EIM transactions will occur at the BC-U.S. border, such that the EIM remains solely outside of British Columbia and subject to Commission jurisdiction. The CAISO will not engage in any activity within British Columbia. Article II allows for termination by either Party with a 30 day notice in the event these fundamental requirements can no longer be met.

Article III sets forth the responsibilities of the CAISO and Powerex. Similar to all other EIM entity agreements, it states that nothing in the Agreement affects the CAISO's responsibilities under NERC and WECC Reliability Standards or the CAISO's responsibility to provide open transmission access. Powerex, like all other EIM market participants, must be represented by a scheduling coordinator. As a Canadian EIM entity, Powerex must provide information to the CAISO necessary for its participation in the EIM unless BC Hydro provides the required information. In keeping with the unique nature of Powerex's EIM participation, Article III also provides that the Agreement is contingent upon the execution of a CAISO-BC Hydro Data Sharing Agreement that ensures appropriate data access and protections. The Agreement authorizes Powerex to address issues with the implementation or operation of the agreement in a manner similar to other EIM entities. Finally, neither Powerex nor Powerex's Canadian EIM entity scheduling coordinator will have access to information subject to the standards of conduct set forth in the Code of Federal Regulations Title 18, Part 358<sup>17</sup> (in recognition of the respective roles of BC Hydro and Powerex).

Article III also sets forth that, consistent with the donation approach that is used by other EIM entities, Powerex will determine the quantity of interchange transmission rights that it will make available to facilitate its EIM activity. Specifically, Powerex will determine the quantity of transmission rights that it will make available from the rights that it holds on the systems of U.S. transmission providers, and it will determine the available quantity of transmission rights in British Columbia to facilitate its activity in the EIM. As noted above, Powerex's decision whether to make any interchange transmission rights available for use in the EIM in a particular operating hour is wholly voluntary, with Powerex retaining the right not to make any interchange rights available in a particular operating hour. In addition, like other EIM entities, Powerex will be eligible for an allocation of neutrality amounts under Section 29.11(e) to the same extent as an EIM entity,

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<sup>17</sup> 18 C.F.R. §§ 358.1-8.

notwithstanding that the EIM area does not extend to British Columbia. For example, to the extent Powerex arranges for U.S. transmission rights or transmission service on the BC Hydro system in support of EIM transfers between the BC Hydro balancing authority area and an EIM entity or the CAISO balancing authority area, Powerex will be eligible for an allocation of neutrality amounts, including congestion rents, consistent with the treatment of EIM interties.

Article IV sets forth the provisions of the CAISO tariff that apply to Powerex's participation in the EIM. Consistent with the goal of applying, to the maximum extent possible, the same EIM market rules to Powerex's participation in the EIM as apply to other EIM market participants, Section 4.1 of the Agreement provides that section 29 governs all aspects of Powerex's participation in the EIM unless Article IV specifically addresses a particular matter. The remainder of Section 4.1 addresses the application of terms in section 29 to Powerex and BC Hydro in a manner that reflects the unique facts and circumstances of Powerex's participation in the EIM with residual capability of resources and load located wholly outside the U.S, and recognizes that Powerex's participation will not result in the extension of the EIM area to British Columbia.

Sections 4.1.1 and 4.1.2 of the Agreement state that unless the Agreement provides otherwise, all references in section 29 to an EIM entity will apply to Powerex as a Canadian EIM entity, and all references to resources and loads within an EIM balancing authority area will apply to the modeled aggregate resources and loads that Powerex registers with the CAISO. Under section 4.1.3 of the Agreement, references to a balancing authority area in section 29 will refer to the BC Hydro balancing authority area, as modeled by the CAISO, and Powerex will not undertake any responsibilities placed on EIM entities in their roles as balancing authorities or transmission service providers. Section 4.1.4 of the Agreement provides that any data obligation of Powerex may be satisfied by BC Hydro. Under section 4.1.5 of the Agreement, references to EIM transmission service provider and EIM transmission service information will be understood to reference Powerex's U.S. transmission rights that it makes available to the EIM. And, under section 4.1.6 of the Agreement, tariff references to resources, capacity, demand, and transmission will not be interpreted, for the purposes of Powerex's EIM participation, to apply in a manner that would extend the EIM into Canada.

Although section 4.1 of the Agreement modifies the general applicability of section 29 to Powerex in order to accommodate Powerex's Canadian EIM entity participation, Agreement sections 4.2 through 4.11 provide necessary exceptions, limitations, or modifications to the applicability of specific tariff provisions in section 29 to Powerex or its scheduling coordinator. These sections of Article IV represent the Parties' application of the participation

requirements in Article II. In the Agreement, these proceed in the same order as in related CAISO tariff provisions, but in the discussion below the CAISO will group them here according to their nature.

- Powerex will satisfy all applicable readiness criteria set out in section 29.2(b)(7), coordinating with BC Hydro and the CAISO to ensure satisfactory communication of relevant data and information (section 4.2.2);
- section 29.4(b)(1)(A), requiring an EIM entity to be a balancing authority, will not apply to Powerex (section 4.3.1(a));
- execution of the Agreement will satisfy the requirement in section 29.4(b)(2) to enter into an EIM entity agreement for purposes of Powerex's participation in the EIM (section 4.3.1(b));
- section 29.4(b)(3)(B), regarding transmission service providers' tariffs, will not apply to Powerex (section 4.3.1(c));
- Powerex's scheduling coordinator will not match e-tags or manage schedule curtailments as set out in section 29.4(c)(4)(F) (section 4.3.2(b));
- Powerex's scheduling coordinator will not be subject to section 29.4(c)(5), which prohibits the same entity from serving as a scheduling coordinator for an EIM entity and a participating resource (section 4.3.2(a));
- the Parties will work together to resolve any conflict that may arise between the CAISO tariff and any legal or regulatory requirements to maintain confidentiality of data submitted by Powerex related to the BC Hydro balancing authority area (section 4.4.1);
- under section 29.6, the CAISO will only publish aggregated pricing node information for Powerex (section 4.4.2);
- Powerex will not issue EIM manual dispatches under section 29.7(g) or be responsible for EIM manual dispatches under section 29.7, but may communicate information to the CAISO regarding BC Hydro manual dispatch of resources (section 4.5.2);
- the CAISO will not manage congestion or provide information about congestion on the BC Hydro system under section 29.7(k)(1)

(section 4.5.1);

- Powerex will not initiate WECC unscheduled flow procedures under section 29.7(k)(2) (section 4.5.3);
- section 29.9, regarding outages and contingencies, will not apply to Powerex or its scheduling coordinator, but Powerex will promptly notify the CAISO of any derates or rerates to its registered EIM resources and registered non-participating resources (section 4.6);<sup>18</sup>
- the CAISO will consider the BCUC as the local regulatory authority for the purposes of establishing metering requirements in British Columbia under section 29.10 and the CAISO will have no authority to establish metering requirements in British Columbia, but if changes to the metering requirements applied in the BC Hydro balancing authority area prevent Powerex from satisfying its obligations under section 4.7 of the Agreement, the parties must attempt to resolve the discrepancy and may terminate this Agreement in accordance with the default provisions of section 5.2 if there is no resolution;
- with regard to transactions wholly outside the U.S., Powerex will not be responsible for the EIM administrative charge under section 29.11(i) (section 4.8.2);
- subsections 29.17(a)(1) through 29.17(a)(3), regarding network topology data associated with EIM transmission service information, shall not apply to Powerex;
- sections 29.17(b) through (d), regarding the availability of transmission service, shall apply solely to U.S. interchange transmission rights that Powerex makes available to the EIM (section 4.9.2);
- section 29.34(e)(1)-(2) will not apply to Powerex; rather the CAISO will generate a non-binding EIM resource plan with estimates using available information (section 4.11.1); and
- section 29.34(p), regarding the EIM entity's responsibility for operating reserves, shall not apply to Powerex.

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<sup>18</sup> The communication of outage information will be facilitated by BC Hydro under its data sharing arrangement with the CAISO.

Another set of limitations is necessary to accommodate the use of the Agreement in lieu of an EIM entity agreement and the previous filing of the Powerex EIM Implementation Agreement:

- a date to be agreed upon by the parties fulfills the requirement for the specification of, and the time limits on, the EIM implementation date in section 29.2(b) (section 4.2.1);
- the Agreement fulfills the requirement of an EIM entity agreement under section 29.4(b)(1)(A) (section 4.3.1(b));
- Powerex must secure a Canadian entity scheduling coordinator in lieu of an EIM scheduling coordinator under section 29.4(b)(3) (section 4.3.2(a));
- the Agreement establishes its own provisions on termination and corrective action in lieu of sections 29.4(b)(4) and (b)(5) (sections 4.3.1(e) and (f)); and
- the parties will seek to resolve any conflict that may arise between Section 6 of the Agreement or section 29.6 and any legal and regulatory requirements applicable to Powerex to maintain confidentiality of data submitted by Powerex related to the BC Hydro balancing authority area and, if any such conflict cannot be resolved, then either party may terminate this Agreement in accordance with the default provisions of section 5.2.

Finally, to accommodate U.S. and British Columbia legal and regulatory requirements, including existing export authorizations in both jurisdictions, the Agreement provides that title passes between Powerex and the CAISO at the BC-U.S. border (section 4.10.1).

Article V governs termination of the Agreement. Consistent with provisions applicable for all other EIM entities, either party may terminate the Agreement without penalty, pursuant to Commission rules. Termination does not extinguish any outstanding financial rights or obligations of Powerex. Article V provides that the CAISO is not responsible for Powerex's costs under the Agreement. Articles VI through X are standard CAISO contract terms on dispute resolution, representations and warranties, liability, uncontrollable forces, and miscellaneous terms, with recognition of Powerex's right to a federal bench trial under certain limited conditions.

### **C. Benefits from Powerex Participation**

Powerex's participation will enhance the existing EIM, which continues to expand.<sup>19</sup> Powerex is bringing clean, fast-ramping, flexible hydroelectric generation capability that will broaden and strengthen EIM supply options to meet generation and load imbalances in the EIM area. This additional clean, flexible energy supply will also support greater efficiency in balancing demand, integrating renewable resources, and reducing greenhouse gas emissions. Powerex is also bringing transmission rights to support EIM transfers to/from British Columbia, which will increase the transfer capability between EIM entities and the CAISO. This transfer capability includes dynamic scheduling rights to and from the CAISO; an insufficiency of dynamic scheduling rights can often be a limitation on the amount of energy transfers in the EIM. The CAISO has noted a correlation between the increase in transfer capability and the increase in EIM benefits. The CAISO therefore expects that the transmission rights Powerex makes available will increase the EIM benefits overall.

In addition, Powerex brings additional diversity to the EIM with BC Hydro deviations in generation and load from base schedules included in the EIM optimization processes, all of which Powerex will settle. The load and wind deviations in British Columbia will be significantly diverse compared to the load and wind deviations in the EIM area due to differences in the weather patterns and peak times. Also, the EIM will permit surplus energy in the U.S. to be delivered dynamically into British Columbia for the first time, which will enable Powerex to utilize the residual storage capability of the BC Hydro system, helping mitigate generation curtailment in the EIM area during periods of oversupply.

Powerex benefits from the ability to use residual intra-hour balancing capability of the BC Hydro system that is currently unavailable to support Powerex's hourly transactions. This is because BC Hydro currently uses this intra-hour balancing capability to respond to intra-hour variations in load and generation in its balancing authority area only. Powerex estimates this held back capability to be 300 MW of incremental capacity and 300 MW of decremental capacity, on average. The EIM design enables Powerex to utilize this capability to the extent that it is not needed to respond to variations in the BC Hydro balancing authority area in any interval. Although Powerex's participation levels may change hour-to-hour and over time, however, Powerex's EIM activity is not expected to displace its participation in bilateral markets in the West. For example, Powerex may increase its EIM participation during regional over-supply events, particularly during the spring season, by submitting additional voluntary

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<sup>19</sup> The current edition of the [Western EIM Benefits Report, Third Quarter 2017](#) is available on the CAISO's website. The general trend shown in the EIM benefit reports suggest that overall benefits increase as additional entities join.

decremental bids as opportunities arise. Such activity may necessitate Powerex setting aside additional transmission rights northbound.

In summary, Powerex's EIM participation will confer benefits to both Powerex and consumers across the EIM area through increased competition and expanded transmission transfer capability, lowering the cost of balancing demand and integrating renewable resources.

### **III. Effective Date**

The CAISO requests that this Agreement be made effective on February 15, 2018. The implementation date is targeted for April 4, 2018 and the CAISO and Powerex must engage in activities that support a certification of readiness at least 30 days prior to the implementation date.<sup>20</sup> Having the agreements effective on February 15, 2018 will allow the parties to certify their readiness in a timely manner.

### **IV. Service**

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

### **V. Contents of Filing**

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

Attachment A      Executed Powerex Canadian EIM Entity Agreement.

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<sup>20</sup> See sections 29.2(b)(6) and 29.2(b)(7).

## VI. Correspondence

Pursuant to Rule 203(b) of the Commission's Rules of Practice and Procedure,<sup>21</sup> the CAISO requests that all correspondence, pleadings, and other communications concerning this filing be served upon the following:

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## VII. Conclusion

The CAISO respectfully requests that the Commission accept this filing and permit this Agreement, CAISO Rate Schedule No. 99, to be effective February 15, 2018, as requested. If there are any questions concerning this filing, please contact the undersigned.

Respectfully submitted,

**By: /s/ John C. Anders**

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<sup>21</sup> 18 C.F.R. § 385.203(b).