UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Pacific Gas and Electric Company	**)**	**Docket Nos. ER15-223-000**
Operator Corporation	**)**	**ER15-227-000**
	)	**ER15-227-001**
	)	**ER15-227-002**
California Independent System	**)**	**Docket No. ER15-322-000**
Operator Corporation	**)**	
	)	**(not consolidated)**

ANSWER OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION TO THE PROTESTS AND MOTIONS FOR CONSOLIDATION OF TRANSMISSION AGENCY OF NORTHERN CALIFORNIA

The California Independent System Operator Corporation ("CAISO")[1] respectfully submits this answer to several related pleadings filed by the Transmission Agency of Northern California ("TANC").[2] These proceedings concern Pacific Gas and Electric Company's ("PG&E") notice of termination of the Comprehensive Agreement between PG&E and the State of California Department of Water Resources State Water Project ("CDWR"), and PG&E's submission of a load interconnection agreement and two Large Generator Interconnection Agreements ("LGIA").[3] As discussed in this answer,[4]

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[1] Capitalized terms not otherwise defined herein have the meanings set forth in the Master Definitions Supplement, Appendix A to the CAISO tariff.

[2] These pleadings include three protests, requests for suspension, hearing, and settlement procedures, and motions for consolidation (collectively, "Protests") in the above-captioned dockets (not consolidated). The CAISO will refer to all three filings collectively as "Protests;" however, because TANC confusingly used the same captions and names for each filing, the CAISO will refer to the November 20, 2014 out-of-time filing against PG&E's notice of termination Docket No. ER15-223 as "Termination Protest," the November 19, 2014 filing against the replacement generator interconnection agreements in Docket No. ER15-227 as "Replacement Protest," and the November 25, 2014 filing against the CAISO's certificate of concurrence to the replacement agreements as "Concurrence Protest."

[3] The LGIAs are joint agreements among PG&E, the CAISO, and CDWR.

[4] The CAISO submits this answer pursuant to Rules 212 and 213 of the Commission's Rules of Practice and Procedure, 18 C.F.R. §§ 385.212, 385.213 (2014). The CAISO may answer by right TANC's motions to consolidate, and respectfully requests waiver of Rule 213(a)(2), 18 C.F.R. §

TANC's Protests are a collateral attack on the Federal Energy Regulatory Commission's ("FERC" or "Commission") decision in *Transmission Agency of Northern California v. Pacific Gas and Electric Co.* ("*TANC v. PG&E*"),[5] misconstrue Commission precedent and the CAISO tariff, and distort the CAISO's past and ongoing study processes.

I. BACKGROUND

A. California-Oregon Intertie.

As the CAISO explained in its comments to TANC's complaint in the *TANC v. PG&E* proceeding, the California – Oregon Intertie ("COI") comprises the Pacific AC Intertie and the California – Oregon Transmission Project.[6] The COI provides up to 4,800 MW of transmission capacity between California and Oregon, which is also the path rating. The Pacific AC Intertie consists of two 500 kV transmission lines from Malin to Tesla substations, and is located in the CAISO balancing authority area. The Western Area Power Administration – Sierra Nevada Region ("Western") owns one of the 500 kV lines from Malin to Round Mountain and PG&E owns the other. In addition, PacifiCorp owns a segment of one of these two 500 kV lines from Malin to Indian Springs. From Round Mountain to Tesla substations, PG&E owns both 500 kV lines.

385.213(a)(2), to permit it to make an answer to TANC's protests. Good cause for this waiver exists here because the answer will aid the Commission in understanding the issues in the proceeding, provide additional information to assist the Commission in the decision-making process, and help to ensure a complete and accurate record in the case. *See, e.g.*, *Equitrans, L.P.*, 134 FERC ¶ 61,250, at P 6 (2011); *California Independent System Operator Corp.*, 132 FERC ¶ 61,023, at P 16 (2010); *Xcel Energy Services, Inc.*, 124 FERC ¶ 61,011, at P 20 (2008).

[5] 148 FERC ¶ 61,150 (2014).

[6] *TANC v. PG&E*, Comments of the California Independent System Operator Corp. on Complaint, Docket No. EL14-44-000 (June 17, 2014). Included here as Attachment 1 (including all attached declarations to the CAISO's comments).

The California Oregon Transmission Project is a 500 kV line that runs from the Captain Jack substation in Oregon to the Olinda substation in Central California. It is located in the Balancing Authority of Northern California balancing authority area. PG&E owns a 2.0625 percent share of the California Oregon Transmission Project. The remainder of the California – Oregon Transmission Project is owned or leased by TANC and other parties.

PG&E has turned over its portion of the Pacific AC Intertie and California – Oregon Transmission Project to the CAISO's operational control. In total, the CAISO has operational control over approximately 58 percent of the COI.

The Owners Coordinated Operations Agreement ("OCOA") governs the coordinated operation of the California-Oregon Intertie. It requires the signatory parties to designate a path operator. The CAISO serves as path operator pursuant to the California-Oregon Intertie Path Operating Agreement.

B. CDWR's Interconnected Facilities and the Comprehensive Agreement.

The CDWR generation facilities relevant to this proceeding have been interconnected to PG&E's electric transmission system since 1966. Since 1982, the "Comprehensive Agreement" between PG&E and CDWR has provided the terms regarding the interconnection of CDWR's generating facilities, including (1) the Oroville facilities, which consist of the Ronald B. Robie (Thermalito) Powerplant, Thermalito Diversion Dam, and Edward Hyatt Powerplant, located in Oroville, California; and (2) San Luis (Gianelli), located in Gustine, California.

The Oroville facilities have been operating in parallel with the PG&E's transmission system through its interconnection at the Table Mountain Substation 230 kV bus since the facilities were commissioned. The Oroville Facilities' total maximum net output to the CAISO Controlled Grid is 942 MW at the point of interconnection. However, CDWR's generation at Oroville has been limited in recent years to approximately 550 MW because of a fire that damaged several generating units. On August 25, 2014, CDWR submitted an affidavit pursuant to section 25.1.2 of the CAISO tariff stating that CDWR intends to "repower" these generating units, that is, repair them to their pre-fire capability and electrical characteristics.[7]

San Luis has been operating in parallel with PG&E's transmission system through its interconnection at the Los Banos Substation 230 kV bus since the units were commissioned in 1967. San Luis's total maximum net output to the CAISO Controlled Grid is 424 MW at the point of interconnection.

Since beginning operation in 1998, the CAISO has accounted for the Comprehensive Agreement as an existing transmission contract under the CAISO tariff and an encumbrance listed in the CAISO's Transmission Control Agreement.[8] As an existing transmission contract, the CAISO must hold CDWR's share of transmission capacity on the CAISO controlled grid from the CAISO's day-ahead market. If CDWR does not use some or all of its existing rights, then that capacity becomes available in the CAISO's real-time market.

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[7] *See* Exhibit No. DWR-3 to CDWR's Dec. 4, 2014 Answer in these proceedings.

[8] *See* California Independent System Operator Corp., FERC Electric Tariff No. 7, Transmission Control Agreement, appendix B ("TAC").

As the CAISO has explained in other proceedings[9]—and as the Commission has recognized[10]—the CAISO tariff provides that the transmission service rights and obligations under existing transmission contracts will continue only for the duration of those contracts.[11] The tariff further provides that any CAISO participating transmission owner "shall attempt to negotiate changes to [any] Existing Contract to align the contract's scheduling and operating provisions with the CAISO's scheduling and operational procedures, rules and protocols, to align operations under the contract with CAISO operations."[12] In addition, the CAISO Transmission Control Agreement bars participating transmission owners from creating any new "Encumbrance" or extending the term of an existing "Encumbrance" without the CAISO's prior written consent.[13]

The CAISO consistently has declined to consent to any extension of an Encumbrance because of the precedent it would set for other parties with existing contracts that would want to expand the scope of their existing rights. Any expansion or extension of such contracts would materially impair the CAISO's ability to exercise operational control over affected facilities because the CAISO would be required to provide priority scheduling and hedge financial benefits to all such expanded rights. The Commission consistently has upheld the CAISO and its participating transmission owners' efforts in this regard, by (1) requiring entities that desire continued service upon expiration of an existing contract to take full service under the CAISO tariff and

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9 *See, e.g., City and County of San Francisco v. Pacific Gas and Electric Co.*, Comments of the California Independent System Operator Corp., Docket No. EL15-3-000 (Nov. 10, 2014).

10 *Pacific Gas & Electric Co.*, 81 FERC ¶ 61,122 at 61,470-471 (1997).

11 Section 16.1 of the CAISO tariff.

12 Section 16.1.1 of the CAISO tariff.

13 Section 4.4.3 of the CAISO TAC.

participate in the CAISO's open access market, and (2) allowing termination of the existing contract and elimination of any "contracts rights"-based transmission access and usage.[14] At the commencement of the CAISO market, the Commission found that "it may be difficult for the ISO to accommodate the varied operations, protocols, and procedures of Existing Contracts," but that this was an "unavoidable *transitional* problem," and only "*temporary*."[15]

By its express terms, the Comprehensive Agreement expires on December 31, 2014. Perhaps most significant to TANC, the expiration of the Comprehensive Agreement also will end CDWR's participation in the "Remedial Action Scheme" or "RAS," which was part of the Comprehensive Agreement and which TANC suggests apparently has benefited it, even though TANC never was an intended beneficiary of the contract and the contract does not infer any third-party beneficiary rights on TANC. Under the Remedial Action Scheme at issue, CDWR receives automatic trip signals for its generation and pumping load during pre-specified contingency conditions, generally involving outages.[16] At the outset, the Remedial Action Scheme was needed to manage congestion due to planned but unfinished upgrades to Path 15. Although these upgrades have long since been built and are in service, the Remedial Action Scheme

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[14] *See Pacific Gas & Electric Co.*, 81 FERC ¶ at 61,470-471; *Promoting Wholesale Competition*, Order No. 888, 61 Fed. Reg. 21540, 21558 (May 10, 1996); FERC Stat & Regs. ¶ 31,036 ("if a customer's existing bundled service (transmission and generation) contract or transmission only contract expires, and the customer takes any new transmission service from its former supplier, the terms and conditions of the Final Rule tariff would then apply to the transmission service that the customer receives") (case history omitted).

[15] *Pacific Gas & Electric Co.*, 81 FERC ¶ at 61,470-471 (emphases added).

[16] *See, TANC v. PG&E*, Motion to Intervene and Comments of CDWR, pp. 6-7, Docket No. EL14-44-000 (June 17, 2014).

remained in effect as an anachronism of the Comprehensive Agreement.[17] As CDWR's generating facilities enter full-fledged market participation without the constraints of the existing Comprehensive Agreement, market participants in the CAISO markets all will compete to utilize the capacity of the COI over which the CAISO has operational control in the CAISO's markets.

II. ANSWER TO PROTESTS

A. TANC's Protests are a Collateral Attack on the Commission's Decision in *TANC v. PG&E*.

TANC's Protests are a transparent collateral attack on the Commission's decision in *TANC v. PG&E*.[18] Each argument TANC raises is merely a pretext to extend the Comprehensive Agreement, despite the Commission's finding that "it is now appropriate for the Comprehensive Agreement to terminate pursuant to its express terms, rather than to extend or amend it."[19] The Commission has been clear that "[c]ollateral attacks on final orders and relitigation of applicable precedent by parties that were active in the earlier cases thwart the finality and repose that are essential to administrative efficiency and are strongly discouraged."[20]

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[17] For a lengthy discussion of the history of Path 15, COI, and the Remedial Action Scheme, s*ee TANC v. PG&E*, Answer of Pacific Gas and Electric Co., pp. 5-19, Docket No. EL14-44-000 (June 17, 2014)

[18] 148 FERC ¶ 61,150 (2014).

[19] *Id*. at P 63. For example, to its Termination Protest, TANC merely re-attaches the same six affidavits it attached to its complaint in TANC v. PG&E with one "supplemental affidavit" from its consultant.

[20] *San Diego Gas & Electric Co. v. Sellers of Energy and Ancillary Services*, 134 FERC ¶ 61,129 at P 15 (2011) (citing *Entergy Nuclear Operations*, *Inc. v. Consolidated Edison Co*., 112 FERC ¶ 61,117, at P 12 (2005); *EPIC Merchant Energy NJ/PA*, *L.P. v. PJM Interconnection*, *L.L.C*., 131 FERC ¶ 61,130 (2010) (dismissing as an impermissible collateral attack a complaint that merely sought to re-litigate the same issues as raised in the prior case citing no new evidence or changed circumstances)).

In its Protests, TANC goes to great lengths to attempt to prove that the CAISO and PG&E have not considered the impacts that TANC alleges will result from the terms of the LGIAs, namely, the loss of the Remedial Action Scheme. These allegations comes directly from TANC's complaint proceeding. There, the Commission found that "based on the clear and unambiguous language of the Operation Agreement," PG&E is not required "to replace the remedial action schemes upon cancellation or termination of the Comprehensive Agreement," nor "to replace any remedial action provided thereunder, *including substituting some other means of achieving the same objective as the remedial action schemes*."[21]

TANC argues that these proceedings present a different issue: "whether the terms PG&E proposes to interconnect CDWR generation cause it to violate its obligations under the OCOA."[22] This argument is pure semantics. In effect, TANC argues that while the Commission has considered and decided on the issue that PG&E is under no obligation to replace the Remedial Action Scheme and the Comprehensive Agreement may end pursuant to its express terms, the Commission has not considered the issue of whether PG&E, the CAISO, and CDWR must enter into new agreements with terms exactly the same as the Comprehensive Agreement and with something

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21 *TANC v. PG&E*, 148 FERC ¶ 61,150 at P 62 (emphasis added).

22 TANC Replacement Protest at P 44.

exactly the same as the Remedial Action Scheme. The Commission should reject this collateral attack on its prior decision.

B. TANC Misconstrues the Scope of the Notice of Termination.

In its Termination Protest, TANC argues that to obtain Commission approval for termination of the Comprehensive Agreement, PG&E must demonstrate that the termination is just and reasonable and not unduly discriminatory or preferential under section 205 of the Federal Power Act.[23] This argument misconstrues both the nature of the termination and Commission precedent regarding terminations.

TANC attempts to present the termination of the Comprehensive Agreement as an early termination effected unilaterally by one party.[24] In fact, as PG&E made clear in its notice of termination, the Comprehensive Agreement is set to expire by its own express terms on December 31, 2014. PG&E only submitted a notice of termination pursuant to Section 35.15[25] and to seek Commission approval to implement the procedures to end CDWR's participation in the Remedial Action Scheme starting immediately on January 1, 2015.[26] Because of the New Year's holiday, PG&E would prefer to have at least three days in advance of January 1, 2015, and therefore requested that the Commission issue an order terminating the Comprehensive

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[23] TANC Termination Protest at P 24.

[24] TANC cites *Midwest Independent Transmission System Operator, Inc.*, 143 FERC ¶ 61,114 (2013) (*MISO I*), *reh'g denied*, *Midcontinent Independent Transmission System Operator, Inc.*, 145 FERC ¶ 61,038 at P 6 (2013) ("*MISO II*") in support of its argument. As explained below, in this case, MISO sought to unilaterally terminate an LGIA well before its natural expiration due to breach of the LGIA by the interconnection customer.

[25] 18 C.F.R § 35.15.

[26] PG&E Notice of Termination, p. 6.

Agreement on or before December 29, 2014, that is, only two days before the Comprehensive Agreement expires by its own terms.

TANC argues that to obtain Commission approval for termination of the Comprehensive Agreement, PG&E must demonstrate that the termination is just and reasonable and not unduly discriminatory or preferential under section 205 of the Federal Power Act.[27] In support of its argument, TANC cites *Midcontinent Independent Transmission System Operator, Inc.* ("*MISO*").[28] This case is inapposite to the instant case. In *MISO*, MISO sought Commission approval to unilaterally terminate a generator interconnection agreement ("GIA") well before the GIA's natural expiration.[29] MISO sought to terminate the GIA because it believed—and the Commission agreed—that the interconnection customer was in breach and default of the GIA for failing to meet required milestones that were material terms.[30] These facts are absent in the instant proceeding, as PG&E has not alleged that CDWR did not comply with the Comprehensive Agreement, which is going to expire by its own express terms.

Of course, the Commission may review jurisdictional agreements at any time upon its own motion or upon complaint under section 206 of the Federal Power Act.[31] As explained above, TANC has already exhausted that option. The Commission should see through TANC's attempt to reprieve its arguments under the guise of section 205. Especially as a non-party to the Comprehensive Agreement, Commission precedent is

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27 TANC Termination Protest at P 24.

28 TANC Termination Protest at P 24 (citing *MISO II* at P 6).

29 *MISO I* at PP 1-2.

30 *Id.* at P 3.

31 *Id*. at § 824e(a).

clear that TANC has no right to assert that the Comprehensive Agreement continue beyond its natural expiration.[32]

C. PG&E Has Demonstrated that Granting a Two-day Window to Avoid Implementation Concerns is Just and Reasonable, Not Unduly Discriminatory or Preferential, and in the Public Interest.

In its Termination Protest, TANC attempts to argue that the Commission should examine whether PG&E's proposed termination of the Comprehensive Agreement is just and reasonable and not unduly discriminatory or preferential.[33] TANC argues that in doing so, the Commission should examine whether "the situation that will exist after termination is just and reasonable," and "what harm, if any, [the termination] causes."[34] As explained above, the Commission already has found that "it is now appropriate for the Comprehensive Agreement to terminate pursuant to its express terms."[35]

Nevertheless, PG&E has demonstrated that receiving a Commission order at least two days before the Comprehensive Agreement's natural expiration is just and reasonable and in the public interest. These two days will enable PG&E to avoid potential implementation and reliability concerns, as they will provide PG&E sufficient time to implement the procedures to end CDWR's participation in the Remedial Action

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[32] *See, e.g.*, *Sacramento Municipal Utility Dist. v. Pacific Gas and Electric Co.*, 105 FERC ¶ 61,358 at PP 22-23 (finding that the "Order No. 888 right of first refusal provision does not contemplate contract extension beyond the term of the relevant contract . . . . Furthermore, even if SMUD had requested conversion to tariff service as provided in Order No. 888, extension of SMUD's service at its current rates, terms and conditions would not be possible. SMUD would have to take service under the CAISO tariff, the only relevant tariff since the California utilities have turned over operational control of their transmission facilities to the CAISO").

[33] TANC Termination Protest at P 25.

[34] *Id*. (citing *Pac. Power & Light Co.* 23 FERC ¶ 61,402 at 61,890 (Opinion No. 175) (1983) for the latter proposition; TANC cites no precedent for the former).

[35] *TANC v. PG&E*, 148 FERC ¶ 61,150 at P 63.

Scheme starting January 1, 2015.[36] Because of the New Year's holiday, PG&E would prefer to have at least three days in advance of January 1, 2015, and therefore requested that the Commission issue an order terminating the Comprehensive Agreement on or before December 29, 2014. TANC's Termination Protest does not address the two days between December 29, 2014 and the expiration of the Comprehensive Agreement on December 31, 2014, and instead repeats its arguments regarding the replacement of the Comprehensive Agreement already rejected by the Commission. The Commission should therefore reject TANC's arguments and find that PG&E's notice of termination is just and reasonable and in the public interest.

D. Re-Studies of CDWR's Existing Resources Pursuant to the CAISO GIDAP are Not Required under the CAISO Tariff or Commission Precedent.

In its Concurrence Protest and Replacement Protest, TANC argues that the CAISO and PG&E have failed to study the system impact of the interconnection of CDWR's existing facilities.[37] TANC argues that the CAISO tariff "mandates a system impact study as a condition of interconnecting," but that the CAISO has "mistakenly concluded that its study requirements are inapplicable because the LGIAs address existing generation."[38] As explained below, TANC confused the CAISO's transmission study processes with the generator interconnection process. The CAISO has studied and continues to study the impact of CDWR's generation on the CAISO controlled grid as part of its transmission planning process. More to the point, the CAISO tariff is clear

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36 PG&E Notice of Termination, p. 6.

37 TANC Concurrence Protest at PP 10-21.

38 *Id*. at P 13.

that CAISO generator interconnection procedures to study a project in the cluster process do not apply to existing generating units unless they will be modified with a resulting *increase* in total capability or substantial change in electrical characteristics such that the CAISO would need to study the project in the cluster study process. Because neither condition is true of CDWR's existing facilities, requiring CDWR to enter the CAISO interconnection queue and be re-studied alongside new generation projects would be unreasonable and is not required.

1. TANC misconstrues Section 25.1(b) of the CAISO tariff.

Section 25.1(b) of the CAISO tariff states that the CAISO's generator interconnection procedures shall apply to "each existing Generating Unit connected to the CAISO controlled Grid that will be modified *with a resulting increase* in the total capability of the power plant."[39] In both the Concurrence Protest and the Replacement Protest, TANC argues that section 25.1(b) of the CAISO tariff "necessitate[s] that CAISO apply its study procedures for these LGIAs."[40] This argument misstates the implications of section 25.1(b). Section 25.1(b) applies to resources that propose to increase their generating capability. If they do so, they must participate in the CAISO's generator interconnection study process *only for the capacity above the pre-existing capacity*.

After quoting section 25.1(b) in its Concurrence Protest and Replacement Protest, TANC states that "CDWR's generation is not capable of generating at the capability designated in the LGIAs" because CDWR's generation capability actually will be lower.

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39 Section 25.1(b) of the CAISO tariff (emphasis added).

40 *See* TANC Concurrence Protest at P 13; TANC Replacement Protest at PP 46-47.

Because of this change in capability, TANC argues that section 25.1(b) applies.[41] This argument is a non-sequitur: Section 25.1(b) clearly requires an *increase* in the total capability of the plant; not any change whatsoever.

TANC further attempts to circumvent the plain language and clear meaning of the section 25.1(b) by noting that "CAISO's operation and planning studies have been based upon the assumption that the CDWR generation at the Oroville facilities is less than the 942 MW proposed in the Oroville LGIA."[42] This is irrelevant. The applicable CAISO tariff section in this case is section 25. The assumptions that the CAISO uses in its ongoing planning and operational studies vary from year-to-year depending on actual and expected conditions. The CAISO performs these studies pursuant to a different tariff section, and these studies serve entirely different, unrelated purposes than section 25.1, such as operating the grid and contingency planning. These studies do not, and cannot lawfully, alter the requirements of section 25.1.

In fact, as explained in the attached declaration of Neil Millar, Executive Director of Infrastructure Development for the CAISO, the CAISO has studied and continues to study scenarios both with and without assuming the replacement of the damaged generation at the Oroville facilities.[43] Dispatch of the generation is considered on a case by case basis to reflect reasonable operating conditions and the likelihood of generation output at times of high anticipated COI flows: typically 75% to 80% of the

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41 *See* TANC Concurrence Protest at PP 13-14; TANC Replacement Protest at PP 46-47. TANC in fact continues to repeat this false standard throughout its Protests. *See, e.g.,* TANC Replacement Protest at P 53 ("PG&E's representation that the capability of the facilities is unchanged. . . ."); P 55 ("The representation that the capability is unchanged. . . .).

42 TANC Concurrence Protest at P 14.

43 *See* Attachment 2.

installed capacity. In the 2013-2014 transmission plan, the CAISO provided nomograms demonstrating the impact on COI limits for varying dispatches of the Northern California hydroelectric generation, which includes the CDWR generators. Likewise, the CAISO conducted similar studies in 2014-2015 transmission plan process with draft results presented at the CAISO's September 24, 2014 stakeholder meeting. The nomograms from the 2014-2015 transmission planning process will be included in the draft transmission plan that will be provided to stakeholders for comment in January 2015 with the results being very similar to the 2013-2014 transmission plan. The reliability assessment did not identify any reliability constraints in the area with the system operated within the nomograms. These studies, however, are not interconnection studies but rather annual studies the CAISO performs for all resources and facilities.

With respect to interconnection studies, because CDWR has already provided the CAISO with a proposed construction schedule and affidavit declaring its intention to replace the damaged generation within the three-year timeline established by the CAISO,[44] the original installed capacity continues to be taken into account for purposes

[44] Section 5.1.3.4 of the CAISO BPM for Reliability Requirements provides that for a given existing resource to retain its NQC rating, the generating unit must operate or be capable of operating at the capacity level associated with its rated deliverability to retain its deliverability rights. To the extent a Generating Unit becomes incapable of operating at this level for any consecutive three-year period, the Generating Unit will lose its deliverability priority in an amount reflecting the loss of generating capability. The holder of the deliverability priority may retain its rights after the expiration of the three-year period if it can demonstrate that it is actively engaged in the construction of replacement generation to be connected at the bus associated with the deliverability priority. Under such circumstances, the Generating Unit developer and ISO will identify specific milestones to preserve the deliverability priority. The holder of the deliverability priority will retain only such rights that are commensurate with the size in megawatts of the replacement generation, not to exceed the amount associated with the prior Generating Unit's deliverability priority. *See also* section 7.1 of the CAISO BPM for Generator Management.

In compliance with these requirements, CDWR submitted an affidavit under section 25.1.2 of the CAISO tariff for its San Luis pumping-generating plant on September 11, 2013, and submitted an affidavit and requested repowering for its Oroville facilities on August 25, 2014.

of section 25.1 of the CAISO tariff. Accordingly, TANC's arguments regarding the CAISO's failure to study properly for present and future capacity at Oroville is erroneous. As the CAISO explained extensively in its comments and attached declarations to TANC's complaint in *TANC v. PG&E*, the CAISO has studied and continues to study both the system and market changes resulting from the expiration of the Comprehensive Agreement and the Remedial Action Scheme but CDWR is not required to go through the interconnection queue to repower its facilities.[45] The CAISO's planning studies show that no reliability problems and only *de minimis* congestion on the COI will result.[46]

2. Section 25.1(c) of the CAISO tariff is inapplicable because the electrical characteristics of CDWR's facilities have not substantially changed such that re-energization may violate Applicably Reliability Criteria.

Alternatively, TANC argues that section 25.1(c) applies to CDWR.[47] Section 25.1(c) of the CAISO tariff states that the CAISO's generator interconnection procedures shall apply to "each existing Generating Unit connected to the CAISO Controlled Grid that will be modified without increasing the total capability of the power plant *but has changed the electrical characteristics* of the power plant such that its re-energization may violate Applicable Reliability Criteria."[48] TANC alleges that CDWR's generating units' electrical characteristics will change as a result of the repowering

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45 Attachment 1.

46 *See id. De minimis* congestion consists of only three hours of congestion in 2018 on the COI as a result of the loss of the Remedial Action Scheme. The CAISO estimates the expected cost of this *de minimis* congestion at $3,000.

47 TANC Concurrence Protest at PP 18-19; TANC Replacement Protest at PP 51-52.

48 Section 25.1(c) of the CAISO tariff (emphasis added).

process, thereby requiring CDWR to enter the CAISO's generator interconnection queue and study processes.[49] For example, in its Replacement Protest, TANC summarily concludes that "[r]eplacing 50 year-old generation with modern components will necessarily change the electrical characteristics of the power plant."[50] This argument mischaracterizes the nature of an electrical characteristic change under the CAISO tariff. TANC takes an overly broad interpretation of section 25.1(c) and ignores an entire clause, namely, that the change in electrical characteristics may cause "re-energization [to] violate Applicable Reliability Criteria."

By definition, repowering consists of replacing older generation components with new components. TANC argues that this "necessarily change[s] the electrical characteristics of the power plant."[51] Under this logic, no generator would be able to repower without re-entering the interconnection queue, thus defeating the entire purpose of repowering and sections 25.1(c) and 25.1.2 of the CAISO tariff. TANC chooses to interpret a change in electrical characteristics as broadly as possible to fit its argument where, in fact, a change in electrical characteristics has a specific definition based on whether a change actually will have an effect on the grid. For this reason section 25.1(c) applies where repowering "has changed the electrical characteristics of the power plant *such that its re-energization may violate Applicable Reliability Criteria*."[52] TANC ignores this language and therefore bases its argument on the faulty

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49 TANC Concurrence Protest at PP 18-19; TANC Replacement Protest at PP 51-53.

50 TANC Replacement Protest at P 52.

51 *Id*.

52 Section 25.1(c) of the CAISO tariff (emphasis added).

premise that any repowering must result in re-entering the CAISO interconnection queue.

In the CAISO's Business Practice Manual ("BPM") for Generator Management,[53] the CAISO describes the nature of a change in electrical characteristics:

> It is understood that any repower of a Generating Unit, unless replaced with identical equipment, will result in some changes to the total capability and electrical characteristics of the Generating Unit, and therefore some degree of change to the performance of the transmission system. Most of these changes can be attributed to improvements in technology or the unavailability of original equipment. The CAISO will consider changes to be "substantial" if there is a proposed change in fuel source or they are found to have an adverse impact on the transmission system, either of which would require the project to be evaluated pursuant to the CAISO's GIDAP.[54]

The CAISO's BPM then enumerates the type of impacts that would be adverse to the transmission system, which include "increasing the power flow during normal or contingency conditions, any increase in the short circuit duty impacts, or adverse angular or voltage stability impacts, as compared to the impacts associated with the original Generating Unit."[55] Each of these types of impacts are then defined in further detail.[56] From these definitions, which comply with prudent utility practice and reliability

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53 The CAISO's guidelines for repowering also were published previously as a technical bulletin, "Generator Unit Repowering," on September 12, 2013: http://www.caiso.com/Documents/TechnicalBulletinGeneratorUnitRepoweringSep12_2013.htm

54 Section 7.2 of the CAISO BPM for Generator Management, *available at* http://bpmcm.caiso.com/Pages/BPMDetails.aspx?BPM=Generator%20Management.

55 *Id*.

56 *Id*. The CAISO describes these impacts as follows: Adverse Flow Impact – If a repower of a Generating Unit results in the same MW capacity and Net Qualifying Capacity, or a decrease in MW capacity at the Point Of Interconnection and Net Qualifying Capacity, and all CAISO tariff requirements regarding reactive power are met by the new Generating Unit, the repowering will not be considered to cause a substantial change to the total capability of the Generating Unit from a flow impact standpoint. In this case, there would be no adverse power flow impact on the CAISO Controlled Grid under normal and contingency conditions as compared with the original Generating Unit. Conversely, any increase in MW capacity or Net Qualifying Capacity would be considered a substantial change in total capability as this would increase the Generating Unit's power flow impacts.

standards, the CAISO can make meaningful determinations on what constitutes a change in electrical characteristics that could have a meaningful effect on the grid.

For the CAISO, enabling immaterial changes in electrical characteristics is necessary to ensure that more modern technology can be employed in any repowering circumstance. To do otherwise would restrict generation to utilizing older technologies to avoid loss of existing interconnection rights.

3. The CAISO cannot assess CDWR's repowered facilities until CDWR submits its repowering proposal.

In continuing its argument under section 25.1(c) of the CAISO tariff, TANC argues that "the need to rebuild Oroville generation triggers the obligation . . . to comply with the CAISO's Generation Interconnection and Deliverability Procedures."[57] Not only does this argument misconstrues sections 25.1(b) and 25.1(c), it is untimely and based on a faulty premise. TANC's argument assumes that by including the capacity of the repowered Oroville facilities in the LGIA, the CAISO passes on its ability (and responsibility) to study the repowered facilities. This is not true. Regardless of CDWR's contractual interconnection capacity, the CAISO reserves the right to assess and will study CDWR's repowering proposal. Moreover, the CAISO may require additional interconnection facilities study agreements as part of that process and before facilities

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Short Circuit Duty Impact – Any reduction in the short circuit duty of the repowered Generating Unit as compared with the original Generating Unit will not be considered an adverse impact and will not be considered a substantial change to the unit's electrical characteristics. Conversely, an increase in short circuit duty impact would be considered a substantial change to the electrical characteristics of the Generating Unit.

Angular or Voltage Stability Impact - The angular and voltage stability impacts of a Generating Unit directly depends on the type of generator and the power system control functions that the Generating Unit encompasses. A technical assessment may be required to determine if the system performance with the repowered generator has substantially deteriorated.

[57] TANC Replacement Protest at P 52.

are synchronized to the grid. At any time in these processes the CAISO and the participating transmission owner may determine that repowering has resulted in an increase in capability or a change in electrical characters that requires the repowered facilities' owner to submit to the CAISO GIDAP before re-energization.[58] In addition, as explained in the BPM for Generator Management, the CAISO may require upgrades as a result of a repowering study and even if the capability and electrical characteristics of the facilities have been determined to be unchanged.[59] Even if the unit's total capability and electrical characteristics remain substantially unchanged, an interconnection facilities study performed by the participating transmission owner may still be required to determine whether the interconnection facilities meet current standards, and if not, whether additional facilities are needed to support the interconnection.[60] Even if so, the project still would *not* then need to be studied under the GIDAP: The need for additional interconnection facilities does not result in a need to re-study the project's impact on the grid.

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[58] For an increase in capability, only the increase above the existing capability would be subject to the GIDAP.

[59] Section 7.3 of the CAISO BPM for Generator Management ("Although the capability and electrical characteristics for a repowered Generating Unit may be determined to be substantially unchanged—and therefore the Generating Unit will not need to participate in the CAISO's GIDAP study process—it may still be necessary for the generator owner applicant and the Participating TO to enter into an interconnection facilities study agreement to assure that Interconnection Facilities and telemetry or protective relay equipment are compliant with the Participating TO's current interconnection requirements and standards, as well as any other relevant standards (e.g., NERC, WECC). Any additional interconnection facilities required as a result from this interconnection facility study will be incorporated into the GIA").

[60] *Id.* at section 7.4.2. Because this process also applies to (and is most commonly used for) qualifying facilities entering into 3-party GIAs with the CAISO for the first time, these practices generally are completed before the execution of a GIA. The processes still apply here, as no repowered unit would be allowed to synchronize to the grid until the CAISO and participating transmission owner have concluded that the repowered unit is compliant with the CAISO tariff and reliability standards, regardless of an existing GIA.

Further, if at any time in these processes, the CAISO and the participating transmission owner determine that repowering will result in an increase in capability or a change in electrical characteristics, the CAISO will require the project owner to go through the CAISO GIDAP. CDWR's affidavit under section 25.1.2 of the CAISO tariff explicitly acknowledges this fact.[61]

The CAISO initially relies on the affidavit process under section 25.1.2 of the CAISO tariff. Both the CAISO and the transmission owner can ask for supporting information to determine whether the repowering appears justified. The next step is for the owner to submit a repowering proposal and the CAISO and the transmission owner assess the proposal to determine whether the CAISO continues to agree that the projects is eligible for repowering pursuant to section 25.1 of the CAISO tariff. As the CAISO describes in its BPM for Generator Management: "If the new technical data is different from the data on file with the ISO, a technical assessment will be conducted to verify that the electrical characteristics of the Generating Unit are substantially unchanged."[62] In fact, the CAISO explicitly acknowledges that "[b]ecause most repowering proposals include a change to the Generating Unit's equipment*, a technical assessment will need to be performed in most cases* to confirm that total capability and electrical characteristics of the Generating Unit are substantially unchanged."[63]

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61 *See* Exhibit No. DWR-3 to CDWR's Dec. 4, 2014 Answer in these proceedings.

62 Section 7.4.2 of the CAISO BPM for Generator Management.

63 *Id*. (emphasis added). Moreover, as described above, "[e]ven if the unit's total capability and electrical characteristics remain substantially unchanged, an interconnection facilities study performed by the Participating TO may still be required to determine whether the interconnection facilities meet current standards, and if not, whether additional interconnection facilities may be needed to support the interconnection. . . ." *Id*.

To determine whether the total capability and electrical characteristics of a repowered generating unit is substantially unchanged, the CAISO generally includes, without limitation, the following analyses:

- Dynamic stability assessment under both no-disturbance and critical contingency conditions;
- Post transient governor power flow analyses under critical contingencies;
- Short circuit duty study;
- For asynchronous units, reactive requirements study;[64]
- An assessment to determine if an interconnection facilities study agreement is needed to determine if existing facilities meet current standards; and
- An examination of net qualifying capacity that will be modeled in the CAISO's generator deliverability assessment.[65]

Once these analyses and the technical assessment are complete, the CAISO and participating transmission owner send a final report to the generating unit owner stating that (1) the repowering request meets all criteria and no additional studies are required; (2) the repowering request meets all criteria but an interconnection facility study is still required; or (3) the repowering request does not meet repowering criteria and the applicant must submit to the CAISO GIDAP.[66]

E. TANC's Allegations of Adverse Impacts on Affected Systems are Unfounded and a Collateral Attack on the Commission's Decision in *TANC v. PG&E*.

TANC argues that "[i]nterconnecting generation, even existing generation, on terms that cause neighboring systems and third-party transmission to suffer adverse impacts is contrary to prudent utility practice and is unjust and unreasonable."[67]

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64 If the Generating Unit(s) owner agrees to include reactive power capability in the repowered unit then a separate study would not be required.

65 Section 7.4.4 of the CAISO BPM for Generator Management.

66 *Id*. at section 7.4.5.

67 TANC Concurrence Protest at P 12. TANC then attempts to relitigate its complaint proceeding by stating: "The Commission should exercise its authority under Section 206 of the Federal Power Act to

Although TANC fails to cite any Commission precedent for this argument (or for any argument in its ten pages of Concurrence Protest),[68] the CAISO agrees that "prudent utility practice" requires avoiding adverse system impacts on neighboring systems. The CAISO disagrees, however, that the CAISO and PG&E have failed to study the potential system impacts of the continued interconnection of CDWR's facilities. The CAISO has extensively studied—and continues to study—on both a regional and interregional basis the impact of both the physical and contractual changes for CDWR. As explained below and in the *TANC v. PG&E* proceeding, the CAISO concluded that the expiration of the Comprehensive Agreement and the end of the Remedial Action Scheme will not cause any reliability problems and will have only a *de minimis* economic effect on the COI. While TANC attempts to sidestep *TANC v. PG&E* by arguing that its Protests address CDWR's replacement LGIAs, TANC cites the same "adverse impacts" resulting from the replacement LGIAs as it cited to in *TANC v. PG&E* from the expiration of the Comprehensive Agreement and the loss of the Remedial Action Scheme. After all, CDWR's facilities are already physically interconnected. These proceedings present only contractual changes to the grid.

The Commission should see through this collateral attack on its previous order. Since Order No. 2003 the Commission has consistently held that it is unreasonable for transmission providers to require existing generators such as qualifying facilities and legacy contracts that pre-date the CAISO to join the interconnection queue for restudy.[69]

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condition any acceptance of the proposed LGIAs on the completion of system impact studies and the adoption of mitigation measures to avoid adverse impacts to the COTP."

[68] *Id*. at PP 5-26.

[69] *See, e.g., Standardization of Generator Interconnection Agreements and Procedures*, Order No. 2003, FERC Stats. & Regs. ¶ 31,146 at P 815 (2003), *order on reh'g*, Order No. 2003-A, FERC Stats. & Regs. ¶ 31,160, *order on reh'g*, Order No. 2003-B, FERC Stats. & Regs. ¶ 31,171 (2004), *order on reh'g*,

This policy is sound for an obvious reason: these generators are already synchronized to the grid.

In *TANC v. PG&E*, the Commission stated that it found no merit "in TANC's assertion that the loss of the remedial action schemes would violate section 12.1 of the Operation Agreement to avoid adverse impacts when making a Modification to the system," and that the "termination of the DWR remedial action schemes does not appear to raise reliability concerns. Specifically, CAISO, the path operator for the California-Oregon Intertie, concluded that the termination of the DWR remedial action schemes would not adversely affect reliability of the CAISO controlled grid."[70] These facts remain true, and apply equally to the terms of the LGIAs subject to this proceeding.

As the CAISO explained in its comments and attached declarations to TANC's complaint, as path operator for the COI, the CAISO has sought to determine whether parties to the OCOA—which include Western and PacifiCorp—potentially need to make changes to operating procedures or to take other actions following expiration of the Comprehensive Agreement. The CAISO also needed direction from those parties regarding how to allocate any reduction in available transfer capability that might result from the unavailability of the CDWR remedial action scheme if the parties did not make any changes to the procedures or take other actions. On March 29, 2013, the CAISO contacted the parties to the OCOA regarding such matters pursuant to California-

Order No. 2003-C, FERC Stats. & Regs. ¶ 31,190 (2005), *aff'd sub nom. Nat'l Ass'n of Regulatory Util. Comm'rs v. FERC*, 475 F.3d 1277 (D.C. Cir. 2007), *cert. denied*, 552 U.S. 1230 (2008).

[70] *TANC v. PG&E* at PP 67-68.

Oregon Intertie Path Operating Agreement.[71] Later that year, at the request of the parties, the CAISO conducted operating studies to assess the possible impact on available transfer capability.[72] These operating studies showed that the termination of the CDWR remedial action system would not reduce the path rating of the COI.

Further, as described in the June 17, 2014 declaration of Neil Millar, the CAISO's transmission studies have shown that the termination of the Comprehensive Agreement and the loss of the Remedial Action Scheme will not adversely affect reliability on the CAISO controlled grid or have sufficient adverse economic impacts to justify retention of the Remedial Action Scheme or new capital projects to offset the loss of the Remedial Action Scheme.[73]

Of course, the CAISO will continue to study the COI. In October 2014—nearly two months after the Commission's decision in *TANC v. PG&E*—the CAISO entered into a Participation, Non-disclosure and Information Sharing Agreement ("Information Sharing Agreement") with PG&E, PacifiCorp, Western, the Sacramento Municipal Utility District ("SMUD"), the Bonneville Power Administration ("BPA") the Portland General Electric Company, *and TANC* for the express purpose of exchanging and analyzing confidential information (1) to evaluate the effect of the termination of the Comprehensive Agreement and the Remedial Action Scheme on the COI after 2014; (2) to enable the parties to identify and evaluate potential measures they should take in response; and (3) to assist the parties in developing and/or negotiating potential

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71 *See* Exhibit No. TNC-1, March 29, 2013, letter, Attachment 6 to the Affidavit of Mr. Bryan Griess included with the TANC Replacement Protest.

72 Attachment 1, June 17, 2014 Declaration of Dede Subakti at P 9.

73 Attachment 1, June 17, 2014 Declaration of Neil Millar at P 24.

alternative arrangements. Because of the non-disclosure terms the CAISO cannot go into detail, but the CAISO notes that the parties have already drafted a schedule and initial study plan for 2015.

In the event that the Commission believes that the continued interconnection of CDWR's facilities to the CAISO controlled grid may present reliability concerns on or near the COI, the CAISO respectfully requests that, in lieu of further evidentiary proceedings in these proceedings that would allow TANC to extend the terms of the Comprehensive Agreement, the Commission require the parties to the Information Sharing Agreement to share its findings and reports with Commission staff so that the Commission may be assured that the parties continue to address any system impacts both regionally and interregionally.

III. ANSWER TO MOTION TO CONSOLIDATE

While the CAISO does not object to the consolidation of the dockets concerning CDWR's new LGIAs—Docket Nos. ER15-332 and ER15-227—the Commission should reject TANC's motion to consolidate these dockets with PG&E's notice to terminate the Comprehensive Agreement in Docket No. ER15-223. As explained above, TANC misconstrues the scope of the notice of termination, which only concerns whether the Commission may issue an order early so as to allow PG&E an extra few days to implement the procedures to end CDWR's participation in the Remedial Action Scheme starting January 1, 2015. Moreover, consolidation is unnecessary because further proceedings are unnecessary. TANC does not want the Comprehensive Agreement to end. Because the Commission has already ruled on this issue, it should reject TANC's motion to consolidate.

IV. CONCLUSION

For the reasons discussed above, the Commission should reject TANC's protests and motions, and approve PG&E's notice of termination, CDWR's replacement LGIAs, and the CAISO's concurrence.

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Dated: December 5, 2014

Attachment 1

Comments and Declarations of the California Independent System Operator Corp., Docket No. EL14-44-000

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Transmission Agency of Northern California,	)	
Complainant	)	Docket No. EL14-44-000
v.	)	
Pacific Gas and Electric Company,	)	
Respondent	)	

COMMENTS OF THE CALIFORNIA INDEPENDENT SYSTEM OPERATOR CORPORATION ON COMPLAINT

The California Independent System Operator Corporation ("CAISO") respectfully submits these comments on the complaint filed on April 20, 2014, by the Transmission Agency of Northern California ("TANC") against Pacific Gas and Electric Company ("PG&E"). As discussed in these comments, the CAISO's transmission planning studies show that loss of the California Department of Water Resources ("CDWR") remedial action scheme on January 1, 2015 does not cause any reliability problems on the CAISO controlled grid and results in only *de minimis* congestion on the California-Oregon Intertie ("COI").

At this time, the CAISO does not seek to intervene in the proceeding. The CAISO is not a party to the Owners Coordinated Operations Agreement that is the subject of this complaint. TANC is not seeking relief from the CAISO or CAISO ratepayers. TANC is not disputing the outcome of the CAISO's 2013-2014 transmission planning process. Accordingly, the Commission should not

take any actions that would bind the CAISO or its ratepayers, undo the results of the CAISO's final 2013-2014 transmission plan, or require the CAISO to conduct further studies. To the extent these circumstances change, the CAISO reserves its right to intervene at a later date.

I. BACKGROUND

The California-Oregon Intertie comprises the Pacific AC Intertie and the California-Oregon Transmission Project. The California-Oregon Intertie provides up to 4,800 MW of transmission capacity between California and Oregon, which is the path rating. The Pacific AC Intertie consists of two 500 kV transmission lines from Malin to Tesla substations, and is located in the CAISO balancing authority area. The Western Area Power Administration – Sierra Nevada Region ("Western") owns one of the 500 kV lines from Malin to Round Mountain and PG&E owns the other. In addition, PacifiCorp owns a segment of one of these two 500 kV lines from Malin to Indian Springs. From Round Mountain to Tesla substations, PG&E owns both 500 kV lines.

The California Oregon Transmission Project is a 500 kV line that runs from the Captain Jack substation in Oregon to the Olinda substation in Central California. It is located in the Balancing Authority of Northern California balancing authority area. PG&E owns a 2.0625 percent share of the California Oregon Transmission Project, which it has turned over to the CAISO's operational control. The remainder of the California – Oregon Transmission Project is owned or leased by TANC and other parties.

PG&E has turned over its ownership interest and entitlements in the Pacific AC Intertie and California – Oregon Transmission Project to the CAISO's operational control. In total, the CAISO has operational control over approximately 58 percent of the California-Oregon Intertie.

The Owners Coordinated Operations Agreement governs the coordinated operation of the California-Oregon Intertie. It requires the signatory parties to designate a path operator. The CAISO serves as path operator pursuant to the California-Oregon Intertie Path Operating Agreement.

II. Comments

A. CAISO Transmission Planning Studies Show That No Mitigation is Needed to Account for the Loss of the CDWR Remedial Action Scheme

The Comprehensive Agreement between PG&E and the California Department of Water Resources expires on December 31, 2014. As part of the Comprehensive Agreement, CDWR has provided a remedial action scheme to mitigate flows on Path 15, which is an 84-mile stretch of transmission lines in the Central Valley. Path 15 is the primary path between Northern and Southern California.

To satisfy reliability standard and tariff requirements, the CAISO conducts an annual transmission planning process to assess the need for upgrades on the CAISO controlled grid. In its 2013-2014 planning process, the CAISO studied the impact of the elimination of the CDWR remedial action scheme on CAISO

controlled grid reliability and assessed the need for any transmission reinforcements.[1]

The CAISO's transmission planning process is a year-long process. As described in more detail in the declaration of Mr. Neil Millar, the planning process produces a transmission plan that spans a 10-year planning horizon. The primary purpose of the planning process is to ensure that the CAISO controlled grid is in compliance with the North American Electric Reliability Corporation standards, Western Electricity Coordinating Council regional criteria, and CAISO planning standards through 2023.

The Northern California (*i.e.,* PG&E) system has four interties, three with outside transmission systems and one with Southern California. The California-Oregon Intertie (*i.e.,* Path 66) is the major transfer path between northern California and the Northwest. The CAISO evaluated flows on these paths under the most critical system conditions and all major contingencies, assuming the unavailability of the CDWR remedial action scheme. Mr. Millar's declaration describes these studies.[2]

The CAISO's transmission planning studies showed that the termination of the CDWR remedial action scheme would not adversely affect reliability of the CAISO controlled grid. Similarly, termination of the CDWR remedial action

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1 *See* Declaration of Neil Millar at P 7.

2 *Id.* at PP 7-14.

scheme would not provide a basis for re-visiting the path rating of the California-Oregon Intertie.[3]

The CAISO also studied whether termination of the CDWR remedial action scheme would have any adverse economic impacts. Neil Millar describes the nature of the CAISO's economic studies in his affidavit.[4] The CAISO's studies showed that termination of the CDWR remedial action scheme would have only *de minimis* economic impacts. For 2018, the transmission planning studies showed that there would only be three hours of congestion on the California-Oregon Intertie, with an expected cost of three thousand dollars. The studies showed no congestion for the year 2023.[5]

TANC notes that the CAISO's transmission planning studies showed a reduction in available system transfer capability for the California-Oregon Intertie in 2015 of 200 MW at 70% or greater hydropower production in northern California, 400 MW at 80% or greater hydropower production,[6] and 800 MW at 90% or greater hydropower production; the corresponding reductions in 2018 were zero at 70% or greater hydropower production, 300 MW at 80% or greater hydropower production, and 900 MW at 90% or greater hydropower production.

In connection with its studies, the CAISO examined hydropower conditions from January 1, 2000 and through December 31, 2013. The data showed that 90

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3 *Id.* at P 14.

4 *Id.* at PP 15-18.

5 *Id.* at PP 18-19.

6 References in these Comments to hydropower production or hydropower levels are to northern California hydropower production/levels.

percent or greater hydropower conditions occurred in approximately one-half of one percent of the hours over that 14 year period, 80 percent or greater hydropower conditions occurred in approximately three percent of the hours during that same period, and 70 percent or greater hydropower conditions occurred in approximately 8 percent of the hours over that period.[7]

Although TANC accurately presents these factual findings from the CAISO's transmission planning studies, these same studies show that termination of the CDWR remedial action scheme does not cause any reliability problems on the CAISO controlled grid and only result in three hours of congestion on COI for 2018 and no congestion for 2023. Accordingly, the CAISO determined that there was no reliability or economic basis to justify (1) retention of the CDWR remedial action scheme, (2) construction of additional transmission facilities (beyond those already planned), or (3) the incurrence of other costs by CAISO ratepayers to offset the loss of the CDWR remedial action scheme. Because no mitigation measures are needed or justified, the final transmission plan, as TANC correctly notes, does not discuss mitigation measures for the loss of the CDWR remedial action scheme.[8]

B. Results of the CAISO Operating Studies Regarding the Impact of the Loss of the CDWR Remedial Action Scheme

As path operator for the California-Oregon Intertie, the CAISO sought to determine whether the parties to the Owners' Coordinated Operations Agreement might need to make changes to the operating procedures provided to

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[7] *Id.* at P 22.

[8] *Id.* at PP 23-24. The one exception is the rerating of the Delevan-Cortina line.

the CAISO or to take other actions following expiration of the Comprehensive Agreement. The CAISO also needed direction from those parties regarding how to allocate any reduction in available transfer capability that might result from the unavailability of the CDWR remedial action scheme if the parties did not make any changes to the procedures or take other actions. On March 29, 2013, the CAISO contacted the parties to the Owners Coordinated Operations Agreement regarding such matters pursuant to California-Oregon Intertie Path Operating Agreement.[9] Later that year, at the request of the parties, the CAISO conducted operating studies to assess the possible impact on available transfer capability.[10]

As explained in the declaration of Mr. Dede Subakti, the CAISO operating studies of the California-Oregon Intertie considered for spring, summer and winter seasons, system configurations without any new project, with the planned Palermo-Rio Oso reconductor project, and with both the Palermo-Rio Oso project and the South of Palermo project. The CAISO studied northern California hydropower conditions from 60%-100% in 10% increments. These operating studies showed that the termination of the CDWR remedial action system would not reduce the path rating of the California-Oregon Intertie. TANC notes that, based on the operating studies for spring load conditions without the South of Palermo Project in service, the CAISO, as path operator, would need to reduce

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[9] *See* March 29, 2013, letter, Attachment 6 to the Affidavit of Mr. Bryan Griess included with the TANC complaint.

[10] Declaration of Dede Subakti at P 9. The CAISO did not commence such studies until May 2013. Accordingly, the CAISO's letter to affected parties did not have the benefit of the results of those studies. The CAISO's studies showed that the CAISO's expectations in the March 29, 2013 were unfounded.

the available transfer capability of the California-Oregon Intertie by about 440 MW at the 80% or greater hydropower level and 760 MW at 90% or greater hydropower level unless additional steps are taken. For summer load conditions without the South of Palermo Project in service, the CAISO, as path operator, would need to reduce flows on the California-Oregon Intertie by about 170 MW at the 80% or greater hydropower level and by about 520 MW at the 90% or greater hydro level unless other steps are taken.

As discussed above, data for the last 14 years shows that hydropower levels reached the 80% level in only three percent of the hours and the 90% level in only one-half of one percent of the hours.[11] Studies for the winter case (November 1-April 30) did not show any reduction in available system transfer capability.[12] The data thus reflects (1) at 90% or greater hydropower conditions, approximately an eleven percent (summer) or seventeen percent (spring) reduction in available system transfer capability in about one-half of one percent of hours annually (*i.e.*, 43.8 hours over spring and summer), and (2) at 80% or greater hydropower conditions, approximately a nine percent (spring) or three percent (summer) reduction in available system transfer capability in about three percent of hours annually.[13]

The CAISO notes that the studies conducted by TANC show greater reductions in available system transfer capability than the CAISO's transmission

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11 *Id.* at P 12

12 *Id.* at 10.

13 *Id.* at 12.

planning and operating studies. The CAISO did not participate in TANC's studies and does not know what all of the assumptions underlying those studies are.

IV. CONCLUSION

The CAISO requests that the Commission take into account the information the CAISO has provided in acting on the complaint.

Respectfully submitted,

By: *<u>/s/ Anthony J. Ivancovich</u>*

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Dated: June 17, 2014

ATTACHMENT 1

Declaration of Neil Millar

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Transmission Agency of Northern California,	)	
	)	
Complainant	)	
v.	)	Docket No. EL14-44-000
	)	
Pacific Gas & Electric Company,	)	
	)	
Respondent	)	

DECLARATION OF NEIL MILLAR

I, Neil Millar, state as follows:

I. QUALIFICATIONS AND PURPOSE

Qualifications

1. I am currently employed by the California Independent System Operator Corporation ("CAISO") as Executive Director, Infrastructure Development. I received a Bachelor of Science in Electrical Engineering degree at the University of Saskatchewan, Canada, and am a registered professional engineer in the province of Alberta.

2. I have been employed for over 30 years in the electricity industry, primarily with a major Canadian investor-owned utility, TransAlta Utilities, and with the Alberta Electric System Operator and its predecessor organizations. Within those organizations, I have held management and executive roles responsible for preparing, overseeing, and providing testimony for numerous transmission planning and regulatory tariff applications. I have appeared before the California

Public Utilities Commission, the Alberta Energy and Utilities Board, the Alberta Utilities Commission, and the British Columbia Utilities Commission.

3. Since November 2010, I have been employed at the CAISO, leading the Transmission Planning and Grid Asset departments.

Purpose

4. I have reviewed the complaint filed by the Transmission Agency of Northern California ("TANC") against Pacific Gas & Electric Company ("PG&E") and the attached affidavits of David T. Larsen and Bryan W. Griess. The purpose of my Declaration is to (1) briefly describe the CAISO's transmission planning process, (2) discuss the manner in which the CAISO, during the 2013-2014 transmission planning process, undertook studies to assess the impact of the expiration of the Comprehensive Agreement between PG&E and the California Department of Water Resources ("CDWR") and the resulting termination of CDWR's remedial action scheme ("CDWR RAS"), and (3) address certain statements in the complaint and in the affidavits of Messrs. Larsen and Griess regarding the CAISO's transmission planning studies. The CAISO's transmission planning studies show that termination of the CDWR RAS does not adversely impact reliability to the CAISO grid and does not cause any economic impacts that would justify either retention of the CDWR RAS or the pursuit of a new, currently unplanned capital project(s) to offset the loss of the CDWR RAS.

II. BACKGROUND

5. PG&E has an ownership interest and entitlements in the Pacific AC Intertie ("PACI") which is part of the California Oregon Intertie ("COI"). PG&E has turned over its ownership interest in the PACI to the CAISO's operational control, and that share of the line is part of the CAISO controlled grid. Further, PG&E owns a comparatively small amount of scheduling rights on the California Oregon Transmission Project, which comprises the other part of the COI. (The California Oregon Transmission Project itself is not part of the CAISO controlled grid and is not located in the CAISO balancing authority area). In aggregate, approximately 58% of the capacity of the California-Oregon Intertie is under CAISO operational control.

6. On December 31, 2014, the Comprehensive Agreement between PG&E and CDWR will expire. As part of that Comprehensive Agreement, CDWR has provided a remedial action scheme, *i.e.,* the CDWR RAS. The CDWR RAS will no longer be deployed after December 31, 2014**.**

III. RESULTS OF THE CAISO'S TRANSMISSION PLANNING STUDIES

7. The CAISO oversees transmission planning for the CAISO controlled grid in accordance with the provisions of its FERC-approved tariff. In its 2013-2014 transmission planning process, the CAISO assessed any potential transmission reliability or economic impacts on the system that might result from termination of the CDWR RAS. The CAISO studied reliability impacts by assessing whether the loss of the CDWR RAS would result in any North American Electric

Reliability Corporation ("NERC") criteria violations using the methodologies and assumptions set out in the 2013-2014 transmission study plan. The CAISO also evaluated economic impacts to CAISO ratepayers by assessing the extent to which loss of the CDWR RAS would result in increased congestion. The CAISO presented the results of the studies it conducted in the 2013-2014 annual transmission planning process in Appendix B of the 2013-2014 Transmission Plan.

8. In assessing the impacts on transmission system reliability, the transmission plan spans a 10-year planning horizon. The CAISO conducted its transmission planning process to ensure the CAISO-controlled-grid is in compliance with the NERC standards, Western Electricity Coordinating Council regional criteria, and CAISO planning standards. All generating units in the area under study are dispatched at or close to their maximum power (MW) generating levels. The CAISO modeled qualifying facilities and self-generating units based on their historical generating output levels. The CAISO conducted studies that comply with TPL-001, TPL-002 and TPL-003 for the near-term (2014-2018) and longer-term (2019-2023) periods as the reliability standards require. According to the requirements under the TPL-004 standard, the CAISO conducted studies that comply with the extreme events criteria for only the short-term scenarios (2014 - 2018).

Study Area	Near-term Planning Horizon		Long-term Planning Horizon
	2015	2018	2023
Northern California (PG&E) Bulk System*	Summer Peak Summer Off-Peak	Summer Peak Summer Light Load Summer Partial Peak	Summer Peak Summer Off-Peak

9. The local area load forecasts that the CAISO used in the study were developed by participating transmission owners using the revised mid-case California Energy Demand Forecast 2012-2022 released by the California Energy Commission ("CEC") dated June 2012 and with the Mid-Case Load Serving Entity and Balancing Authority Forecast spreadsheet updated as of August 16, 2012 as the starting point because the CEC forecast did not provide bus-level demand projections.

10. In addition to the CEC Energy Demand Forecast, the CAISO incorporated incremental uncommitted energy savings in its forecast. The CAISO used the CEC's low-savings identified in the Energy Efficiency Adjustments for a Managed Forecast: Estimates of Incremental Uncommitted Energy Savings Relative to the California Energy Demand Forecast 2012-2022, dated September 14, 2012. The CAISO allocated the low-savings of incremental uncommitted energy savings to the bus-level by applying the methodology developed by the CEC staff as a part of the AB1318 analysis. The CAISO modeled 1-in-10 load forecasts in each of the local area studies. The CAISO used 1-in-5 coincident peak load forecasts for the backbone system assessments because it covers a vast geographical area with significant temperature diversity.

11. In general, the Northern California (*i.e.,* PG&E) system has four interties with the outside transmission systems and the transmission system in southern California. Of these four ties, Path 66 (*i.e.,* COI) and Path 26 are two major transfer paths that wheel large amounts of power between northern California and the Northwest. The transmission plan lists the power transfers that the CAISO modeled in each scenario on these paths in the northern area assessment. The contractual arrangement to provide SPS/RAS between CDWR and PG&E will expire in 2014. The CAISO's assessments for the 2013-2014 cycle took this into consideration with path flows at transfer levels without the remedial action schemes or special protection systems being available.

12. The CAISO modeled Path 66 (COI) flow at its north-to-south limit of 4800 MW in all summer peak cases. In the summer off-peak cases, the Path 66 flow was in the reverse direction and did not have an impact on the CAISO because the limiting facilities and limiting contingencies when the flow on Path 66 is from south to north are in the Northwest. In the winter peak cases, the flow on Path 66 was lower than in the summer peak due to the lower CAISO load.

13. The studies for the PG&E Bulk Transmission System analyzed the most critical conditions: Summer Peak cases for the years 2015, 2018 and 2023, Summer Light Load and Partial Peak cases for 2018 and Summer Off-Peak cases for 2015 and 2023. The CAISO studied all single and common mode 500 kV system outages, as well as outages of large generators and contingencies involving stuck circuit breakers and delayed clearing of single-phase-to ground faults.

Also, the CAISO studied extreme events such as contingencies that involve a loss of major substations and all transmission lines in the same corridors.

14. The CAISO's transmission planning studies showed that the termination of the CDWR RAS would not adversely affect reliability of the CAISO controlled grid. Because these studies included scenarios operating at the COI (Path 66) path rating and without the CDWR RAS, they provide no basis for revisiting the path rating (which is a maximum achievable flow rating) for Path 66. These studies did affirm the expectation that there would be some downward impact on simultaneous flow limits that depend on other operating parameters (available system transfer capabilities), and the CAISO then studied the impacts from an economic perspective.

15. The CAISO's economic planning study simulates Western Electricity Coordinating Council system operations over an extended period in the planning horizon and identifies potential congestion on the CAISO controlled grid. The study objective is to find economically driven network upgrades to increase production efficiency and reduce CAISO ratepayer costs. These studies take into account impacts on the bulk transmission grid and impacts in available system transfer capabilities that vary with other operating conditions.

16. The economic study uses the unified planning assumptions that the CAISO developed in conjunction with stakeholders, and the CAISO performed it after completing the reliability-driven and policy-driven transmission studies. The CAISO used network upgrades identified as needed for grid reliability and

renewable integration as inputs and modeled them in the economic planning database. In this way, the economic planning study started from a "feasible" system that meets reliability standards and policy needs. Then, the economic planning study sought to identify additional network upgrades that are cost-effective to mitigate grid congestion and increase production efficiency.

17. These studies used a production simulation as the primary tool to identify grid congestion and assess economic benefits created by congestion mitigation measures. The production simulation is a computationally intensive application based on security-constrained unit commitment and security-constrained economic dispatch algorithms. The CAISO conducted the simulation for all 8,760 hours for each study year. The potential economic benefits are quantified as reduction of CAISO ratepayer costs based on the CAISO Transmission Economic Analysis Methodology.[1]

18. Based on the 1-in-2 load, average hydro generation assumptions and established study methodology, the CAISO studies for the 2013-2014 planning cycle found there to be no material congestion forecast on Path 66 in the simulated 2018 or 2023 period.

[1] Transmission Economic Assessment Methodology (TEAM), California Independent System Operator, June 2004, http://www.caiso.com/docs/2004/06/03/2004060313241622985.pdf

#	Transmission Facilities	Year 2018		Year 2023	
		Congestion Duration (Hours)	Congestion Cost ($M)	Congestion Duration (Hours)	Congestion Cost ($M)
1	Path 66 (COI) nomogram	3	0.003	-	-

19. The CAISO's studies showed that termination of the CDWR RAS would have *de minimis* economic impacts on the CAISO grid (which would receive the bulk of the impact of any capacity reduction) in 2018 and no impacts in 2023. As such, there was no economic justification for the CAISO either to retain the CDWR RAS or implement other measures to offset the loss of the CDWR RAS. In particular, the CAISO's economic studies showed that congestion would be expected to occur only a few hours a year.

20. Accordingly, the CAISO determined that (1) retention of the CDWR RAS was not necessary to maintain grid reliability, and (2) there was no basis to build additional transmission facilities (beyond those already planned), or (3) incur costs to implement other measures to offset the loss of the CDWR RAS.

21. TANC states, at paragraph 52 of the compliant, that studies by the CAISO confirm that a transmission project PG&E expects to complete in 2014 will not fully eliminate the adverse impact on COI Available System Transfer Capability (ASTC) from PG&E's loss of the CDWR RAS, and that PG&E has no other projects planned that will ameliorate the loss of ASTC in the foreseeable future. Mr. Larsen, at paragraph 34 of his affidavit, notes that in its 2013-2014 transmission planning process, the CAISO assessed the impacts on the COI as a

result of the loss of the CDWR RAS based on a number of assumptions. He states that the CAISO's studies showed a reduction in COI ASTC in 2015 of 200 MW (at 70% hydropower production in northern California), 400 MW at 80% hydropower production in northern California, and 800 MW (at 90% hydropower production in northern California). The corresponding reductions in 2018 were zero at 70% hydropower production in northern California, 300 MW at 80% hydropower production in northern California, and 900 MW at 90% hydropower production in northern California.

22. In connection with its transmission planning studies, the CAISO examined hydro conditions from January 1, 2000 and through December 31, 2013. The data showed that 90 percent or greater hydropower conditions in northern California occurring in approximately one-half of one percent of the hours over that 14 year period. 80 percent or greater hydropower conditions in northern California occurred in approximately three percent of the hours during that same period; and 70 percent or greater hydropower conditions in northern California occurred in approximately eight percent of the hours over that period. Although the CAISO's studies identified some reductions in ASTC at high hydro conditions that have not occurred frequently, the CAISO's studies show that such reductions do not cause any reliability problems and only result in three hours of congestion on the COI for 2018 and no congestion for 2023.

23. At paragraph 34 of his affidavit, Mr. Larsen notes that the most critical outage resulting from the loss of the CDWR RAS is the Table-Mountain-Tesla and Table Mountain-Vaca Dixon 500 kV lines and that the CAISO observed that the critical

outage could result in post contingency overloads on several associated lower voltage lines operating in parallel with the COI. He notes that at a September 25-26 stakeholder meeting, the CAISO outlined the ways in which these post-contingency overloads caused by loss of the CDWR RAS could be mitigated. He also notes that with one exception -- the rerating of the Delevan-Cortina line -- the Transmission Plan does not discuss the impacts that CAISO-identified solutions would have on the need to limit COI flows.

24. As discussed above, the CAISO did not identify or approve any mitigation measures in its Transmission Plan to address the overloads (beyond the reduction in ASTC) because the CAISO's transmission planning studies showed that the loss of the CDWR RAS (1) would not create a reliability problem on the CAISO controlled grid, and (2) would not have sufficient adverse economic impacts to justify retention of the CDWR RAS or new capital projects to offset the loss of the CDWR RAS. There was no reliability or economic need for any mitigation measures other than the reduction to the ASTC. When the CAISO discussed possible mitigation measures at the September 2013 stakeholder meeting, the CAISO had not yet completed its transmission planning studies to determine if there was any economic justification to adopt mitigation measures beyond the identified reduction in the ASTC. Operating at these new COI nomogram levels would not produce overloads on the identified lines or justify additional mitigation measures.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 17th day of June, 2014 at Folsom, California

/s/ Neil Millar

Neil Millar

ATTACHMENT 2

Declaration of Dede Subakti

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Transmission Agency of Northern California	)	
	)	
Complainant	)	
v.	)	Docket No. EL14-44-000
	)	
Pacific Gas & Electric Company,	)	
	)	
Respondent	)	

DECLARATION OF DEDE SUBAKTI

I, Dede Subakti, state as follows:

I. QUALIFICATIONS AND PURPOSE

Qualifications

1. I am currently employed by the California Independent System Operator Corporation ("CAISO") as Director, Operations Engineering. I received a Bachelor of Science and a Master of Science in Electrical Engineering degree at the Iowa State University, Master of Arts in Theological Studies at the Bethel Seminary, and Master of Business Administration at the University of Minnesota. I am a registered professional engineer in the state of Minnesota.

2. I have been employed for over 13 years in the electricity industry, primarily with Midwest ISO. Within those organizations, I have held management roles responsible for preparing, overseeing, and providing testimony for numerous transmission operations and regulatory tariff applications.

3. Since September 2010, I have been employed at the CAISO, leading the Operations Engineering department.

Purpose

4. I have reviewed the complaint filed by the Transmission Agency of Northern California ("TANC") against Pacific Gas & Electric Company ("PG&E") and the attached affidavit of David T. Larsen and Bryan W. Griess. The purpose of my Declaration is to (1) discuss the operating studies the CAISO undertook as Path Operator of the California-Oregon Intertie ("COI") to assess the impact of the expiration of the Comprehensive Agreement between PG&E and the California Department of Water Resources ("CDWR") and the consequent termination of CDWR's remedial action scheme ("CDWR RAS"), and (2) address specific statements in the complaint and in the affidavits of Messrs. Larsen and Griess. As discussed herein, the CAISO's operating studies show that termination of the CDWR RAS can have some impact on the available system transfer capability ("ASTC") of the California-Oregon Intertie in a limited number of hours during the year.

II. PERTINENT BACKGROUND

5. The CAISO serves as Path Operator for the COI pursuant to the COI Path Operating Agreement.

6. The Path Operator is responsible for, among other duties, determining available system transfer capability among the owners based on their ownership share and

procedures adopted the parties to the Owners Coordinated Operations Agreement ("OCOA").

7. The CAISO has known that on December 31, 2014, the Comprehensive Agreement between PG&E and CDWR will expire by its terms. As part of that Comprehensive Agreement, CDWR has provided a remedial action scheme, *i.e.,* the CDWR RAS. The CAISO therefore has assumed that the CDWR RAS will no longer be deployed after December 31, 2014.

8. As Path Operator, the CAISO sent a letter to the OCOA parties dated March 29, 2013, a copy of which was included as Attachment 6 to the Affidavit of Mr. Bryan Griess. At that time, the CAISO had not yet conducted any studies to assess the possible impact on available system transfer capability or what actions may be appropriate to address any identified impacts.

III. RESULTS OF THE CAISO'S PATH OPERATOR STUDIES

9. The CAISO, as Path Operator of the COI, conducted several operating studies on behalf of the OCOA parties. The studies were conducted using the 2013 operating cases with and without CDWR RAS for Spring, Summer and Winter seasons for system configurations without any new project, with the Palermo-Rio Oso reconductor project, and with both the Palermo-Rio Oso project and the South of Palermo project. The studies were conducted for 60-100% hydropower conditions in northern California. In addition, the CAISO conducted sensitivities studies with the output of Hyatt and Thermalito generation output is capped at 500 MW and at 600 MW, which results in lower reductions in available system

transfer capability than without capping the output of the Hyatt and Thermalito generation. The maximum observed output of these facilities has been 550 MW in the last five years. The CDWR pumps were assumed to be operating at the maximum levels to reflect the most stressed system condition

10. The CAISO's studies showed that the termination of the CDWR RAS would not reduce the path rating of the COI. However, the studies showed under some limited conditions that do not occur frequently there could be a reduction in the available system transfer capability. The CAISO operating studies showed that the removal of the CDWR RAS could lead to a decrease in available system transfer capability at high hydropower levels in northern California (greater than 80 and 90 percent) if neither of the Palermo Rio Oso reconductoring Project or the South of Palermo Project are placed into service. As discussed below, data for the last 14 years shows that northern California hydropower levels have reached the 80% or 90% levels infrequently. The limitations are significantly alleviated with the Palermo – Rio Oso reconductoring project and South of Palermo project in-service. The Palermo-Rio Oso reconductering project has recently been placed in service. The South of Palermo project was originally anticipated to be in-service in May 2018, but PG&E has recently updated the in-service date by May 2019. Studies for the winter Case (November 1-April 1) do not show any reduction in available system transfer capability.

IV. RESPONSES TO SPECIFIC STATEMENTS IN THE COMPLAINT

11. At paragraph 96 of the complaint, TANC states that studies by the CAISO as Path Operator for the COI establish that loss of the CDWR RAS will materially reduce available system transfer capability. At paragraph 27 of his affidavit, Mr. Larsen states that the CAISO's operating studies done in the fall of 2013 show that, for spring load conditions, without the CDWR RAS, COI flows would have to be reduced by approximately 440 MW (at the 80% hydropower level in northern California and by about 760 MW (at the 90% hydropower level) unless other steps are taken to mitigate overloads on the PG&E system. He adds that for summer load conditions, the COI flows would have to be reduced by about 170 MW (at the 80% hydropower level) and by about 520 MW (at the 90% hydropower level) unless other steps are taken

12. In connection with its operating studies, the CAISO pulled and examined data regarding northern California hydropower conditions for every operating hour from January 1, 2000 through December 31, 2013. The data showed that 90 percent or greater hydropower conditions occurred only in approximately one-half of one percent of the hours over that 14 year period. 80 percent or greater hydropower conditions occurred only in approximately three percent of the hours during that same period. Based upon the reductions in available system transfer capability identified in the CAISO's operating studies (as discussed by Mr. Larsen), until the South of Palermo project is placed into service, one might expect (1) at 90% hydropower conditions, approximately an eleven percent (Summer) or seventeen percent (Spring) reduction in available system transfer

capability in about one-half of one percent of hours annually, and (2) at 80% hydropower conditions, approximately a nine percent (Spring) or three percent (Summer) reduction in ASTC in about three percent of hours annually.

13. At page 22 of the complaint, TANC states that the CAISO, in its capacity as Path Operator, advised the OCOA parties that termination of the Comprehensive Agreement would have a significant adverse impact on the transfer capability of the COI. In support of its statement, TANC cites to a March 29, 2013 letter from the CAISO to the OCOA parties which states that "[t]he ISO would expect the unavailability of the remedial action scheme supported by CDWR to result in a significant reduction in available system transfer capability of the COI, and absent an agreement among the OCOA parties with respect to a replacement remedial action scheme or other arrangement, would anticipate allocating the resulting reduction in available system transfer capability *pro rata* in relation to the COI rated system transfer capability shares of the OCOA parties."

14. At the time the CAISO sent this letter, both the CAISO and the OCOA parties "expected" that the loss of the CDWR RAS would have a significant impact on the available system transfer capability of the COI. Because the CAISO sent this letter before it had actually conducted and completed its operating and transmission planning studies regarding the impact of the loss of the CDWR RAS, the letter was expressly based on the CAISO's expectations at the time, not actual study results. The CAISO did not commence such studies until May 2013. Mr. Larsen acknowledges in his affidavit that (1) the CAISO evaluated the loss of the CDWR RAS in its operating studies in the fall of 2013 and in its

planning studies in connection with the CAISO's 2013-2014 transmission planning process, (2) the CAISO did not post the base cases which Mr. Larsen used for his studies until fall of 2013, and (3) the CAISO posted its study results in the draft 2013-2014 Transmission Plan, which was issued on February 3 2014, almost one year after the CAISO sent the aforementioned letter to the OCOA parties. The CAISO's studies showed that the CAISO's expectations in the March 29, 2013 were unfounded.

15. At paragraph 28 of his affidavit, Mr. Larsen states that he supervised studies based on the 2014 Spring and Summer operating study cases to identify the reduction in COI available system transfer capability under several scenarios, including if PG&E does not complete the Palermo-Rio Oso reconductor project by the end of 2015. He presents the results of his studies in Table I. As noted above, PG&E has now placed the Palermo-Rio Oso reconductor project in service. Mr. Larsen's studies show greater reductions in available system transfer capability at 80-90 percent hydropower levels than do the CAISO's transmission planning studies and operating studies. The CAISO did not participate in these studies and does not know all of the assumptions were in these studies. The results of the CAISO's transmission planning studies and operating studies are relatively consistent.

I declare the foregoing to be true and correct under penalty of perjury.

Executed this 17th day of June 2014, at Folsom, California

/s/ Dede Subakti

Dede Subakti

CERTIFICATE OF SERVICE

I hereby certify that I have served the foregoing document upon the parties listed on the official service list in the captioned proceeding, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010).

Dated at Folsom, California, this 17th day of June, 2014.

/s/ Anna Pascuzzo

Anna Pascuzzo

Attachment 2

Declaration of Neil Millar

UNITED STATES OF AMERICA
BEFORE THE
FEDERAL ENERGY REGULATORY COMMISSION

Pacific Gas and Electric Company	)	**Docket Nos. ER15-223-000**
	)	**ER15-227-000**
	)	**ER15-227-001**
	)	**ER15-227-002**
California Independent System	)	**ER15-322-000**
Operator Corporation	)	**(not consolidated)**

DECLARATION OF NEIL MILLAR

I, Neil Millar, state as follows:

I. Qualifications

1. I am currently employed by the California Independent System Operator Corporation ("CAISO") as Executive Director, Infrastructure Development. I received a Bachelor of Science in Electrical Engineering degree at the University of Saskatchewan, Canada, and am a registered professional engineer in the province of Alberta.

2. I have been employed for over 30 years in the electricity industry, primarily with a major Canadian investor-owned utility, TransAlta Utilities, and with the Alberta Electric System Operator and its predecessor organizations. Within those organizations, I have held management and executive roles responsible for preparing, overseeing, and providing testimony for numerous transmission planning and regulatory tariff applications. I have appeared before the California Public Utilities Commission, the Alberta Energy and Utilities Board, the Alberta Utilities Commission, and the British Columbia Utilities Commission.

3. Since November 2010, I have been employed at the CAISO, leading the Transmission Planning and Grid Asset departments.

II. Purpose

4. I have reviewed the protest filed by the Transmission Agency of Northern California ("TANC") against Pacific Gas & Electric Company's ("PG&E") submission of replacement large generator interconnection agreements for the State of California Department of Water Resources State Water Project ("CDWR") ("Replacement Protest"). The purpose of my Declaration is to briefly describe the CAISO's study and repowering processes as they pertain to CDWR's facilities.

III. Discussion

5. TANC states, at paragraph 48 of the Replacement Protest, that studies conducted by the CAISO are based on the assumption that generation at CDWR's Oroville facilities is less than the 942 MW proposed in the large generator interconnection agreement and that system impact studies of the capacity must be conducted.

6. In connection with its transmission planning studies, the CAISO studied and continues to study scenarios both with and without assuming the replacement of the damaged generation at the Oroville facilities. Dispatch of the generation is considered on a case by case basis to reflect reasonable operating conditions and the likelihood of generation output at times of high anticipated COI flows – typically 75% to 80% of the installed capacity. In the 2013-2014 transmission

plan, the CAISO provided nomograms demonstrating the impact on COI limits for varying dispatches of the Northern California hydro generation, which includes the CDWR generators. Likewise, the CAISO conducted similar studies in 2014-2015 transmission plan process with draft results presented at the CAISO September 24, 2014 stakeholder meeting. The nomograms from the 2014-2015 transmission planning process will be included in the draft transmission plan that will be provided to stakeholders for comment in January 2015 with the results being very similar to the 2013-2014 transmission plan. The reliability assessment did not identify any reliability constraints in the area with the system operated within the nomograms. As CDWR has indicated its intention to replace the damaged generation within the timelines established by the CAISO, the original installed capacity continues to be taken into account under Section 25.1, which concerns whether the resource needs to be studied under the CAISO's interconnection process.

7. At paragraphs 50 – 52 of its Replacement Protest, TANC asserts that as the repowering of older generation with newer generation will inevitably have some change in electrical characteristics, the replacement of the older generation triggers the need for interconnection studies under Section 25.1(c) of the CAISO tariff.

8. TANC is comingling two issues, each based on a faulty premise. First, contrary to TANC's understanding, existing long term planning studies do consider the eventual replacement of the damaged generation, as explained above. Second, Section 25.1(c) which concerns the generator interconnections process and

specifies that Section 25 applies if the electrical characteristics are changed "such that its re-energization may violate Applicable Reliability Criteria." Changes to electrical characteristics do not trigger the application of Section 25, therefore, if the changes are not material and do not result in violation of Applicable Reliability Criteria.

9. As part of the CAISO's process for reviewing requests for repowering of existing facilities and determining if Section 25 applies, the CAISO studies proposed new electrical characteristics. This typically involves short circuit, voltage control and dynamic stability assessments. (As the total output of the plant is not allowed to increase in the case of repowering, powerflow analysis typically may not always be required.) Enabling immaterial changes in electrical characteristics is necessary to ensure that more modern technology can be employed in any repowering circumstance; to do otherwise would restrict generation to utilizing older technologies to avoid loss of existing interconnection rights.

10. If the electrical characteristics have changed materially (with the test being the resulting violation of applicable reliability criteria) then Section 25 would apply. But the CAISO would only begin to make that determination upon receiving detailed models as the repowering process commences.

I declare under penalty of perjury that the foregoing is true and correct.

Executed this 5th day of December, 2014 at Folsom, California

/s/ Neil Millar

Neil Millar

CERTIFICATE OF SERVICE

I hereby certify that I have this day served the foregoing document upon each party listed on the official service list for this proceeding, in accordance with the requirements of Rule 2010 of the Commission's Rules of Practice and Procedure (18 C.F.R. § 385.2010 (2014)).

Dated at Folsom, California on this 5th day of December, 2014.

/s/ Sarah Garcia
Sarah Garcia