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December 30, 2019

**VIA ELECTRONIC FILING**

Ms. Kimberly D. Bose
Secretary of the Commission
Federal Energy Regulatory Commission
888 First Street, N.E.
Washington, D.C. 20426

Re: Powerex Corp., Docket No. ER10-3297-___
Powerex Corp. Updated Market Power Analysis

Dear Secretary Bose:

Pursuant to the Federal Energy Regulatory Commission's orders accepting Powerex Corp.'s original market-based rate application and pursuant to the regional reporting schedule posted to the Commission's website,[1] as confirmed by Order No. 816,[2] Powerex respectfully submits its 2019 triennial market power analysis update for the Northwest Region and the Energy Imbalance Market ("EIM") in support of its continued authority to sell power at market-based rates.

By order issued September 24, 1997 in Docket No. ER97-4024, the Commission initially granted Powerex authority to sell power at wholesale in interstate commerce in the United States at market-based rates.[3] Consistent with its standard policy, the Commission also directed Powerex to report any changes in status and to file updated market power studies every three years.

In 2000, 2003, and 2006, Powerex filed triennial market power updates that demonstrated that Powerex and its affiliate British Columbia Hydro and Power Authority ("BC Hydro") continued to not possess market power in generation in the relevant markets and that

[1] Regional Reporting Schedule and Region Map, *available at* https://www.ferc.gov/industries/electric/gen-info/mbr/filings/triennial/when-what.asp; *see also* 18 C.F.R. § 35.37(a)(1) (2019).
[2] *See Refinements to Policies and Procedures for Market-Based Rates for Wholesale Sales of Electric Energy, Capacity and Ancillary Services by Public Utilities,* Order No. 816, 153 FERC ¶ 61,065, at P 353, App. C (2015), *reh'g and clarification*, Order No. 816-A, 155 FERC ¶ 61,188 (2016).
[3] *B.C. Power Exch. Corp.*, 80 FERC ¶ 61,343 (1997) ("September 24, 1997 Order").

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Powerex met the Commission's additional standards for selling power at market-based rates. Powerex's updated analyses were accepted for filing and made effective by Commission letter orders dated September 12, 2000, October 30, 2003, and July 26, 2007, respectively.[4] Powerex was thereafter designated as a Category 1 seller, effective January 1, 2009, by Commission order dated October 29, 2010.[5]

Since 2012, Powerex has been designated as a Category 2 market-based rate seller in the Northwest region[6] and remains a Category 1 seller in all other regions.[7] Powerex most recently submitted a triennial market power update on December 29, 2016.[8] The Commission accepted Powerex's 2016 triennial update by letter order dated January 25, 2018.[9]

In continued compliance with Ordering Paragraph (J) of the Commission's September 24, 1997 order and pursuant to the regional reporting schedule posted to the Commission's website,[10] as confirmed by Order No. 816,[11] Powerex hereby submits its 2019 triennial market power analysis based on a December 2016-November 2017 Study Period. The information contained in this triennial market power update demonstrates that:

1. Powerex and its affiliate BC Hydro continue to lack market power in generation in the relevant geographic markets in the United States;
2. Transmission market power on the BC Hydro system continues to be mitigated through the use of an open access transmission tariff ("OATT") that provides comparable and non-discriminatory open access transmission service in all material respects to Order No. 890's *pro forma* transmission tariff; and
3. Powerex continues to meet all other applicable standards for market-based rate authority as found by the Commission in its September 24, 1997 Order and in the Commission's subsequent orders accepting Powerex's continued market-based rate authority (including with respect to participation in the EIM).

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[4] *See B.C. Power Exch. Corp.*, Docket No. ER97-4024-012 (Sept. 12, 2000) (unpublished letter order); *Powerex Corp.*, Docket No. ER01-48-002 (Oct. 30, 2003) (unpublished letter order); *Powerex Corp.*, Docket No. ER01-48-007) (July 26, 2007) (unpublished letter order).

[5] *Powerex Corp.*, Docket No. ER01-48-018 (Oct. 29, 2010) (unpublished delegated letter order).

[6] *See* 18 C.F.R. § 35.36(a)(2); *Powerex Corp.*, 141 FERC ¶ 61,089 at P 50 (2012).

[7] *Powerex Corp.*, Docket No. ER01-48-018 (Oct. 29, 2010) (unpublished delegated letter order).

[8] *Powerex Corp.*, Updated Market Power Analysis for the Northwest Region and Amendment to Powerex FERC Rate Schedule No. 1, Docket Nos. ER17-704, *et al.* (Dec. 29, 2016).

[9] *Powerex Corp.*, Docket Nos. ER17-714-003, *et al.* (Jan. 25, 2018) (unpublished letter order).

[10] Regional Reporting Schedule and Region Map, *available at* https://www.ferc.gov/industries/electric/gen-info/mbr/filings/triennial/when-what.asp; *see also* 18 C.F.R. § 35.37(a)(1).

[11] *See* Order No. 816 at P 353, App. C.

## I.
## COMMUNICATIONS AND CORRESPONDENCE

All correspondence and communications in this proceeding should be addressed to the following persons, who should be designated on the Commission's official service list in this proceeding:

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Powerex requests that the foregoing persons be placed on the official service list for this proceeding and respectfully requests waiver of Rule 203(b)(3)[12] of the Commission's regulations in order to permit designation of more than two persons for service in this proceeding.

## II.
## DESCRIPTION OF POWEREX

Powerex is a corporation organized under the *Business Corporations Act* of British Columbia, with its principal place of business at Vancouver, British Columbia, Canada ("Province" or "BC"). Powerex is the wholly-owned marketing subsidiary of BC Hydro, a vertically integrated Provincial Crown Corporation utility owned by the Government of British Columbia, and Canada's third-largest electric utility.

[12] 18 C.F.R. § 385.203(b)(3).

Powerex sells power at wholesale in the United States pursuant to market-based rate authority originally granted by the Commission in 1997. Powerex sells power and ancillary products from a portfolio of resources in the United States and Canada, including BC Hydro system capability, Canadian Entitlement resources made available under the Columbia River Treaty, and various other power resources acquired from other sellers within the United States and Canada. Powerex also markets power in other Canadian provinces outside of British Columbia.

Powerex owns no generation or transmission facilities in the US or Canada. Its commercial activity has been primarily directed toward the physical delivery of energy and the commitment and delivery of reserve products to markets within North America. These markets include not only the Pacific Northwest and the rest of the Western Electricity Coordinating Council ("WECC") region, but also other markets in North America, such as in the Southwest Power Pool, Inc. and the Alberta Electric System Operator regions.

As Powerex has previously informed the Commission, BC Hydro owns generation, transmission, and distribution facilities in British Columbia, and it is engaged both in the generation of power and in the transmission, distribution, and sale of such power to wholesale and retail customers within the Province. BC Hydro's generation facilities are located entirely within the Province, and BC Hydro does not own any transmission or distribution facilities in the US that are interconnected with the US interstate transmission system.

The OATT governing BC Hydro's transmission system is based on the Commission's Order No. 890 *pro forma* tariff, pursuant to a Provincial mandate that all transmission customers receive fair and open access to BC Hydro's transmission facilities for transmission into, out of, and across BC.[13] Pursuant to the Province's *Utilities Commission Act*,[14] the British Columbia Utilities Commission ("BCUC") has exclusive jurisdiction over BC Hydro's transmission system, including oversight of the transmission system's Commission-reviewed OATT,[15] its open access same-time information system ("OASIS"), and its Standards of Conduct. The BCUC exercises jurisdiction over the rates, facilities, and terms and conditions of the transmission service provided by BC Hydro.

[13] *See*, *e.g.*, BC Hydro, Annual Report 2012, App. B (Shareholder's Letter) at 99 (stating that BC Hydro will ensure that all eligible transmission users have non-discriminatory access to transmission capacity and will continue to enhance open access transmission tariffs), *available at* https://www.bchydro.com/content/dam/hydro/medialib/internet/documents/annual_report/2012_BCH_AnnualReport.pdf.

[14] *Utilities Commission Act*, R.S.B.C. 1996, ch. 473 (Can.).

[15] *See* September 24, 1997 Order at 62,139 (finding that "the transmission tariff under which BC Hydro will provide transmission service is almost identical to the *pro forma* tariff," thus mitigating transmission market power).

On September 2, 2019, BC Hydro became the Reliability Coordinator for British Columbia, as registered with the North American Electric Reliability Corporation ("NERC") and the Western Electricity Coordination Council ("WECC").

## III.
## UPDATED MARKET POWER ANALYSIS

The Commission permits power marketers to sell energy at wholesale at market-based rates, provided that the marketer demonstrates that it and its affiliates (a) do not possess, or have adequately mitigated, market power in generation in the relevant markets; (b) do not possess, or have adequately mitigated, market power in transmission; (c) do not pose any affiliate abuse issues; and (d) cannot erect any other barriers to market entry.[16]

Included as Attachment A to this filing is an updated market power analysis by Ms. Julie R. Solomon and Matthew E. Arenchild ("Navigant Affidavit"), economists and Managing Directors at Navigant Consulting, Inc. As demonstrated in the Navigant Affidavit and supporting exhibits, Powerex continues to pass the Commission's horizontal market power screens in the relevant geographic markets. Powerex also does not possess vertical market power and neither it nor its affiliates can or will erect barriers to entry.

Powerex also submits as Attachment B an updated Asset Appendix, as required by the Commission.[17]

### A. Powerex and Its Affiliate BC Hydro Lack Horizontal Market Power in the Relevant Markets

A seller seeking to obtain or maintain market-based rate authority is required to submit a market power analysis addressing whether the applicant has horizontal market power. There is a rebuttable presumption that the seller lacks horizontal market power if it passes two indicative market power screens: (1) a pivotal supplier analysis based on the annual peak demand of the relevant market; and (2) a market share analysis applied on a seasonal basis.[18]

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[16] 18 C.F.R. § 35.37; *see generally* Order No. 816; *Market-Based Rates for Wholesale Sales of Elec. Energy, Capacity and Ancillary Servs. by Pub. Utils.*, Order No. 697, 119 FERC ¶ 61,295 (2007), *clarified*, 121 FERC ¶ 61,260 (2007) ("Clarification Order"), *order on reh'g*, Order No. 697-A, 123 FERC ¶ 61,055 (2008), *clarified*, 124 FERC ¶ 61,055 ("Order No. 697-A Clarification Order"), *order on reh'g*, Order No. 697-B, 125 FERC ¶ 61,326 (2008), *order on reh'g*, Order No. 697-C, 127 FERC ¶ 61,284 (2009), *order on reh'g*, Order No. 697-D, 130 FERC ¶ 61,206 (2010), *aff'd sub nom. Montana Consumer Council v. FERC*, 659 F.3d 910 (9th Cir. 2011).

[17] *See* 18 C.F.R. § 35.37(a)(2), App. B to 18 C.F.R. Part 35, Subpart H.

[18] 18 C.F.R. § 35.37(c)(1).

1. The Commission's Indicative Market Power Screens

The pivotal supplier screen evaluates the potential of a seller to exercise market power based on uncommitted capacity at the time of the relevant market's annual peak demand.[19] The pivotal supplier screen focuses on the seller's ability to exercise market power unilaterally and seeks to determine if load can be served without an applicant's generation.[20] A seller is pivotal if load cannot be met without some contribution of supply by the seller or its affiliates.[21]

In the pivotal supplier screen, uncommitted capacity is determined by adding the total installed nameplate or seasonal capacity of generation owned or controlled through contract or firm purchases, plus imports, and less operating reserves, native load commitments, and long-term firm sales.[22] If a seller's uncommitted capacity is less than net uncommitted supply for the relevant market, the seller passes the pivotal supplier analysis.[23]

The wholesale market share screen measures whether, for each of the four seasons, a seller has a dominant position in the market based on the uncommitted capacity owned or controlled by the seller and its affiliates as a share of the uncommitted capacity of the entire relevant market.[24] If a seller has less than a 20 percent market share in all seasons, it passes the market share screen.[25]

**B. Powerex's Relevant Generation Assets and Markets**

1. Relevant Generation Assets

In Order No. 816, the Commission determined that an analysis of horizontal market power should take into account generation acquired through long-term firm power purchase agreements, in addition to the generation owned by a seller or its affiliates.[26] Consistent with Order Nos. 697 and 816, Navigant has analyzed Powerex's potential horizontal market power by taking into account each of these categories of generation.

Powerex's affiliate, BC Hydro, is located in the BC Hydro balancing authority area ("BAA") ("BCHA"), which lies wholly within the Province of British Columbia and is thus outside the Commission's jurisdiction. Powerex owns no generating facilities in the United States or Canada.

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[19] *Id*.
[20] Order No. 697 at PP 35, 65. The Commission further clarified and modified certain data inputs to the pivotal supplier and wholesale market share screens in Order Nos. 816 and 816-A.
[21] *Id.* at P 35.
[22] *Id.* at P 38; Navigant Affidavit at 8.
[23] Order No. 697 at P 42; Navigant Affidavit at 8.
[24] Order No. 697 at PP 34, 43-44; Navigant Affidavit at 9.
[25] Order No. 697 at P 44; Navigant Affidavit at 9.
[26] Order No. 816 at PP 2, 16, 130, n.133, 145; Order No. 816-A at P 36, n.46.

Instead, it sells power from a portfolio of resources that include contract-procured generation in the United States and Canada and available generation capability from the BC Hydro system in British Columbia.[27] Powerex's affiliate BC Hydro owns or purchases approximately 12,000 MW of generation in the Province.[28] In addition, consistent with prior analyses, the capacity and energy associated with the Canadian Entitlement and returned to the Province under the Columbia River Treaty have been attributed to Powerex for purposes of assessing potential generation market power.[29]

In addition to the energy and capacity in British Columbia associated with BC Hydro and the Canadian Entitlement, Powerex has entered into contracts with several entities in the Northwest Region of the US that meet the Commission's definition of a purchase agreement for long-term firm energy or capacity that is associated with long-term firm transmission reservations.[30]

First, during the Study Period, Powerex had an entitlement to 6.38 percent of the output of the Priest Rapids Project—consisting of the Priest Rapids and Wanapum facilities—on the Columbia River, owned by Public Utility District No. 2 of Grant County, Washington and located within the Grant County BAA ("GCPD"). This share is equivalent to approximately 126 MW of the 1,981 MW of the Priest Rapids Project. This slice contract was awarded through a competitive bidding process, as were all of the Priest Rapids slice contracts. This contract expired on December 31, 2017 and was not renewed.

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[27] Order Nos. 697 and 816 permit applicants to de-rate their hydroelectric capacity in conducting their generation market power screens. Order No. 697 at P 344, n.345; Order No. 816 at PP 100, 103. Although Powerex's affiliated generation resources are predominantly hydroelectric, Powerex has conducted the indicative generation market power screens without any hydro de-rate. *See* Navigant Affidavit at 16, n.32, 27.

[28] *See* Exhibit No. 3 to Attachment A; 2016/2017 BC Hydro Annual Report at 105, *available at* https://www.bchydro.com/about/accountability_reports/financial_reports/annual_reports.html. Of course, as noted in the Navigant Affidavit, BC Hydro uncommitted capacity ultimately competes in the United States only to the extent the power is surplus to the needs of the Province and to the extent transmission is available on the BC-US Intertie to deliver power from British Columbia into the US market.

[29] Under the terms of the Columbia River Treaty and Exchange of Notes between the United States and Canada, the Province of British Columbia has rights to a quantity of energy and capacity (the Canadian Entitlement) that is returned by Bonneville Power Administration ("BPA") to the US-Canadian border for delivery into the BC Hydro system. The energy and capacity is available for use within British Columbia to serve load or free up Canadian supply for resale. The Province has assigned Powerex its rights to the Canadian Entitlement. However, consistent with the facts and Powerex's prior market power analyses, the Canadian Entitlement is properly treated as Powerex supply in British Columbia, not the United States. As noted above with regard to BC Hydro uncommitted capacity, supply under the Canadian Entitlement ultimately competes in the United States only to the extent the power is surplus to the needs of the Province and to the extent transmission is available to deliver power from British Columbia into the US market. *See* Navigant Affidavit at 6-7.

[30] *See* Order No. 816 at PP 2, 16, 130, n.133, 145; Order No. 816-A at P 36 n.46. *See also* Exhibit No. 2 in Attachment A and Asset Appendix in Attachment B for additional descriptions.

Second, during the Study Period and currently, Powerex has the rights to the residual capacity and storage of the Rocky Reach and Rock Island hydroelectric projects owned by Public Utility District No. 1 of Chelan County, Washington ("Chelan").[31] Although the expected residual capacity for Powerex from these projects was approximately 366 MW during the Study Period, on average there is no net energy delivered to Powerex, as Chelan sells all of its expected energy surplus beyond load and other commitments in the term and day-ahead wholesale energy markets.

Third, during the Study Period and currently, Powerex has an agreement with Chelan by which, during the Study Period, Powerex purchased contingency reserves of up to 24 MW of from Chelan's Lake Chelan Hydro Project.[32]

Fourth, as shown in Exhibit No. 2 of Attachment A and as reflected in Powerex's Asset Appendix, during the Study Period, Powerex has long-term firm purchase contracts for all or a portion for the output of four renewable facilities in the Bonneville Power Administration BAA ("BPAT"), with associated nameplate capacity of 246 MW. Two of those contracts (totaling 75 MW) have since terminated. Powerex also has a long-term firm purchase contract for the output of a wind facility with nameplate capacity of 90 MW in the Puget Sound Energy, Inc. BAA ("PSEI").

Fifth, Powerex has entered into several agreements with delivery periods commencing after the Study Period. Powerex is conservatively including these agreements in the Asset

[31] In other words, the capacity available after Chelan's obligations are met. During the Study Period, Chelan had rights to 48.96 percent of capacity (approximately 636 MW) and 48.98 percent of pond storage of Rocky Reach (approximately 1,608 MWh), and 54.5 percent of capacity (approximately 340 MW) and 54.25 percent of pond storage of Rock Island (approximately 388 MWh). The remainder of Chelan's share of the output of Rocky Reach and Rock Island has been auctioned by Chelan under slice agreements or allocated under long-term bilateral contracts to various counterparties. *See* Navigant Affidavit at 7, fn.14.

[32] Powerex's access to capacity and energy under this agreement is limited to the times that Chelan, in its discretion, actually makes sales to Powerex under the agreement. Such sales are based on the residual flexibility of the Lake Chelan Hydro Project to generate differing hourly quantities incremental to Chelan's scheduling of standard On-Peak and Off-Peak Blocks of generation from the Lake Chelan Hydro Project for the Chelan's load service. In addition, sales of capacity under the agreement are also contingent upon a certain index price exceeding a specified value. An earlier version of this agreement was provided to the Commission upon its request. *See Powerex Corp*., Amendment to December 31, 2013 Updated Market Power Analysis for the Northwest Region, Submission of Supplemental Information, and Request for Confidential Treatment, Docket No. ER10-3297-003 (July 25, 2014). Powerex purchased no energy under the agreement during the Study Period or since, and Powerex purchased an average of 18.65 MW of capacity in 6 percent of the hours during the Study Period.

Appendix and the market power analysis, as reflected in a sensitivity analysis.[33] The agreements are as follows:

- Powerex entered into a five-year power purchase agreement for a maximum of 67 MW of capacity and energy with Chelan and with a related off-take agreement for the sale of some of this energy in PSEI. The related sale of energy was conservatively not included in Navigant's analysis.[34]

- Powerex has entered a five-year power purchase agreement with Chelan for 5.0 percent (96.4 MW) of the output of the Rocky Reach and Rock Island hydro-electric facilities.

- Powerex has entered into a one-year, 25 MW power purchase agreement with Snohomish Public Utility District for energy during light-load (off-peak) hours.[35]

- Powerex has entered into a one-year, 50 MW power purchase agreement with the Bonneville Power Administration for energy during light-load (off-peak) hours.[36]

As described in the Navigant Affidavit, Powerex also includes a sensitivity analysis that updates the indicative screens using the same Study Period but based on contractual rights Powerex acquired in the Northwest Region after the Study Period concluded.[37]

Powerex notes that several power purchase agreements reported in the Asset Appendix are not included in Navigant's market power analysis because these agreements overlapped with only the first month of the Study Period and were not renewed (i.e., those contracts that expired on December 31, 2016). Specifically, Powerex's 50 MW agreement with Chelan for light-load (off-peak) hours expired on December 31, 2016 and was not renewed.[38] And, Powerex's 12 MW agreement with Noble Americas Energy Solutions LLC expired on December 31, 2016 and was not renewed.

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[33] *See* Order No. 816 at PP 139, 289, 292 (explaining that MBR sellers may include sensitivity analyses with the required historical studies to show whether changed circumstances since the end of the study period justify a different conclusion than what the data from the study period indicates).

[34] Navigant Affidavit at 9.

[35] *Id*.

[36] *Id*.

[37] *Id*. at 7 (citing to Order No. 816 at P 289).

[38] Because this purchase is for light load hours (Hours Ending ("HE") 01-HE06, HE23, and HE24 on Monday-Saturday and HE1 through HE24 on Sunday and NERC holidays), Navigant did not directly consider it in the indicative screen analyses. See Navigant Affidavit at note 13 for additional explanation. A sensitivity analysis found in the Navigant workpapers demonstrates that this contract's inclusion would not affect any of the conclusions based on the Navigant Affidavit screen analysis.

2. Relevant US Geographic Markets

The Commission's "default relevant geographic market under both indicative screens will be first, the [BAA] where the seller is physically located, and second, the markets directly interconnected to the seller's [BAA] (first-tier [BAA] markets)."[39] For foreign sellers, the Commission's practice has been to evaluate market power in the United States based on an analysis of first-tier markets.[40] Because Powerex is affiliated with BC Hydro, the relevant default generation markets are the first-tier BAAs in the United States directly interconnected to BCHA and other markets in the Northwest Region where Powerex has long-term purchase agreements.[41]

BPAT is a first-tier market based on its direct interconnection to the BC Hydro BAA at the BC-US Intertie.[42] BPAT also is a relevant geographic market because Powerex has long-term firm power purchase agreements for delivery in BPAT. Additionally, as discussed below, BPAT also is relevant because its border is one of the points of receipt for the energy procured under Powerex's contracts with Chelan and Grant.

PSEI has also been included as a potential first-tier market under a default BAA approach. Although the North American Electric Reliability Corporation's "bubble" map of BAAs does not show the BC Hydro BAA interconnected to the PSEI BAA, and PSEI did not include the BC Hydro BAA as a first-tier market in its own triennial review,[43] Powerex notes that certain other publicly available information characterizes both the BPAT and the PSEI BAAs as interconnecting to the

[39] Order No. 816 at P 232.

[40] *See* Order No. 697 at P 1043 ("The Commission treats foreign-sited generation facilities interconnected to an affiliated transmission system that, in turn, is directly interconnected to the United States transmission grid in the same way that it treats the first-tier generation facilities of non-foreign sellers.").

[41] Powerex maintains, as it presented in its July 31, 2006 triennial update in Docket No. ER01-48-007, that the US portion of the Northwest Power Pool ("US-NWPP") is the relevant geographic market of destination of Powerex's sales in the United States. In its order accepting that triennial update for filing, the Commission did not evaluate whether the US-NWPP is the appropriate geographic market for analysis, but instead reviewed Powerex's alternative analysis of traditional "default" markets. *See Powerex Corp.*, Docket No. ER01-48-007 (July 26, 2007) (unpublished letter order); *see also* Order No. 697 at P 233 (permitting sellers to "present evidence on a case-by-case basis to show that some other geographic market should be considered as the relevant market in a particular case"). Powerex's current submission of an analysis of traditional "default" markets only is without prejudice to its position that, in fact, use of the broader NWPP region is the most appropriate method for evaluating generation market power in the Pacific Northwest.

[42] The capacity of the Northern Intertie, which connects the BC Hydro balancing authority area to BPAT is nominally rated at 3,150 MW. However, the amount of capacity actually available on the Northern Intertie is significantly less due to constraints on the Northern Intertie or constraints upstream or downstream of the Northern Intertie.

[43] *See Puget Sound Energy, Inc*., Updated Market Power Analysis, Docket No. ER17-2059 at 19, Table 4.3 (July 1, 2019) ("PSE 2019 Triennial").

BC Hydro BAA.[44] These varied characterizations are due to the fact that the US portion of the BC-US intertie is a federal asset under the control of BPA, but PSEI nonetheless has a "life-of-facilities" right to a share of the intertie's capacity. PSEI is also a relevant geographic market because Powerex has a long-term firm power purchase agreements for delivery in PSEI. Additionally, PSEI is relevant because its border is one of the points of receipt for the energy procured under Powerex's contracts with Chelan.

GCPD is a relevant default geographic market during the Study Period because Powerex had a long-term PPA for a "slice" of the Priest Rapids Project output that can be delivered to Powerex in GCPD. Additionally, GCPD is relevant because its border is one of the points of receipt for the energy procured under Powerex's contracts with Chelan.

None of Powerex's transactions under its contracts with Chelan will take place within the Chelan BAA ("CHPD"). Instead, all purchases by Powerex occur at one of the following delivery points: Mid-C (which encompasses various delivery points), the border between CHPD and BPAT, or the border between CHPD and PSEI. As explained more fully in the Navigant Affidavit supporting this triennial filing,[45] Navigant determined that BPAT and PSEI were the two potentially relevant markets for purposes of evaluating generation market power associated with Powerex's contracts with Chelan. That reasoning and analysis has previously been accepted by the Commission.[46]

The EIM is a relevant geographic market as Powerex participates in the EIM as the Canadian EIM Entity. As discussed further below, no submarket in the EIM arises from Powerex's participation in the EIM at the US side of the BC-US border.

3. Study Period

Consistent with Order No. 816, Navigant used the December 2016-November 2017 Study Period for the analysis.[47]

### C. Powerex Passes the Commission's Market Power Screens in the Relevant Geographic Markets and Applicable Study Period

As demonstrated in the Navigant Affidavit and in Exhibit Nos. 5 through 13, Powerex passes the Commission's market power screens for both the Study Period for all of the relevant

[44] *See, e.g.*, wesTTrans.net, Common Western OASIS Map, WECC Region (Jul. 20, 2016), *available at* https://www.oasis.oati.com/woa/docs/wesTTrans/wesTTransdocs/wesTTrans_Transmission_Map.pdf.
[45] Navigant Affidavit at 10-12.
[46] *Powerex Corp.*, 141 FERC ¶ 61,089 (2012); *Powerex Corp., et al.*, Docket No. ER17-704 (Jan. 25, 2018) (unpublished letter order).
[47] Navigant Affidavit at 12, Exhibit No. 2; Powerex Asset Appendix.

geographic markets: BPAT, PSEI, GCPD, and the EIM. Powerex also passes the market power screens for all relevant geographic markets when evaluating its current contractual rights, as reflected in the sensitivity analysis performed by Navigant.[48]

1. BPAT

During the Study Period, Powerex owned no generation in BPAT but has long-term firm power purchases totaling 246 MW; in addition, Navigant assigned Powerex 1,080 MW of imports into BPAT, based on Powerex's long-term transmission reservations on the BPAT system.[49] As shown in Exhibit No. 6, Powerex's assigned uncommitted capacity of 1,326 MW is less than the 18,012 MW in net uncommitted supply, and Powerex passes the Commission's pivotal supplier test for the BPA BAA.[50]

As shown in Exhibit No. 7, Powerex's uncommitted capacity is 1,326 MW. Powerex's market share thus ranges from 7.2 to 8.3 percent, well below the Commission's 20 percent market share threshold for all four seasons.[51] Powerex passes the Commission's market share screen in BPA BAA.

2. PSEI

During the Study Period, Powerex owned no generation in PSEI, but had a 90 MW long-term firm power purchase in PSEI. Powerex also is allocated 308 MW of imports into PSEI, such that Powerex's Uncommitted capacity is 398 MW.[52] As shown in Exhibit No. 8, 398 MW of uncommitted capacity is less than the total net uncommitted supply of 2,248 MW in PSEI, and Powerex thereby passes the pivotal supplier screen in PSEI.[53]

For purposes of Navigant's market share analysis, as shown in Exhibit No. 9, in addition to Powerex's 90 MW power purchase agreement in PSEI, Powerex was allocated 254 MW to 343 MW of imports into PSEI.[54] Powerex's uncommitted capacity thus ranges from 344 MW to 433 MW. Powerex's market share ranges from 10.5 to 15.1 percent, well below the Commission's 20 percent threshold in all four seasons.[55] Powerex thus passes the Commission's market share screen in PSEI BAA.

[48] The results of the indicative screens for the sensitivity analyses are not repeated herein but are available in Exhibits 6-11.
[49] Navigant Affidavit at 17.
[50] *Id.*
[51] *Id.*
[52] *Id.*
[53] *Id.* at 17-18.
[54] *Id.* at 18.
[55] *Id.*

3. GCPD

Powerex's long-term purchase in GCPD is 126 MW, consisting of its 6.38 percent share of the Priest Rapids Project. Because the Simultaneous Import Limit ("SIL") into GCPD is zero and no imports are allocated to Powerex, Powerex's uncommitted capacity is 126 MW. As Navigant demonstrates in Exhibit No. 10, the total net uncommitted supply in GCPD is 860 MW. Powerex's uncommitted capacity is less than 860 MW, so Powerex passes the pivotal supplier screen for GCPD.[56]

For purposes of the market share screen, Powerex's uncommitted capacity is 126 MW. As shown in Exhibit Nos. 11, Powerex's market share ranges from 12.1 to 14.6 percent of GCPD's uncommitted capacity. Because Powerex's market share is less than 20 percent in all four seasons, Powerex passes the Commission's market share screen.[57] Powerex's contract for the 126 MW in GCPD expired December 31, 2017 and was not renewed.

4. EIM

In analyzing participants' requests for market-based rate authority for sales in the EIM, the Commission has defined the relevant geographic market for the EIM as the "combined geographic footprint" of the BAAs constituting the EIM.[58] The Commission also has permitted EIM participants to demonstrate that there are no frequently binding transmission constraints that would limit imports into their home BAAs, to support a further conclusion that their home BAA should not be deemed to be a potential EIM submarket.[59] Having satisfied the Commission that no potential submarket exists in their home BAA, "there [is] no need for a seller to submit a separate market power analysis for its home balancing authority area."[60]

As demonstrated in the Navigant affidavit and as summarized below, Powerex passes the relevant market screens in the nine-BAA EIM market that forms the combined EIM footprint. Furthermore, there are no concerns that Powerex's EIM participation creates a submarket.[61]

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[56] *Id.* at 20.
[57] *Id.* at 21.
[58] *Nevada Power Co.*, 161 FERC ¶ 61,117, at P 3 (2017).
[59] *Puget Sound Energy, Inc.*, 156 FERC ¶ 61,242, at P 19 (2016).
[60] *Id*.
[61] The Commission directive to "include an EIM price separation analysis in its future triennial market power analyses" was based on prior orders imposing the same requirement on EIM Entities with participating BAAs, unlike Powerex. *See Powerex Corp*., Docket No. ER10-3297-011 (Mar. 29, 2018) (unpublished letter order) (citing *Nevada Power Co.*, 161 FERC ¶ 61,117, at P 25 (2017) ("We expect all EIM participants located in non-CAISO EIM [balancing authority areas] that have an obligation to submit a triennial market power analysis to include an EIM price separation analysis.")). Because Powerex cannot constitute a separate geographic market submarket within

a. *Powerex's Participation in the EIM Does Not Create a Potential Sub-Market*

On April 4, 2018, Powerex commenced financially binding EIM participation as a Canadian EIM Entity, with residual balancing capability of hydroelectric resources that are owned and operated by BC Hydro and located wholly outside the US.[62] Powerex's participation in the EIM is similar to EIM Entities and participating resources that are located in the US, but with accommodations that recognize the Commission's jurisdictional limitations and the BCUC's authority over resources and facilities located in the province of British Columbia.[63] Powerex's unique participation in the EIM has been described at length in various submissions to the Commission,[64] but certain key distinctions are described below. These distinctions themselves support a conclusion that Powerex's participation in the EIM cannot create a potential EIM submarket.

As an initial matter, Powerex does not have a home BAA for the purpose of its EIM participation. Unlike other EIM entities, Powerex is not a BAA or transmission provider, and Powerex's integration into the EIM did not add an additional BAA to the EIM footprint. Instead, as provided under the Powerex Canadian EIM Entity Agreement, CAISO Rate Schedule No. 99, Powerex participates in the EIM on the US side of the BC-US Border. This structure ensures that the EIM operates wholly in the US and remains subject to the exclusive jurisdiction of the Commission, and that the BCUC maintains its exclusive jurisdiction over BC Hydro's facilities. In addition, the BCUC retains its exclusive jurisdiction over the rates, terms and conditions of the transmission service provided by BC Hydro. Under BC Hydro's current tariff, no BC Hydro customers are exposed to EIM pricing or EIM costs of any kind.[65] Instead, all of Powerex's transactions in the EIM are settled exclusively between Powerex and CAISO. As such, when northbound congestion has arisen at the BC-US Border, Powerex is the sole entity exposed to any resulting EIM price impacts north of the constraint.[66]

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the EIM for the reasons stated herein, Powerex is not providing a price separation analysis. Nonetheless, Powerex herein provides a qualitative analysis of why Powerex's EIM participation does not create an EIM submarket.

[62] *See Powerex Corp*., Notice of Change in Status and Request for Confidential Treatment, Docket No. ER10-3297-011 (Nov. 15, 2017) ("EIM Change in Status Filing").

[63] EIM Change in Status Filing at 3.

[64] *See, e.g., Powerex Corp*., EIM Change in Status Filing; *Cal. Indep. Sys. Op. Corp*., Petition for Limited Tariff Waiver and Request for Expedited Consideration, Docket No. ER18-1339 (Apr. 10, 2018); *Cal. Indep. Sys. Op. Corp*., Filing of CAISO Rate Schedule No. 99, Docket No. ER18-251 (Nov. 3, 2017).

[65] Additionally, any rates charged to customers within British Columbia are subject to the exclusive jurisdiction and oversight of the BCUC.

[66] *See Powerex Corp*., Motion to Intervene and Comments at 6, fn.7, Docket No. ER18-1339 (Apr. 25, 2018) (stating that "[m]oreover, there is no customer exposed to EIM pricing in British Columbia, and hence no customer that requires or benefits from the application of local market power mitigation in these circumstances," and that

As a result of the unique structure of Powerex's participation at the US side of the BC-US Border, no "Powerex home BAA" is added to the EIM. Powerex's EIM participation at the US side of the BC-US border constitutes a point with a single buyer and seller of imbalance energy, and cannot constitute a separate market capable of a horizontal market power analysis.[67] Accordingly, Powerex's participation in the EIM is properly considered part of the 9-Participant market.

While recent DMM reports[68] and market power analyses submitted by other EIM Entities identify northbound congestion at the BC-US Border at a higher frequency than is found in the import direction of other EIM Entities, such data do not render Powerex's participation to create a submarket for the reasons explained above, nor do they raise any concerns relevant to the Commission's market-based rate inquiry.

Finally, Powerex notes that other EIM Entities have provided analyses that there is no Northwest submarket within the EIM,[69] and that none of the EIM BAAs with whom Powerex is directly interconnected for purposes of EIM transfers is considered a submarket within the EIM.[70] Thus, as described in the Navigant Affidavit, the 9-Participant EIM Market is the Relevant Geographic Market and is the only relevant market in evaluating Powerex's EIM participation.

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"[u]nlike EIM entities, imbalance costs associated with Powerex's participation in the EIM are not allocated to any customer in British Columbia.").

[67] The Commission has found that trading points and generation-only BAAs are not markets for MBR sellers to analyze for horizontal market power. For balancing authority areas with only generation, the Commission defined the relevant geographic market for analysis as the directly interconnected BAAs. Order No. 816 at PP 61-65. Similarly, for trading hubs, the Commission determined that the MBR seller should study the BAAs directly connected to that trading hub, subject to SIL limitations. *Id*.; s*ee also* Order No. 697 at P 275 (stating that "while trading data may be considered in the illustration of relevant price correlation or of liquid trading activity to demonstrate that two or more balancing authority areas are indeed a single market, the Commission will not allow use of a trading hub to define a relevant geographic market.").

[68] *See, e.g., Cal. Indep. Sys. Operator, Corp., Dep't of Market Monitoring*, Annual Report or Market Issues and Performance at § 4 (May 15, 2019), *available at* http://www.caiso.com/Documents/2018AnnualReportonMarketIssuesandPerformance.pdf; *Cal. Indep. Sys. Operator, Corp., Dep't of Market Monitoring*, 2019 Q2 Report of Market Issues and Performance (Sept. 10, 2019), *available at* http://www.caiso.com/Documents/2019SecondQuarterReportonMarketIssuesandPerformance.pdf.

[69] BHE Triennial at Att. C, 33.

[70] *See* PSE 2019 Triennial at 26-28*;* CAISO DMM, Structural competitiveness of the energy imbalance market: Puget Sound Energy Balancing Area (Aug. 20, 2019). Consistent with the voluntary nature and current structure of the EIM, Powerex determines, prior to each EIM operating hour, the quantity of transmission rights it holds on the systems of US transmission service providers that it will make available to support its EIM transfers to the Puget Sound Energy BAA and CAISO.

b. *Powerex Passes the Indicative Screens in the 9-Participant EIM Market*

Based on the Commission's prior guidance to EIM Entities and the Commission's review and acceptance of recent EIM market-based rate analyses,[71] the Navigant Affidavit applies some modifications to the pivotal supplier and wholesale market share screens to reflect the unique characteristics of the EIM.[72] In particular, the Navigant Affidavit makes three primary adjustments to the standard indicative screen analyses to evaluate Powerex's activity in the EIM. The adjustments are as follows:

*First*, the generation capacity included as "uncommitted capacity" in the standard indicative screens includes all available generation. The EIM screen analysis must take into account that generating units in EIM BAAs must be eligible and must formally register to participate in the EIM—these represent EIM "Participating Units." However, generating units in EIM BAAs that will not participate in the EIM can still be used to meet the EIM Base Schedules. In contrast to the participation structure in EIM Entity BAAs, all generation in the CAISO BAA is eligible to participate in the EIM.[73] The Navigant Affidavit includes all resources that are available in each of the EIM BAAs to meet their respective wholesale and end-use loads; in addition, long-term wholesale sales, generating capacity that is fully committed, and other firm capacity obligations are netted out of the overall resource capacity totals. The relevant "uncommitted capacity" for the Navigant Affidavit of Powerex's EIM participation is the 3,150 MW TTC of the BC-US intertie, as used in prior analyses.[74]

*Second*, the proper deduction applied to generating resources to account for load obligations must be determined in the EIM context. Consistent with past approaches to evaluate load for the non-CAISO EIM Entities, the Navigant Affidavit used the day-ahead forecast for each EIM BAA available on the CAISO OASIS as an estimate for the EIM BAAs' Base Schedules. Similarly, the schedules established by the CAISO's day-ahead market reflect the base amount of resources used in each hour for the CAISO BAA.[75]

*Third*, the standard proxy for wholesale load for the pivotal supplier test is not the relevant factor for the EIM analysis. Consistent with other EIM market-based rates submissions,

[71] *Portland General Elec. Co.*, 160 FERC ¶ 61,131 (2017) ("PGE EIM MBR Order").
[72] Navigant Affidavit at 21-27.
[73] *Id*. at 22.
[74] *See* Powerex Corp., EIM Change in Status Filing at 13-14. The capacity of the Northern Intertie, which connects the BC Hydro balancing authority area to BPAT is nominally rated at 3,150 MW. However, the amount of capacity actually available on the Northern Intertie is significantly less due to constraints on the Northern Intertie or constraints upstream or downstream of the Northern Intertie.
[75] Navigant Affidavit at 22-23.

the Navigant Affidavit used a direct estimate of imbalance energy demand based on historical information.[76]

As demonstrated in the Navigant Affidavit and in Exhibit Nos. 12 and 13, Powerex passes the Commission's indicative screens for the 9-Participant EIM for the Study Period. For the pivotal supplier analysis, Powerex's uncommitted capacity was assumed to be 3,150 MW.[77] Total Uncommitted Supply is 44,549 MW.[78] Because Powerex's participation is defined based on the maximum transmission capability possibly available for Powerex to participate in the EIM, there is no need for any deduction for Base Schedules with respect to Powerex. Powerex's Uncommitted Capacity of 3,150 MW is less than the Net Uncommitted Supply of 42,999 MW, as shown in Exhibit No. 12. Therefore, Powerex is not a pivotal supplier and Powerex passes the pivotal supplier analysis under a conservative set of assumptions.[79]

For the market share analysis, Powerex's Uncommitted Capacity was assumed to be 3,150 MW, because there were no deductions for Planned Outages, Reserve Requirements, or Base Schedules.[80] As with the pivotal supplier analysis, this represents a conservative analysis of Powerex market share. Exhibit No. 13 provides that Powerex's Uncommitted Capacity is a small share of the Total Seasonal Uncommitted Capacity, with market shares ranging from 5.6 percent to 7.3 percent, well below the Commission's 20 percent threshold.[81]

Finally, the CAISO DMM monitors the EIM for actual or potential market power. In instances where EIM participants may be pivotal and competitive supply from CAISO into a BAA may be limited by congestion, procedures are triggered such that all supply within a BAA that is separated from CAISO BAA is automatically subject to cost-based bid limits.[82]

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[76] Navigant Affidavit at 23.
[77] As noted herein, the actual amount of transfer capability is significantly less than 3,150 MW.
[78] Navigant Affidavit at 27-28.
[79] *Id*. The Navigant Affidavit also includes a sensitivity analysis assuming Powerex's uncommitted capacity to be 300 MW. Powerex also readily passes the pivotal supplier test under this sensitivity analysis. *See* Navigant Affidavit at 29, Exh. 14.
[80] Navigant Affidavit at 28.
[81] *Id*. Powerex's uncommitted capacity in the 300 MW sensitivity analysis constitutes less than 1% of the Total Seasonal Uncommitted Capacity in each season. *See* Navigant Affidavit at 29; Exh. No. 15. Powerex also notes that recent analyses conducted by the DMM also conclude that its automatic bid mitigation procedures are effectively mitigating market power. *See Cal. Indep. Sys. Operator, Corp., Dep't of Market Monitoring*, Structural Competitiveness of the Energy Imbalance Market: Puget Sound Energy Balancing Area, Docket No. ER17-2059-004 (Aug. 30, 2019).
[82] Navigant Affidavit at 30-31.

In sum, on the basis of the Commission's indicative screens, Powerex does not have horizontal market power in any of the analyzed relevant geographic markets: BPAT, PSEI, GCPD, or the EIM.

### D. Powerex and Its Affiliate BC Hydro Do Not Have, or Have Adequately Mitigated, Vertical Market Power by Providing Open Access Transmission Services

In addition to demonstrating a lack of generation market power, the Commission requires market-based sellers with an affiliate that owns or operates transmission facilities to demonstrate that such affiliate has adequately mitigated market power in transmission. The Commission has found that potential market power in transmission is mitigated by the affiliate's adoption of an open access transmission tariff for wholesale transmission service.

#### 1. Vertical Market Power—Transmission

The Commission requires market-based rate sellers with an affiliate that owns, operates, or controls electric transmission facilities to demonstrate that such affiliate has adequately mitigated vertical market power with respect to transmission.[83] A seller with a foreign affiliate that owns, operates, or controls transmission facilities outside the US that can be used by the seller's competitors to reach the US is required to demonstrate that its affiliate has adopted and is implementing an OATT consistent with or superior to the Commission's *pro forma* OATT or otherwise is offering comparable, non-discriminatory access to such transmission facilities.[84]

Powerex's affiliate BC Hydro owns transmission facilities within BC and operates such facilities pursuant to the BC Hydro OATT. Powerex originally demonstrated in 1997, and has thereafter demonstrated in each subsequent triennial update and in change in status notifications, that its affiliated transmission provider continues to provide comparable, non-discriminatory access via its BCUC-approved OATT.[85] In accepting Powerex's prior market power analyses and changes in status, the Commission found that the BC Hydro OATT satisfies the Commission's requirements regarding vertical market power with respect to transmission.[86]

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[83] 18 C.F.R. § 35.37(d).

[84] *Id.*

[85] *See* September 24, 1997 Order at 62,139 (concluding that the transmission tariff under which BC Hydro provided transmission service was consistent with or superior to the Commission's *pro forma* OATT). Effective as of March 1, 2006, the BCUC approved BC Hydro's OATT, which replaced the Wholesale Transmission Service tariff originally implemented by BC Hydro. *See Powerex Corp.*, Docket No. ER01-48-005 (Oct. 24, 2006) (unpublished delegated letter order).

[86] *See, e.g.*, *Powerex Corp.*, Docket No. ER10-3297-012 (June 4, 2018) (unpublished letter order) (accepting Powerex's notice of change in status that BC Hydro revised its dynamic scheduling provisions); *Powerex Corp.*, Docket No. ER17-704 (Jan. 25, 2018) (unpublished letter order) (accepting Powerex's triennial market power

Since Powerex's 2016 triennial market power update, the BCUC approved several changes to Attachments Q-1 and B-1 of BC Hydro's OATT that pertain to dynamic scheduling and reassignment agreements. Powerex reported these revisions to the Commission on February 23, 2018.[87] Aside from these minor revisions, BC Hydro has not modified its OATT since Powerex submitted its 2016 triennial market power analysis.

In addition, since Powerex's 2016 triennial market power update, the Commission has issued two orders, Nos. 842[88] and 845,[89] that adopted revisions to the *pro forma* Large and Small Generator Interconnection Procedures and Agreements. All revisions to BC Hydro's OATT must be approved by the BCUC, and on October 23, 2019, BC Hydro announced that it intends to submit an application to the BCUC to amend its Standard Generator Interconnection Procedures and its OATT to incorporate nearly all of the Commission's revisions to the *pro forma* interconnection procedures and agreements set forth in Order Nos. 842 and 845.[90] BC Hydro stated that it intends to better align these with the Commission's revisions to the *pro forma* tariff versions. BC Hydro held a comment period for customers to provide feedback on the proposed

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analysis and description of BC Hydro's response to FERC Order Nos. 792, 827, and 828); *Powerex Corp*., Docket No. ER10-3297-010 (Mar. 3, 2016) (unpublished letter order) (accepting Powerex's notice of change in status that BC Hydro revised its OATT for certain revisions to Network Economy Service); *Powerex Corp*., Docket No. ER10-3297-007 (June 4, 2018) (unpublished letter order) (accepting Powerex's notice of change in status that BC Hydro revised its dynamic scheduling provisions); *Powerex Corp*., Docket No. ER11-2664-003 (Aug. 7, 2012) (unpublished letter order) (concluding that amendments to the BC Hydro OATT to align its provisions to reflect the transmission planning principles adopted in Order No. 890 satisfied the Commission's requirements for market-based rate authority regarding vertical market power); *Powerex* Corp., Docket No. ER10-3297-001 (March 20, 2012) (unpublished letter order) (concluding that certain amendments to the BC Hydro OATT to align its provisions with Order No. 890 and the Commission's Mandatory Reliability Standards satisfied the Commission's requirements for market-based rate authority regarding vertical market power); *Powerex Corp*., Docket No. ER01-48-019, *et al.* (May 25, 2011) (unpublished letter order) (concluding that amendments to BC Hydro OATT to reflect implementation of Conditional Firm Service and other OATT revisions satisfied the Commission's requirements for market-based rate authority regarding vertical market power); *Powerex Corp.*, Docket No. ER01-48-018 (Oct. 29, 2010) (unpublished letter order) (granting Powerex's request for Category 1 status based *inter alia* on findings that Powerex does not own transmission facilities and is not affiliated with an entity that owns any transmission facilities in the US that are interconnected with the US interstate transmission system, and that Powerex did not raise any other vertical market power concerns); *Powerex Corp.*, Docket No. ER01-48-007 (July 26, 2007) (accepting triennial updated market power analysis). *See also* Navigant Affidavit at 31-32.

[87] *See Powerex Corp*., Notice of Non-Material Change in Status, Docket No. ER10-3297-012 (Feb. 23, 2018). This submission was accepted by unpublished letter order on June 4, 2018.

[88] *Essential Reliability Services and the Evolving Bulk-Power System – Primary Frequency Response*, Order No. 842, 162 ¶ FERC 61,128 (2018).

[89] *Reform of Generator Interconnection Procedures and Agreements*, Order No. 845, 163 FERC ¶ 61,043 (2018), *order on reh'g*, Order No. 845-A, 166 FERC ¶ 61,137 (2019), *errata notice*, 167 FERC ¶ 61,123.

[90] *See* BC Hydro: OATT Generator Interconnection Amendments Application (Oct. 23, 2019), *available at* https://www.bchydro.com/energy-in-bc/operations/transmission/transmission-scheduling/bulletins/2019/september-december.html#Oct23. BC Hydro also intends to adopt revisions set forth in the Commission's Order No. 784.

amendments. Upon approval by the BCUC of any revisions to the BC Hydro OATT and interconnection procedures, Powerex will notify the Commission.

Since 2006, the Commission has accepted BC Hydro's approach to generator interconnection, which occurs *via* a Standard Generator Interconnection Procedures and Agreement as providing comparable, non-discriminatory access to BC Hydro transmission.[91] BC Hydro's Standard Generator Interconnection Agreement, the most recent version approved by the BCUC in 2011, addresses the specific needs of the BC Hydro system.[92]

BC Hydro's OATT continues to satisfy both its Provincial mandate to provide non-discriminatory open access transmission service and Commission's requirements for affiliated foreign transmission providers to provide comparable and not unduly discriminatory transmission service. In reviewing tariffs of foreign transmission utilities, the Commission has consistently emphasized that Canadian governments are accorded deference to "rate and allocation issues" and "other terms and conditions of transmission service provided over transmission facilities located in Canada."[93] The DC Circuit examined and affirmed the Commission's deferential approach to foreign utilities, stating:

> We think it reasonable for the Commission to acknowledge the reality of an international border in deciding whether to insist on compliance with the minutiae of its regulatory requirements; it was certainly open to FERC to decide that a flexible approach requiring comparability on a case-by-case basis rather than letter-for-letter compliance across-the-board better accommodates jurisdictional limits and promotion of competitive markets for [US] loads.[94]

In keeping with this deference, the Commission has accepted tariffs of foreign transmission utilities that contain procedures—including generation interconnection procedures—that are tailored to the entities' respective provincial systems.[95] BC Hydro's

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[91] *See, e.g.*, *Powerex Corp.*, Docket No. ER01-48-005 (Oct. 24, 2006) (unpublished delegated letter order).

[92] For example, BC Hydro distinguishes between generators connecting to its transmission system or distribution system by the kV at which the unit will connect, rather than by size of the generator, the basis for which the Commission distinguishes the applicability of interconnection requirements. *See* BC Hydro OATT, Att. M-1 "Standard Generator Interconnection Procedures (SGIP) including Standard Generator Interconnection Agreement (SGIA)," *available at* https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/tariff-filings/open-access-transmission-tariff/16-attachment-m1-oatt.pdf.

[93] *Regional Transmission Organizations*, Order No. 2000, 89 FERC ¶ 61,285, at pp. 31,085, 31,203 (1999), *order on reh'g*, Order No. 2000-A, 90 FERC ¶ 61,201 (2000); *see also* September 24, 1997 Order at 62,139 ("[R]ate and allocation issues are solely Canadian concerns that are outside our jurisdiction . . . .").

[94] *Consumers Energy Co. v. FERC*, 367 F.3d 915, 925 (D.C. Cir. 2004).

[95] *See, e.g.*, *New Brunswick Energy Marketing Corp.*, 153 FERC ¶ 61,254 (2015) (describing the affiliate's OATT as providing comparable, non-discriminatory transmission access, even though it contained deviations from the *pro forma* OATT, such as not containing the standardized LGIP, LGIA, SGIP, or SGIA, but including detailed provisions

Standard Generator Interconnection Procedures and Agreement continue to comprise a part of the BC Hydro transmission tariff previously accepted by the Commission; those procedures continue to provide protections for transmission customers connecting to BC Hydro's system comparable to those contained in the Commission's *pro forma* documents.[96] There are no tariff modifications or other developments that would cause the Commission to reconsider its prior determination.

2. Vertical Market Power—Inputs to Electric Power Production and Other Barriers to Entry

The Commission's regulations also require a seller to demonstrate a lack of vertical market power in wholesale energy markets through ownership or control of inputs to electric power production, such as the transportation or distribution of the inputs to electric power production.[97] In determining whether an applicant for market-based rate authorization can erect improper barriers to entry, the Commission relies on the applicant's representations and on public policing.[98]

A seller must provide a description of (1) its ownership or control of, or affiliation with, an entity that owns or controls intrastate natural gas transportation, storage, or distribution facilities; and (2) physical coal supply sources and ownership of or control over access to transportation of coal supplies.[99]

Powerex does not own or control any of these inputs to electric power that could be used to restrict downstream competitors' access to upstream supply markets or to increase potential competitors' costs.[100] As further required by the Commission's regulations and Order No. 816,[101] Powerex also states that neither it nor its affiliates has erected barriers to entry in the relevant markets and neither it nor its affiliates will erect barriers to entry in the relevant markets.

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regarding connection of new and modified generation and interconnection facilities in Attachment K of its OATT); *H.Q. Energy Services (U.S.), Inc.*, Docket No. ER10-2193 (Nov. 4, 2013) (unpublished delegated letter order) (accepting notice of change in status regarding affiliate's OATT, which does not contain standardized LGIP, LGIA, SGIP, or SGIA).

[96] For example, with regard to the revisions in Order Nos. 827 and 828, the BC Hydro Technical Interconnection Requirements that apply to all generating units of any size requesting interconnection with the BC Hydro transmission system have for many years contained reactive power standards for wind generators—the only non-synchronous generating resources of substantial size in BC Hydro—and ride-through requirements for frequency and voltage disturbance events.

[97] 18 C.F.R. § 35.37(e).

[98] Order No. 697 at PP 446-447.

[99] 18 C.F.R. at §§ 35.37(e)(1)-(2).

[100] Navigant Affidavit at 21-22.

[101] 18 C.F.R. § 35.37(e)(3); Order No. 816 at P 210.

In 1997, the Commission determined that Powerex and BC Hydro posed no issue with respect to reciprocal dealing or other barriers to entry. There are no developments since that time that would cause the Commission to reconsider this determination.

3. Standards of Conduct Provide an Appropriate Safeguard against Affiliate Abuse

Because Powerex's transactions with BC Hydro are not subject to the Commission's jurisdiction, the Commission declined to review the purchase and sales arrangements between Powerex and BC Hydro in 1997.[102] The Commission did, however, review and find acceptable the code of conduct governing the relationship between Powerex and BC Hydro's transmission function.[103] The Commission has also reviewed the more recent BC Hydro Standards of Conduct, which mirror the Commission's Standards of Conduct in Part 358 of the Commission's regulations.[104] There are no developments since that time that would cause the Commission to reconsider the determination that the code of conduct provides an appropriate safeguard against affiliate abuse.

## V.
## REQUEST FOR PRIVILEGED TREATMENT

Pursuant to Section 388.112 of the Commission's regulations, Powerex requests privileged treatment of certain workpapers filed in support of the Navigant Affidavit because these workpapers contain information that is privileged or confidential and not publicly available. The information contained in these privileged workpapers is for use by the Commission's Staff only and should not be released. Pursuant to section 388.112(b)(2)(i), a proposed form of protective agreement is attached as Attachment C.

Powerex requests that the confidential/privileged Attachment D be placed in the Commission's non-public files. Any questions or notifications concerning this request for confidential/privileged treatment should be directed to the undersigned.

[102] *See* September 24, 1997 Order at 62,140.
[103] *Id.*; *see also B.C. Power Exch. Corp.*, 78 FERC ¶ 61,024 at 61,101 (1997) (finding that "the restrictions on the sharing of market information in Powerex's code of conduct are similar to those that the Commission requires when a power marketer is affiliated with a domestic public utility").
[104] *Powerex Corp*., Docket No. ER01-48-19 (May 25, 2011) (unpublished letter order).

## VI.
## ATTACHMENTS TO THIS FILING

In support of its triennial market power update, Powerex submits the following attachments:

- **Attachment A:** Affidavit of Ms. Julie R. Solomon and Matthew E. Arenchild, Managing Directors of Navigant Consulting, Inc. on Market Power Screens; and supporting exhibits in PDF format. Supporting exhibits and workpapers submitted in Excel format.

- **Attachment B:** Generation and transmission asset data required under 18 C.F.R. § 35.37(a)(2) and Appendix B to 18 C.F.R. Part 35, Subpart H, submitted in Excel format.

- **Attachment C:** Protective Agreement

- **Attachment D:** Non-public workpapers supporting the Navigant Affidavit

## VII.
## CONCLUSION

As demonstrated by the foregoing facts and attached analysis, Powerex continues to satisfy the Commission's requirements for market-based sales of power at wholesale in interstate commerce. On this basis, Powerex respectfully requests that the Commission accept this filing as compliance with the Commission's reporting requirements.

Respectfully Submitted,

*/s/ Deanna E. King*
Deanna E. King
*Attorney for Powerex Corp.*

December 30, 2019

Enclosures

**CERTIFICATE OF SERVICE**

I hereby certify that in accordance with Rule 2010 of the Commission's Rules of Practice and Procedure, 18 C.F.R. § 385.1010 (2019), I have this day served the foregoing document upon each person designated on the official service list compiled by the Secretary in the above-captioned proceeding.

Dated at Seattle, WA, this 30th day of December, 2019.

***/s/ Tyler S. Johnson***
Tyler S. Johnson
Bracewell LLP

# Attachment A

Navigant Affidavit and Supporting Exhibits

**UNITED STATES OF AMERICA**
**BEFORE THE**
**FEDERAL ENERGY REGULATORY COMMISSION**

| | | |
|---|---|---|
| **Powerex Corp.** | **)** | **Docket No. ER10-3297-___** |

# AFFIDAVIT OF MATTHEW E. ARENCHILD AND JULIE R. SOLOMON

## TABLE OF CONTENTS


I. INTRODUCTION ..... 2
II. SUMMARY OF ANALYSIS AND CONCLUSIONS ..... 4
III. DESCRIPTION OF POWEREX AND RELEVANT ASSETs ..... 5
A. Generation Owned or Controlled by Powerex and its Affiliates ..... 6
B. Long-Term Transmission Reservations ..... 10
IV. INDICATIVE SCREENS—FRAMEWORK OF ANALYSIS ..... 10
A. Background and Analytical Approach ..... 10
B. Assumptions and Data Sources ..... 12
V. RESULTS OF INDICATIVE SCREENS ..... 18
A. Summary Results ..... 18
B. Indicative Screens - BPAT ..... 19
C. Indicative Screens - PSEI ..... 20
D. Indicative Screens - GCPD ..... 21
VI. EIM ANALYSIS ..... 21
A. Relevant Product and Geographic Markets ..... 22
B. Historical Time Period ..... 23
C. Data and Methodology ..... 24
D. EIM Analyses and Results ..... 29
E. Price Separation Analysis ..... 31
F. EIM Market Monitoring and Mitigation ..... 32
VII. VERTICAL MARKET POWER ..... 33
A. Transmission ..... 33
B. Barriers to Entry ..... 34
VIII. CONCLUSION ..... 34

## I. INTRODUCTION

My name is Matthew E. Arenchild. I am a Managing Director in the Energy practice at Navigant Consulting, Inc. ("NCI"). My business address is 35 Iron Point Circle, Suite 225, Folsom, CA 95630. I hold a Ph.D. in Economics as well as an M.S. in Applied Economics and Finance and have worked on issues surrounding the U.S. electricity industry for over 20 years. A primary focus of my consulting work has been related to market power issues concerning mergers, asset acquisitions and market-based rate ("MBR") authority. I have conducted numerous analyses based on the Federal Energy Regulatory Commission's ("FERC" or "Commission") various market power guidelines and have developed proprietary models and databases to implement these analyses. I have previously filed affidavits before the Commission analyzing market power in wholesale electric markets. Among these, on November 15, 2017, I filed an affidavit (with my colleague, Julie Solomon) on behalf of Powerex Corp. ("Powerex" or "Applicant") in connection with a Notice of Change in Status ("CIS") in this docket in compliance with the Commission's directives regarding participation in the Western Energy Imbalance Market ("EIM") operated by the California Independent System Operator Corp. ("CAISO").[1] My resume is included as Exhibit 1.

My name is Julie R. Solomon. I am a Managing Director of NCI. My business address is 1200 19th Street, NW, Suite 700, Washington, DC 20036. A large portion of my consulting activities involves electric utility industry restructuring and the transition from regulation to competition. I have been involved extensively in consulting on market power issues concerning mergers, other asset transactions and market rate applications for the past 20 years. I frequently file testimony and affidavits before the Commission in connection with electric utility mergers, the purchase and sale of jurisdictional assets, applications for market-based rates, and triennial updates. Among these, in December 2016 I filed an affidavit on behalf of Powerex Corp. ("Powerex" or "Applicant") in connection with its 2016 triennial.[2] My resume is included as Exhibit 2.

Each of us previously has submitted analyses to the Commission regarding both MBR authority for parties in the Western Electricity Coordinating Council ("WECC"), using the

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1 *See* Affidavit of Matthew E. Arenchild and Julie R. Solomon, Docket No. ER10-3297-011, November 15, 2017 ("EIM Change in Status").

2 *See* Affidavit of Julie R. Solomon, Docket No. ER17-704-000, December 29, 2016 ("2016 Triennial Filing").

guidelines in the Commission's Order No. 697[3] and Order No. 816 and related orders,[4] as well as analyzing market power in the EIM.

We have been asked by counsel for Powerex to perform an updated analysis of market power in compliance with the Commission's regulations and Order No. 697 and Order No. 816 and related orders for market-based rates in the Northwest Region,[5] where Powerex is a Category 2 Seller (the "Triennial Analysis").

Additionally, counsel for Powerex also has asked us to provide an analysis of the EIM (the "EIM Analysis"). Powerex began participating in the EIM on April 4, 2018 and has authority from the Commission to participate in the EIM at market-based rates. The Commission has instructed EIM participants outside of the CAISO to provide updated analyses of the EIM as part of their triennial filing obligations.[6] We also discuss why there are no concerns that Powerex's participation in the EIM creates a potential sub-market and that a quantitative "price separation" analysis is not applicable to Powerex due to the manner in which in Powerex participates in the EIM. [7]

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3 *Market-Based Rates for Wholesale Sales of Elec. Energy, Capacity and Ancillary Servs. by Pub. Utils.*, Order No. 697, FERC Stats. & Regs. ¶ 31,252, *clarified*, 121 FERC ¶ 61,260 (2007), *order on reh'g and clarification*, Order No. 697-A, FERC Stats. & Regs ¶ 31,268, *order on reh'g and clarification*, 124 FERC ¶ 61,055, *order on reh'g and clarification*, Order No. 697-B, FERC Stats. & Regs ¶ 31,285 (2008), *order on reh'g and clarification*, Order No. 697-C, FERC Stats. & Regs ¶ 31,291 (2009), *order on reh'g and clarification*, Order No. 697-D, FERC Stats. & Regs. ¶ 31,305, *order on clarification*, 131 FERC ¶ 61,021, *reh'g denied*, 134 FERC ¶ 61,046 (2010), *aff'd sub nom. Mont. Consumer Counsel v. FERC*, 659 F.3d 910 (9th Cir. 2011) (collectively, "Order No. 697") (codified at 18 C.F.R. pt. 35).

4 *Refinements to Policies and Procedures for Market-Based Rates for Wholesale Sales of Electric Energy, Capacity and Ancillary Services by Public Utilities*, Order No. 816, 153 FERC ¶ 61,065 (2015), *order on reh'g*, Order No. 816-A, 155 FERC ¶ 61,188 (2016).

5 The Northwest Region is comprised of the Northwest Power Pool ("NWPP") and the Rocky Mountain Power Area ("RMPA") of WECC. https://www.ferc.gov/industries/electric/gen-info/mbr/filings/triennial/nw.asp

6 *Order on Proposed Market-Based Rate Tariff Changes*, 161 FERC ¶ 61,117 (2017) ("BHE EIM Order"). ("The Commission stated that it expects that Category 2 Sellers located in non-CAISO EIM BAAs to study the EIM as part of their triennials beginning in 2018 (Footnote 27).") (*See also* 153 FERC ¶ 61,206 at P 52.)

7 *See BHE EIM Order* at P 25. "We expect all EIM participants located in non-CAISO EIM BAAs that have an obligation to submit a triennial market power analysis to include an EIM price separation analysis. This analysis will inform whether there are submarkets within the EIM that also need to be studied as relevant geographic markets [footnote omitted]." *See also Powerex Corp*., Docket No. ER10-3297-011 (Mar. 29, 2018) (unpublished letter order) ("Additionally, Powerex is reminded that it must include an EIM price separation analysis in its future market power analyses." (footnote omitted)).

## II. SUMMARY OF ANALYSIS AND CONCLUSIONS

Our analysis finds that Powerex readily passes the Commission's market power screen thresholds in relevant geographic markets, applying the two Indicative Screens (Pivotal Supplier Analysis ("PSA") and Market Share Analysis ("MSA")) required under Commission orders. Our analysis is based on a December 2016-November 2017 historical study period ("2016/17 Study Period" or "Study Period"), as required by the Commission.[8] As discussed below, consistent with *Order No. 697* and related orders, we examined three relevant geographic markets, including markets where power is delivered under Powerex's long-term purchase contracts.[9] The relevant markets consist of the balancing authority areas ("BAAs") operated by Bonneville Power Administration ("BPA" or "BPAT"), Puget Sound Energy ("PSEI"), and Public Utility District No. 2 of Grant County, Washington ("Grant BAA" or "GCPD"). These are the same relevant geographic markets analyzed in Powerex's last two triennial filings. Powerex passes both the PSA and the MSA in these markets, and therefore lacks horizontal market power with respect to sales in all relevant markets.

Powerex also lacks vertical market power. Neither Powerex nor its affiliates own any transmission in the United States ("U.S."), and Powerex's affiliation with British Columbia Hydro and Power Authority ("BC Hydro") does not create any vertical market power concerns because BC Hydro has an Open Access Transmission Tariff ("OATT") approved by the British Columbia Utilities Commission and which FERC previously found sufficient to address vertical market power.

We have also concluded that neither Powerex nor its affiliates can erect barriers to entry, based on several factors. Neither Powerex nor its affiliates own or control intrastate natural gas transportation or storage. Neither Powerex nor its affiliates own or control any sites for generation capacity development in the United States that can be used to create barriers to entry. Neither Powerex nor its affiliates own or control sources of coal supplies or access to the transportation of coal supplies such as barges and rail cars in the U.S. In addition, we understand that an affirmative statement on behalf of Powerex is included in its submission that neither Powerex nor its affiliates have erected barriers to entry and that they will not erect barriers to entry.

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8 https://www.ferc.gov/industries/electric/gen-info/mbr/filings/triennial/nw.asp.

9 Powerex does not own any generation in the United States.

Therefore, the Triennial Analysis demonstrates that Powerex does not have horizontal or vertical market power with respect to sales in relevant geographic markets.

For the EIM Analysis, we conducted an analysis using the framework of the standard MBR "Indicative Screen" methodology used for the Triennial Analysis, but with adjustments made to account for (1) the unique factors arising from evaluating the Imbalance Energy product market and (2) the determination that the relevant geographic market is broader than a BAA and instead incorporates all of the organized market for Imbalance Energy. The analyses are conducted in accordance with prior Commission guidance and are referred to below as the "Modified Indicative Screens" analysis. These analyses use the same 2016/17 Study Period as the Triennial Analysis. The EIM Analysis finds that Powerex easily passes the Modified Indicative Screens for the 2016/17 Study Period. With respect to the "price separation" analysis, there are no concerns that Powerex is located within a submarket within the EIM. Unlike other entities participating in the EIM, Powerex does not operate a BAA and is not a transmission provider. Instead, Powerex participates in the EIM using an aggregated resource that is modeled on the U.S. side of the BC-US border and reflects the residual capability of resources located in the BC Hydro BAA, which is not a FERC-jurisdictional market and does not constitute part of the EIM. These facts distinguish the relevant price separation analysis for Powerex from the analyses conducted by the other EIM participants who operate jurisdictional BAAs. Further, Powerex's participates in EIM is via its transfersto the CAISO and PSEI, and neither of these BAAs have been considered part of submarkets within EIM. Thus, the entire EIM footprint is the proper geographic market for conducting the EIM Analysis.

Finally, we conclude that the structure of the EIM and the CAISO's existing real-time market power mitigation procedures approved by the Commission that are applied to the EIM are sufficiently robust to detect and prevent any attempt by a supplier participating in the EIM to exercise market power. Therefore, based on our EIM Analysis, we conclude that Powerex passes the market power tests established by the Commission.

## III. DESCRIPTION OF POWEREX AND RELEVANT ASSETS

As described in the Transmittal Letter, Powerex is a Canadian corporation with its principal place of business in Vancouver, British Columbia. Powerex is the wholly owned marketing subsidiary of BC Hydro, a Provincial Crown Corporation owned by the Government of British

Columbia. Powerex sells power at wholesale in the United States, pursuant to market-based rate authority originally granted by the Commission on September 24, 1997 and renewed by Commission letter orders dated September 12, 2000, October 30, 2003, July 26, 2007, August 29, 2014, and January 25, 2018.[10]

BC Hydro owns generation, transmission, and distribution facilities in British Columbia and sells power to wholesale and retail customers within British Columbia. BC Hydro operates its wholesale transmission facilities within British Columbia under an OATT based on the Commission's *pro forma* tariff and approved by the British Columbia Utilities Commission, and it operates the BCHA BAA in WECC. BC Hydro does not own any generation in the U.S., and does not own any transmission or distribution facilities in the U.S. that are interconnected with the U.S. interstate transmission system.

Powerex, not BC Hydro, is the entity that participates in the EIM. Powerex currently has MBR authority in all U.S. wholesale markets.

### A. Generation Owned or Controlled by Powerex and its Affiliates

Powerex-Owned Facilities. Powerex owns no generating facilities in the U.S. or Canada. It sells power from a portfolio of resources that include contract-procured generation in the U.S. and Canada; available generation capability from the BC Hydro system in British Columbia; and energy and capacity made available under the Columbia River Treaty and Exchange of Notes (the "Canadian Entitlement").

Affiliate-Owned or Affiliate-Controlled Generation. BC Hydro owns or purchases approximately 12,000 MW of generation.[11] BC Hydro is under a long-term treaty obligation to supply firm power for the City of Seattle (approximately 145 MW at peak during the 2016/17 Study Period). Deliveries of such power are effected by Powerex. Exhibit 3 includes BC Hydro's

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[10] *See B.C. Power Exch. Corp.*, 80 FERC ¶ 61,343 (1997); *B.C. Power Exch. Corp.*, Docket No. ER97-4024-012 (Sept. 12, 2000) (unpublished letter order); *Powerex Corp.*, Docket No. ER01-48-002 (Oct. 30, 2003) (unpublished letter order); *Powerex Corp.*, Docket No. ER01-48-007 (July 26, 2007) (unpublished letter order); *Powerex Corp.*, Docket Nos. ER10-3297-003, ER11-2664-008 (Aug. 29, 2014) (unpublished letter order); *Powerex Corp.*, Docket No. ER17-1704-000 (Jan. 25, 2018) (unpublished letter order)..

[11] *See* BC Hydro Annual Report, 2016-17, *available at* https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/accountability-reports/financial-reports/annual-reports/bchydro-2016-17-annual-service-plan-report.pdf. The annual report, at page 105, provides information on BC Hydro generating capacity in fiscal year 2017 (12,053 MW).

generation and purchases, and a calculation of its uncommitted capacity relevant for the Indicative Screens.

Canadian Entitlement. Under the terms of the Columbia River Treaty and Exchange of Notes between the U.S. and Canada, the Province of British Columbia has rights to a quantity of energy and capacity (the Canadian Entitlement) that is returned by BPA to the U.S.–Canadian border for delivery into the BC Hydro system. The energy and capacity are available for use within British Columbia to serve load or free up Canadian supply for resale. The Province has assigned Powerex its rights to the Canadian Entitlement. However, consistent with the facts and Powerex's prior market power analyses, the Canadian Entitlement is properly treated as Powerex supply within the BCHA BAA in British Columbia, not in the U.S. The annual capacity associated with the Canadian Entitlement averaged approximately 1,324 MW in the 2016/17 Study Period,[12] and is included in our calculation of BC Hydro uncommitted supply potentially available to compete in the relevant U.S. markets. However, supply under the Canadian Entitlement ultimately competes in the U.S. only to the extent the power is surplus to the needs of the Province and to the extent transmission is available on the BC-US Intertie to deliver power from British Columbia into the U.S. market.

Powerex Contractual Rights in the United States. The generation under long-term contract to Powerex in the Northwest Region for purposes of our analysis is summarized in Exhibit 4. Our analysis includes generation under long-term contract to Powerex during the 2016/17 Study Period. Additionally, our sensitivity analysis includes contractual rights acquired in the Northwest Region after the 2016/17 Study Period and under contract as of the date of this filing.[13] Both Study Period purchases and current purchases are reflected in Exhibit 4. The relevant generation consists

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[12] For the period December 2016-July 2017, the Canadian Entitlement capacity was 1,333 MW. For the period August 2017-November 2017, the capacity was 1,304 MW. The average over the twelve-month 2016/17 Study Period was 1,324 MW. Columbia River Treaty Assured Operating Plan and Determination of Downstream Power Benefits for Operating Year 2018-19, Table 6, Comparison of Recent DDPB Studies, *available at* https://usace.contentdm.oclc.org/utils/getfile/collection/p266001coll1/id/3221

[13] Consistent with the instructions in *Order No. 816* (at P 289), we present a base case market power analysis that relies on "unadjusted historical data" and, "[t]o the extent that a seller's generation assets have changed between the historical time period used in the market power analysis and the current time period of the asset appendix", sensitivity analyses are included. (The sensitivity analyses, to the extent relevant, are reflected on the bottom of the exhibits for the Pivotal Supplier Analysis and the Market Share Analysis.) Note that all other assumptions for the sensitivity analysis are the same in the Study Period analysis.

of long-term power purchase contracts for all or a portion of the output of facilities as described below:

- Priest Rapids/Wanapum Slice Contract. During the 2016/17 Study Period, Powerex had an entitlement to 6.38 percent of the output of the Priest Rapids Project on the Columbia River that is owned by Grant County Public Utility District and located within the GCPD BAA. This purchase ended December 31, 2017, such that currently Powerex has no purchase contracts with Grant County. The share during the Study Period is equivalent to approximately 126 MW of the Priest Rapids Project, which consists of the Priest Rapids and Wanapum facilities.[14]

- Rocky Reach and Rock Island Contracts. During the 2016/17 Study Period and currently, Powerex has two contracts with Chelan Public Utility District ("Chelan" or "CPUD") relating to the Rocky Reach and Rock Island hydroelectric projects. First, Powerex has rights to the residual capacity and storage of the Rocky Reach and Rock Island (*i.e.*, the capacity and storage otherwise available to Chelan after its obligations are met).[15] The residual capacity available to Powerex from these projects was approximately 366 MW during the 2016/17 Study Period, but, on average, there is no net energy delivered to Powerex, as Chelan sells its expected energy surplus beyond load and other commitments in the term and day-ahead wholesale energy markets. Second, Powerex has an entitlement to a 5 percent slice of Rocky Reach and Rock Island, approximately 96.5 MW, effective October 1, 2020. Additionally, Powerex had a power purchase agreement with Chelan, independent of the two contracts described above, for delivery of 50 MW in light load hours through December 31, 2016 (hence, only a single month of the Study Period).[16] As described below,

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[14] The EIA-860 (2017 data) reports that nameplate ratings are the same as the seasonal (summer/winter) ratings for Priest Rapids and Wanapum.

[15] During the 2016/17 Study Period, Chelan had rights to 46.96 percent of capacity (approximately 610 MW) and 46.97 percent of pond storage of Rocky Reach (approximately 1,542 MWh), and 52.5 percent of capacity (approximately 327 MW) and 52.49 percent of pond storage of Rock Island (approximately 375 MWh). The remainder of Chelan's share of the output of Rocky Reach and Rock Island has been auctioned by Chelan under slice agreements or allocated under long-term bilateral contracts to various counterparties.

[16] Because this purchase is for light load hours (HE01-HE06, HE23, HE24 on Monday-Saturday, HE1 through HE24 on Sunday and NERC holidays), we did not directly consider it in our analysis for the indicative screens. Pursuant to *Order No. 697* and related orders, the Pivotal Supplier Analysis is based on conditions at the time of the BAA's annual peak demand. Because this purchase is for light load hours, this purchase would not affect the conditions of annual peak demand taken into account in the Pivotal Supplier Analysis. The Market Share Analysis calculates market share based on conditions of average peak load (maximum daily peak averaged across all days in the season), and thus includes off-peak days (Sundays and holidays, based on WECC practice). However, off-peak hours contribute only about 60 observations out of 365 daily peaks; therefore, Powerex's purchase of 50 MW in light load hours would be in effect only 16 percent of the period reflected in the Market Share Analysis. For this reason, we did not include this purchase in our analysis.

each of the agreements have delivery points where the Chelan BAA interconnects with other BAAs.

- Lake Chelan Contract. During the 2016/17 Study Period, Powerex had an agreement with Chelan under which Powerex received occasional delivery of up to 24 MW of generation from Chelan's Lake Chelan Hydro Project during the study period.[17] The contract remains in place. This contract also has delivery points where the Chelan BAA interconnects with other BAAs.

- Other Purchases. As shown in Exhibit 4 and as reflected in Powerex's Asset Appendix, Powerex has the following additional long-term firm purchase contracts:

    - In BPAT, the output of four renewable energy projects (sold to Powerex by Los Angeles Department of Water and Resources ("LADWP"), Southern California Public Power Authority ("SCPPA"), and Klickitat Public Utility District ("Klickitat)). One of the contracts with SCPPA ended December 31, 2017 and the contract wtth Klickitat ended September 30, 2017. These expired contracts are included in the base case analysis but excluded from the sensitivity analysis for the current period.

    - In PSEI, a contract for the output of a wind project (sold to Powerex by Pacific Gas & Electric ("PG&E")). The contract with PG&E was in effect during the 2016/17 Study Period and remains in effect currently. In PSEI, Powerex also has a contract with Chelan under which Powerex takes delivery at Mid-C. We treat the purchase from Chelan as deliverable in PSEI because there is also an off-take (exchange) agreement for the sale of some of this power in PSEI. We conservatively have not taken the sale into account in our analysis. The contract with Chelan commenced in April 1, 2019, and therefore is reflected in the sensitivity analysis.

    - At Mid-C, a contract with Noble Americas Energy Solutions LLC for delivery during calendar year 2016. Because this was in effect only for one month of the study period, it is excluded from the analysis.

    - At Mid-C, a contract with Snohomish Public Utility District for delivery only in off-peak hours commencing on January 1, 2020 for a period of

[17] Powerex's access to capacity and energy under this agreement is limited to hours or intervals during which Chelan has surplus capacity and energy, and is based on the residual flexibility of the Lake Chelan Hydro Project to generate hourly quantities incremental to the standard On-Peak and Off-Peak Blocks of generation Chelan schedules from the project to meet its own load requirements. During the Study Period, Powerex was "put" capacity in only 6 percent of annual hours, and the range was of 10 MW to 24 MW, with an average of 18.65 MW.

one year. For the same reasons as described in note 16, because this contract is for off-peak hours, we did not include it in our analysis.

- At Mid-C, a contract with the BPA for delivery only in off-peak hours commencing on January 1, 2020 for a period of one year. For the same reasons as described in note 16, because this contract is for off-peak hours, we did not include it in our analysis.

### B. Long-Term Transmission Reservations

Also relevant to our analysis are any long-term transmission reservations that Powerex holds into relevant markets in the Northwest Region.[18] We examined transmission reservation data provided by Powerex, and identified (i) 1,080 MW of transmission reservations sinking in BPAT that we treated as Powerex's "Uncommitted Capacity Imports" into BPAT; and (ii) 3 MW of transmission reservations sinking in PSEI that we treated as Powerex's "Uncommitted Capacity Imports" into PSEI.[19]

## IV. INDICATIVE SCREENS—FRAMEWORK OF ANALYSIS

### A. Background and Analytical Approach

In *Order No. 697* and related orders, the Commission codified a methodology for assessing market power to be used by applicants requesting market-based rate authority under Section 205 of the Federal Power Act or making their required triennial market power update filings. The Commission applies two screens – the Pivotal Supplier Analysis and the Market Share Analysis – intended to demonstrate the applicant's lack of horizontal market power. If an applicant fails to pass either of the screens, there is a presumption of horizontal market power and further analysis is required.[20]

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[18] In this context, long-term refers to Powerex's transmission reservations of at least one year that were in effect during the 2016-17 Study Period.

[19] Powerex provided us with yearly transmission reservations. We identified transmission reservations where BPAT and PSEI were sellers (GCPD does not sell transmission to third parties), and identified reservations with a point-of-delivery ("POD") within BPAT or PSEI relevant for the 2016/17 Study Period.

[20] *See Order No. 697-A* at Appendix A to Subpart H, and the current version of the horizontal market power wholesale market share and pivotal supplier indicative screens from *Order No. 816*. While the Commission in *Order No. 816* changed the screen formats and adjusted some input definitions, the main elements of the indicative screens described here have remained consistent since the *Order No. 697* series of orders. http://www.ferc.gov/industries/electric/gen-info/mbr/important-orders/OrderNo816/appendix-A.xlsx.

In *Order No. 697* and related orders, the Commission defined the default relevant market as the BAA in which the applicant is physically located. For sellers affiliated with a foreign utility, the relevant markets include U.S. markets that are first-tier to the foreign utility.[21] Where a generator is interconnected to a non-affiliate owned transmission system, the only relevant market is the BAA in which the generator is located.[22]

1. Pivotal Supplier Analysis

The Pivotal Supplier Analysis seeks to determine if load in a relevant geographic market can be served without an applicant's generation. There are a number of calculations for the Pivotal Supplier Analysis.

First, Total Uncommitted Supply is calculated based on installed capacity (adjusted for long-term firm purchases and sales) plus imports less the reserve requirement (*i.e.*, operating reserves) less the average daily peak native load for the peak month.

Second, Wholesale Load is calculated based on the difference between the annual peak load (needle peak) for the balancing authority and the average daily peak native load for the peak month.

Third, Net Uncommitted Supply is calculated based on the difference between Total Uncommitted Supply and Wholesale Load. Seller's Uncommitted Capacity is based on Seller's Total Uncommitted Capacity less its average daily peak native load.

If Seller's Uncommitted Capacity is less than the Net Uncommitted Supply, the Pivotal Supplier Analysis is passed.

2. Market Share Analysis

The Market Share Analysis evaluates, for each of the four seasons, whether the applicant has a dominant position in the market, with dominance defined as a market share in excess of 20 percent. There are a number of calculations for the market share screen.

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21 *Order No. 697* at P 1022.

22 *Id.* at P 232 n.217.

First, Seller and Affiliate Capacity is calculated based on installed capacity (adjusted for long-term firm purchases and sales) plus imports less planned outages. Non-Affiliate Capacity is calculated in a similar manner.

Second, Capacity Deductions are calculated based on average peak native load in the season (averaged over all days) plus operating reserves, and allocated between Seller and Others.

Third, Seller's Uncommitted Capacity is calculated by subtracting the Capacity Deductions attributed to Seller from Seller and Affiliate Capacity; and Total Competing Supply is calculated by subtracting the Capacity Deductions attributed to others from Non-Affiliate Capacity. Total Seasonal Uncommitted Capacity is the sum of Seller's Uncommitted Capacity and Total Competing Supply.

Finally, Seller's Market Share is calculated as Seller's Uncommitted Capacity as a percent of Total Seasonal Uncommitted Capacity.

If Seller's Market Share is less than 20 percent in all seasons, the Market Share Analysis is passed.

### B. Assumptions and Data Sources

The data sources and assumptions used in our analysis are described below. In general, we have relied on recent triennial update filings by transmission owners in the Northwest Region that were made in June 2019, supplemented by other publicly available information. Specifically, we relied significantly on the Generation Market Power Analysis for Puget Sound Energy, Inc. prepared by Lloyd C. Reed, ("PSE Market Power Analysis") and accompanying workpapers.[23]

[23] *Puget Sound Energy, Inc., et al*. Updated Market Power Analysis in the Northwest Region, Docket No. ER17-2059-004, July 1, 2019 ("PSE Triennial") (the PSE Market Power Analysis is provided in Attachment B (*Generation Market Power Analysis, for Puget Sound Energy, Inc*., Lloyd Reed, June 28, 2019). As discussed below, we also relied in part on the triennial filings of Avista Corporation (Avista Corporation, Docket No. ER10-2290-007, July 1, 2019 ("Avista Triennial" or "Avista Market Power Analysis")) and Portland General Electric Company ("Portland General Electric Company, Docket No. ER10-2249, June 30, 2019 ("PGE Triennial" or "PGE Market Power Analysis")).

1. Relevant U.S. Geographic Markets

For foreign sellers, the Commission's practice has been to evaluate market power in the U.S. based on an analysis of first-tier markets.[24] Because Powerex is affiliated with BC Hydro, a transmission owner in British Columbia (and a source of available generation capability from which Powerex markets power in the U.S.), the relevant default geographic markets here are the first-tier BAAs in the U.S. directly interconnected to BCHA. Other relevant markets include BAAs in which, or at which border, Powerex takes delivery under long-term power purchase agreements.

Our analysis considered as potentially relevant markets BPAT, PSEI, and GCPD. We also considered whether there were other markets that required indicative screens and determined that there were not for the reasons described below.

i. BPAT. As a market first-tier to BCHA, BPAT is a relevant default geographic market. BPAT is also a relevant geographic market because Powerex has long-term firm power purchase agreements for delivery in BPAT. Additionally, as discussed below, BPAT is also relevant because its border is one of the points of receipt for the energy procured under Powerex's contracts with Chelan and Grant County.

ii. PSEI. PSEI is a relevant default geographic market because, like BPAT, it is a first-tier market to BCHA. BCHA is interconnected to PSEI via PSE's share in the U.S. portion of the BC-US Intertie. PSEI is also a relevant geographic market because Powerex has long-term firm power purchase agreements for delivery in PSEI. Additionally, PSEI is relevant because its border is one of the points of receipt for the energy procured under Powerex's contracts with Chelan, as discussed below.

iii. GCPD. GCPD is a relevant default geographic market because Powerex has a long-term contract for a "slice" of the Priest Rapids Project (consisting of the Priest Rapids and Wanapum facilities) output that can be delivered to Powerex in GCPD. Additionally, GCPD is relevant because its border is one of the points of receipt for the energy procured under Powerex's contracts with Chelan, as discussed below.

iv. Other Potentially Relevant Markets That Relate to Powerex's Contracts with Chelan. Powerex's Rocky Reach/Rock Island and Lake Chelan contracts with Chelan require that Powerex transact with Chelan for the relevant residual supply from Rocky Reach and

[24] *Market Based Rates for Wholesale Sales of Electric Energy, Capacity and Ancillary Services by Public Utilities*, Docket No. RM04-7-000, May 19, 2006 ("NOPR") at P 173 ("With regard to generation market power, should a foreign seller or any of its affiliates own or control any generation in the United States, or should one of its first-tier markets include a United States market, it should perform the market power screens in the appropriate control area(s)."). *See also Order No. 697* at P 1044 ("The Commission treats foreign-sited generation facilities interconnected to an affiliated transmission system that, in turn, is directly interconnected to the United States transmission grid in the same way that it treats the first-tier generation facilities of non-foreign sellers.").

> Rock Island and occasional delivery from Lake Chelan at points at which Chelan transmission interconnects with third-party transmission. These contracts specify delivery points at which the Chelan BAA ("CHPD") interconnects with BPAT, PSEI, GCPD and the Public Utility District No. 1 of Douglas County ("DOPD") BAAs, making each of these BAAs potentially relevant markets.

Our considerations concerning the relevance and treatment of these BAAs (CHPD, BPAT, PSEI, GCPD and DOPD) were detailed in affidavits filed in each of the two prior triennial filings (and in a 2012 change in status filing). These filings were accepted by the Commission.[25]

With respect to Powerex's contracts with Chelan, no indicative screens are required for CHPD or DOPD because (i) Powerex does not contract for energy delivered within either BAA, and (ii) Powerex does not have any long-term firm transmission reservations sinking in CHPD or DOPD. Further, the Simultaneous Import Limits ("SILs") into CHPD and DOPD are zero.[26] The combination of all these facts means that there is no need to analyze those markets based both on the Commission's guidance and because Powerex's market share could not in any event be anything other than zero. On the other hand, we provide indicative screens for BPAT, PSEI, and GCPD because deliveries under Powerex's Chelan contracts may be made at interconnection points with these BAAs, as well as for the reasons detailed above.

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[25] *See* note 10 with respect to orders regarding the two most recent triennials.

[26] In connection with the 2010 and 2013 Northwest Region triennials, the Commission determined that the SILs into BPAT, CHPD, and GCPD were zero. *Puget Sound Energy, Inc. et al.*, Docket No. ER99-845-020, *et al.*, 135 FERC ¶ 61,254 (2011) at Appendix A ("*2011 Northwest Region SIL Order*"), and *Puget Sound Energy, Inc. et al.*, Docket No. ER10-2374-004, *et al.*, 147 FERC ¶ 61,021 (2014) at Appendix A ("*2014 Northwest Region SIL Order*").

Additionally, in connection with the 2013 triennial submissions, the Northwest Power Pool determined that the SIL into DOPD also was zero. *See Calculation of Simultaneous Import Limits for Test Year 2011* for Bonneville Power Administration, Public Utility No. 1 of Chelan County, Douglas County Public Utility District No. 1 and Public Utility No. 2 of Grant County, prepared by the Northwest Power Pool Corporation, Version 5.0, April 28, 2013. *See also* Affidavit of Jerry D. Rust, President, Northwest Power Pool Corporation. http://www.oatioasis.com/AVAT/AVATdocs/ Sil_Version_5_Final_Version_(2).pdf.

In connection with the 2016 Northwest Region triennials, the Commission also determined that the SILs into BPAT, CHPD, and GCPD were zero. *Avista Corporation et al.*, Docket No. ER10-2290-005 (July 19, 2017) (delegated order) at Table 1 ("*2017 Northwest Region SIL Order*").

In connection with the pending 2019 triennials for the Northwest Region, the Northwest Power Pool also determined that the SIL into CHPD, BPAT and GCPD was zero. *See* PSE Generation Market Power Analysis at Tables 5.9 and 6.3. We assume the SIL into DOPD remains at zero, consistent with the prior NWPP study and the fact that its situation (as a net exporter) is similar to CHPD and GPUD.

2. Study Period

As noted earlier, analysis is based on a December 2016-November 2017 Study Period, as required by *Order No. 816*.[27] We used the following seasons for our analysis: Winter (December-February), Spring (March-May), Summer (June-August) and Fall (September-November).

3. Generating Capacity

For the ratings of the generation attributable to Powerex in the U.S., we rely on nameplate or seasonal capacity ratings (summer and winter) compiled by the Energy Information Administration ("EIA") in its 2017 "Annual Electric Generator Report," Form EIA-860,[28] or contract values, as appropriate.[29]

4. Reliance on Northwest Region Triennial Filings by Transmission Owners

For purposes of our analysis, consistent with *Order No. 697*, we rely primarily on the recent triennial filings made by Northwest Region transmission-owning utilities in June 2019.[30] As stated above, we rely significantly on the PSE Triennial (see note 23). The data contained in these analyses provided us with most of the information we needed to study each of the relevant markets. Where necessary, and as discussed below, we supplemented this information with other publicly available data.

The PSE Market Power Analysis, as well as the indicative screens of the other transmission owners in the Northwest Region making their triennial filings in June 2019, used the option under *Order No. 697* and *Order No. 816* to provide an analysis based on five-year historical capacity factors (average, minimum and maximum) for energy-limited resources such as hydroelectric and

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27 *Order No. 816* at Appendix C. *See*, also, https://www.ferc.gov/industries/electric/gen-info/mbr/filings/triennial/nw.asp.

28 EIA, Annual Electric Generator Data, *available at:* http://www.eia.gov/electricity/data/eia860/. This is the same data source relied on in the PSE Market Power Study (as well as in the analysis provided in the Avista and PGE Triennial filings).

29 With respect to the purchases from Chelan (other than the "slice" contract), we use contractual ratings.

30 *Order No. 697 Clarification*, 121 FERC ¶ 61,260 at P 12(b) (2007) ("Applicants that do not own transmission should base their market share analysis in their triennial reviews on actual historical data using the same seasons that were used in the triennial reviews filed by the transmission owners in their region.")

wind capacity, rather than seasonal or nameplate ratings.[31] However, as permitted in both *Order No. 697* and *Order No. 816*, our analysis here is based on seasonal capacity ratings rather than historical capacity factors, consistent with the approach Powerex has taken in its prior triennial filings. In relying on the PSE Market Power Analysis (as well as the equivalent Avista analysis) as the foundation for the data in our analysis, we "backed out" any deductions for the Five-Year Hydro (or Wind) historical capacity factors,[32] and instead used seasonal installed capacity ratings for owned or purchased generation of all types. Details of such adjustments are reflected in our workpapers.

5. Planned Outages

Seasonal average planned outages were determined using reported outages at the time of monthly peaks from the relevant FERC Form No. 714 (contained in Part II, Schedule 2).[33] Planned Outages reported in the FERC Form No. 714 include outages relating to both thermal and renewable generating resources, consistent with our use of Installed Capacity generator ratings.

6. Operating Reserves

Consistent with *Order No. 697*, we include operating reserve requirements based on State and Regional Reliability Council operating requirements for reliability.[34] WECC's contingency reserve standard is based on the larger of the largest single contingency or "the sum of three percent of hourly integrated Load and three percent hourly integrated generation."[35] We apply a six percent operating reserve requirement based on load in the BAA (because it is not possible to know the

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31 *Order No. 697* at P 344.

32 The public version of the workpapers supporting the PSE Market Power Analysis were not available on the Commission's eLibrary. However, the Avista Market Power Analysis, in its Work Papers – Set 1 (found in 20190701-5387(33672325).xlsx in the documents available in the Commission's eLibrary) reports firm resources for each of the relevant BAAs based on seasonal and nameplate ratings (using as its primary source the 2017 EIA 860), and then deducts a hydro or wind de-rate. We generally used the same data, but did not de-rate the capacity.

33 Order No. 697 indicates that planned outages should be consistent with those reported in FERC Form No. 714, and that "[t]o determine the amount of planned outages for a given season, the total number of MW-days of outages is divided by the total number of days in the season." Order No. 697 at P 43. The FERC Form No. 714 reports planned outages only at time of peak for the month, and hence it is not possible to determine the total number of MW-days of outages from these data. The Commission has accepted use of FERC Form 714 data to calculate planned outages in prior MBR filings.

34 *Order No. 697* at P 39.

35 BAL-002-WECC-2 - Operating Reserves, https://www.wecc.biz/Reliability/BAL-002-WECC-2.pdf.

amount of hourly integrated generation, actual load levels were used as a proxy for both portions of the requirement).[36]

7. SILs

As noted above, the SILs into CHPD, GCPD, and BPAT were determined to be zero in connection with the last round of Northwest Region triennial filings, as well as in the pending triennial filings in the Northwest Region.[37] For PSEI, we used the SIL reported in the PSE Market Power Study.

8. Allocating Imports

Our analysis is consistent with the *Order No. 697-A Clarification Order*, which states that "market-based rate sellers, after accounting for the firm transmission rights held by the sellers and their affiliates, may allocate simultaneous transmission import capability on a *pro rata* basis (*i.e.*, based on the relative shares of the market-based rate seller's (and its affiliates') and competing suppliers' uncommitted generation capacity in first-tier markets when performing the indicative screens."[38] PSEI is the only market for which we allocated a share of Powerex's affiliated uncommitted capacity based on the SIL (because the SILs for BPAT and GCPD are zero).[39] We also reflected Powerex's long-term transmission reservations sinking in BPAT and PSEI as imports; these were the only relevant transmission reservations for the relevant geographic markets.

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[36] The PSE and Avista Market Power Analyses include Contingency Reserves and Regulating/Balancing Reserves. We understand that Regulating/Balancing Reserves are determined by individual utilities, and while actual data were provided for PSEI and AVA, such reserves were estimated for the other BAAs. We include only the WECC required contingency/operating reserves, consistent with prior filings accepted by the Commission.

[37] *See* note 26.

[38] *Clarification Order* at Ordering Paragraph (A) (emphasis added).

[39] In calculating Powerex's allocated share of imports into PSEI, we took into account BC Hydro's uncommitted capacity in BCHA. A summary of BC Hydro's generation and calculation of its uncommitted capacity is included in Exhibit 3. Of course, BC Hydro uncommitted capacity ultimately competes in the United States only to the extent the power is surplus to the needs of the Province and to the extent transmission is available on the BC-US Intertie to deliver power from British Columbia into the U.S. market.

# V. RESULTS OF INDICATIVE SCREENS

## A. Summary Results

Exhibit 5 presents a summary of the results for all of the markets. Powerex passes both the Pivotal Supplier Analysis and the Market Share Analysis in all relevant markets, as shown in Table 1 below.

**Table 1: Summary of Indicative Screens Results**

| Balancing Authority Area/Market | Exhibit No. | Pivotal Supplier Analysis | Exhibit No. | Market Share Analysis | | | |
|---|---|---|---|---|---|---|---|
| | | | | Winter | Spring | Summer | Fall |
| **Study Period Analysis** | | | | | | | |
| BPAT | 6 | Pass | 7 | 8.2% | 7.5% | 7.2% | 8.3% |
| PSEI | 8 | Pass | 9 | 10.5% | 15.1% | 13.7% | 13.7% |
| GCPD | 10 | Pass | 11 | 14.3% | 12.1% | 14.6% | 13.7% |
| **Sensitivity Analysis (Current Contract Portfolio)** | | | | | | | |
| BPAT | 6 | Pass | 7 | 7.7% | 7.1% | 6.7% | 7.8% |
| PSEI | 8 | Pass | 9 | 12.6% | 17.6% | 16.4% | 15.8% |
| GCPD | <<<<<<<<<<<<<<<<There are no Current Contracts in GCPD>>>>>>>>>>>>>>>> | | | | | | |
| | | | | | | | |
| **EIM 9-Participant Market** | | | | | | | |
| Base Case (Powerex Supply = 3,150 MW) | 12 | Pass | 13 | 5.6% | 5.9% | 7.3% | 6.0% |
| Sensitivity (Powerex Supply = 300 MW) | 14 | Pass | 15 | 0.6% | 0.6% | 0.7% | 0.6% |

Below we provide additional details on the results of the indicative screens in each market. The indicative screens are consistent with *Order No. 816* requirements and are contained in Exhibits 6 through 11. As required, the screens are being filed in a workable electronic spreadsheet.[40]

[40] *Order No. 816* at P 80.

### B. Indicative Screens - BPAT

Powerex owns no generation in BPAT, but has long-term firm purchases totaling 246 MW during the study period (171 MW currently), and transmission reservations sinking in BPAT during the 2016/17 Study Period of 1,080 MW.[41]

On the basis of the Commission's screens, Powerex does not have horizontal market power in BPAT.

#### 1. Pivotal Supplier Analysis

Powerex has 246 MW of long-term firm purchases in BPAT during the Study Period, and is assigned 1,080 MW of imports sinking in BPAT (based on Powerex's long-term transmission reservations, as described above in note 19), such that Seller's Uncommitted Capacity is 1,326 MW during the Study Period. Net Uncommitted Supply is 18,012 MW. Because Seller's Uncommitted Capacity is less than the Net Uncommitted Supply, Powerex passes the Pivotal Supplier Analysis in BPAT. [42] See Exhibit 6.

#### 2. Market Share Analysis

Powerex has 246 MW of long-term firm purchases in BPAT during the Study Period, and is assigned 1,080 MW of imports sinking in BPAT (based on Powerex's long-term transmission reservations, as described above in note 19), such that Seller's Uncommitted Capacity is 1,326 MW during the Study Period. Total Seasonal Uncommitted Capacity ranges from 16,015 MW to 18,540 MW. Seller's Market Share ranges from 7.2 to 8.3 percent during the Study Period. Because Seller's Market Share is less than 20 percent in all seasons, Powerex passes the Market Share Analysis in BPAT. See Exhibit 7.[43]

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41 To the extent that Powerex takes delivery of the Priest Rapids or Chelan contracts at a point of interconnection between GCPD and BPAT or CHPD and BPAT, respectively, the inclusion of Powerex's 1,080 MW of transmission reservations in my analysis of BPAT accounts for the potential to import those purchases into BPAT.

42 Powerex also passes the Pivotal Supplier Analysis in BPAT based on its current generation portfolio.

43 Powerex also passes the Market Share Analysis in BPAT based on its current generation portfolio, with market shares ranging from 6.7 percent to 7.8 percent.

### C. Indicative Screens - PSEI

Powerex has long-term firm purchases of 90 MW in PSEI during the Study Period (157 MW currently), and is allocated a share of imports based on its uncommitted capacity in BCHA, BPAT, and CHPD.

On the basis of the Commission's screens, Powerex does not have horizontal market power in PSEI.[44]

#### 1. Pivotal Supplier Analysis

Powerex has 90 MW of long-term firm purchases in PSEI during the Study Period and is allocated 308 MW of imports into PSEI, such that Seller's Uncommitted Capacity is 398 MW during the Study Period. Net Uncommitted Supply is 2,248 MW. Because Seller's Uncommitted Capacity is less than the Net Uncommitted Supply, Powerex passes the Pivotal Supplier Analysis in PSEI. See Exhibit 8.[45]

#### 2. Market Share Analysis

Powerex has 90 MW of long-term firm purchases in PSEI during the Study Period and is allocated 254 MW to 343 MW of imports into PSEI. Seller's Uncommitted Capacity thus ranges from 344 MW to 433 MW during the Study Period. Total Seasonal Uncommitted Capacity ranges from 2,511 MW to 3,275 MW. Seller's Market Share ranges from 10.5 to 15.1 percent during the Study Period. Because Seller's Market Share is less than 20 percent in all seasons, Powerex passes the Market Share Analysis in PSEI. See Exhibit 9.[46]

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44 In the last (2016) triennial, adjustments to the PSE Market Power Analysis were required to reflect some capacity in GCPD that was not accounted for. In the current (2019) PSE Market Power Analysis and Avista Market Power Analysis, the GCPD analysis deducts Priest Rapids generation entitlements that are held by load-serving entities ("LSEs"), but leaves all generation attributed to non-LSEs in the GCPD BAA. Therefore, no such adjustments are required in the current analysis.

45 Powerex also passes the Pivotal Supplier Analysis in PSEI based on its current generation portfolio.

46 Powerex also passes the Market Share Analysis in PSEI based on its current generation portfolio, with market shares ranging from 12.6 percent to 17.6 percent.

### D. Indicative Screens - GCPD

Powerex had the right to a 6.38 percent slice (126 MW) of the Priest Rapids Project (consisting of the Priest Rapids and Wanapum facilities) in GCPD during the 2016/17 Study Period. This contract terminated on December 31, 2017 (such that GCPD is not currently a relevant geographic market for Powerex).

On the basis of the Commission's screens, Powerex does not have horizontal market power in GCPD.

#### 1. Pivotal Supplier Analysis

Powerex has 126 MW of long-term firm purchases in GCPD. The SIL is zero. Net Uncommitted Supply is 860 MW. Because Seller's Uncommitted Capacity is less than the Net Uncommitted Supply, Powerex passes the Pivotal Supplier Analysis in GCPD. See Exhibit 10.

#### 2. Market Share Analysis

Powerex has 126 MW of long-term firm purchase in GCPD. The SIL is zero. After taking into account a share of planned outages, Seller's Uncommitted Capacity ranges from 96 MW to 114 MW. Total Seasonal Uncommitted Capacity ranges from 704 MW to 904 MW. Seller's Market Share ranges from 12.1 to 14.6 percent. Because Seller's Market Share is less than 20 percent in all seasons, Powerex passes the Market Share Analysis in GCPD. See Exhibit 11.

## VI. EIM ANALYSIS

Our analysis is consistent with prior "Modified" Indicative Screen analyses submitted for analyzing imbalance energy in the context of the EIM, in particular the market power studies submitted in the PSE, Avista, and PGE Triennial filings, as well as in their EIM Change in Status and other filings. The Commission previously has accepted filings that relied on the same basic methodology. For example, in approving PSE's CIS, the Commission concluded that "[b]ased on their representations, we find that Puget passes both the pivotal supplier and wholesale market share screens in the 6-BAA footprint, thereby establishing a rebuttable presumption that it lacks horizontal market power in the 6-BAA footprint."[47] In approving PGE's CIS, the Commission concluded:

[47] *PSEI EIM Order*, 156 FERC ¶ 61,242 at P 18.

> [a]s far as the horizontal market power screens, Portland prepared the pivotal supplier and wholesale market share screens for the 7-BAA footprint, consistent with the requirements of Order No. 697, with adjustments consistent with past Commission guidance on the EIM. We have reviewed those screens and find that Portland passes the pivotal supplier and wholesale market share screens in the 7-BAA footprint, with market shares ranging from 1.1 to 1.5 percent. Therefore, Portland's submarket analyses and indicative screen results for the 7-BAA EIM create a rebuttable presumption that Portland does not have market power in the EIM.[48]

### A. Relevant Product and Geographic Markets

The relevant product market is energy imbalance service. The demand for energy imbalance arises from mismatches in either projected load or expected energy, such that imbalance energy demand is a residual requirement arising after the broader wholesale market has financially cleared. Demand in any interval can be positive or negative and determined by non-controllable factors, such as actual renewable energy output.

The relevant geographic market for our analysis consists of the eight BAA markets currently participating in EIM, as well as Powerex (refered to herein as the "9-Participant Market"). The existing BAAs in the EIM included in this geographic market include: PacifiCorp East ("PACE"), PacifiCorp West ("PACW"), PGE, Nevada Power ("NEVP"), PSEI, Arizona Public Service ("AZPS"), Idaho Power Company ("IPCO"), and CAISO.[49]

The Commission has previously determined that a potential EIM participant is permitted to demonstrate that there are no frequently binding transmission constraints that would limit imports into its home BAA (or the BAA where its generation is located) such that the home BAA should not be deemed to be an EIM submarket itself, or to be within an EIM submarket. Having made such a demonstration, "there would be no need for a seller to submit a separate market power analysis for

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[48] *PGE EIM Order*, 160 FERC ¶ 61,131 at P 19 [footnotes omitted]. In the our EIM Change in Status filing for Powerex, we also provided analyses based on alternative modifications to the Indicative Screens, including using a "merit" order for determining the units committed to serving Base Schedules. Other analysts studying EIM have proposed different modifications and/or input data for some aspects of the Modified Indicative Screens. Given the results of the Modified Indicative Screens presented here, it is clear that such alternative inputs would not materially impact the results reported herein.

[49] The seven non-CAISO EIM participants that operate BAAs are referred to below as the "EIM BAAs." Additional entities that have formally indicated that they are joining the EIM are not included in our analysis, nor is BANC/SMUD, which joined in April 2019. Inclusion of these entities would further expand the relevant geographic market and, therefore, it is conservative to exclude these entities from the market power analysis.

its home balancing authority area."[50] The Commission has required entities to provide a "price separation" analysis as part of the Northwest Region triennials; such analysis reviews whether there are relevant submarkets within the EIM. Because the EIM does not extend into the BCHA BAA, there are no concerns regarding a "home" balancing authority area that could be considered a submarket. Instead, Powerex participates in the EIM using aggregated resources modeled and located on the U.S. side of the BC-US border. These aggregated resources reflect the residual capability of the BC Hydro system, a system that is located wholly outside of the United States and that is not subject to FERC jurisdiction. Powerex does not have any load or customers that take service through the EIM, and the costs of imbalances at the location of Powerex's aggregate resources are borne solely by Powerex. Moreover, Powerex participates in the EIM via transmission paths with CAISO and PSEI and neither of these BAAs has been considered part of a submarket. Thus, the 8-BAA market plus Powerex, participating as the Canadian EIM Entity with aggregated resources modeled at the BC-US border (*i.e.,* the 9-Participant Market), is the only relevant market.

### B. Historical Time Period

At the time of the Northwest Region triennial analysis, the 2016/17 Study Period was deemed to reflect the most recent historical data available and is therefore the most appropriate time period to analyze in the context of EIM Indicative Screens. (The annual forms that contain a significant portion of the public information required in the Indicative Screens (such as the FERC Form No. 714) and a complete set of the information were not yet fully available for 2018.) In addition, the 2016/17 Study Period is consistent with the filing requirement for the Indicative Screens and the Commission's guidance for this filing.

We modeled the various inputs, such as loads, reserves, outages, and generating capacity, to reflect the 2016/17 Study Period. We modeled the 9-Participant Market, although IPC and Powerex participation did not begin until April 4, 2018, and PGE's participation began in October 2017. This is consistent with the geographic market and historical study period analyzed in the Northwest

[50] *AZPS EIM Order*, 156 FERC ¶ 61,148 at P 28. The Commission cites to this clarification in approving MBR authority in EIM for PSEI. *PSEI EIM Order*, 156 FERC ¶ 61,242 at P 19.

Triennial filings, and the Commission has previously accepted historical analyses of the EIM that includes entities that were not market participants during the historical study period evaluated.[51]

### C. Data and Methodology

As noted earlier, available data do not directly translate to an Indicative Screen analysis focused solely on the EIM, and the three primary adjustments are for (1) Participating Resources; (2) Base Schedules; and (3) Wholesale load proxy for the PSA.[52] An explanation of the adjustments for these three factors is provided below, and differences between the data underlying the Indicative Screens for MBR purposes and the EIM are captured in summary form below. We then describe the methodology used to calculate Uncommitted Capacity in the EIM in the context of the Modified Indicative Screens. Finally, we provide a description of the data sources relied upon for the analysis. The key inputs were previously summarized for the Indicative Screen analysis and below we provide information on how the data were modified for use in the Modified Indicative Screens.

#### 1. Key Adjustments to Traditional Indicative Screens for EIM

*Participating Resources*. Generating units formally register to participate in the EIM and are "Participating Units," which allows them to submit bids into the EIM and indicates that they will follow the EIM's 15- and 5-minute dispatch instructions. Generating units that will not participate in the EIM can still be used to meet Base Schedules submitted by the EIM Entity.[53] In the CAISO BAA, formal registration as EIM-eligible generation does not occur because real-time balancing

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51 For example, a 7-BAA market was studied in PGE's CIS filing to participate in EIM that evaluated a December 2014 through November 2015 time period (Portland General Electric Co., Notification of Change in Status, Docket No. ER10-2249, Attachment B (June 16, 2017) ("PGE EIM CIS Analysis")) and an 8-BAA market, including IPCO, was studied in the IPC's CIS filing to participate in EIM that evaluated a December 2015 through November 2016 time period (Idaho Power Company, Affidavit of Matthew E. Arenchild, Docket No. ER10-2126, Attachment B (Sept. 6, 2017) ("IPC EIM CIS Analysis").

52 The other key inputs include planned outages and reserves, both of which are treated the same in the Indicative Screens, modified for analyzing EIM as in the methodology outlined in Order Nos. 697 and 816. Imports would also need to be treated differently in the EIM analysis, but we have excluded imports from our analysis.

53 This includes Qualifying Facilities "putting" or selling to EIM Entities which can be included in the EIM Entities' Base Schedules. Additionally, in March 2016, the CAISO implemented an Available Balancing Capacity ("ABC") functionality, which automatically recognizes and accounts for capacity an EIM Entity identifies as available to maintain reliable operations in its own BAA and that is not otherwise bid into the market. ABC can include both Participating Resources and non-Participating Resources. *See Cal. Indep. Sys. Operator Corp.*, 153 FERC ¶ 61,305, at P 36 (2015).

within the CAISO is part of the CAISO's real-time dispatch. Essentially all generation in CAISO can participate in CAISO's real-time market, as can external (interchange) resources.

*Base Schedules*. There is a difference in how the load obligations (Base Schedules) are determined for the CAISO and the other EIM BAAs. For the CAISO, the schedules established by the CAISO's day-ahead market establish the base amount of resources used in each hour. There is not an equivalent formal day-ahead market in the other EIM BAAs, and instead the amount of resources assumed committed to the EIM is included in the Base Schedules submitted by each EIM Entity.[54]

*Proxy for Wholesale Load in the Pivotal Supplier Analysis*. The proxy for wholesale load required for the standard PSA is calculated based on the difference between the annual peak load (needle peak) for the balancing authority and the average daily peak native load for the peak month. For purposes of analyzing the imbalance energy product, this proxy is not relevant. Therefore, consistent with other parties analyzing the EIM, imbalance energy demand is estimated based on historical information.

2. Uncommitted Capacity Methodology

The Modified Indicative Screen analysis includes all resources that are available to each of the BAA operators in the EIM footprint to meet their respective wholesale and end-use loads.[55] Each EIM BAA's resources include generation owned by the BAA entities, purchased generating capacity and long-term wholesale purchases. For Powerex, the resources are Aggregated Participating and Aggregated Non-Participating Resources, modeled on the U.S. side of the BC-US border. However, as discussed herein, we have used the conservative assumption that Powerex's participation is equal to the BC-US Intertie transmission capacity, 3,150 MW (and include a sensitivity analysis using 300 MW as the relevant limit for Powerex's participation), such that the capacity of the Aggregated

[54] In actual operations, it could be that day-ahead forecasts are more accurate than those produced closer to the market delivery time. Regardless, notwithstanding the differences in methodologies and data for estimating forecast errors in CAISO and the EIM BAAs used in our analysis as well as in those contained in the prior EIM market-power filings or other proceedings, the basic conclusion is that forecast errors, and therefore imbalance energy demand in the EIM, is on average a very small percentage of overall BAA load (generally from about 1 percent to 3 percent).

[55] We have not attempted to capture short-term purchases and sales in the analysis, which in actual operations could also be incorporated in an entity's resources. This treatment of short-term purchases is consistent with the typical Indicative Screen methodology.

Participating Resources is not relevant in our analysis.[56] As is typical in the Indicative Screens, long-term wholesale sales, and generating capacity that is fully committed, and other firm capacity obligations are netted out of the overall resource capacity totals.

EIM Entities and Powerex as a Canadian EIM Entity, through their respective Scheduling Coordinators, are required to submit balanced schedules to CAISO, which operates the EIM, that include the EIM Entities' available resources (specific generation facilities as well as purchases and sales, from inside or outside of their own BAAs) to match the forecasted load in each EIM BAA. These balanced schedules ("Base Schedules") are required to equal expected load going into the EIM operating hour, such that the forecast demand for imbalance energy is zero.[57] However, in operation, there will almost certainly be differences between actual loads and resource outputs and those included in the Base Schedules; in our analysis, estimated Base Schedules are used in place of actual loads.

The Base Schedule deductions for each EIM Entity are the total system forecasted base schedules to be met by the EIM Entities from both EIM Participating and non-EIM Participating Resources. Additionally, the amount of uncommitted capacity calculated as described above for any EIM BAA and CAISO must not exceed the amount of Participating Resources in the BAA. For example, considering just generating resources and Base Schedules, if a BAA had 2,000 MW of Participating Resources and 3,000 MW of non-Participating Resources, and the estimated Base Schedule was 2,500 MW, the amount of uncommitted capacity available to the EIM would be only the 2,000 MW of Participating Resources, not the 2,500 MW that is calculated as total resources minus Base Schedule. This is because only those resources registered as Participating Resources are eligible to submit bids and be dispatched in the EIM. The end result is that all of the resources included in the Modified Indicative Screens as uncommitted capacity is generation that is capable of providing imbalance energy.[58]

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[56] The capacity of the Northern Intertie, which connects the BC Hydro BAA to BPAT is nominally rated at 3,150 MW. However, the amount of capacity actually available on the Northern Intertie is significantly less due to constraints on the Northern Intertie or constraints upstream or downstream of the Northern Intertie.

[57] For CAISO, the determination of Base Schedules is slightly different due to CAISO's formal day-ahead market, as discussed below.

[58] This methodology is consistent with the PSE Market Power Analysis (see PSE Market Power Study, Page 84).

### 3. Data Assumptions and Sources

The elements necessary to conduct these analyses and the data sources or assumptions used are detailed in Exhibits and workpapers. Most of the data are directly available (or a reasonable, conservative proxy can be identified) from public sources. The key inputs are summarized in Table 2 and discussed below.

**Table 2: Data Sources Relied on to Conduct Indicative Screens (Typical MBR vs. EIM Analysis)**

| Data Inputs and Methodology for Indicative Screens | | General Framework for Analysis | |
|---|---|---|---|
| | | **Standard Indicative Screens** | **EIM Analysis** |
| **Market** | Product Market | Energy | Imbalance Energy |
| | Geographic Market | BAA, including RTO/ISO and FERC recognized sub-markets (if relevant) | Relevant EIM Footprint |
| **Generating Capacity** | Ratings | Installed Capacity, Seasonal Capacity, or Energy-limited 5-year (average, minimum and maximum) ratings | Installed Capacity, Seasonal Capacity, or Energy-limited 5-year (average, minimum and maximum) ratings |
| | Eligibility to include as "Uncommitted Capacity" | All available generation | Participating Resources |
| **Load** | Proxy for Wholesale Demand | Market Needle Peak Load less Average Load in Peak Month | Estimate of Imbalance Energy Demand |
| | Deduction to Generating Resources | Load in BAA | Base Schedules |
| **Planned Outages** | | Historical Planned Outages | Historical Planned Outages |
| **Operating Reserves** | | WECC operating reserves | WECC operating reserves |
| **Imports** | | Import capacity into geographic market (Simultaneous Import Limit) | None |
| **Uncommitted Capacity** | Pivotal Supplier Analysis | Total Resources less Load less Operating Reserves plus Imports | Total Resources less Base Schedules less Operating Reserves; capped at amount of Participating Resources |
| | Market Share Analysis | Total Resources less Load less Planned Outages less Operating Reserves plus Imports | Total Resources less Base Schedules less Planned Outages less Operating Reserves; capped at amount of Participating Resources |

*Generation.* Our analysis generally relies on seasonal ratings (Summer and Winter). For the PSA, Summer ratings were used, consistent with the historical needle-peak occurring in August 2017 for the EIM. For the MSA, Winter ratings were used for the Winter season and Summer ratings for

all other seasons. The BAA location of generators was generally based on the PSE Market Power Analysis or data reported by ABB Energy Velocity, as well as an analysis of dynamically scheduled generation into or out of the relevant BAAs (e.g., using information directly from FERC Form 714).[59] Energy-limited units were not de-rated in the analysis. This is consistent with Powerex's EIM Change in Status filing in Docket No. ER10-3297-011, which used Installed Capacity ratings for all generating facilities, as well as consistent with the Indicative Screens discussed previously. Most generators within CAISO are assumed to meet the criteria to participate in the EIM. CAISO identifies "Participating Units" in its Master CAISO Control Area Generating Capability List.[60] This document details a total of approximately 67,500 MW of generating capability, the vast majority of which is reported as a "Participating Unit" during the 2016/17 Study Period. Outside of the CAISO, we used information on the total capacity of Participating Units in the EIM Entity BAA or information on whether a resource is eligible to be a Participating Resource.[61]

*Load*. The analysis generally relies on hourly load data reported in the FERC Form No.714 for the 2016/17 Study Period. For the EIM Analysis, Base Schedules for the EIM BAAs are constructed from the actual load in the BAA, adjusted by a factor accounting for the ratio of estimated Base Schedules to actual load. This factor is constructed for each EIM BAA as the day-ahead forecast (as an estimate of the Base Schedules) to the actual load. For CAISO, the same type of ratio is constructed, but taking the day-ahead market schedule over the actual load. The proxy for imbalance energy demand (*i.e.*, Wholesale Demand) in the EIM is calculated by applying an average percentage error factor to actual monthly peak load. We have used the values reported in the PSE Market Power Analysis for the Base Schedules and the proxy for Wholesale Demand, which are

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59 The details for the location where every generating unit included in the analyses, as well as other relevant information such as owner, in-service date, and unit status, is provided in workpapers. The generating database relies significantly on information compiled by third-party vendors of such data, including ABB Velocity Suite.

60 This file is provided in workpapers and the data was adjusted to reflect the 2016/17 Study Period.

61 The aggregate amount of Participating Resources in each EIM BAA was based on public workpapers in Idaho Power Company, Affidavit of Matthew E. Arenchild, Docket No. ER10-2126, Attachment B (Sept. 6, 2017) ("IPC EIM Analysis"). This study also analyzed a 2016/17 Study Period and the *IPC EIM Analysis* is the same basic source used in the PSE Market Power Analysis (Page 80, Table 15-13).

consistent with other filings made by the transmission owners in the Northwest Region that were made in June 2019 (as well as our EIM Change in Status analysis).[62]

*Outages*. Seasonal average planned outages were determined using reported outages at the time of monthly peaks from each EIM Entity's FERC Form No. 714 as discussed above for the Indicative Screens. Outages were allocated to both Participating and non-Participating Resources.

*Reserves*. Consistent with Order No. 697, we included operating reserve requirements based on State and Regional Reliability Council operating requirements for reliability as discussed above for the Indicative Screens.

*Imports*. Imports into the EIM are assumed to be zero. In EIM BAAs, imported resources, other than those that are dynamically scheduled or pseudo-tied, are currently not allowed to participate in the EIM. EIM Entities may use imports to meet Base Schedules, and uncommitted imports are eligible to participate in the CAISO fifteen-minute market, but we make the simplifying assumption to include only generation that is located within the 9-Participant Market, or which has long-term firm transmission capacity into the market, in the analysis. This is conservative to the extent that resources which are able to participate in the CAISO's fifteen-minute market through the interties into the CAISO (and thus, the EIM) are not included as potential rival supply in our analysis.

### D. EIM Analyses and Results

Exhibits 12 and 13 present the results of the Modified Indicative Screen analyses. Exhibits 14 and 15 reflect the corresponding results for our sensitivity analysis that uses 300 MW as the relevant limit for Powerex's participation in EIM. Non-Applicant Uncommitted Capacity in the 9-Participant Market is not dependent upon Powerex's participation level; in other words, the Non-Applicant Uncommitted Capacity remains the same in the base case and sensitivity analysis we conducted.

#### 1. Pivotal Supplier Analysis

Exhibit 12 presents the PSA, assuming Powerex's participation is 3,150 MW and, therefore, Powerex's Uncommitted Capacity is reported as 3,150 MW. (We have reported Powerex's capacity in Row A ("Installed Capacity (from inside the study area)"), but the results would be identical if we

[62] See PSE Market Power Analysis (Tables 15-7, 16.1 and 16.2). No load is attributed to Powerex in calculating the various load metrics for the EIM.

reported the capacity in Row A1 as "remote" capacity.) The non-affiliate inputs are shown on Exhibit 12 for Installed Capacity, Reserve Requirements and Base Schedules for the EIM participants (other than Powerex) within the 9-Participant Market. Uncommitted non-affiliate supply is calculated on an individual EIM-BAA basis (details are provided in workpapers ("Wkp-Summary of Inputs (EIM)")) and each EIM BAA's Uncommitted Capacity is restricted to the minimum of estimated Uncommitted Supply or the amount of Participating Resources in the EIM BAA. Total Uncommitted Supply, shown in Row K, is 44,540 MW, including any deductions for instances where an EIM BAA does not have sufficient Participating Resources. Because Powerex's participation is defined based on the maximum transmission capability (3,150 MW) available for Powerex to participate in the EIM, there is no need for any deduction for Base Schedules with respect to Powerex.

The proxy for Wholesale Load, as described above, is 1,550 MW. Net Uncommitted Supply is the difference between Total Uncommitted Supply (44,540 MW) and Wholesale Load (1,550 MW), or 42,990 MW (shown on Row P). Powerex's Uncommitted Capacity of 3,150 MW is less than the Net Uncommitted Supply of 42,990 MW and, therefore, Powerex is not a pivotal supplier and passes the Pivotal Supplier Analysis.

2. Market Share Analysis

Exhibit 13 presents the MSA for the base case, assuming Powerex's participation is 3,150 MW. Powerex's Uncommitted Capacity is 3,150 MW because there are no deductions made for Planned Outages, Reserve Requirements, or Base Schedules. Calculations for deriving Uncommitted Capacity in each of the EIM BAAs are detailed in workpapers ("Wkp-Summary of Inputs (EIM)"), including restricting each of the non-affiliate's Uncommitted Capacity to the minimum of estimated Uncommitted Capacity or the amount of Participating Resources (after accounting for Planned Outages) in the EIM BAA.

The total non-affiliate inputs also are shown on Exhibit 13. Specifically, Non-Affiliate Capacity is reported in Rows L and L1. From this capacity, deductions are made for Reserve Requirements (Row K), Planned Outages (Row O) and Base Schedules (Row H). Powerex's Uncommitted Capacity (3,150 MW) is a small share of the Total Seasonal Uncommitted Capacity, shown in Row S. Specifically, Powerex's market shares range from 5.6 percent to 7.3 percent, well below the 20 percent safe-harbor threshold.

Exhibits 14 and 15 present the equivalent analyses for the sensitivity analysis, assuming that Powerex's participation is limited to 300 MW. Again, Powerex is not a pivotal supplier and its market share falls to less than 1 percent.

Thus, on the basis of the Commission's Indicative Screens, Powerex does not have horizontal market power in the EIM.[63]

### E. Price Separation Analysis

The "price separation" analysis required by the Commission is not directly applicable to Powerex due to the manner in which Powerex participates in the EIM. Powerex's EIM transactions are defined to occur on the U.S. side of the BC-US border, such that the EIM area does not extend into Canada and is entirely within the U.S., subject to the Commission's exclusive jurisdiction. The EIM pricing node for Powerex is at the BC-US border, but there are no EIM-related market prices published for inside British Columbia. Powerex is not a BAA or a transmission provider. Powerex does not have any load or customers that take service through the EIM, and the costs of imbalances at the location of Powerex's aggregate resources are borne solely by Powerex.

These facts distinguish Powerex from other EIM participants that operate BAAs in the U.S. in terms of conducting a "price separation" analysis. The Commission has previously determined that a potential EIM participant is permitted to demonstrate that there are no frequently binding transmission constraints that would limit imports into its home BAA such that the home BAA should not be deemed to be an EIM submarket. In Powerex's case, Powerex does not have a home BAA and its participation occurs solely through aggregated resources located at the BC-US border. The BCHA BAA is outside the Commission's jurisdiction and the EIM does not extend into the BCHA BAA. As a result, there are no concerns that Powerex is located within a submarket within the EIM footprint. In the EIM Change in Status filing for Powerex supporting Powerex's initial participation in EIM, we explained the facts surrounding Powerex's participation in the EIM and did not provide an analysis of the BCHA BAA.

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63 As noted, our analysis relies on Installed Capacity values. Other EIM analyses, including the analyses for PSE and IPC, have relied on de-rated energy-limited generating capacity consistent with the capacity rating methodology used in their triennials. In workpapers, we provide an analysis using the Uncommitted Capacity values from these filings that confirms that our results are not dependent upon using Installed Capacity nor the specific data and methodology of our analysis. The Modified Indicative Screens are passed.

We also previously noted that neither PSEI nor CAISO, which are the relevant U.S. BAAs with regard to Powerex's EIM transfers, were considered a submarket within the EIM.[64] Updated analysis by PSE and the CAISO's Department of Market Monitoring ("DMM") continue to support a finding that the CAISO and PSEI are not submarkets within EIM and are not part of a submarket within the EIM footprint based on actual historical data. Specifically, DMM analyzed the competitiveness of the EIM and the BAA operators who made their Triennial Filings in June 2019.[65] The DMM's analysis for PSEI concluded that "(1) the EIM is structurally competitive during almost all intervals; (2) the PSE Balancing Authority Area (BAA) has not been subject to any frequently binding transmission constraints; and (3) potential structural market power that may exist in some intervals would be mitigated by the CAISO's real-time bid mitigation procedures."[66] The DMM's finding are consistent with the analysis and conclusions of the PSE Market Power Analysis. These analyses support that there is not a submarket within EIM and, in particular that PSEI – the first point of interconnection for Powerex (other than CAISO) - is not a separate submarket. Therefore, the relevant geographic market is the entire EIM footprint.

### F. EIM Market Monitoring and Mitigation

The EIM is governed by the CAISO Tariff, which includes comprehensive market monitoring and market power mitigation measures. The CAISO DMM acts as market monitor for all CAISO markets, including the EIM. Of specific relevance, the market mitigation rules within the CAISO Tariff and the Commission's EIM orders apply the CAISO's Real-Time Local Market Power Mitigation procedures to the EIM. The combination of market power mitigation and market monitoring measures ensure that Powerex, or any other EIM participants, cannot exercise any market power it may be deemed to have in the EIM.

Potential market power concerns for the imbalance energy product are different than such potential concerns in the energy and capacity markets. EIM Entities, as well as Powerex as the Canadian EIM Entity, have requirements (as well as financial incentives) to submit accurate Base

64 *EIM Change in Status*, Page 10.

65 The DMM produces quarterly and annual reports that include analyses of EIM as well as various special reports on particular EIM issues. In addition, DMM provided special reports evaluating the Northwest Triennial filers who participate in the EIM.

66 Report of the CAISO DMM, "Structural Competitiveness of the Energy Imbalance Market: Puget Sound Energy Balancing Area, CAISO Department of Market Monitoring, Revised – August 20, 2019 ("DMM PSE Report").

Schedules, including detailing the generating resources that will be used to meet load and reliability obligations as well to meet other operational requirements, such as ramping capability. Further, an EIM Entity may be a buyer or a seller in any interval depending on factors that are by definition non-systematic, such as actual renewable energy output levels. Also, because the imbalance energy demand in any market interval is derived as the difference between actual and forecast generation and load, it is difficult to forecast times when demand will be high or low (for example, periods of high imbalance energy demand are sporadic and not systematic). This attribute would typically frustrate attempts to exercise market power.

Finally, CAISO's existing mitigation, which applies during all EIM market intervals, is well suited and sufficient to address market power concerns in the EIM. Specifically, the Commission has approved monitoring and mitigation of EIM interconnections as part of the CAISO's real-time mitigation.[67] DMM has explained that during any intervals when a supplier may be pivotal and competitive supply from other EIM BAAs may be limited by congestion, "the potential structural market power is mitigated by the CAISO's highly accurate real-time bid mitigation procedures."[68]

Recent analyses conducted by the DMM also concluded that its automatic bid mitigation procedures are, in fact, effectively mitigating market power.[69]

Thus, in addition to the analyses presented herein, the Commission can rely on market monitoring and mitigation governing the EIM to address any potential concerns about market power.

## VII. VERTICAL MARKET POWER

### A. Transmission

Neither Powerex nor its affiliates own any transmission in the U.S., and its affiliation with BC Hydro does not create any vertical market power concerns. As Powerex has explained in its prior triennial filings, BC Hydro has implemented an OATT that provides suppliers with comparable non-discriminatory open access within and through British Columbia for potential sales into the U.S..

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67 *Cal. Indep. Sys. Operator Corp.*, 155 FERC ¶ 61,329 (2016). The Commission recently approved certain modifications to the CAISO's real-time market power mitigation that are intended to facilitate participation hydroelectric resources in the EIM. *See Cal. Indep. Sys. Operator Corp.*, 168 FERC ¶ 61,213 (2019).

68 *See* DMM PSE Report, page 5.

69 *Id.*

BC Hydro's current OATT was approved by the British Columbia Utilities Commission as effective beginning March 1, 2006.[70]

### B. Barriers to Entry

Neither Powerex nor BC Hydro own or control intrastate natural gas transportation, intrastate natural gas storage or distribution facilities. Neither Powerex nor BC Hydro own or control any sites for generation capacity development that can be used to erect barriers to entry. Neither Powerex nor BC Hydro own or controls sources of coal supplies or controls access to the transportation of coal supplies such as barges and rail cars in the United States.

We understand that a statement on behalf of Powerex is included in the filing that affirms that Powerex and BC Hydro have not erected barriers to entry and will not erect barriers to entry.

Based on these facts, Powerex has demonstrated a lack of vertical market power.

## VIII. CONCLUSION

We conclude that Powerex meets all of the requirements to retain its existing market-based rate authority.

[70] The BC Hydro OATT replaced the Wholesale Transmission Service tariff originally implemented by BC Hydro, which was found in 1997 to meet the Commission's transmission market power requirement for Powerex's market-based rate authorization. *See B.C. Power Exch. Corp.*, 80 FERC ¶ 61,343 (1997); *see also Powerex Corp.*, ER11-2664-003 (October 5, 2012) (unpublished letter order) (concluding that amendments to the BC Hydro OATT to align its provisions to reflect the transmission planning principles adopted in Order No. 890 satisfy the Commission's requirements for market-based rate authority regarding vertical market power). On December 15, 2015, Powerex filed a notice of change in status in Docket No. ER10-3297-008 reporting that the BC Hydro OATT had been modified. *Powerex Corp.*, Docket No. ER10-3297-008 (Mar. 3, 2016) (unpublished letter order).

**UNITED STATES OF AMERICA**
**BEFORE THE**
**FEDERAL ENERGY REGULATORY COMMISSION**

| | | |
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| Powerex Corp. | ) | Docket No. ER10-3297-___ |

**AFFIDAVIT**

District of Columbia §
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JULIE R. SOLOMON being duly sworn, deposes and states: that she prepared the Affidavit and Exhibits of Matthew E. Arenchild and Julie R. Solomon and that the statements contained therein and the Exhibits attached hereto are true and correct to the best of her knowledge and belief.

Julie R. Solomon

SUBSCRIBED AND SWORN TO BEFORE ME, this the 30th day of December 2019.

Notary Public, District of Columbia

KAIA EVERT NOTARY PUBLIC EXP. 6-14-24 DISTRICT OF COLUMBIA

Printed Name: KAIA EVERT

My Commission Expires: JUNE 14, 2024

**UNITED STATES OF AMERICA**

**BEFORE THE**

**FEDERAL ENERGY REGULATORY COMMISSION**

**Powerex Corp.** ) **Docket No. ER10-3297-___**

## AFFIDAVIT OF MATTHEW E. ARENCHILD

Matthew E. Arenchild, being duly sworn, deposes and states that he participated in the preparation of the joint Affidavit of Matthew E. Arenchild and Julie R. Solomon and that the statements contained therein and in the Exhibits attached hereto are true and correct to the best of his knowledge and belief:

Matthew E. Arenchild

12/30/2019

Date

A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

State of CA
County of Sacramento

Subscribed and sworn to (or affirmed) before me on this

30th day of December, 2019, by

Matthew E. Arenchild

Proved to me on the basis of satisfactory evidence to be the person who appeared before me.

Signature Brittany Torgerson
Notary Public, State of California

BRITTANY TORGERSON
Notary Public – California
Sacramento County
Commission # 2232133
My Comm. Expires Feb 24, 2022

NAVIGANT

# Matthew E. Arenchild, Ph.D.

**Managing Director**

matt.arenchild@guidehouse.com
Folsom, CA
Direct: 916.631.3221

## Professional Summary

Dr. Arenchild is a Managing Director at Navigant, a Guidehouse company, in the Energy Practice. He has extensive experience in applied economics and regulation in the energy field, particularly with respect to addressing the challenges facing the United States electric industry. Dr. Arenchild has worked with numerous companies throughout the United States on energy and electric utility issues affecting wholesale and retail markets, including electric industry restructuring, analyzing market power at the state and federal level, antitrust cases, litigation, electric transmission access and rates, market manipulation, and compliance issues. He has testified before the Federal Energy Regulatory Commission (FERC) and appeared before industry groups and state regulatory commissions. Dr. Arenchild has led Navigant's development of various models and databases that are used in evaluating energy markets. Recently, a significant amount of Dr. Arenchild's experience has been on issues in the Western US markets, including analyzing the Western Energy Imbalance Market, CAISO's markets, and wholesale markets more generally as part of expert testimonies or strategic assignments. Dr. Arenchild also works extensively with a transmission-owning entity in the West on all aspects of operating in the evolving wholesale market. Dr. Arenchild is the Office Managing Director for Navigant's Folsom, CA office and oversees Federal Regulatory and Rates as part of his leadership role in Navigant's Energy and Capital Markets group.

## Professional Experience (Select examples)

**Wholesale Electric Markets - Market Power/Antitrust (FERC, DOJ/FTC)**

- Applied the FERC's Appendix A merger guidelines, including the Delivered Price Test (DPT), for a variety of clients, including for entities merging, seeking market-based rate (MBR) authority, or seeking strategic advice on the firms that could be acquired. Developed models and databases for conducting Delivered Price Test (DPT) and other required analyses. Provided expert testimony as necessary for clients before the relevant regulatory bodies.
- Provided regulatory and compliance assistance for market participants seeking to obtain or renew their MBR authority. Conducted FERC's Market Share Analysis and Pivotal Supplier Analysis (the "Indicative Screens") and provided expert testimony as necessary. Reviewed entities' processes and compliance with other facets of MBR authority, including required Asset Appendix and Electric Quarterly Report (EQR) submittals.
- Analyzed the Energy Imbalance Market (EIM) for entities evaluating participating in markets; provided expert testimony on market power issues for entities seeking to participate in EIM.
- Led development of a proprietary model (CEMA) to evaluate behavioral market power issues and effectiveness of alternative bidding strategies on market clearing prices and profits. The CEMA model has been filed in state proceedings.

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**Managing Director**

- Led modeling effort for retail market power study using a commercial chronological production cost model (PROSYM). The model was used to conduct a behavioral analysis by evaluating the profitability of various bidding strategies and to provide input data for the corresponding structural analyses.

**Restructuring/Stranded Investment**

- Part of team assisting investor-owned utilities during restructuring hearings in Pennsylvania and Maryland. Specific responsibilities included preparing and evaluating fuel forecasts and estimating the cost of new capacity. These inputs were used to estimate the future market price of energy and capacity using GE's MAPS simulation model. Analyzed proposals to securitize a portion of the utility's stranded investment.

**Litigation/Market Manipulation/Compliance**

- Conducted a variety of analyses in support of entities' regulatory filings and confidential negotiations regarding the California "crisis" and subsequent investigations.
- Supported a number of clients in FERC investigations or audits for compliance matters, including for potential violations of Codes of Conduct, Standards of Conduct and reporting requirements (including Electric Quarterly Reports). Provided analytical support, as well as making presentations to FERC, in order to resolve outstanding issues. Formulated and presented recommendations to senior management regarding going-forward procedures to ensure compliance.
- Provided regulatory and analytical support for entities facing regulatory Show Cause Orders or Section 206 proceedings at FERC on a variety of topics.

**Transmission/Distribution/Ancillary Services/Rates**

- Analyzed various entities' integrated resource plans to evaluate compliance with relevant federal and state laws and regulations, resource selection options, and the entities' ability to meet reliability requirements, including ancillary services and ramping needs.
- Analyzed the methodology used to calculate MW-Mile transmission rates contained in the MAPP Restated Agreement (providing expert testimony to FERC).
- Evaluated the types of transmission service traditionally offered in the electric industry, focusing specifically on the meaning of "firm" transmission service, which was the key issue in a lawsuit between two Pacific Northwest electric utilities.
- Worked with Power Technologies Inc (PTI) and electric utility clients to develop flow-based database for use in market power analysis, including flowgate framework and Transfer Distribution Factors.
- Led a number of efforts to develop transmission capacity values for use in market power analyses in both the Eastern Interconnection and the WECC, working with utility and NERC personnel.
- Worked with client's transmission personnel in developing methodologies for estimating simultaneous import limits that are consistent with FERC's methodology.

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**Managing Director**

- Evaluated proposal to equalize distribution costs in a state. Proposed alternative methodologies that the client could support and that would result in a more favorable cost allocation method for the company.
- Lead author for report analyzing provision of Ancillary Services in the WECC and FERC's existing regulations.

**Other Projects in the Energy and Environmental Fields**

- Lead or assist on various aspects of Navigant's support for the Transmission Agency of Northern California (TANC), which includes market and regulatory analysis, transmission operations (including OASIS and rates), transmission planning, and all aspects of administration.
- Analyzed the opportunity for existing and potential Qualifying Facilities to participate in the relevant markets as part of a group of utilities' petition to be relieved of their obligation to purchase from such facilities located in their respective service territories under Section 210M of PURPA.
- Acted as primary outside consultant for two affiliated parties negotiating a new power supply contract. New power supply agreement relied on traditional "split the savings" concept, adjusted for specific factors of importance to the affiliates to maximize the overall benefits.
- Analyzed displacement provisions in a contract between an investor-owned utility and a Qualifying Facility in the Pacific Northwest. Evaluated the Qualifying Facility's methodology for displacement and developed a new model to determine displacement based on engineering constraints and considering the interaction between the cogenerator and its host facility, its gas contracts with subsidiaries, and other contractual arrangements.
- Estimated the non-market damages suffered by a country as a result of Iraq's actions during the Gulf War. Project included team members traveling to impacted gulf state country. The estimates were filed with a UN commission.
- Evaluated the cost profiles of different technologies to produce a product used in nuclear warheads (tritium). Specific recommendations were made to the secretary of the Department of Energy regarding the most cost-effective means of replenishing the United States' stockpile of the product.

**Testimony, Presentations, Conferences and Memberships**

» Analysis of Transmission Rate Methodology in MAPP: *Affidavit of Matthew Arenchild*, "Motion to Intervene, Protest, Request for Suspension and for Further Procedures of Otter Tail Power Company," February 1997, Docket Nos. OA97-163, *et al*.

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» Section 203 Analysis of Entergy Gulf States, Inc. acquiring Calcasieu: *Affidavit of Matthew E. Arenchild,* "Entergy Gulf States, Inc. and Calcasieu Power, LLC," March 15, 2007, Docket No. EC07-70; *Rebuttal Affidavit of Matthew E. Arenchild,* "Entergy Gulf States, Inc. and Calcasieu Power, LLC," May 15, 2007, Docket No. EC07-70; *Supplemental Affidavit of Matthew E. Arenchild,* "Entergy Gulf States, Inc. and Calcasieu Power, LLC," June 28, 2007, Docket No. EC07-70; *Surrebuttal Affidavit of Matthew E. Arenchild,* "Entergy Gulf States, Inc. and Calcasieu Power, LLC," August 9, 2007, Docket No. EC07-70.

» Evaluation of Opportunities for Qualifying Facilities in the Service Territories of Southwestern Public Service Company, Oklahoma Gas and Electric, Public Service Company of Oklahoma and Southwestern Electric Power Company: *Affidavit of William H. Hieronymus and Matthew E. Arenchild,* "Xcel Energy Services Inc., Southwestern Public Service Company, Oklahoma Gas and Electric Company, American Electric Power Service Corporation, Public Service Company of Oklahoma and Southwestern Electric Power Company," September 25, 2007, Docket No. QM07-5.

» Section 203 Analysis of East Texas Electric Cooperative acquiring Warren Power, LLC: *Affidavit of Matthew E. Arenchild,* "Warren Power LLC," October 31, 2007, Docket No. EC08-9.

» Section 203 Analysis of Entergy Arkansas, Inc. acquiring Quachita Power, LLC: *Affidavit of Matthew E. Arenchild,* "Quachita Power LLC and Entergy Arkansas, Inc.," November 30, 2007, Docket No. EC08-19.

» Section 205 Analysis for H.Q. Energy Services (U.S.) Inc. and Cedar Rapids Transmission Company: *Affidavit of Matthew E. Arenchild,* "H.Q. Energy Services (U.S.) Inc. and Cedar Rapids Transmission Company," June 25, 2008, Docket Nos. ER97-851 and ER07-769.

» Section 205 Analysis for Entergy Nuclear Power Marketing, LLC *et al.*: *Affidavit of Matthew E. Arenchild,* "Entergy Nuclear Power Marketing, LLC *et al*.," June 27, 2008, Docket Nos. ER06-653, *et al*.

» Section 205 Analysis for New Brunswick Power Generation Corporation: *Affidavit of Matthew E. Arenchild,* "New Brunswick Power Generation Corporation," August 22, 2008, Docket No. ER08-1439; *Supplemental Affidavit of Matthew E. Arenchild*, "Integrys Energy Services, Inc. v. New Brunswick Power Generation Corporation," August 10, 2009, Docket Nos. ER08-1439 and EL09-32.

» Section 205 Analysis for Entergy Services, Inc., *et al.*: *Affidavit of Matthew E. Arenchild, "*Entergy Services, Inc., *et al.,"* August 29, 2008, Docket Nos. ER99-569, *et al.*

» Section 205 Analysis for Xcel Energy Services Inc., *et al.*: *Affidavit of Matthew E. Arenchild*, "Xcel Energy Services Inc., Northern States Power Company and Northern States Power Company (Wisconsin)," December 22, 2008, Docket Nos. ER01-205-033 and ER98-2640-031; *Supplemental Affidavit of Matthew E. Arenchild*, "Xcel Energy Services Inc., Northern States Power Company and Northern States Power Company (Wisconsin)," February 6, 2009, Docket Nos. ER01-205-033 and ER98-2640-031.

NAVIGANT

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**Managing Director**

» Section 205 Analysis for Entergy Nuclear Palisades, LLC, *et al.*: *Affidavit of Matthew E. Arenchild, "*Entergy Nuclear Palisades, LLC, *et al.,"* June 30, 2009, Docket Nos. ER06-1410, *et al.*

» Section 205 Analysis for Kansas City Power and Light Company, *et al.*: *Affidavit of William H. Hieronymus and Matthew E. Arenchild, "*Kansas City Power and Light Company, *et al.,"* July 23, 2009, Docket Nos. ER99-1005, *et al.; Supplemental Affidavit of Matthew E. Arenchild,* "Kansas City Power and Light Company, *et al.,"* February 18, 2010.

» Section 205 Analysis for Southwestern Public Service Company: *Affidavit of Matthew E. Arenchild, "*Southwestern Public Service Company*,"* July 31, 2009, Docket No. ER99-1610*; Supplemental Affidavit of Matthew E. Arenchild,* "Southwestern Public Service Company*,"* February 18, 2010.

» Affidavit for Mieco, Inc. in Docket No. EL09-56 ("Brown Proceeding"), *Affidavit of Matthew E. Arenchild*, "People of the State of California, ex rel. Edmund G. Brown, Jr., Attorney General v. Powerex Corp. (f/k/a/ British Columbia Power, *et al*.," September 3, 2009, Docket No. EL09-56.

» Testimony for Mieco, Inc. in Docket No. EL02-71 ("Lockyer Proceeding"), *Prepared Answering Testimony of Matthew E. Arenchild*, "State of California, ex rel. Bill Lockyer, Attorney General v. British Columbia Power Company, *et al*.," September 17, 2009, Docket No. EL02-71.

» Testimony for Mieco, Inc. in Docket No. EL02-71 ("Lockyer Proceeding"), *Prepared Cross-Answering Testimony of Matthew E. Arenchild*, "State of California, ex rel. Bill Lockyer, Attorney General v. British Columbia Power Company, *et al*.," November 5, 2009, Docket No. EL02-71.

» Testimony for Merrill Lynch Capital Services, Inc. in Docket No. EL02-71 ("Lockyer Proceeding"), *Prepared Answering Testimony of Matthew E. Arenchild*, "State of California, ex rel. Bill Lockyer, Attorney General v. British Columbia Power Company, *et al*.," September 17, 2009, Docket No. EL02-71.

» Testimony for Commerce Energy, Inc. in Docket No. EL02-71 ("Lockyer Proceeding"), *Prepared Answering Testimony of Matthew E. Arenchild*, "State of California, ex rel. Bill Lockyer, Attorney General v. British Columbia Power Company, *et al*.," September 17, 2009, Docket No. EL02-71.

» Section 203 Analysis of Entergy Louisiana, LLC acquiring Acadia Power Partners, LLC: *Affidavit of Matthew E. Arenchild,* "Entergy Louisiana, LLC and Acadia Power Partners, LLC," January 29, 2010, Docket No. EC10-43.

» Section 205 Analysis for Llano Estacado Wind, LLC: *Affidavit of Matthew E. Arenchild, "*Llano Estacado Wind, LLC*,"* March 1, 2010, Docket No. ER02-73*.*

» Section 205 Analysis for Llano Estacado Wind, LLC: *Affidavit of Matthew E. Arenchild, "*Llano Estacado Wind, LLC*,"* December, 2012, Docket No. ER02-73*.*

» Section 205 Analysis for Arizona Public Service Company: *Affidavit of Matthew E. Arenchild, "*Arizona Public Service Company*,"* March 8, 2010, Docket No. ER99-4124*.*

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# Matthew E. Arenchild, Ph.D.

**Managing Director**

» Section 205 Analysis for Arizona Public Service Company: *Affidavit of Matthew E. Arenchild, "*Arizona Public Service Company*,"* December 2012, Docket No. ER99-4124*.*

» Section 205 Analysis for Tucson Electric Company, *et al*.: *Affidavit of Matthew E. Arenchild, "*Tucson Electric Company, *et al.,"* March 8, 2010, Docket Nos. ER98-1150, *et al.; Supplemental Affidavit of Matthew E. Arenchild,* "Tucson Electric Power Company, *et al*.,*"* August 13*,* 2010*.*

» Section 205 Analysis for Xcel Energy Services Inc., *et al.*: *Affidavit of Matthew E. Arenchild*, "Xcel Energy Services Inc., Public Service Company of Colorado," June 30, 2010, Docket Nos. ER98-4590, *et al.*

» Section 205 Analysis for Tucson Electric Company, *et al*.: *Affidavit of Matthew E. Arenchild, "*Tucson Electric Company, *et al.,* December 2012, Docket Nos. ER98-1150, *et al*.

» Notice of Change in Status Analysis for Arizona Public Service Company: *Affidavit of Matthew E. Arenchild, "*Arizona Public Service Company*,"* June 24, 2010, Docket No. ER99-4124*.*

» Section 203 Analysis: *Affidavit of Matthew E. Arenchild,* "Entergy Power Ventures, LP," September 1, 2010, Docket No. EC10-91.

» Notice of Change in Status Analysis for Kansas City Power and Light, *et al.: Affidavit of Matthew E. Arenchild, "*Kansas City Power and Light Company, *et al.,"* September 27, 2010, Docket Nos. ER99-1005, *et al.*

» Section 203 Analysis: *Affidavit of Matthew E. Arenchild,* "EAM Nelson Holding, LLC," May 2, 2011, Docket No. EC11-76.

» Section 205 Analysis for Entergy Nuclear Power Marketing, LLC *et al.*: *Affidavit of Matthew E. Arenchild,* "Entergy Nuclear Power Marketing, LLC *et al*.," June 29, 2011, Docket Nos. ER06-653, *et al*.

» Section 205 Analysis for Entergy Services, Inc., *et al.*: *Affidavit of Matthew E. Arenchild, "*Entergy Services, Inc., *et al.,"* June 30, 2011, Docket Nos. ER99-569, *et al.; Supplemental Affidavit of Matthew E. Arenchild, "*Entergy Services, Inc., *et al.,"* December 2, 2011*.*

» Notice of Change in Status Analysis for Kansas City Power and Light, *et al.: Affidavit of Matthew E. Arenchild, "*Kansas City Power and Light Company, *et al.,"* July 15, 2011, Docket Nos. ER99-1005, *et al.; Supplemental Affidavit of Matthew E. Arenchild, "*Kansas City Power and Light Company, *et al.,"* October 28, 2011.

» Section 203 Analysis: *Affidavit of Matthew E. Arenchild,* "FPLE Rhode Island State Energy L.P., *et al*.," November 11, 2011, Docket No. EC12-23.

» Section 205 Analysis for Xcel Energy Services Inc., *et al.*: *Affidavit of Matthew E. Arenchild*, "Xcel Energy Services Inc., Northern States Power Company and Northern States Power Company (Wisconsin)," December 22, 2011, Docket Nos. ER10-1819, *et al.*

NAVIGANT

# Matthew E. Arenchild, Ph.D.

**Managing Director**

» Section 203 Analysis: *Affidavit of Matthew E. Arenchild,* "Arizona Public Service Company," May 31, 2012, Docket No. EC12-106.

» Section 205 Analysis for Southwestern Public Service Company: *Affidavit of Matthew E. Arenchild, "*Southwestern Public Service Company*,"* June 30, 2012, Docket No. ER99-1610.

» Section 205 Analysis for Kansas City Power and Light Company, *et al.*: *Affidavit of Matthew E. Arenchild, "*Kansas City Power and Light Company, *et al.,"* June 28, 2012, Docket Nos. ER10-2074, *et al.*

» Section 205 Analysis for Entergy Nuclear Palisades, LLC and Northern Iowa Windpower, LP: *Affidavit of Matthew E. Arenchild*, "Entergy Nuclear Palisades, LLC, *et al.*," June 30, 2012, Docket Nos. ER10-1532, *et al.*

» Section 205 (Change in Status) Analysis for Kansas City Power and Light Company, *et al.*: *Supplemental Affidavit of Matthew E. Arenchild, "*Kansas City Power and Light Company, *et al.,"* September, 2012, Docket Nos. ER10-2074, *et al.; Second Supplemental Affidavit of Matthew E. Arenchild, "*Kansas City Power and Light Company, *et al.,"* January, 2013, Docket Nos. ER10-2074, *et al.*

» Notice of Change in Status Analysis for Entergy Services, *et al.: Affidavit of Matthew E. Arenchild, "*Entergy Services, *et al.,"* December 31, 2012, ER99-569, *et al.*

» Section 203 Analysis of Nevada Power Company acquiring a portion of Reid Gardner Unit 4: *Joint Affidavit of Julie Solomon and Matthew E. Arenchild,* "Nevada Power Company," April 22, 2013, Docket No. EC13-96.

» Section 205 Analysis for Xcel Energy Services Inc., *et al.*: *Affidavit of Matthew E. Arenchild*, "Xcel Energy Services Inc., Public Service Company of Colorado," June 28, 2013, Docket Nos. ER10-1818, *et al.*

» Notice of Change in Status Analysis for Arizona Public Service Company: *Affidavit of Matthew E. Arenchild*, "Arizona Public Service Company," January 2014, Docket No. ER99-4124.

» Notice of Change in Status Analysis for Tucson Electric Power/UNSE: *Affidavit of Matthew E. Arenchild*, "Tucson Electric Power, *et al*.," January 21, 2014, Docket No. ER10-2564.

» Section 203 Analysis: *Affidavit of Matthew E. Arenchild*, "Tucson Electric Power Company, *et al*." May 15, 2014, Docket No. EC14-88. (Gila River Power Block 3 analysis).

» Section 205 Analysis for Entergy Nuclear Power Marketing, LLC *et al.*: *Affidavit of Matthew E. Arenchild,* "Entergy Nuclear Power Marketing, LLC *et al*.," June 30, 2014, Docket Nos. ER14-2330, *et al*.

NAVIGANT

# Matthew E. Arenchild, Ph.D.

**Managing Director**

» Section 205 Analysis for Xcel Energy Services, Inc., *et al*.: *Affidavit of Matthew E. Arenchild*, "Xcel Energy Services, Inc., Northern States Power Company and Northern States Power Company (Wisconsin)," December 2014, Docket Nos. ER10-1819, *et al*.

» Section 205 Analysis for Entergy Services, Inc., *et al.*: *Affidavit of Matthew E. Arenchild*, "Entergy Services, Inc., *et al*.," December 2014, Docket No. ER99-569.

» Section 205 Analysis for Southwestern Public Service Company: *Affidavit of Matthew E. Arenchild, "*Southwestern Public Service Company*,"* June 30, 2015, Docket No. ER99-1610.

» Section 205 Analysis for Kansas City Power and Light Company, *et al.*: *Affidavit of Matthew E. Arenchild, "*Kansas City Power and Light Company, *et al.,"* June 30, 2015, Docket Nos. ER10-2074, *et al.*

» Section 203 Analysis: *Affidavit of Matthew E. Arenchild,* "Union Power Partners, L.P. *et al.*," March 17, 2015, Docket No. EC15-98; *Supplemental Affidavit of Matthew E. Arenchild*, June 30, 2015; *Second Supplemental Affidavit of Matthew E. Arenchild*, September 18, 2015; *Third Supplemental Affidavit of Matthew E. Arenchild*, December 7, 2015.

» Section 205 Triennial Market Power Update for the Southwest Region of the Fortis, Inc. subsidiaries: *Affidavit of Matthew E. Arenchild*, "Tucson Electric Power, *et al*.," December 31, 2015, Docket Nos. ER10-2805, *et al*.

» Section 205 Triennial Market Power Analysis and Notice of Change in Status of Public Service Company of Colorado, *et al*.: *Affidavit of Matthew E. Arenchild*, "Public Service Company of Colorado," January 14, 2016, Docket Nos. ER10-1818, *et al*.

» Section 203 Analysis: *Affidavit of Matthew E. Arenchild*, "Tucson Electric Power Company, *et al*." March 29, 2016, Docket No. EC16-96. (Springerville analysis).

» Section 205 Response to the February 22, 2016 Show Cause Order of Tucson Electric Power Company, *et al.*, April 21, 2016, Docket Nos. ER10-2564, *et al.*

» Section 205 Notice of Change in Status of the Entergy Central MBR Utilities: *Affidavit of Matthew E. Arenchild*, "Entergy Arkansas, Inc., *et al*.," April 1, 2016, Docket Nos. ER15-800, *et al*.

» Section 205 Analysis: Hydro Renewable Energy Inc., *Affidavit of Matthew E. Arenchild*, "Hydro Renewable Energy Inc.," June 3, 2016, Docket No. ER16-1875.

» Section 203 Analysis: *Affidavit of Julie R. Solomon and Matthew E. Arenchild*, "Nevada Power Company, *et al*." June 7, 2016, Docket No. EC16-130. (South Point analysis).

» Section 205 Triennial Market Power Analysis for the Northwest Region of the BHE Northwest Companies: *Affidavit of Julie R. Solomon and Matthew E. Arenchild,* "PacifiCorp *et al*.," June 30, 2016, Docket No. ER10-3246, *et al.*

NAVIGANT

# Matthew E. Arenchild, Ph.D.

**Managing Director**

» Section 205 Updated Market Power Analysis of the Black Hills MBR Sellers for the Northwest Region: *Affidavit of Matthew E. Arenchild*, June 30, 2016, Docket Nos. ER11-4436, *et al*.

» Section 205 Triennial Market Power Analysis in the Northwest Region for Portland General Electric Company: *Affidavit of Matthew E. Arenchild*, June 30, 2016, Docket No. ER10-2249.

» Section 205 Analysis: Notice of Change in Status of Portland General Electric Company: *Affidavit of Matthew E. Arenchild*, August 26, 2016, Docket No. ER10-2249.

» Section 205 Analysis: Notice of Change in Status of Tucson Electric Power Company, *et al*.: *Affidavit of Matthew E. Arenchild*, October 17, 2016, Docket Nos. ER10-2289, *et al.*

» Section 206 Analysis: Answer of Tucson Electric Power Company, *et al*.: *Affidavit of Matthew E. Arenchild*, December 8, 2016, Docket Nos. ER10-2564, *et al.*

» Section 205 Analysis: Emera Energy Services Subsidiary No. 15 LLC, *et al.*, *Affidavit of Matthew E. Arenchild*, August 22, 2016, Docket Nos. ER16-2459, *et al.*

» Section 205 Analysis: Triennial Market Power Update for the Northeast Region and Notice of Change in Status of Algonquin Energy Services Inc., *et al. Affidavit of Matthew E. Arenchild*, December 22, 2016, Docket Nos. ER11-4267, *et al*.

» Section 205 Analysis: Application for Market-Based Rate Authority, Entergy New Orleans, LLC, *Affidavit of Matthew E. Arenchild*, June 5, 2017, Docket No. ER17-1757. Supplement to June 5, 2017 Entergy New Orleans, LLC tariff filing under ER17-1757, *Supplemental Affidavit of Matthew E. Arenchild*, June 29, 2017, Docket No. ER17-1757-000.

» Section 205 Analysis: Triennial Market Power Update for the Northeast Region of the Entergy Northeast MBR Utilities under ER14-2327, *et al*., *Affidavit of Matthew E. Arenchild*, June 29, 2017, Docket Nos. ER14-2327-002, *et al*.

» Section 205 Analysis: *Affidavit of Julie R. Solomon and Dr. Matthew E. Arenchild,* Alabama Power Company, *et al.,* June 29, 2017, Docket Nos. ER10-1874-005, *et al*.

» Section 205 Analysis: *Affidavit of Julie R. Solomon and Matthew E. Arenchild,* Duke Energy Progress, LLC, June 30, 2017, Docket No. ER17-1963-000.

» Section 205 Analysis: *Affidavit of Julie R. Solomon and Matthew Arenchild,* PPL Southeast Companies, June 30, 2017, Docket Nos. ER10-1511-007 *et al*.

» Section 205 Analysis: Supplemental Information to January 15, 2015 Notification of Changes in Status of Tucson Electric Power Company *et al.* under ER 10-2564, *et al. Affidavit of Matthew E. Arenchild*, August 14, 2017, Docket Nos. EL15-42-000, *et al.*

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# Matthew E. Arenchild, Ph.D.

**Managing Director**

» Section 205 Analysis for Xcel Energy Services, Inc., *et al*.: *Affidavit of Matthew E. Arenchild*, "Xcel Energy Services, Inc., Northern States Power Company and Northern States Power Company (Wisconsin)," December 2017, Docket Nos. ER10-1819, *et al*.

» Section 205 Analysis for Entergy Nuclear Power Marketing, LLC *et al.*: *Affidavit of Matthew E. Arenchild,* "Entergy Nuclear Power Marketing, LLC *et al*.," June 2017, Docket Nos. ER14-2330, *et al*.

» Section 205 Analysis for Entergy Services, Inc., *et al.*: *Affidavit of Matthew E. Arenchild*, "Entergy Services, Inc., *et al*.," December 2017, Docket No. ER99-569, *et al*.

» Section 203 Analysis: *Affidavit of Matthew E. Arenchild*, "Walleye Energy, LLC and FirstEnergy Generation, LLC" March 20, 2018, Docket No. EC18-72. (Bay Shore analysis).

» Section 205 Analysis for Southwestern Public Service Company: *Affidavit of Matthew E. Arenchild, "*Southwestern Public Service Company*,"* June 2018, Docket No. ER99-1610.

» Section 205 Analysis for Kansas City Power and Light Company, *et al.*: *Affidavit of Matthew E. Arenchild, "*Kansas City Power and Light Company, *et al.,"* June 2018, Docket Nos. ER10-2074, *et al.*

» Section 205 Analysis: Application for Market-Based Rate Authority, Entergy Arkansas, LLC, *Affidavit of Matthew E. Arenchild*, June 29, 2018, Docket No. ER18-___. Section 205 Analysis: Application for Market-Based Rate Authority, Entergy Mississippi, LLC, *Affidavit of Matthew E. Arenchild*, June 29, 2018, Docket No. ER18-___.

» Energy Imbalance Market: Notice of Change in Status of Portland General Electric Company: *Affidavit of Matthew E. Arenchild*, June 16, 2017, Docket No. ER10-2249.

» Energy Imbalance Market: Notice of Change in Status of Idaho Power Company: *Affidavit of Matthew E. Arenchild*, September 6, 2017, Docket No. ER10-2126, Attachment B.

» Energy Imbalance Market: Notice of Change in Status of Powerex Corp.: *Affidavit of Matthew E. Arenchild and Julie R. Solomon*, November 15, 2017, Docket No. ER10-2397, Attachment A.

» "Market Power Issues in Bilateral Ancillary Services Markets," Docket Nos. RM11-24 and AD10-13, August 22, 2011. Lead author for report filed as part of *Comments of WSPP Inc*.

» Refinements to Policies and Procedures for Market-Based Rates for Wholesale Sales of Electric Energy, Capacity and Ancillary Services by Public Utilities, *Comments of Julie R. Solomon and Matthew E. Arenchild*, Docket No. RM14-14, September 23, 2014.

» Notice of Inquiry: Modifications to the Commission Requirements for Review of Transactions under Section 03 of the Federal Power Act and Market-Based Rate Applications under Section 205 of the Federal Power Act, Comments to the Federal Energy Regulatory Commission, Market Power Experts (John R. Morris, Julie R. Solomon, Matthew E. Arenchild, *et al*.), Docket No. RM16-21, November 28, 2016.

NAVIGANT

# Matthew E. Arenchild, Ph.D.

**Managing Director**

» Speaker: American Power Conference, April 2000: "The Role of the Electric Transmission Network in Market Power Analysis."

» Speaker: Morgan Lewis/CRA, International Conference, May 2006: "Getting from Surviving to Thriving in the New Compliance Era: What to do if faced with an Audit/Investigation."

» Speaker: Center for Research in Regulated Industries, Western Conference, June 2012: "Analyzing State RPS Provisions: Lessons from PURPA's Implementation."

» Speaker: Center for Research in Regulated Industries, Western Conference, June 2014: "Impact of FERC's Implementation of FPA Section 203 on Utility Integrated Resource Plans."

» Co-author: Center for Research in Regulated Industries, Western Conference, June 2016: "Regionalization of the Electricity Grid in the West – Are Formal Electricity Markets the Right Solution?"

» Center for Research in Regulated Industries, Western Conference, June 2018: "Planning the Western Grid – Impact of New Policies and Technology."

» Panel Member: Various state public utility commission proceedings and before regulatory and economic conferences, including sworn testimony before the Mississippi Public Service Commission regarding deregulating the state's electric industry.

## Work History

- Managing Director/Director, Navigant (2010 – Present)
- Principal, Charles River Associates (2002 – 2010)
- Principal Consultant**,** PA Consulting and its predecessor companies (PHB Hagler Bailly and Putnam, Hayes & Bartlett) (1996 – 2002)

## Memberships

- Board of Directors (President): New Morning Youth and Family Services (http://www.newmorningyfs.org)
- Member of Organizing Committee/Speaker, 2008-2019: Center for Research in Regulated Industries, Western Conference

## Education

- Ph.D., Economics, Washington State University
- M.S., Applied Economics and Finance, University of California, Santa Cruz
- B.A., Economics, University of California, Santa Cruz

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**Exhibit 2**

# Julie R. Solomon

**Managing Director**

julie.solomon@navigant.com
Washington, DC
Direct: 202.481-8492

## Professional Summary

Julie Solomon is a Managing Director in the Energy practice at Navigant. Julie has more than 25 years of consulting experience, specializing in the areas of regulatory and utility economics, financial analysis and business valuation. Ms. Solomon has participated in analysis of proposed regulatory reforms, supply options and utility industry restructuring in the gas and electric industries. She also has advised utility clients in corporate strategy and corporate restructuring, and consulted to legal counsel on a variety of litigation and regulatory matters, including antitrust litigation and contract disputes. She has filed testimony in numerous proceedings before the Federal Energy Regulatory Commission. Much of her current practice focuses on regulatory and market power issues concerning mergers and acquisitions and compliance filings in the electricity market.

## Areas of Expertise

- **Competition Issues:** Advises clients in the electric and gas utility industry on competition issues, including the impact of mergers on competition. Directed a large number of analytic studies relating to obtaining merger approval from regulatory authorities.

- **Restructuring:** Advises clients in the electric utility industry on restructuring strategies, including potential mergers and acquisitions, market reforms, functional unbundling and cost savings.

- **Regulatory and Litigation Matters:** Consults in the electric and gas utility industries in a variety of regulatory and litigation matters, including rate proceedings, prudence reviews, proposed regulatory reforms, power purchase disputes, analysis of supply options, privatization and restructuring.

## Professional Experience

### Mergers and Acquisitions (Market Power and Competition Issues)

- Advised clients and conducted analytic studies in connection with a large number of major electric and electric-gas mergers and asset transactions of regulated companies. Provided testimony to FERC for a number of such transactions (see testimony list for examples).
- Advised clients and provided confidential pre-screening analyses for potential mergers and acquisitions.
- Conducted numerous analytic studies in connection with FERC market-based rate applications

and compliance filings for electricity sellers. Provided testimony to FERC for a number of these types of transactions.

- Conducted numerous analytic studies in connection with FERC market-based rate applications and compliance filings for gas storage facilities. Provided testimony to FERC for a number of these types of transactions (see testimony list for examples).

## Utility Restructuring, Litigation and Stranded Cost

- Conducted analytic studies and provided litigation support in connection with stranded cost proceedings in a number of states.
- Provided analytic support evaluating the benefits of proposed transmission lines in support of state regulatory proceedings.
- Assisted in the valuation of the interests of several firms in various cogeneration projects for the purpose of combining these interests into a new entity or selling interests to third parties.
- Analyzed the financial feasibility and viability of a large number of cogeneration projects, assisted in the preparation of presentations and filings and presented testimony to the relevant public utility commission.
- Participated in a study to analyze the financial effects of a variety of restructuring options for a utility, including transfer and/or sale of assets and subsequent sale-leasebacks, and debt restructuring alternatives.
- Provided litigation support in major utility rate proceedings, including assisting in the preparation of responses to interrogatories and data requests, preparation of company and outside expert witnesses for deposition and hearings, and assistance in the deposition and cross-examination of intervenor witnesses.

# Julie R. Solomon

**Managing Director**

## Work History

| | |
|---|---|
| Managing Director, Navigant | 2010 – Present |
| Vice President, Charles River Associates | 2001 – 2010 |
| Senior Vice President, Putnam, Hayes and Bartlett, Inc. and PHB Hagler Bailly, Inc | 1986 – 2000 |
| Economist, Economic Consulting Services, Inc. | 1979 – 1986 |
| Economist, U.S. Department of Labor | 1976 – 1979 |

## Education

| | |
|---|---|
| Master of Business Administration, Finance | The Wharton School, University of Pennsylvania |
| Bachelor of Arts, Economics | Connecticut College |

## Testimony or Expert Report (2017-July 2019)

- Affidavit (with Matthew E. Arenchild) on behalf of Public Service Company of Colorado, et al., Docket No. EC19-115, application for authorization of disposition of jurisdictional facilities, July 23, 2019.
- Affidavit on behalf of Big Sky Wind, LLC, et al., Docket No. EC19-114, application for authorization of disposition of jurisdictional facilities, July 18, 2019.
- Affidavit on behalf of Empire Generating Co, LLC, Docket No. EC19-99, Response to Deficiency Letter, July 17, 2019.
- Affidavit on behalf of Arlington Valley, LLC., Docket No. ER10-2757, market-based rate triennial, June 27, 2019.
- Affidavit on behalf of Griffith Energy LLC., Docket No. ER18-2756, market-based rate triennial, June 26, 2019.
- Affidavit on behalf of Chief Conemaugh Power II, LLC, et al., Docket No. EC19-106, application for authorization of disposition of jurisdictional facilities, June 26, 2019.
- Affidavit on behalf of Hartree Partners, et al., Docket No. EC19-104, application for authorization of disposition of jurisdictional facilities, June 19, 2019.
- Affidavit on behalf of Oasis Power Partners, et al., Docket No. EC19-94, application for authorization of disposition of jurisdictional facilities, May 24, 2019.
- Affidavit on behalf of Northern States Power Company, a Minnesota corporation, et al., Docket No. EC19-89, application for authorization of disposition of jurisdictional facilities, May 10, 2019.
- Affidavit on behalf of Mitsui Bussan Commodities, Ltd., Docket No. ER19-1806, market-based rate application, May 8, 2019.
- Affidavit on behalf of Convergent Energy and Power LP, et al., Docket No. EC19-85, application for authorization of disposition of jurisdictional facilities, May 3, 2019.
- Affidavit on behalf of Cobalt Power, L.L.C., et al., Docket No. EC19-79, application for authorization of disposition of jurisdictional facilities, April 18, 2019.

- Affidavit on behalf of New Brunswick Energy Marketing Corporation, Notice of Non-Material Change in Status, Docket No. ER14-225, April 4, 2019.
- Affidavit on behalf of Northern States Power Company, a Minnesota corporation, et al., Docket No. EC19-72, application for authorization of disposition of jurisdictional facilities, March 28, 2019.
- Affidavit on behalf of Cleco Cajun LLC, et al., Notice of Non-Material Change in Status, Docket No. ER19-289, et al., March 6, 2019.
- Affidavit on behalf of Vistra MBR Sellers in Response to December 6, 2018 Show Cause Order, Docket No. ER15-1596, et al., February 4, 2019.
- Affidavit on behalf of Bloom Energy, et al., Docket No. EC19-51, application for authorization of disposition of jurisdictional facilities, January 28, 2019.
- Affidavit (with Matthew E. Arenchild) on behalf of Oklahoma Gas and Electric Company, Docket No. EC19-49, application for authorization of disposition of jurisdictional facilities, January 23, 2019.
- Affidavit on behalf of Vistra MBR Sellers in Response to December 6, 2018 Letter Requesting Additional Information, Docket No. ER10-2669, et al., January 7, 2019.
- Affidavit on behalf of Public Service Company of New Mexico, Docket No. ER10-2302, market-based rate triennial filing, December 21, 2018.
- Affidavit on behalf of Northern States Power Company, a Minnesota corporation, et al., Docket No. EC19-38, application for authorization of disposition of jurisdictional facilities, December 14, 2018.
- Affidavit on behalf of Bridgeport Energy, LLC. et al., Docket No. EC19-35, application for authorization of disposition of jurisdictional facilities, December 14, 2018.
- Rebuttal testimony on behalf of Louisville Gas & Electric and Kentucky Utilities, Docket Nos. EC98-2-001 and ER18-2162-000, October 26, 2018.
- Affidavit on behalf of Luminant Energy Company LLC, Docket No. ER19-102, application for market-based rates, October 12, 2018.
- Affidavit on behalf of Dominion Energy Fairless, LLC. et al., Docket No. EC19-3, application for authorization of disposition of jurisdictional facilities, October 2, 2018.
- Affidavit on behalf of Heartland Divide Wind Project, LLC, Docket No. ER18-2246, application for market-based rates, August 18, 2018.
- Affidavit on behalf of Pegasus Wind, LLC, Docket No. ER18-2244, application for market-based rates, August 15, 2018.
- Affidavit on behalf of Upper Michigan Energy Resources Corporation, Docket No. ER18-2203, application for market-based rates, August 13, 2018.
- Affidavit on behalf of Union Electric Company, Inc., Docket No.EC18-133, application for authorization of disposition of jurisdictional facilities, August 9, 2018.
- Testimony on behalf of Louisville Gas and Electric Company, Docket No. EC98-2 and ER18-2162, August 3, 2018
- Affidavit on behalf of Armadillo Flats Wind Project, LLC Docket No. ER18-2118, application for market-based rates, July 31, 2018.
- Affidavit on behalf of Minco Wind IV, LLC and Minco Wind V, LLC, Docket Nos. ER18-2066 and -2067, application for market-based rates, July 26, 2018.

- Affidavit on behalf of Wildcat Ranch Wind Project, LLC, Docket No. ER18-2032, application for market-based rates, July 17, 2018.
- Affidavit on behalf of, Lorenzo Wind, LLC, Docket No. ER18-2003, application for market-based rates, July 11, 2018.
- Affidavit on behalf of Pratt Wind, LLC, Docket No. ER18-1981, application for market-based rates, July 9, 2018.
- Affidavit on behalf of Exelon Central Entities, Docket No. ER14-2144 et al., market-based rate triennial filing, June 29, 2018.
- Affidavit on behalf of The Empire District Electric Company, Docket No. ER10-2738, market-based rate triennial filing, June 29, 2018.
- Affidavit on behalf of Oklahoma Gas and Electric Company, Docket No. ER11-2105, market-based rate triennial filing, June 29, 2018.
- Affidavit on behalf of Wisconsin Public Service Corporation, Wisconsin River Power Company, Wisconsin Electric Power Company and WPS Power Development, LLC Docket Nos. ER18-1868 to -1871, market-based rate triennial filing, June 28, 2018.
- Affidavit on behalf of NorthWestern Corporation, Docket No. ER11-1858, market-based rate triennial filing, June 26, 2018.
- Supplemental affidavit on behalf of Bayou Cove Peaking Power, LLC, et al., Docket No. EC18-63, June 15, 2018.
- Affidavit on behalf of Vectren Corporation et al., Docket No. EC18-104, application for authorization of disposition of jurisdictional facilities, June 15, 2018.
- Affidavit on behalf of Langdon Renewables, LLC, Docket No. ER18-1771, application for market-based rates, June 11, 2018.
- Affidavit on behalf of East Hampton Energy Storage Center, LLC and Montauk Energy Storage Center, LLC, Docket Nos. ER18-1534 and -1535, application for market-based rates, May 7, 2018.
- Affidavit on behalf of Cabazon Wind Partnerships, LLC et al, Docket No. EC18-77, application for authorization of disposition of jurisdictional facilities, March 27, 2018.
- Affidavit on behalf of NorthWestern Corporation et al, Docket No. EC18-71, application for authorization of disposition of jurisdictional facilities, March 16, 2018.
- Affidavit on behalf of Avangrid Renewables, LLC, Docket Nos. ER16-1250 et al, notice of change in status for market-based rates, March 5, 2018.
- Affidavit on behalf of Cleco Applicants and NRG Applicants, Docket No. EC18-63, application for authorization of disposition of jurisdictional facilities, February 27, 2018.
- Affidavit on behalf of Dominion Energy, Inc. et al., Docket No. EC18-60, application for authorization of disposition of jurisdictional facilities, February 23, 2018.
- Affidavit on behalf of Elk City Renewables II, LLC, Docket No. ER18-882, application for market-based rates, February 20, 2018.
- Affidavit on behalf of Panoche Valley Solar, LLC, Docket No. ER18-855, application for market-based rates, February 13, 2018.

- Affidavit on behalf of Energia Sierra Juarez U.S. 2, LLC, Docket No. ER18-863, application for market-based rates, February 9, 2018.
- Affidavit on behalf of Ameren Illinois Company, Docket No. ER18-556, market-based rate triennial filing, December 28, 2017.
- Affidavit on behalf of Northern Indiana Public Service Company, Docket No. ER18-560, market-based rate triennial filing, December 28, 2017.
- Affidavit on behalf of Exelon Southeast Entities, Docket No. ER17-615 et al., market-based rate triennial filing, December 22, 2017.
- Affidavit on behalf of Public Service Company of Oklahoma, et al., Docket No. EC18-40, application for authorization of disposition of jurisdictional facilities, December 22, 2017.
- Affidavit on behalf of Duke Energy Corporation, Docket No. ER12-1946 et al., market-based rate triennial filing, December 21, 2017.
- Affidavit on behalf of AES MBR Affiliates, Docket No. ER10-3145 et al., market-based rate triennial filing, December 21, 2017.
- Affidavit on behalf of Dynegy Inc., et al., Docket No. EC18-23, application for authorization of disposition of jurisdictional facilities, November 22, 2017.
- Affidavit on behalf of CXA Sundevil Power I, Inc. et al., Docket No. EC18-22, application for authorization of disposition of jurisdictional facilities, November 17, 2017.
- Affidavit (with Matthew E. Arenchild) on behalf of Powerex Corp., Docket No. ER10-3297, market-based rate change in status filing, November 15, 2017.
- Affidavit on behalf of Panda Hummel Station LLC, Docket No. ER18-276, application for market-based rates, November 9, 2017.
- Affidavit on behalf of Public Service Company of NH et al., Docket No. EC18-12, application for authorization of disposition of jurisdictional facilities, October 27, 2017.
- Affidavit on behalf of Aspen Generating, LLC et al., Docket No. EC17-197, application for authorization of disposition of jurisdictional facilities, September 29, 2017.
- Affidavit on behalf of Calpine Corporation, LLC et al., Docket No. EC17-182, application for authorization of disposition of jurisdictional facilities, September 15, 2017.
- Affidavit on behalf of Great Valley Solar 3, LLC, Docket No. ER17-2385, application for market-based rates, August 30, 2017.
- Affidavit on behalf of Stuttgart Solar, LLC, Docket No. ER17-2270, application for market-based rates, August 9, 2017.
- Affidavit on behalf of Cottonwood Wind Project, LLC, Docket No. ER17-2152, application for market-based rates, July 26, 2017.
- Affidavit on behalf of Great Valley Solar 1, LLC, Docket No. ER17-2141, application for market-based rates, July 25, 2017.
- Affidavit on behalf of Great Valley Solar 2, LLC, Docket No. ER17-2142, application for market-based rates, July 25, 2017.
- Affidavit (with Matthew E. Arenchild) on behalf of PPL Southeast Companies, Docket No. ER10-1511 et al., market-based rate triennial filing, June 30, 2017.

- Affidavit on behalf of Duke Energy Progress, LLC et al., Docket No. ER17-1963, market-based rate triennial filing, June 30, 2017.
- Affidavit on behalf of Cube Yadkin Generation, LLC, Docket No. ER17-2026, market-based rate triennial filing, June 30, 2017.
- Affidavit on behalf of NextEra Companies, Docket No. ER10-1852 et al., market-based rate triennial filing, June 30, 2017.
- Affidavit on behalf of Brookfield Companies, Docket No. ER11-2292 et al., market-based rate triennial filing, June 30, 2017.
- Affidavit (with Matthew E. Arenchild) on behalf of Alabama Power Company et al., Docket No. ER10-2881 et al., market-based rate triennial filing, June 30, 2017.
- Affidavit on behalf of Lockhart Power Company, Docket No. ER10-2651, market-based rate triennial filing, June 29, 2017.
- Affidavit on behalf of Astoria Energy LLC, Docket No. ER10-2253 et al., market-based rate triennial filing, June 29, 2017.
- Affidavit on behalf of Cambria CoGen Company, Docket No. ER11-2370, market-based rate triennial filing, June 28, 2017.
- Affidavit on behalf of ENGIE Northeast MBR Sellers, Docket No. ER17-1370 et al., market-based rate triennial filing, June 28, 2017.
- Affidavit on behalf of Bishop Hill Energy LLC et al., Docket No. EC17-122, application for authorization of disposition of jurisdictional facilities, May 25, 2017.
- Affidavit on behalf of Dynegy Buyers and AES Sellers, Docket No. EC17-117, application for authorization of disposition of jurisdictional facilities, May 21, 2017.
- Affidavit on behalf of Spruce Generation, LLC, Docket No. EC17-102, application for authorization of disposition of jurisdictional facilities, April 6, 2017.
- Affidavit on behalf of Westar Energy, Inc., Docket No. ER10-2507, market-based rate change in status filing, March 29, 2017.
- Affidavit on behalf of AEP Generation, Inc., Docket No. EC17-90, application for authorization of disposition of jurisdictional facilities, May 10, 2017.
- Affidavit on behalf of Chambersburg Energy, LLC et al., Docket No. EC17-83, application for authorization of disposition of jurisdictional facilities, February 17, 2017.

**Exhibit 3**

## Powerex Affiliated Uncommitted Capacity in BCHA (MW)

| | MW | |
|---|---|---|
| Generating Capacity | 12,053 | 1/ |

| BC Hydro | Pivotal Supplier Analysis | Market Share Analysis | | | | Reference |
|---|---|---|---|---|---|---|
| | | Winter | Spring | Summer | Fall | |
| Generating Capacity | 12,053 | 12,053 | 12,053 | 12,053 | 12,053 | 1/ |
| Canadian Entitlement | 1,333 | 1,333 | 1,333 | 1,324 | 1,304 | 2/ |
| Average Daily Peak Native Load in Peak Month | (9,130) | | | | | 3/ |
| Average Peak Native Load in the Season | | (9,017) | (7,197) | (6,677) | (7,281) | 3/ |
| Supply to City of Seattle | (145) | (132) | (77) | (54) | (48) | 4/ |
| Operating Reserves | (548) | (541) | (432) | (401) | (437) | 5/ |
| Planned Outages | | (1,645) | (1,645) | (1,645) | (1,645) | 6/ |
| Total Uncommitted Capacity for BC Hydro | 3,563 | 2,051 | 4,036 | 4,600 | 3,947 | |

1/ BC Hydro 2016/2017 Annual Service Plan Report.
https://www.bchydro.com/content/dam/BCHydro/customer-portal/documents/corporate/accountability-reports/financial-reports/annual-reports/bchydro-2016-17-annual-service-plan-report.pdf

2/ Columbia River Treaty Assured Operating Plan and Determination of Downstream Power Benefits for Operating Year 2018-19, Table 6, Comparison of Recent DDPB Studies.
https://usace.contentdm.oclc.org/utils/getfile/collection/p266001coll1/id/3221

3/ Wkp - BCHA Load (from ABB Velocity Suite) for the relevant period, shaped for BC Hydro share of total load. BC Hydro peak load from BC Hydro 2016/2017 Annual Service PlanReport.

4/ Under the Skagit Treaty, Powerex delivered 145 MW to the City of Seattle in January 2017, consistent with the peak month for BCHA. For the seasonal data for the Market Share Analysis, the average monthly volumes delivered during peak hours are used.

5/ Estimated based on WECC Contingency Reserve Requirement - estimated based on 6% of load.

6/ Estimated based on reported NERC GADS planned outage rates for "All Units Reporting" ("Scheduled Outage Factor") for 2017.
https://www.nerc.com/pa/rapa/gads/pages/reports.aspx

**Exhibit 4**

## Generation Purchased by Powerex in the Northwest Region

| Balancing Authority Area | Unit Name or Counterparty | Nameplate Capacity (MW) [1/] | Contract Amount (%) | Contract Amount (MW) | Baseline Residual/ Expected Capacity (MW) | Capacity used in Screens (MW) | |
|---|---|---|---|---|---|---|---|
| **BPAT** | | | | | | | |
| BPAT | Willow Creek (Seller- LADWP) | 72.0 | 100.0% | 72.0 | | 72.0 | |
| BPAT | Pebble Springs (Seller-SCPPA) | 98.7 | 100.0% | 98.7 | | 98.7 | |
| BPAT | Linden Wind (Seller - SCPPA) | 50.0 | 100.0% | 50.0 | | 50.0 | 2/ |
| BPAT | Klickitat PUD | | | 25.0 | | 25.0 | 3/ |
| **Subtotal, BPAT** | | | | | | **245.7** | |
| Study-Period Generation | | | | | | 245.7 | |
| Current Generation | | | | | | 170.7 | |
| **PSEI** | | | | | | | |
| PSEI | Vantage Wind (Seller - PG&E) | 90.0 | 100.0% | 90.0 | | 90.0 | |
| PSEI | Chelan Public Utility District | | | 67.0 | | 67.0 | 4/ |
| **Subtotal, PSEI** | | | | | | **157.0** | |
| Study-Period Generation | | | | | | 90.0 | |
| Current Generation | | | | | | 157.0 | |
| **CHPD** | | | | | | | |
| CHPD | Rocky Reach/Rock Island | 1,929.0 | | | 366.0 | 366.0 | 5/,6/ |
| CHPD | Lake Chelan | 59.2 | | | 24.0 | 24.0 | 5/,6/ |
| CHPD | Chelan (Light Load Hours) | | | 50.0 | | - | 6/,7/ |
| CHPD | Chelan slice | 1,929.0 | 5.0% | 96.5 | | 96.5 | 6/,8/ |
| **Subtotal, CHPD** | | | | | | **486.5** | |
| Study-Period Generation | | | | | | 390.0 | |
| Current Generation | | | | | | 486.5 | |
| **GCPD** | | | | | | | |
| GCPD | Priest Rapids Project [9/] | 2,035.4 | 6.380% | 126.0 | | 126.0 | 10/ |
| **Mid-C** | | | | | | | |
| Mid-C | Bonneville Power (Light Load Hours) | | | 50.0 | | - | 7/ |
| Mid-C | Snohomish PUD (Light Load Hours) | | | 25.0 | - | - | 7/,11/ |
| Mid-C | Noble Americas Energy Solutions | | | 12.0 | - | - | 12/ |

1/ Nameplate capacity as reported in EIA-860 for 2017.
http://www.eia.gov/electricity/data/eia860/

2/ This contract ended December 31, 2017. It is included in the base case analysis and excluded in the current period sensitivity analysis.

3/ This contract ended September 30, 2017. It is included in the base case analysis and excluded in the current period sensitivity analysis.

4/ Powerex will take delivery at Mid-C, and then will resell a portion of the contract to another party at PSEI. This conservatively counts the purchase but not the re-sale. Further, the contract effective date is ouside of the Study Period (commencing April 1, 2019,) after the study period. It is included in the current period sensitivity analysis.

5/ Expected capacity reflects the residual capability made available to Powerex during the study period.

6/ For each of these contracts, te energy is delivered at points where the Chelan BAA interconnects to the PSEI, BPAT, Grant, or Douglas BAAs.

7/ This contract is for "light-load" hours only. Because the Indicative Screens cover peak periods, it is not included in the Indicative Screens.

8/ The contract effective date is outside the Study Period (commencing October 1, 2020).

9/ The Priest Rapids Project Includes both Priest Rapids and Wanapum.

10/ Asset Appendix reports 126 MW.

11/ The contract effective date is outside the Study Period (commencing January 1, 2020).

12/ This contract was in effect for only one month (December 2016) of the study period, and is excluded from the analysis.

# Summary Results

| Balancing Authority Area/Market | Exhibit No. | Pivotal Supplier Analysis | Exhibit No. | Market Share Analysis | | | |
|---|---|---|---|---|---|---|---|
| | | | | Winter | Spring | Summer | Fall |
| **Study Period Analysis** | | | | | | | |
| BPAT | 6 | Pass | 7 | 8.2% | 7.5% | 7.2% | 8.3% |
| PSEI | 8 | Pass | 9 | 10.5% | 15.1% | 13.7% | 13.7% |
| GCPD | 10 | Pass | 11 | 14.3% | 12.1% | 14.6% | 13.7% |
| **Sensitivity Analysis (Current Contract Portfolio)** | | | | | | | |
| BPAT | 6 | Pass | 7 | 7.7% | 7.1% | 6.7% | 7.8% |
| PSEI | 8 | Pass | 9 | 12.6% | 17.6% | 16.4% | 15.8% |
| GCPD | <<<<<<<<<<<<<<<There are no Current Contracts in GCPD>>>>>>>>>>>>>>> | | | | | | |
| **EIM 9-Participant Market** | | | | | | | |
| Base Case (Powerex Supply = 3,150 MW) | 12 | Pass | 13 | 5.6% | 5.9% | 7.3% | 6.0% |
| Sensitivity (Powerex Supply = 300 MW) | 14 | Pass | 15 | 0.6% | 0.6% | 0.7% | 0.6% |

## Part I – Pivotal Supplier Analysis

Applicant-> **Powerex**
Market -> **BPAT**
Data Year -> **Dec 2016-Nov 2017**

| Row | | | |
|---|---|---|---|
| | **Generation** | | **Reference** |
| | **Seller and Affiliate Capacity (owned or controlled)** | | |
| A | Installed Capacity (from inside the study area) | 0 | |
| A1 | Remote Capacity (from outside the study area) | 0 | |
| B | Long-Term Firm Purchases (from inside the study area) | 246 | Exhibit 4 |
| B1 | Long-Term Firm Purchases (from outside the study area) | 0 | |
| C | Long-Term Firm Sales (in and outside the study area) | 0 | |
| D | Uncommitted Capacity Imports | 1,080 | Powerex transmission reservations |
| | **Non-Affiliate Capacity (owned or controlled)** | | |
| E | Installed Capacity (from inside the study area) | 29,985 | Wkp - PSE Triennial LCR-12 (BPAT), adj. to reflect Installed Capacity |
| E1 | Remote Capacity (from outside the study area) | 0 | Wkp - PSE Triennial LCR-12 (BPAT) |
| F | Long-Term Firm Purchases (from inside the study area) | 0 | Wkp - PSE Triennial LCR-12 (BPAT) |
| F1 | Long-Term Firm Purchases (from outside the study area) | 486 | Wkp - PSE Triennial LCR-12 (BPAT) |
| G | Long-Term Firm Sales (in and outside the study area) | 2,295 | Wkp - PSE Triennial LCR-12 (BPAT), Offset Row B |
| H | Uncommitted Capacity Imports | 0 | Wkp - PSE Triennial LCR-12 (BPAT) |
| I | Study Area Reserve Requirement | 546 | 6% of BAA Load |
| J | Amount of Line I Attributable to Seller, if any | - | |
| K | Total Uncommitted Supply (A+A1+B+B1+D+E+E1+F+F1+H-C-G-I-M | 19,848 | |
| | **Load** | | |
| L | Balancing Authority Area Annual Peak Load | 10,943 | Wkp - PSE Triennial LCR-12 (BPAT) |
| M | Average Daily Peak Native Load in Peak Month | 9,107 | Wkp - PSE Triennial LCR-12 (BPAT) |
| N | Amount of Line M Attributable to Seller, if any | 0 | |
| O | Wholesale Load (L-M) | 1,836 | |
| P | Net Uncommitted Supply (K-O) | 18,012 | |
| Q | Seller's Uncommitted Capacity (A+A1+B+B1+D-C-J-N) | 1,326 | |
| | Result of Pivotal Supplier Screen (Pass if Line Q < Line P) (Fail if Line Q > Line P) | **Pass** | |
| | Total Imports (Sum D,H), as filed by Seller -> | 1,080 | |
| | % of SIL for Seller's imported capacity -> | 1 | |
| | % of SIL for Other's imported capacity -> | - | |
| | SIL value -> | - | Generation Market Power Analysis for Puget Sound Energy, Inc., Table 6.3 |
| | Do Total Imports exceed the SIL value? -> | Yes | Because SIL is zero, but Powerex Tx reservations are reflected |

**Sensitivity Analysis: Current Contracts**

| | | | |
|---|---|---|---|
| B | Long-Term Firm Purchases (from inside the study area) | 171 | Exhibit 4 |
| P | Net Uncommitted Supply (K-O) | 18,012 | Row P above |
| Q | Seller's Uncommitted Capacity (A+A1+B+B1+D-C-J-N) | 1,251 | Row Q above adjusted for changes in LT Purchases |
| | Result of Pivotal Supplier Screen (Pass if Line Q < Line P) | **Pass** | |

**Part II – Market Share Analysis**

Applicant-> **Powerex**
Study Area -> **BPAT**
Data Year -> **Dec 2016-Nov 2017**
As filed by the Applicant/Seller

| Row | | Winter (MW) | Spring (MW) | Summer (MW) | Fall (MW) | Reference |
|---|---|---|---|---|---|---|
| | **Seller and Affiliate Capacity (owned, controlled or under LT contract)** | | | | | |
| A | Installed Capacity (inside the study area) | 0 | 0 | 0 | 0 | |
| A1 | Remote Capacity (from outside the study area) | 0 | 0 | 0 | 0 | |
| B | Long-Term Firm Purchases (inside the study area) | 246 | 246 | 246 | 246 | Exhibit 4 |
| B1 | Long-Term Firm Purchases (from outside the study area) | 0 | 0 | 0 | 0 | |
| C | Long-Term Firm Sales (in and outside the study area) | 0 | 0 | 0 | 0 | |
| D | Seasonal Average Planned Outages | 0 | 0 | 0 | 0 | |
| E | Uncommitted Capacity Imports | 1,080 | 1,080 | 1,080 | 1,080 | Powerex transmission reservations |
| | **Capacity Deductions** | | | | | |
| F | Average Peak Native Load in the Season | 8,678 | 6,924 | 7,075 | 6,757 | Wkp - PSE Triennial LCR-12 (BPAT) |
| G | Amount of Line F Attributable to Seller, if any | 0 | 0 | 0 | 0 | |
| H | Amount of Line F Attributable to Non-Affiliates, if any | 8,678 | 6,924 | 7,075 | 6,757 | |
| I | Study Area Reserve Requirement | 521 | 415 | 425 | 405 | 6% of BAA Load |
| J | Amount of Line I Attributable to Seller, if any | 0 | 0 | 0 | 0 | |
| K | Amount of Line I Attributable to Non-Affiliates, if any | 521 | 415 | 425 | 405 | |
| | **Non-Affiliate Capacity (owned, controlled or under LT contract)** | | | | | |
| L | Installed Capacity (inside the study area) | 29,985 | 29,684 | 29,684 | 29,684 | Wkp - PSE Triennial LCR-12 (BPAT), adj. to reflect Installed Capacity |
| L1 | Remote Capacity (from outside the study area) | 0 | 0 | 0 | 0 | Wkp - PSE Triennial LCR-12 (BPAT) |
| M | Long-Term Firm Purchases (inside the study area) | 0 | 0 | 0 | 0 | Wkp - PSE Triennial LCR-12 (BPAT) |
| M1 | Long-Term Firm Purchases (from outside the study area) | 486 | 414 | 336 | 410 | Wkp - PSE Triennial LCR-12 (BPAT), adj. to reflect Installed Capacity |
| N | Long-Term Firm Sales (in and outside the study area) | 2,295 | 2,169 | 2,115 | 2,144 | Wkp - PSE Triennial LCR-12 (BPAT), adj. to reflect Installed Capacity, Offset Row B |
| O | Seasonal Average Planned Outages | 4,081 | 4,186 | 3,192 | 6,098 | Wkp - PSE Triennial LCR-12 (BPAT) |
| P | Uncommitted Capacity Imports | 0 | 0 | 0 | 0 | Wkp - PSE Triennial LCR-12 (BPAT) |
| | **Supply Calculation** | | | | | |
| Q | Total Competing Supply (L+L1+M+M1+P-H-K-N-O) | 14,896 | 16,404 | 17,214 | 14,689 | |
| R | Seller's Uncommitted Capacity (A+A1+B+B1+E-C-D-G-J) | 1,326 | 1,326 | 1,326 | 1,326 | |
| S | Total Seasonal Uncommitted Capacity (Q+R) | 16,222 | 17,730 | 18,540 | 16,015 | |
| T | **Seller's Market Share** (R÷S) | 8.2% | 7.5% | 7.2% | 8.3% | |
| | Results (Pass if < 20% and Fail if ≥ 20%) | Pass | Pass | Pass | Pass | |
| U | Total Imports, as filed by Seller (E+P) | 1,080 | 1,080 | 1,080 | 1,080 | |
| V | SIL value* | - | - | - | - | Generation Market Power Analysis for Puget Sound Energy, Inc., Table 6.3 |
| | Do Total Imports exceed SIL value? (is U<=V) | Yes | Yes | Yes | Yes | Because SIL is zero, but Powerex Tx reservations are reflected. |
| | **Sensitivity Analysis: Current Contracts** | | | | | |
| B | Long-Term Firm Purchases (from inside the study area) | 171 | 171 | 171 | 171 | Exhibit 4 |
| R | Seller's Uncommitted Capacity (A+A1+B+B1+E-C-D-G-J) | 1,251 | 1,251 | 1,251 | 1,251 | Row R above adjusted for changes in LT Purchases |
| S | Total Seasonal Uncommitted Capacity (Q+R) | 16,222 | 17,730 | 18,540 | 16,015 | Row S above |
| T | **Seller's Market Share** (R÷S) | 7.7% | 7.1% | 6.7% | 7.8% | |
| | Results (Pass if < 20% and Fail if ≥ 20%) | Pass | Pass | Pass | Pass | |

# Exhibit 8

## Part I – Pivotal Supplier Analysis

Applicant-> **Powerex**
Market -> **PSEI**
Data Year -> **Dec 2016-Nov 2017**

| Row | | | |
|---|---|---|---|
| | **Generation** | | **Reference** |
| | **Seller and Affiliate Capacity (owned or controlled)** | | |
| A | Installed Capacity (from inside the study area) | 0 | |
| A1 | Remote Capacity (from outside the study area) | 0 | |
| B | Long-Term Firm Purchases (from inside the study area) | 90 | Exhibit 4 |
| B1 | Long-Term Firm Purchases (from outside the study area) | 0 | |
| C | Long-Term Firm Sales (in and outside the study area) | 0 | |
| D | Uncommitted Capacity Imports | 308 | Wkp - Import Allocation (inc Powerex Transmission Reservations) |
| | **Non-Affiliate Capacity (owned or controlled)** | | |
| E | Installed Capacity (from inside the study area) | 2,099 | Wkp - PSE Triennial LCR-12 (PSE), adj. to reflect Installed Capacity |
| E1 | Remote Capacity (from outside the study area) | 1,817 | Wkp - PSE Triennial LCR-12 (PSE), adj. to reflect Installed Capacity |
| F | Long-Term Firm Purchases (from inside the study area) | 0 | |
| F1 | Long-Term Firm Purchases (from outside the study area) | 1,621 | Wkp - PSE Triennial LCR-12 (PSE), adj. to reflect Installed Capacity |
| G | Long-Term Firm Sales (in and outside the study area) | 164 | Wkp - PSE Triennial LCR-12 (PSE), Offset Row B |
| H | Uncommitted Capacity Imports | 1,546 | Wkp - PSE Triennial LCR-12 (PSE), adj. to reflect Installed Capacity, less Row D |
| I | Study Area Reserve Requirement | 235 | 6% of BAA Load |
| J | Amount of Line I Attributable to Seller, if any | 0 | |
| K | Total Uncommitted Supply (A+A1+B+B1+D+E+E1+F+F1+H-C-G-I-M | 3,172 | |
| | **Load** | | |
| L | Balancing Authority Area Annual Peak Load | 4,834 | Wkp - PSE Triennial LCR-12 (PSE) |
| M | Average Daily Peak Native Load in Peak Month | 3,910 | Wkp - PSE Triennial LCR-12 (PSE) |
| N | Amount of Line M Attributable to Seller, if any | 0 | |
| O | Wholesale Load (L-M) | 924 | |
| P | Net Uncommitted Supply (K-O) | 2,248 | |
| Q | Seller's Uncommitted Capacity (A+A1+B+B1+D-C-J-N) | 398 | |
| | Result of Pivotal Supplier Screen (Pass if Line Q < Line P) (Fail if Line Q > Line P) | **Pass** | |
| | Total Imports (Sum D,H), as filed by Seller -> | 1,854 | |
| | % of SIL for Seller's imported capacity -> | 0.17 | |
| | % of SIL for Other's imported capacity -> | 0.83 | |
| | SIL value -> | 1,854 | Generation Market Power Analysis for Puget Sound Energy, Inc., Table 5.9 |
| | Do Total Imports exceed the SIL value? -> | No | |

**Sensitivity Analysis: Current Contracts**

| | | | |
|---|---|---|---|
| B | Long-Term Firm Purchases (from inside the study area) | 157 | Exhibit 4 |
| P | Net Uncommitted Supply (K-O) | 2,248 | Row P above |
| D | Uncommitted Capacity Imports | 309 | Wkp - Import Allocation (inc Powerex Transmission Reservations) |
| Q | Seller's Uncommitted Capacity (A+A1+B+B1+D-C-J-N) | 466 | Row Q above adjusted for changes in LT Purchases and Imports |
| | Result of Pivotal Supplier Screen (Pass if Line Q < Line P) | **Pass** | |

**Part II – Market Share Analysis**

Applicant-> **Powerex**
Study Area -> **PSEI**
Data Year -> **Dec 2016-Nov 2017**
As filed by the Applicant/Seller

| Row | | Winter (MW) | Spring (MW) | Summer (MW) | Fall (MW) | Reference |
|---|---|---|---|---|---|---|
| | **Seller and Affiliate Capacity (owned, controlled or under LT contract)** | | | | | |
| A | Installed Capacity (inside the study area) | 0 | 0 | 0 | 0 | |
| A1 | Remote Capacity (from outside the study area) | 0 | 0 | 0 | 0 | |
| B | Long-Term Firm Purchases (inside the study area) | 90 | 90 | 90 | 90 | Exhibit 4 |
| B1 | Long-Term Firm Purchases (from outside the study area) | 0 | 0 | 0 | 0 | |
| C | Long-Term Firm Sales (in and outside the study area) | 0 | 0 | 0 | 0 | |
| D | Seasonal Average Planned Outages | 0 | 0 | 0 | 0 | |
| E | Uncommitted Capacity Imports | 254 | 327 | 254 | 343 | Wkp - Import Allocation (inc Powerex Transmission Reservations) |
| | **Capacity Deductions** | | | | | |
| F | Average Peak Native Load in the Season | 3,810 | 2,928 | 2,705 | 2,940 | Wkp - PSE Triennial LCR-12 (PSE) |
| G | Amount of Line F Attributable to Seller, if any | 0 | 0 | 0 | 0 | |
| H | Amount of Line F Attributable to Non-Affiliates, if any | 3,810 | 2,928 | 2,705 | 2,940 | |
| I | Study Area Reserve Requirement | 229 | 176 | 162 | 176 | 6% of BAA Load |
| J | Amount of Line I Attributable to Seller, if any | 0 | 0 | 0 | 0 | |
| K | Amount of Line I Attributable to Non-Affiliates, if any | 229 | 176 | 162 | 176 | |
| | **Non-Affiliate Capacity (owned, controlled or under LT contract)** | | | | | |
| L | Installed Capacity (inside the study area) | 2,099 | 1,906 | 1,906 | 1,906 | Wkp - PSE Triennial LCR-12 (PSE), adj. to reflect Installed Capacity |
| L1 | Remote Capacity (from outside the study area) | 1,817 | 1,728 | 1,728 | 1,728 | Wkp - PSE Triennial LCR-12 (PSE), adj. to reflect Installed Capacity |
| M | Long-Term Firm Purchases (inside the study area) | 0 | 0 | 0 | 0 | |
| M1 | Long-Term Firm Purchases (from outside the study area) | 1,621 | 1,259 | 1,232 | 1,234 | Wkp - PSE Triennial LCR-12 (PSE), adj. to reflect Installed Capacity |
| N | Long-Term Firm Sales (in and outside the study area) | 164 | 145 | 404 | 104 | Wkp - PSE Triennial LCR-12 (PSE), , adj. to reflect Installed Capacity, Offset Row B |
| O | Seasonal Average Planned Outages | 3 | 637 | 394 | 186 | Wkp - PSE Triennial LCR-12 (PSE) |
| P | Uncommitted Capacity Imports | 1,600 | 1,341 | 967 | 1,270 | Wkp - PSE Triennial LCR-12 (PSE), less Row E |
| | **Supply Calculation** | | | | | |
| Q | Total Competing Supply (L+L1+M+M1+P-H-K-N-O) | 2,931 | 2,349 | 2,167 | 2,732 | |
| R | Seller's Uncommitted Capacity (A+A1+B+B1+E-C-D-G-J) | 344 | 417 | 344 | 433 | |
| S | Total Seasonal Uncommitted Capacity (Q+R) | 3,275 | 2,766 | 2,511 | 3,165 | |
| T | **Seller's Market Share** (R÷S) | 10.5% | 15.1% | 13.7% | 13.7% | |
| | Results (Pass if < 20% and Fail if ≥ 20%) | Pass | Pass | Pass | Pass | |
| U | Total Imports, as filed by Seller (E+P) | 1,854 | 1,668 | 1,221 | 1,613 | |
| V | SIL value* | 1,854 | 1,668 | 1,221 | 1,613 | Generation Market Power Analysis for Puget Sound Energy, Inc., Table 5.9 |
| | Do Total Imports exceed SIL value? (is U<=V) | No | No | No | No | |
| | **Sensitivity Analysis: Current Contracts** | | | | | |
| B | Long-Term Firm Purchases (from inside the study area) | 157 | 157 | 157 | 157 | Exhibit 4 |
| E | Uncommitted Capacity Imports | 256 | 328 | 255 | 344 | |
| R | Seller's Uncommitted Capacity (A+A1+B+B1+E-C-D-G-J) | 413 | 485 | 412 | 501 | Row R above adjusted for changes in LT Purchases and Imports |
| S | Total Seasonal Uncommitted Capacity (Q+R) | 3,275 | 2,766 | 2,511 | 3,165 | Row S above |
| T | **Seller's Market Share** (R÷S) | 12.6% | 17.6% | 16.4% | 15.8% | |
| | Results (Pass if < 20% and Fail if ≥ 20%) | Pass | Pass | Pass | Pass | |

# Exhibit 10

## Part I – Pivotal Supplier Analysis

Applicant-> **Powerex**
Market -> **GCPD**
Data Year -> **Dec 2016-Nov 2017**

| Row | | | Reference |
|---|---|---|---|
| | **Generation** | | |
| | **Seller and Affiliate Capacity (owned or controlled)** | | |
| A | Installed Capacity (from inside the study area) | 0 | |
| A1 | Remote Capacity (from outside the study area) | 0 | |
| B | Long-Term Firm Purchases (from inside the study area) | 126 | Exhibit 4 |
| B1 | Long-Term Firm Purchases (from outside the study area) | 0 | |
| C | Long-Term Firm Sales (in and outside the study area) | 0 | |
| D | Uncommitted Capacity Imports | 0 | SIL is zero |
| | **Non-Affiliate Capacity (owned or controlled)** | | |
| E | Installed Capacity (from inside the study area) | 2,110 | Wkp - PSE Triennial LCR-12 (GCPD), adj to reflect Installed Capacity |
| E1 | Remote Capacity (from outside the study area) | 0 | Wkp - PSE Triennial LCR-12 (GCPD), adj to reflect Installed Capacity |
| F | Long-Term Firm Purchases (from inside the study area) | 0 | |
| F1 | Long-Term Firm Purchases (from outside the study area) | 4 | Wkp - PSE Triennial LCR-12 (GCPD), adj to reflect Installed Capacity |
| G | Long-Term Firm Sales (in and outside the study area) | 549 | Wkp - PSE Triennial LCR-12 (GCPD), adj. to reflect installed capacity, Offset Row B |
| H | Uncommitted Capacity Imports | 0 | SIL is zero |
| I | Study Area Reserve Requirement | 40 | 6% of BAA Load |
| J | Amount of Line I Attributable to Seller, if any | 0 | |
| K | Total Uncommitted Supply (A+A1+B+B1+D+E+E1+F+F1+H-C-G-I-M | 985 | |
| | **Load** | | |
| L | Balancing Authority Area Annual Peak Load | 790 | Wkp - PSE Triennial LCR-12 (GCPD) |
| M | Average Daily Peak Native Load in Peak Month | 666 | Wkp - PSE Triennial LCR-12 (GCPD) |
| N | Amount of Line M Attributable to Seller, if any | 0 | |
| O | Wholesale Load (L-M) | 124 | |
| P | Net Uncommitted Supply (K-O) | 860 | |
| Q | Seller's Uncommitted Capacity (A+A1+B+B1+D-C-J-N) | 126 | |

Result of Pivotal Supplier Screen (Pass if Line Q < Line P) **Pass**
(Fail if Line Q > Line P)

| | |
|---|---|
| Total Imports (Sum D,H), as filed by Seller -> | - |
| % of SIL for Seller's imported capacity -> | - |
| % of SIL for Other's imported capacity -> | - |

SIL value -> 0 Generation Market Power Analysis for Puget Sound Energy, Inc., Table 6.3

Do Total Imports exceed the SIL value? -> No

# Exhibit 11

**Part II – Market Share Analysis**

Applicant-> **Powerex**
Study Area -> **GCPD**
Data Year -> **Dec 2016-Nov 2017**
As filed by the Applicant/Seller

| Row | | Winter (MW) | Spring (MW) | Summer (MW) | Fall (MW) | Reference |
|---|---|---|---|---|---|---|
| | **Seller and Affiliate Capacity (owned, controlled or under LT contract)** | | | | | |
| A | Installed Capacity (inside the study area) | 0 | 0 | 0 | 0 | |
| A1 | Remote Capacity (from outside the study area) | 0 | 0 | 0 | 0 | |
| B | Long-Term Firm Purchases (inside the study area) | 126 | 126 | 126 | 126 | Exhibit 4 |
| B1 | Long-Term Firm Purchases (from outside the study area) | 0 | 0 | 0 | 0 | |
| C | Long-Term Firm Sales (in and outside the study area) | 0 | 0 | 0 | 0 | |
| D | Seasonal Average Planned Outages | 23 | 17 | 12 | 30 | Wkp-Alloc of Planned Outages |
| E | Uncommitted Capacity Imports | 0 | 0 | 0 | 0 | SIL is zero |
| | **Capacity Deductions** | | | | | |
| F | Average Peak Native Load in the Season | 639 | 541 | 715 | 573 | Wkp-PSE Triennial LCR-12 (GCPD) |
| G | Amount of Line F Attributable to Seller, if any | 0 | 0 | 0 | 0 | |
| H | Amount of Line F Attributable to Non-Affiliates, if any | 639 | 541 | 715 | 573 | |
| I | Study Area Reserve Requirement | 38 | 32 | 43 | 34 | 6% of BAA Load |
| J | Amount of Line I Attributable to Seller, if any | 0 | 0 | 0 | 0 | |
| K | Amount of Line I Attributable to Non-Affiliates, if any | 38 | 32 | 43 | 34 | |
| | **Non-Affiliate Capacity (owned, controlled or under LT contract)** | | | | | |
| L | Installed Capacity (inside the study area) | 2,110 | 2,110 | 2,110 | 2,110 | Wkp - PSE Triennial LCR-12 (GCPD), adj to reflect Installed Capacity |
| L1 | Remote Capacity (from outside the study area) | 0 | 0 | 0 | 0 | Wkp - PSE Triennial LCR-12 (GCPD), adj to reflect Installed Capacity |
| M | Long-Term Firm Purchases (inside the study area) | 0 | 0 | 0 | 0 | |
| M1 | Long-Term Firm Purchases (from outside the study area) | 4 | 4 | 4 | 4 | Wkp - PSE Triennial LCR-12 (GCPD), adj to reflect Installed Capacity |
| N | Long-Term Firm Sales (in and outside the study area) | 549 | 549 | 549 | 549 | Wkp - PSE Triennial LCR-12 (GCPD), adj to reflect Installed Capacity, Offset Row B |
| O | Seasonal Average Planned Outages | 271 | 197 | 143 | 350 | Wkp-Alloc of Planned Outages |
| P | Uncommitted Capacity Imports | 0 | 0 | 0 | 0 | SIL is zero |
| | **Supply Calculation** | | | | | |
| Q | Total Competing Supply (L+L1+M+M1+P-H-K-N-O) | 616 | 794 | 664 | 607 | |
| R | Seller's Uncommitted Capacity (A+A1+B+B1+E-C-D-G-J) | 103 | 109 | 114 | 96 | |
| S | Total Seasonal Uncommitted Capacity (Q+R) | 720 | 904 | 778 | 704 | |
| T | **Seller's Market Share** (R÷S) | 14.3% | 12.1% | 14.6% | 13.7% | |
| | Results (Pass if < 20% and Fail if ≥ 20%) | Pass | Pass | Pass | Pass | |
| U | Total Imports, as filed by Seller (E+P) | 0 | 0 | 0 | 0 | |
| V | SIL value* | - | - | - | - | Generation Market Power Analysis for Puget Sound Energy, Inc., Table 6.3 |
| | Do Total Imports exceed SIL value? (is U<=V) | No | No | No | No | |

## Part I – Pivotal Supplier Analysis

Applicant-> **Powerex**
Market -> **9-Participant Market**
Data Year -> **Dec 2016-Nov 2017**
As filed by the Applicant/Seller

| Row | | | Reference |
|---|---|---|---|
| | **Generation** | | |
| | **Seller and Affiliate Capacity (owned or controlled)** | | |
| A | Installed Capacity (from inside the study area) | 3,150 | Nominal Rating of Northern Tie from BCHA to BPA |
| A1 | Remote Capacity (from outside the study area) | | |
| B | Long-Term Firm Purchases (from inside the study area) | | |
| B1 | Long-Term Firm Purchases (from outside the study area) | | |
| C | Long-Term Firm Sales (in and outside the study area) | | |
| D | Uncommitted Capacity Imports | 0 | Assumed No Imported Capacity |
| | **Non-Affiliate Capacity (owned or controlled)** | | |
| E | Installed Capacity (from inside the study area) | 104,370 | Summary of Inputs (EIM), less Row A |
| E1[1/] | Remote Capacity (from outside the study area) | 13,490 | Summary of Inputs (EIM), less Row A1 |
| F | Long-Term Firm Purchases (from inside the study area) | 0 | |
| F1 | Long-Term Firm Purchases (from outside the study area) | 0 | |
| G | Long-Term Firm Sales (in and outside the study area) | 0 | Row B Plus Row B1 |
| H | Uncommitted Capacity Imports | 0 | Assumed No Imported Capacity |
| I | Study Area Reserve Requirement | 4,215 | Summary of Inputs (EIM) |
| J | Amount of Line I Attributable to Seller, if any | 0 | |
| K[2/] | Total Uncommitted Supply (A+A1+B+B1+D+E+E1+F+F1+H-C-G-I-M) | 44,540 | |
| | **Load** | | |
| L | Balancing Authority Area Annual Peak Load | 84,883 | PSE Market Power Analysis, Table 16.1 |
| M[3/] | Average Peak Day-Ahead Base Schedule in Peak Month | 72,255 | PSE Market Power Analysis, Table 16.1 |
| N | Amount of Line M Attributable to Seller, if any | 0 | |
| O[4/] | Wholesale Load (Derived) | 1,550 | PSE Market Power Analysis, Table 16.1 |
| P | Net Uncommitted Supply (K-O) | 42,990 | |
| Q[2/] | Seller's Uncommitted Capacity (A+A1+B+B1+D-C-J-N) | 3,150 | |
| | Result of Pivotal Supplier Screen (Pass if Line Q < Line P) (Fail if Line Q > Line P) | **Pass** | |
| | Total Imports (Sum D,H), as filed by Seller -> | - | Assumed No Imported Capacity |
| | % of SIL for Seller's imported capacity -> | NA | |
| | % of SIL for Other's imported capacity -> | NA | |
| | SIL value -> | - | Assumed No Imported Capacity |
| | Do Total Imports exceed the SIL value? -> | No | |

1/ Includes only resources outside of 9-Participant Market (e.g., dynamically scheduled resources into CAISO from non-EIM BAAs).

2/ Restricted to minimum of (1) Uncommitted Capacity (MW) or (2) Participating Resources (MW) in each BAA.

3/ Value based on estimated Base Schedule. Ratios to determine Base Schedule from PSE Market Power Analysis, Page 73, Table 15-7.

4/ Value based on estimated Imbalance Energy amount (%) from historical data. See PSE Market Power Analysis, pages 72-73.

# Exhibit 13

## Part II -- Market Share Analysis

Applicant-> **Powerex**
Study Area -> **9-Participant Market**
Data Year -> **Dec 2016-Nov 2017**

As filed by the Applicant/Seller

| Row | | Winter (MW) | Spring (MW) | Summer (MW) | Fall (MW) | Reference |
|---|---|---|---|---|---|---|
| | **Seller and Affiliate Capacity (owned, controlled or under LT contract)** | | | | | |
| A | Installed Capacity (inside the study area) | 3,150 | 3,150 | 3,150 | 3,150 | Nominal Rating of Northern Tie from BCHA to BPA |
| A1 | Remote Capacity (from outside the study area) | | | | | |
| B | Long-Term Firm Purchases (inside the study area) | | | | | |
| B1 | Long-Term Firm Purchases (from outside the study area) | | | | | |
| C | Long-Term Firm Sales (in and outside the study area) | | | | | |
| D | Seasonal Average Planned Outages | | | | | |
| E | Uncommitted Capacity Imports | 0 | 0 | 0 | 0 | Assumed No Imported Capacity |
| | **Capacity Deductions** | | | | | |
| F[1/] | Average Peak Day-Ahead Base Schedule in the Season | 54,848 | 51,386 | 70,381 | 55,989 | PSE Market Power Analysis, Table 16.2 |
| G | Amount of Line F Attributable to Seller, if any | 0 | 0 | 0 | 0 | |
| H | Amount of Line F Attributable to Non-Affiliates, if any | 54,848 | 51,386 | 70,381 | 55,989 | |
| I | Study Area Reserve Requirement | 3,326 | 3,117 | 4,246 | 3,405 | Summary of Inputs (EIM) |
| J | Amount of Line I Attributable to Seller, if any | 0 | 0 | 0 | 0 | |
| K | Amount of Line I Attributable to Non-Affiliates, if any | 3,326 | 3,117 | 4,246 | 3,405 | |
| | Non-Affiliate Capacity | | | | | |
| L | Installed Capacity | 103,939 | 102,717 | 104,370 | 102,762 | Summary of Inputs (EIM), less Row A |
| L1[2/] | Remote Capacity (from outside the study area) | 12,785 | 12,722 | 13,490 | 12,502 | Summary of Inputs (EIM), less Row A1 |
| M | Long-Term Firm Purchases (inside the study area) | 0 | 0 | 0 | 0 | |
| M1 | Long-Term Firm Purchases (from outside the study area) | 0 | 0 | 0 | 0 | |
| N | Long-Term Firm Sales (in and outside the study area) | 0 | 0 | 0 | 0 | Row B Plus Row B1 |
| O | Seasonal Average Planned Outages | 5,264 | 10,504 | 3,390 | 5,776 | Summary of Inputs (EIM), less Row D |
| P | Uncommitted Capacity Imports | 0 | 0 | 0 | 0 | Assumed No Imported Capacity |
| | **Supply Calculation** | | | | | |
| Q[3/] | Total Competing Supply (L+L1+M+M1+P-H-K-N-O) | 52,981 | 49,866 | 39,843 | 49,162 | |
| R[3/] | Seller's Uncommitted Capacity (A+A1+B+B1+E-C-D-G-J) | 3,150 | 3,150 | 3,150 | 3,150 | |
| S | Total Seasonal Uncommitted Capacity (Q+R) | 56,131 | 53,016 | 42,993 | 52,312 | |
| T | **Seller's Market Share** (R÷S) | 5.6% | 5.9% | 7.3% | 6.0% | |
| | Results (Pass if < 20% and Fail if ≥ 20%) | Pass | Pass | Pass | Pass | |
| U | Total Imports, as filed by Seller (E+P) | 0 | 0 | 0 | 0 | Assumed No Imported Capacity |
| V | SIL value* | - | - | - | - | |
| | Do Total Imports exceed SIL value? (is U<=V) | No | No | No | No | |

1/ Value based on estimated Base Schedule. Ratios to determine Base Schedule from PSE Market Power Analysis, Page 73, Table 15-7.

2/ Includes only resources outside of 9-Participant market (e.g., dynamically scheduled resources into CAISO from non-EIM BAAs).

3/ Restricted to minimum of (1) Uncommitted Capacity (MW) or (2) Participating Resources (MW) in each BAA.

## Part I – Pivotal Supplier Analysis

Applicant-> **Powerex**
Market -> **9-Participant Market**
Data Year -> **Dec 2016-Nov 2017**
As filed by the Applicant/Seller

| Row | | | Reference |
|---|---|---|---|
| | **Generation** | | |
| | **Seller and Affiliate Capacity (owned or controlled)** | | |
| A | Installed Capacity (from inside the study area) | 300 | EIM Transmission |
| A1 | Remote Capacity (from outside the study area) | | |
| B | Long-Term Firm Purchases (from inside the study area) | | |
| B1 | Long-Term Firm Purchases (from outside the study area) | | |
| C | Long-Term Firm Sales (in and outside the study area) | | |
| D | Uncommitted Capacity Imports | 0 | Assumed No Imported Capacity |
| | **Non-Affiliate Capacity (owned or controlled)** | | |
| E | Installed Capacity (from inside the study area) | 104,370 | Summary of Inputs (Powerex), less Row A |
| E1[1/] | Remote Capacity (from outside the study area) | 13,490 | Summary of Inputs (Powerex), less Row A1 |
| F | Long-Term Firm Purchases (from inside the study area) | 0 | |
| F1 | Long-Term Firm Purchases (from outside the study area) | 0 | |
| G | Long-Term Firm Sales (in and outside the study area) | 0 | Row B Plus Row B1 |
| H | Uncommitted Capacity Imports | 0 | Assumed No Imported Capacity |
| I | Study Area Reserve Requirement | 4,215 | Summary of Inputs (Powerex) |
| J | Amount of Line I Attributable to Seller, if any | 0 | |
| K[2/] | Total Uncommitted Supply (A+A1+B+B1+D+E+E1+F+F1+H-C-G-I-M) | 41,690 | |
| | **Load** | | |
| L | Balancing Authority Area Annual Peak Load | 84,883 | PSE Market Power Analysis, Table 16.1 |
| M[3/] | Average Peak Day-Ahead Base Schedule in Peak Month | 72,255 | PSE Market Power Analysis, Table 16.1 |
| N | Amount of Line M Attributable to Seller, if any | 0 | |
| O[4/] | Wholesale Load (Derived) | 1,550 | PSE Market Power Analysis, Table 16.1 |
| P | Net Uncommitted Supply (K-O) | 40,140 | |
| Q[2/] | Seller's Uncommitted Capacity (A+A1+B+B1+D-C-J-N) | 300 | |
| | Result of Pivotal Supplier Screen (Pass if Line Q < Line P) (Fail if Line Q > Line P) | **Pass** | |
| | Total Imports (Sum D,H), as filed by Seller -> | - | Assumed No Imported Capacity |
| | % of SIL for Seller's imported capacity -> | NA | |
| | % of SIL for Other's imported capacity -> | NA | |
| | SIL value -> | - | Assumed No Imported Capacity |
| | Do Total Imports exceed the SIL value? -> | No | |

1/ Includes only resources outside of 9-Participant Market (e.g., dynamically scheduled resources into CAISO from non-EIM BAAs).

2/ Restricted to minimum of (1) Uncommitted Capacity (MW) or (2) Participating Resources (MW) in each BAA.

3/ Value based on estimated Base Schedule. Ratios to determine Base Schedule from PSE Market Power Analysis, Page 73, Table 15-7.

4/ Value based on estimated Imbalance Energy amount (%) from historical data. See PSE Market Power Analysis, pages 72-73.

## Part II -- Market Share Analysis

Applicant-> **Powerex**
Study Area -> **9-Participant Market**
Data Year -> **Dec 2016-Nov 2017**

As filed by the Applicant/Seller

| Row | | Winter (MW) | Spring (MW) | Summer (MW) | Fall (MW) | Reference |
|---|---|---|---|---|---|---|
| | **Seller and Affiliate Capacity (owned, controlled or under LT contract)** | | | | | |
| A | Installed Capacity (inside the study area) | 300 | 300 | 300 | 300 | EIM Transmission |
| A1 | Remote Capacity (from outside the study area) | | | | | |
| B | Long-Term Firm Purchases (inside the study area) | | | | | |
| B1 | Long-Term Firm Purchases (from outside the study area) | | | | | |
| C | Long-Term Firm Sales (in and outside the study area) | | | | | |
| D | Seasonal Average Planned Outages | | | | | |
| E | Uncommitted Capacity Imports | 0 | 0 | 0 | 0 | Assumed No Imported Capacity |
| | **Capacity Deductions** | | | | | |
| F[1/] | Average Peak Day-Ahead Base Schedule in the Season | 54,848 | 51,386 | 70,381 | 55,989 | PSE Market Power Analysis, Table 16.2 |
| G | Amount of Line F Attributable to Seller, if any | 0 | 0 | 0 | 0 | |
| H | Amount of Line F Attributable to Non-Affiliates, if any | 54,848 | 51,386 | 70,381 | 55,989 | |
| I | Study Area Reserve Requirement | 3,326 | 3,117 | 4,246 | 3,405 | Summary of Inputs (EIM) |
| J | Amount of Line I Attributable to Seller, if any | 0 | 0 | 0 | 0 | |
| K | Amount of Line I Attributable to Non-Affiliates, if any | 3,326 | 3,117 | 4,246 | 3,405 | |
| | Non-Affiliate Capacity | | | | | |
| L | Installed Capacity | 103,939 | 102,717 | 104,370 | 102,762 | Summary of Inputs (EIM), less Row A |
| L1[2/] | Remote Capacity (from outside the study area) | 12,785 | 12,722 | 13,490 | 12,502 | Summary of Inputs (EIM), less Row A1 |
| M | Long-Term Firm Purchases (inside the study area) | 0 | 0 | 0 | 0 | |
| M1 | Long-Term Firm Purchases (from outside the study area) | 0 | 0 | 0 | 0 | |
| N | Long-Term Firm Sales (in and outside the study area) | 0 | 0 | 0 | 0 | Row B Plus Row B1 |
| O | Seasonal Average Planned Outages | 5,264 | 10,504 | 3,390 | 5,776 | Summary of Inputs (EIM), less Row D |
| P | Uncommitted Capacity Imports | 0 | 0 | 0 | 0 | Assumed No Imported Capacity |
| | **Supply Calculation** | | | | | |
| Q[3/] | Total Competing Supply (L+L1+M+M1+P-H-K-N-O) | 52,981 | 49,866 | 39,843 | 49,162 | |
| R[3/] | Seller's Uncommitted Capacity (A+A1+B+B1+E-C-D-G-J) | 300 | 300 | 300 | 300 | |
| S | Total Seasonal Uncommitted Capacity (Q+R) | 53,281 | 50,166 | 40,143 | 49,462 | |
| T | **Seller's Market Share** (R÷S) | 0.6% | 0.6% | 0.7% | 0.6% | |
| | Results (Pass if < 20% and Fail if ≥ 20%) | Pass | Pass | Pass | Pass | |
| U | Total Imports, as filed by Seller (E+P) | 0 | 0 | 0 | 0 | Assumed No Imported Capacity |
| V | SIL value* | - | - | - | - | |
| | Do Total Imports exceed SIL value? (is U<=V) | No | No | No | No | |

1/ Value based on estimated Base Schedule. Ratios to determine Base Schedule from PSE Market Power Analysis, Page 73, Table 15-7.

2/ Includes only resources outside of 9-Participant market (e.g., dynamically scheduled resources into CAISO from non-EIM BAAs).

3/ Restricted to minimum of (1) Uncommitted Capacity (MW) or (2) Participating Resources (MW) in each BAA.

# Attachment B

Table of Assets

## Asset Appendix: Generation Assets

| | | | | | | Location | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Filing Entity and its Energy Affiliates | Docket # where MBR authority was granted | Generation Name (Plant or Unit Name) | Owned By | Controlled By | Date Control Transferred | Market / Balancing Authority Area | Geographic Region | In-Service Date | Capacity Rating: Nameplate (MW) | Capacity Rating: Used in Filing (MW) | Capacity Rating: Methodology Used in [K]: (N)ameplate, (S)easonal, 5-yr (U)nit, 5-yr (E)IA, (A)lternative | End Note Number (Enter text in End Notes Sheet) |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |
| | | | | | | | | | | | | |

## Asset Appendix: Long-Term Purchased Power Agreements (PPA)

**Note:**
Energy only contracts must be converted to MW
Only report Contracts one year or longer

| | | | Location | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Filing Entity and its Energy Affiliates** | **Seller Name** | **Amount of PPA (MW)** | **Market / Balancing Authority Area (Source)** | **Market/ Balancing Authority Area (Sink)** | **Geographic Region (Sink)** | **Start Date (mo/da/yr)** | **End Date (mo/da/yr)** | **Type of PPA (Unit or System)** | **End Note Number (Enter text in End Notes Sheet)** |
| Powerex Corp. | Los Angeles Dept. of Water & Power | 72 | BPAT | BPAT | Northwest | 08/01/15 | 12/31/20 | Unit | |
| Powerex Corp. | Klickitat Pub. Util. Dist. | 25 | BPAT | BPAT | Northwest | 01/01/14 | 09/30/17 | Unit | |
| Powerex Corp. | Southern Cal. Pub. Power Authority | 98.7 | BPAT | BPAT | Northwest | 01/01/11 | 12/31/20 | Unit | |
| Powerex Corp. | Southern Cal. Pub. Power Authority | 50 | BPAT | BPAT | Northwest | 01/01/16 | 12/31/17 | Unit | |
| Powerex Corp. | Chelan County Pub. Util. Dist. | 366 | CHPD | N/A | Northwest | 06/01/12 | 11/13/22 | Unit | 1 |
| Powerex Corp. | Chelan County Pub. Util. Dist. | 24 | CHPD | N/A | Northwest | 05/03/13 | 11/16/20 | Unit | 2 |
| Powerex Corp. | Grant County Pub. Util. Dist. | 126 | GCPD | GCPD | Northwest | 01/01/16 | 12/31/17 | Unit | 3 |
| Powerex Corp. | Pacific Gas & Elec. Co. | 90 | PSEI | PSEI | Northwest | 10/04/10 | 10/04/20 | Unit | |
| Powerex Corp. | Chelan County Pub. Util. Dist. | 67 | PSEI | PSEI | Northwest | 04/01/19 | 03/31/24 | Unit | |
| Powerex Corp. | Chelan County Pub. Util. Dist. | 96.4 | CHPD | N/A | Northwest | 10/01/20 | 12/31/24 | Unit | 4 |
| Powerex Corp. | Snohomish Pub. Util. Dist. | 25 | BPAT | N/A | Northwest | 01/01/20 | 12/31/20 | System | 5 |
| Powerex Corp. | Bonneville Power Admin. | 50 | BPAT | N/A | Northwest | 01/01/20 | 12/31/20 | System | 6 |

## Asset Appendix: Transmission Assets / Natural Gas Assets

### Electric Transmission Assets and/or Natural Gas Intrastate Pipelines and/or Gas Storage Facilities

| | | | | | | Location | | Size | |
|---|---|---|---|---|---|---|---|---|---|
| Filing Entity and its Energy Affiliates | Cite to order accepting OATT or order approving the transfer of transmission facilities to an RTO or ISO | Asset Name and Use | Owned By | Controlled By | Date Control Transferred | Market / Balancing Authority Area | Geographic Region | Size: (e.g., length and kV for electric, length and diameter for pipelines, and capacity for gas storage) | End Note Number (Enter text in End Notes Sheet) |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |

## Asset Appendix: End Notes

### End Notes for Entries in the Generation, Long-term PPA and Transmission Lists

| End Note Number | Sheet (Generation, PPA or Transmission/ Natural Gas) | Explanatory Note |
|---|---|---|
| 1 | PPA | Powerex has the rights to the residual capacity and storage of the Rocky Reach and Rock Island hydroelectric projects owned by the Chelan Public Utility District (*i.e.* , the capacity and storage otherwise available to Chelan from these projects after its obligations are met). The residual capacity available to Powerex from these projects was approximately 366 MW during calendar year 2016, but, on average, there is no net energy delivered to Powerex, as Chelan sells its expected energy surplus beyond load and other commitments in the term and day-ahead wholesale energy markets. Deliveries under the contract are made at points at which the Chelan Public Utility District interconnects with surrounding BAAs, as listed in the contract. |
| 2 | PPA | Under these contracts with Chelan Public Utility District, Powerex makes occassional purchases from Chelan's Lake Chelan Hydro Project. During the study period, the maximum occasional purchase was 24 MW. Purchases under the contract are made at points at which the Chelan Public Utility District interconnects with surrounding BAAs, as listed in the contract. |
| 3 | PPA | Powerex has an entitlement to 6.38 percent of the output of the Priest Rapids Project (consisting of the Priest Rapids and Wanapum facilities) on the Columbia River that is owned by Grant County Public Utility District and located within GCPD. |
| 4 | PPA | Under this contract, Powerex has an entitlement to 5.0 percent of the output of the Rock Reach and Rock Island hydro-electric facilties owned by Chelan Public Utility District and located within CHPD. Deliveries under the contract are made at points at which the Chelan Public Utility District interconnects with surrounding BAAs, as listed in the contract. |
| 5 | PPA | Powerex has a PPA for delivery from Snohomish Public Utility District of 25 MW in off-peak hours (Hours Ending (HE) 01-HE06, HE23, HE24 on Monday-Saturday, HE1-HE24 on Sunday and NERC holidays). Deliveries under the contract are made at Mid-C. |
| 6 | PPA | Powerex has a PPA for delivery from the Bonneville Power Administration of 50 MW in off-peak hours (Hours Ending (HE) 01-HE06, HE23, HE24 on Monday-Saturday, HE1-HE24 on Sunday and NERC holidays). Deliveries under the contract are made at Mid-C. |

# Attachment C

Protective Agreement

**UNITED STATES OF AMERICA**
**FEDERAL ENERGY REGULATORY COMMISSION**

Powerex Corp. Docket No. ER10-3297

# PROTECTIVE AGREEMENT

This Protective Agreement ("Agreement") is entered into this ____ day of _____, 2020 by and between Powerex Corp. ("Applicant") and _____ ("Intervenor"), and shall govern the use of all Privileged Materials produced by the Applicant to the Intervenor, or vice versa, in connection with the proceeding before the Federal Energy Regulatory Commission ("Commission" or "FERC") in Docket No. ER10-3297. Applicant and Intervenor are sometimes referred to herein individually as a "Party" or jointly as the "Parties."

1. Applicant filed Privileged Materials in the captioned Commission proceeding and Intervenor is a Participant in such proceeding, as the term Participant is defined in 18 C.F.R. § 385.102(b), or has filed a motion to intervene or a notice of intervention in such proceeding. Applicant and Intervenor enter into this Agreement in accordance with their respective rights and obligations set forth in 18 C.F.R. § 388.112(b)(2). Notwithstanding any order terminating this proceeding, this Agreement shall remain in effect until specifically modified or terminated by the Commission.

2. This Agreement applies to the following two categories of materials: (A) A Party may designate as privileged those materials which customarily are treated by that Party as sensitive or proprietary, which are not available to the public, and which, if disclosed freely, would subject that Party or its customers to risk of competitive disadvantage or other business injury; and (B) A Party shall designate as privileged those materials which contain critical energy infrastructure information, as defined in 18 CFR § 388.113(c)(1) (Critical Energy Infrastructure Information).

3. Definitions -- For purposes of this Agreement:

(a) (1) The term "Privileged Materials" means (A) materials (including depositions) provided by a Party in response to discovery requests and designated by such Party as privileged; (B) any information

contained in or obtained from such designated materials; (C) any other materials which are made subject to this Agreement by the Commission or by any court or other body having appropriate authority, or by agreement of the Parties; (D) notes of Privileged Materials; and (E) copies of Privileged Materials. The Participant producing the Privileged Materials shall physically mark them on each page as "PRIVILEGED MATERIALS" or with words of similar import as long as the term "Privileged Materials" is included in that designation to indicate that they are Privileged Materials. If the Privileged Materials contain Critical Energy Infrastructure Information, the Participant producing such information shall additionally mark on each page containing such information the words "Contains Critical Energy Infrastructure Information – Do Not Release."

(2) The term "Notes of Privileged Materials" means memoranda, handwritten notes, or any other form of information (including electronic form) which copies or discloses materials described in Paragraph 3(b)(1). Notes of Privileged Materials are subject to the same restrictions provided in this order for Privileged Materials except as specifically provided in this Agreement.

(3) Privileged Materials shall not include (A) any information or document that has been filed with and accepted into the public files of the Commission, or contained in the public files of any other federal or state agency, or any federal or state court, unless the information or document has been determined to be privileged by such agency or court, or (B) information that is public knowledge, or which becomes public knowledge, other than through disclosure in violation of this Agreement, or (C) any information or document labeled as "Non-Internet Public" by a Participant, in accordance with Paragraph 30 of FERC Order No. 630, FERC Stat. & Reg. ¶ 31,140. Privileged Materials do include any information or document contained in the files of the Commission that has been designated as Critical Energy Infrastructure Information.

(c) The term "Non-Disclosure Certificate" shall mean the certificate annexed hereto by which Participants who have been granted access to Privileged Materials shall certify their understanding that such access to Privileged Materials is provided pursuant to the terms and restrictions of this Agreement, and that they have read the Agreement and agree to be bound by it. Each Party shall provide a copy of the Non-Disclosure Certificate(s) executed by its Reviewing Representative(s) to the other Party prior to such Reviewing Representative)s receiving access to any Privileged Materials. All Non-Disclosure Certificates shall be served on all

parties on the official service list maintained by the Secretary in this proceeding.

(d) The term "Reviewing Representative" shall mean a person who has signed a Non-Disclosure Certificate and who is:

(1) an attorney retained by a Party for purposes of this proceeding;

(2) attorneys, paralegals, and other employees associated for purposes of this case with an attorney described in Subparagraph 3(d)(1);

(3) an expert or an employee of an expert retained by a Party for the purpose of advising, preparing for or testifying in this proceeding;

(4) a person designated as a Reviewing Representative by order of the Commission; or

(5) employees or other representatives of a Party with significant responsibility for matters involving this proceeding.

4. Privileged Materials shall be made available under the terms of this Agreement only to Parties and only through their Reviewing Representative(s) as provided in Paragraphs 7-9.

5. Privileged Materials shall remain available to a Party until the later of the date that an order terminating this proceeding becomes no longer subject to judicial review, or the date that any other Commission proceeding relating to the Privileged Material is concluded and no longer subject to judicial review. If requested to do so in writing after that date, the Participants shall, within fifteen days of such request, return the Privileged Materials (excluding Notes of Privileged Materials) to the Party that produced them, or shall destroy the materials, except that copies of filings, official transcripts and exhibits in this proceeding that contain Privileged Materials, and Notes of Privileged Materials may be retained, if they are maintained in accordance with Paragraph 6, below. Within such time period the Party, if requested to do so, shall also submit to the producing Party an affidavit stating that, to the best of its knowledge, all Privileged Materials and all Notes of Privileged Materials have been returned or have been destroyed or will be maintained in accordance with Paragraph 6. To the extent Privileged Materials are not returned or destroyed, they shall remain subject to the Agreement.

6. All Privileged Materials shall be maintained by the Participant in a secure place. Access to those materials shall be limited to those Reviewing Representatives specifically authorized pursuant to Paragraphs 8-9.

7. Privileged Materials shall be treated as privileged by the Party and by the Reviewing Representative(s) in accordance with the certificate executed pursuant to Paragraph 9. Privileged Materials shall not be used except as necessary for the conduct of this proceeding, nor shall they be disclosed in any manner to any person except a Reviewing Representative who is engaged in the conduct of this proceeding and who needs to know the information in order to carry out that person's responsibilities in this proceeding. Reviewing Representatives may make copies of Privileged Materials, but such copies become Privileged Materials. Reviewing Representatives may make notes of Privileged Materials, which shall be treated as Notes of Privileged Materials if they disclose the contents of Privileged Materials.

8. (a) If a Reviewing Representative's scope of employment includes the marketing of energy, the direct supervision of any employee or employees whose duties include the marketing of energy, the provision of consulting services to any person whose duties include the marketing of energy, or the direct supervision of any employee or employees whose duties include the marketing of energy, such Reviewing Representative may not use information contained in any Privileged Materials obtained through this proceeding to give any Party or any competitor of any Party a commercial advantage.

(b) In the event that a Party wishes to designate as a Reviewing Representative a person not described in Paragraph 3(d) above, the Party shall seek agreement from the Party providing the Privileged Materials. If an agreement is reached that person shall be a Reviewing Representative pursuant to Paragraphs 3(d) above with respect to those materials. If no agreement is reached, the Party shall submit the disputed designation to the Commission for resolution.

9. (a) A Reviewing Representative shall not be permitted to inspect, participate in discussions regarding, or otherwise be permitted access to Privileged Materials pursuant to this Agreement unless that Reviewing Representative has first executed a Non-Disclosure Certificate; provided, that if an attorney qualified as a Reviewing Representative has executed such a certificate, the paralegals, secretarial and clerical personnel under the attorney’s instruction, supervision or control need not do so. A copy of

each Non-Disclosure Certificate shall be provided to counsel for the Party asserting confidentiality/privilege prior to disclosure of any Privileged Material to that Reviewing Representative.

(b) Attorneys qualified as Reviewing Representatives are responsible for ensuring that persons under their supervision or control comply with this order.

10. Any Reviewing Representative may disclose Privileged Materials to any other Reviewing Representative as long as the disclosing Reviewing Representative and the receiving Reviewing Representative both have executed a Non-Disclosure Certificate. In the event that any Reviewing Representative to whom the Privileged Materials are disclosed ceases to be engaged in these proceedings, or is employed or retained for a position whose occupant is not qualified to be a Reviewing Representative under Paragraph 3(d), access to Privileged Materials by that person shall be terminated. Even if no longer engaged in this proceeding, every person who has executed a Non-Disclosure Certificate shall continue to be bound by the provisions of this Agreement and the certification.

11. Subject to Paragraph 18, the Commission shall resolve any disputes arising under this Agreement. Prior to presenting any dispute under this Agreement to the Commission, the parties to the dispute shall use their best efforts to resolve it. If a Party contests the designation of materials as privileged, it shall notify the Party that provided the privileged materials by specifying in writing the materials the designation of which is contested. This Agreement shall automatically cease to apply to such materials five (5) business days after the notification is made unless the Party, within said 5-day period, files a motion with the Commission, with supporting affidavits, demonstrating that the materials should continue to be privileged. In any challenge to the designation of materials as privileged, the burden of proof shall be on the Party seeking protection. If the Commission finds that the materials at issue are not entitled to privilege, the procedures of Paragraph 18 shall apply. The procedures described above shall not apply to privileged materials designated by a Participant as Critical Energy Infrastructure Information. Materials so designated shall remain privileged and subject to the provisions of this Protective Order, unless a Party requests and obtains a determination from the Commission's Critical Energy Infrastructure Information Coordinator that such materials need not remain privileged.

12. All copies of all documents reflecting Privileged Materials, including the portion of any hearing testimony, exhibits, transcripts, briefs and other

documents, that refer to Privileged Materials, shall be filed and served in sealed envelopes or other appropriate containers endorsed to the effect that they are sealed pursuant to this Agreement. Such documents shall be marked "PRIVILEGED MATERIALS" and shall be filed under seal and served under seal upon the Presiding Judge and all Reviewing Representatives who are on the service list. Such documents containing Critical Energy Infrastructure Information shall be additionally marked "Contains Critical Energy Infrastructure Information – Do Not Release." For anything filed under seal, redacted versions or, where an entire document is privileged, a letter indicating such, will also be filed with the Commission and served on all Participants on the service list. Counsel for the producing Party shall, upon the request of a Party, provide a list of Reviewing Representatives who are entitled to receive such material. Counsel shall take all reasonable precautions necessary to assure that Privileged Materials are not distributed to unauthorized persons.

13. If a Party desires to include, utilize or refer to any Privileged Materials or information derived therefrom in pleadings, testimony, or exhibits in these proceedings in such a manner that might require disclosure of such material to persons other than Reviewing Representatives, such Party shall first notify both counsel for the disclosing Participant and the Commission of such desire, identifying with particularity each of the Privileged Materials. Thereafter, use of such Privileged Material will be governed by procedures determined by the Commission.

14. Nothing in this Agreement shall be construed as precluding any Party from objecting to the use of Privileged Materials on any legal grounds.

15. Nothing in this Agreement shall preclude any Party from requesting the Commission or any other body having appropriate authority to find that this Agreement should not apply to all or any materials previously designated as Privileged Materials pursuant to this Agreement. The Presiding Judge or the Chief Judge or the Commission may alter or amend this Agreement as circumstances warrant at any time during the course of this proceeding.

16. The Parties may amend this Agreement only by mutual consent and in writing; provided, however, that a Party has the right to seek changes to this Agreement as appropriate from the Commission.

17. All Privileged Materials filed with the Commission or any other judicial or administrative body, in support of, or as a part of, a motion, other

pleading, brief, or other document, shall be filed and served in sealed envelopes or other appropriate containers bearing prominent markings indicating that the contents include Privileged Materials subject to this Agreement. Such documents containing Critical Energy Infrastructure Information shall be additionally marked “Contains Critical Energy Infrastructure Information – Do Not Release."

18. If the Commission finds at any time in the course of this proceeding that all or part of the Privileged Materials need not be privileged, those materials shall, nevertheless, be subject to the privilege afforded by this Agreement for three (3) business days from the date of issuance of the Commission’s determination, and if the Party seeking privilege files an interlocutory appeal or requests that the issue be certified to the Commission, for an additional seven (7) business days. No Party waives its rights to seek additional administrative or judicial remedies after the Commission’s decision respecting Privileged Materials or Reviewing Representatives, or the Commission's denial of any appeal thereof. The provisions of 18 CFR §§ 388.112 and 388.113 shall apply to any requests under the Freedom of Information Act (5 U.S.C. § 552) for Privileged Materials in the files of the Commission.

19. Nothing in this Agreement shall be deemed to preclude a Party from independently seeking through discovery in any other administrative or judicial proceeding information or materials produced in this proceeding under this Agreement.

20. No Party waives the right to pursue any other legal or equitable remedies that may be available in the event of actual or anticipated disclosure of Privileged Materials.

21. The contents of Privileged Materials or any other form of information that copies or discloses Privileged Materials shall not be disclosed to anyone other than in accordance with this Agreement and shall be used only in connection with this this proceeding. Any violation of this Agreement and of any Non-Disclosure Certificate executed hereunder shall constitute a violation of an order of the Commission.

IN WITNESS WHEREOF, the Parties each have caused this Protective Agreement to be signed by their respective duly authorized representatives as of the date first set forth above.

| | |
|---|---|
| By:_____ | By:_____ |
| Name:_____ | Name:_____ |
| Title:_____ | Title:_____ |
| Representing Applicant:<br>Powerex Corp. | Representing Intervenor:<br>_____ |

**UNITED STATES OF AMERICA**
**FEDERAL ENERGY REGULATORY COMMISSION**

Powerex Corp. Docket No. ER10-3297

## NON-DISCLOSURE CERTIFICATE

I hereby certify my understanding that access to Privileged Materials is provided to me pursuant to the terms and restrictions of the Agreement dated _____ by and between Powerex Corp. [Applicant] and _____ [Intervenor] concerning materials in FERC Docket No. ER10-3297, that I have been given a copy of and have read the Agreement, and that I agree to be bound by it. I understand that the contents of the Privileged Materials, any notes or other memoranda, or any other form of information that copies or discloses Privileged Materials shall not be disclosed to anyone other than in accordance with that Agreement. I acknowledge that a violation of this certificate constitutes a violation of an order of the Federal Energy Regulatory Commission.

By: _____

Printed Name: _____

Title: _____

Representing: _____

Date: _____

# Attachment D

Non-public Navigant  Workpapers

[**REDACTED**]