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High Desert Power Project

(97-AFC-1C)

REBUTTAL TESTIMONY

OF

HIGH DESERT POWER PROJECT, LLC

Petition for Modification to Drought-Proof the High Desert Power Project, Filed October 30, 2015

February 12, 2016

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INTRODUCTION

A. Rebuttal Testimony Witnesses

Bryan Bondy, Randall S. Cullison, Bradley K. Heisey, M. Fred Strauss, Ryan T. Schroer, Tim Thompson, Peter J. Kiel

B. Qualifications

The qualifications for the witnesses for this panel are as set forth in Appendix A to Exhibit 1000, with the exception of Mr. Kiel. Mr. Kiel's qualifications are as set forth in Appendix A to this Rebuttal Testimony.

C. Prior Filings

In addition to the statements in this Rebuttal Testimony, this panel's testimony includes and incorporates by reference documents identified in Exhibit 1000.

PURPOSE, OVERVIEW, AND SUMMARY OF TESTIMONY

Q: What is the purpose of this panel's Rebuttal Testimony?

A: This Rebuttal Testimony of High Desert Power Project, LLC ("HDPP") responds to and rebuts the opening testimony of California Energy Commission Staff filed on January 29, 2016 regarding the hearing on the Petition for Modification to Drought-Proof the High Desert Power Project ("Petition for Modification" or "Petition") filed on October 30, 2015.

Q: How is this Rebuttal Testimony organized?

A: This Rebuttal Testimony is organized in two main parts. The first part responds to Staff testimony that addresses HDPP's conclusions regarding (1) the potential environmental effects of the modification proposed in the Petition and (2) the impact of the modification on the High Desert Power Project's ("Facility's") ability to comply with applicable laws, ordinances, regulations, and standards ("LORS"). The second part responds to Staff testimony proposing an alternative modification to the Facility that is completely different than that proposed by HDPP in the Petition. This second part examines Staff's legal argument that LORS compel HDPP to use one hundred percent ("100%") recycled water, Staff's assertion that use of recycled water at other Commission jurisdictional powerplants compels HDPP to retrofit the Facility to use 100% recycled water, and Staff's assertion that a 100% recycled water supply is feasible for the Facility.

SECTION ONE:

HDPP'S REBUTTAL TO STAFF'S REVIEW OF HDPP'S PROPOSED MODIFICATION

Q: Page 1 of the Staff Analysis/Opening Testimony, Executive Summary section (hereinafter, "Executive Summary") states, "The modification proposed in the petition would allow HDPP to change Conditions of Certification SOIL&WATER-1 to allow HDPP to use alternative water supplies other than State Water Project water (SWP) and recycled water from the Victor Valley Water Reclamation Authority." Is this statement correct?

A: No. The modification proposed affirms that use of recycled water will be maximized at the Facility, defines the other water supply sources that will be used to ensure that recycled water use is maximized, and ensures that the Facility has access to adequate and reliable water supplies to reliably operate during situations when recycled water is not available at the needed quantity and quality.

In addition, the Facility has a contract to purchase recycled water from the Victorville Water District ("VWD"), and receives recycled water through a common piping system from its two upstream sources: VWD's Industrial Wastewater Treatment Plant ("IWWTP") and the Victor Valley Water Reclamation Authority ("VVWRA") Shay Road Plant.

I. ANALYSIS OF POTENTIALLY SIGNIFICANT ENVIRONMENTAL IMPACTS.

Q: Does Staff's testimony provide an analysis of the impacts the modification proposed in the Petition may have on the environment?

A: No. There is no analysis by Staff of any potentially significant effects from the modification proposed in the Petition. Instead, Staff merely states that it "believes" that access to up to 3,090 acre-feet per year of water from the Mojave River Basin ("MRB") "could result in significant impacts to the MRB." (See, Staff Soil and Water Testimony, p. 14.) A "belief" of what "could" be is not an analysis. A "belief" of what "could" be is speculation, at best.

Leaving the issue of speculation aside, this "belief" does not address whether or not there are environmental impacts from the modification that is actually proposed by HDPP. Access to water from the MRB is only one aspect of the Loading Sequence, which also encompasses maximized use of recycled water through blending. Furthermore, any use of MRB Adjudicated Water is proposed to be funded for replenishment after use. As demonstrated in the Petition, implementation of the Loading Sequence has no adverse environmental or hydrologic effect on the Basin.

Q: Even assuming that use of 3,090 AFY of adjudicated water from the MRB constituted the entirety of HDPP's requested modification, is there a potentially significant adverse impact?

A: No. Staff's "belief" regarding potentially significant impacts necessarily assumes that the Mojave Water Agency ("MWA"), acting as the Watermaster for this adjudicated basin, mismanages the basin, allowing a significant impact to occur. This assumption is unfounded, given the sixteen years of prudent and exemplarily management of the groundwater basin in sustainable yield by MWA. In fact, the Watermaster's governance has eliminated overdraft in the basin Subarea in which the Facility is located (i.e. the Alto Subarea). Alto Subarea groundwater levels have been maintained within the desired Operating Range since at least 1996, and have resulted in an approximate 140,000 acre-foot increase in Alto Subarea groundwater storage since the Facility began operating in 2003. In fact, per the 2014 Watermaster report, MWA concludes that "the water supply conditions in Alto Subarea are sustainable."

Further, the Judgment and Watermaster's regulations require mitigation of all water diversions through a transaction-managed process, resulting in a zero sum approach to keep Basin water supplies in balance. There is no adverse effect from any user's withdrawal, nor can there be pursuant to the Judgement as implemented by MWA.

Modeling conducted in support of the Petition shows typical demand for MRB Adjudicated Water to range from 0 to 1,010 acre-feet per year. Even assuming a worst-case scenario where there was an extended recycled water and SWP Water outage requiring the Facility to only use MRB Adjudicated Water, there is no potential for a significant adverse impact due to the Watermaster's oversight of the adjudicated basin to ensure a safe yield. Moreover, as demonstrated above, any use of MRB Adjudicated Water will be funded for replenishment after use. In summary, any use of MRB Adjudicated Water will comply with the terms of the Mojave Basin adjudication, which will ensure that there will be no significant adverse impacts.

Q: Does Staff's testimony evaluate whether HDPP's proposal to offset any use of MRB Adjudicated Water through funding replenishment after use?

A: No. Staff's testimony does not analyze HDPP's proposal to fund replenishment, but merely states that it "does not believe that this is a sufficient long term mitigation of potential impacts to the groundwater basin because it is highly speculative in the volumes necessary to replace the volume consumed by HDPP would be available for purchase and will become increasingly unreliable. The unreliability of SWP is the reason the project owner has filed this PTA." (Staff Soil and Water Testimony, p. 21.) This belief relating to "increasingly unreliable" replacement water volumes is premised on the assumption that MWA depends on SWP deliveries to replenish the Basin.

Q: Is the assumption that MWA depends on SWP deliveries to replenish the Basin correct?

A: No. MWA has multiple tools available to it to maintain the balance in the Basin, one of which is using SWP and other sources of imported water to replenish the Basin. MWA also accounts for the recharge of storm water and recycled water into the Basin.

II. THE LOADING ORDER PROPOSED IN HDPP'S PETITION FOR MODIFICATION WILL DROUGHT-PROOF THE FACILITY.

Q: At page 1 of the Staff Soil and Water Testimony, Staff asserts that the water supply proposed by HDPP does not drought-proof the Facility. Do you agree with this conclusion?

A: No. HDPP's proposal will drought-proof the project through a diversity of supplies. The best way to ensure that the Facility has a reliable primary and backup water supply, particularly through critical periods such as droughts or other extreme or unforeseen circumstances, is to allow the Facility access to multiple sources of water. A water supply portfolio with multiple sources of water enables HDPP to deal with fluctuations or unavailability of any one source, and is a more prudent course of action then relying on a sole source of water as the Facility's water supply.

The combination of the water supplies proposed in the Petition ensures the Facility's operability through the current drought. The proposed Loading Sequence will ensure that the water supplies used to drought-proof the Facility will be used in an environmentally prudent manner, maximize the use of recycled water, and ensure safe and reliable operation of the Facility. Having continuous access to multiple water supplies benefits the public and the State by ensuring that the Facility's generating capacity needed for reliability purposes is ready under all reasonably foreseeable climatic and dispatch conditions.

III. THE WATER SUPPLY PROPOSED IN HDPP'S PETITION IS CONSISTENT WITH ALL APPLICABLE LAWS, ORDINANCES, REGULATIONS, AND STANDARDS, IN ADDITION TO STATE AND ENERGY COMMISSION POLICIES.

Q: At page 1 of the Staff Soil and Water Testimony, Staff asserts that the modification proposed in the Petition is incompatible with the State and Energy Commission policies on the industrial use of freshwater. Do you agree with this assertion?

A: No. The Petition proposes use of water that is consistent with State energy and water law and policy. A foundational principle of California water law and policy is contained in Water Code section 13550, which states that the use of potable domestic water for nonpotable uses, including industrial uses, is a waste or an unreasonable use of the water if the State Water Board finds that recycled water is available which is "of adequate quality for these uses and is available for these uses" and "may be furnished for these uses at a reasonable cost to the user." The Loading Sequence will ensure that the mandate of section 13550 is met by ensuring that Recycled Water is the Facility's primary water supply and that SWP Water, Banked SWP Water and MRB Adjudicated Water are the Facility's backup water supplies that will be used to blend with and increase the utilization of Recycled Water. Use of MRB Adjudicated Water will comply with the Mojave Basin Adjudication and the Rules and Regulations of the Watermaster.

SECTION TWO:

HDPP'S REBUTTAL TO STAFF'S PROPOSED MODIFICATION

Q: Does Staff's testimony propose a modification to the Facility different from that proposed in HDPP's Petition?

A: Yes. Staff's testimony proposes that the Facility be retrofitted to allow the Facility to convert to use of a 100% recycled water supply. Staff proposes that the Facility be required to convert to a 100% recycled water supply over the course of a three-year period, after which the only backup water supply for the Facility will be a 350 acre-feet per year supply of SWP water. During the course of the three-year period, Staff proposes that the Facility be required to utilize a minimum of 60% recycled water. Finally, even though HDPP is currently permitted to use SWP Water, and such is part of the existing environment, Staff proposes that any SWP Water either (1) used by the Facility after the conversion to a 100% recycled water supply or (2) acquired for banking be offset on a one for one basis in accordance with a "Water Conservation Plan". This plan would require, among other things, offset measures to occur in the SWP service area, and reduce demand on the SWP.

While Staff calls its alternative a 100% recycled water supply, Staff concedes that recycled water will not meet 100% of HDPP's water demand, and the other sources must supplement the recycled water supply.

Since the Staff is proposing a wholly new "alternative" – that is, a proposal that is wholly different than the project owner's Petition for Modification – the Commissions regulations provide that the Staff has the burden of presenting evidence to establish the suitability and acceptability of such proposal. As discussed in this testimony, the Staff has failed to provide evidence to satisfy this burden.

I. LORS DO NOT COMPEL HDPP TO RETROFIT THE EXISTING FACILITY TO USE 100% RECYCLED WATER.

Q: Have you reviewed the LORS analysis in Staff's Opening Testimony (pp. 14- 18; passim)?

A: Yes.

Q: Is the analysis an accurate statement of the California State water laws, ordinances, regulations and standards (LORS) that apply to the project?

A: No, it is not.

Q: How is the analysis inaccurate?

A: The analysis is not accurate for two main reasons. First, the LORS analysis does not accurately summarize the laws listed in the section. Second, the analysis misrepresents that the LORS represent "significant new guidance [that] has been provided to staff through Energy Commission decisions analyzing how it should apply to project cases."

While some of the legal principles cited in the section are appropriate for the Commission to consider, none are binding determinations or binding requirements that the Commission or Commission Staff must follow and otherwise are gross mischaracterizations by Staff of what California law allows and requires.

Q: Starting with the argument most emphasized by the Staff, have you examined the applicability of the 2003 IEPR Standard relied on by Staff?

A: Yes.

Q: What is the 2003 IEPR policy, as described by Staff?

A: Pages 15 and 16 of Staff's testimony describes the 2003 IEPR policy as follows:

> The Report states that the Commission will approve the use of fresh water for cooling purposes only where alternative water supply sources or alternative cooling technologies are shown to be ''environmentally undesirable" or "economically unsound" (IEPR (2003), p. 41). In the Report, the Commission interpreted "environmentally undesirable" as equivalent to a "significant adverse environmental impact" under CEQA, and "economically unsound" as meaning "economically or otherwise infeasible," also under CEQA (IEPR, p. 41). (STAFF SOIL AND WATER TESTIMONY, pp. 15-16.)

Q: Is the 2003 IEPR intended to apply to already certified projects?

A: No. There is nothing in the IEPR to suggest that the Commission would apply the 2003 IEPR policy retroactively. This lack of retroactivity is consistent with the doctrine of "Vested Rights" in Administrative Law that protects property owners from changes when they have received a valid permit, completed construction, and made substantial expenditures in reliance on the Commission's Certification.

Q: Assuming that the 2003 IEPR is applicable, and applying HDPP's Petition to Staff's summary of the 2003 IEPR policy, what do you conclude?

A: I conclude that even assuming, without admitting, that the 2003 IEPR is applicable, the policy does not require HDPP to use 100% recycled water.

Q: How do you reach this conclusion?

A: The 2003 IEPR test is an "either or" proposition. A project is not required to use alternative water supplies if such use is shown to be either (1) environmentally undesirable or (2) economically unsound. Neither term has any legal meaning in CEQA or other applicable laws.

Setting aside the lack of a generally accepted legal definition for these new terms, the IEPR does further define each. Applying those definitions, HDPP and similarly situated projects are not required to use 100% recycled water.

Q: First, can you discuss the "environmentally undesirable" definition in the 2003 IEPR?

A: Yes. The IEPR language quoted by Staff above states that "environmentally undesirable" is the "equivalent to a 'significant adverse environmental impact' under CEQA."

As discussed above, the Staff's testimony does not identify a potentially significant adverse impact associated with the Petition. Instead Staff articulates a "belief" that access to MRB Adjudicated Water "could" result in significant impacts. (Staff Soil and Water Testimony, p. 14.) "Belief" and "could" are not sufficient to find a significant impacts. Also, the Staff testimony advocates for the use of up to 100% recycled water yet fails to discuss the fact that recycled water is percolated into the Basin, and increased recycled water use by HDPP will result in reduced recharge of recycled water into the Mojave Basin.

Because the Staff has not provided evidence supporting a finding of an adverse significant impact from HDPP's Petition, including HDPP's proposed use of MRB Adjudicated Water as part of the Loading Sequence, and HDPP has demonstrated that the use of MRB Adjudicated Water in compliance with the Mojave Basin adjudication would not cause a significant environmental effect, then the use of multiple water supplies by HDPP – recycled water preferentially blended with other supplies – is not by the 2003 IEPR definition "environmentally undesirable." Because it is not environmentally undesirable, the blending of several supplies is not prohibited by the 2003 IEPR policy.

Q: What does a finding that the use is not environmentally undesirable mean for the Committee's decision?

A: Since the 2003 IEPR policy statement is an "either or" statement, the Committee must, at this point, simply find that the use is not environmentally undesirable and deem that the 2003 IEPR policy, the foundation of the Staff's testimony, is either satisfied or is not applicable to the Petition.

Q: How would the Committee make the second finding under the 2003 IEPR policy if applicable to the Petition?

A: The second prong of the "either or" 2003 IEPR policy statement is a determination of whether the expenditures to construct new treatment, distribution and storage facilities to allow use of up to 100% recycled water when it is available is "economically unsound," a determination that must take into account Staff's concession that the volume of recycled water is estimated to fall short of HDPP demand three out of ten years.

The Staff-quoted IEPR statement above defines "economically unsound" as "meaning 'economically or otherwise infeasible,' also under CEQA." CEQA defines feasibility as follows:

> Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors. (Public Resources Code § 21061.1.)
>
> and

> "Feasible" means capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, legal, social, and technological factors. (14 CCR § 15364.)

Q: How do these definitions of "Feasibility" affect the application of the 2003 IEPR second prong, economically unsound, to the HDPP project?

A: As HDPP has demonstrated in its 2014 Feasibility Study and the January 2016 confidential financial information supplied to Staff under request for confidential treatment, it is economically infeasible for HDPP to incur the costs of the large capital expenditures that would be required to treat and use up to 100% recycled water.

Further, both the HDPP testimony and Staff testimony acknowledge that the supply of recycled water is not sufficient to serve 100% of HDPP's instantaneous and annual water demands.

Q: What is your conclusion as to the second prong of the 2003 IEPR policy statement on economically unsound?

A: As demonstrated in HDPP's testimony and the Exhibits incorporated by reference thereto, it is "economically unsound" to require the project to construct new treatment, distribution and storage facilities to allow use up to 100% recycled water.

Being either (1) environmentally undesirable or (2) economically unsound is sufficient grounds for the Committee to find the 2003 IEPR inapplicable to HDPP. In this case, the Committee should find that both prongs of this "either or" test are inapplicable.

Q: Having determined the 2003 IEPR would not mandate capital improvements to use up to 100% recycled, please now turn to the second major issue of whether the 2003 IEPR is an applicable LORS.

A: Yes. As discussed above, even if the 2003 IEPR applied to HDPP, that two prong test would not force HDPP into the environmentally undesirable and economically unsound conditions advocated by Staff.

Q: Should the Committee's inquiry end there?

A: It could, but it should not. Instead, the Committee should conclude that the 2003 IEPR is not an "applicable LORS".

Q: Can you explain the relevant history on the 2003 IEPR policy that supports the conclusion that the 2003 IEPR is not an applicable LORS?

A: Yes. The Commission issued Commission Order # 02-0911-03 Instituting Informational Proceeding on September 18, 2002, launching the 2003 IEPR proceeding. On December 16, 2002, the Committee issued a scoping order for the proceeding. Water policy was not identified as one of the issues to be addressed in the 2003 IEPR.

Q: When did the question of water policy first arise in the 2003 IEPR process?

A: The question of water policy arose for the first time, very late in the proceeding on August 22, 2003, when the Committee invited the Staff and parties to address a list of 21 questions at the hearings scheduled for August 26 and 27, 2003. Two of the questions related to water policy. However, there was no discussion whatsoever of water policy at the hearings held on August 26 and 27.

Q: When did water policy first arise then in the 2003 IEPR?

A: One week after the August 26, 2003 hearings, the Staff published a 5 page paper: "Background information and staff recommendation on power plant water use." There were no workshops or hearings held to address the paper.

Thereafter, the Committee published the draft 2003 IEPR on September 17, 2003.

Q: What did the September 17, 2003 draft say on water policy?

A: This draft contained a one-page discussion of the need to "Protect Fresh Water" and concluded with these paragraphs:

> Water conservation is of paramount importance. Indeed, conserving fresh water and avoiding its wasteful use have long been part of the state's water policy. Power plants have the potential to use substantial amounts of water for evaporative cooling and can discharge contaminated wastewater. For those reasons the Energy Commission applies state water policy to minimize the use of fresh water, promote alternative cooling technologies, and minimize or avoid degradation of the quality of the state's water resources.
>
> To implement this policy, the Energy Commission will only approve the use of fresh water for power plant cooling purposes by power plants when alternative water supply sources and cooling technologies are shown to be "environmentally undesirable" or "economically unsound.

This language was based on the 5 page Staff Report, which had been published after the close of workshops that were supposed to have discussed water policy.

Q: What process followed this draft publication?

A: The IEPR Committee held five hearings around the State on the draft 2003 IEPR between October 1 and October 10. Thereafter on October 30, 2003, after the close of the public written comment period, the Committee issued the Final Draft 2003 IEPR.

Q: What did the DRAFT IEPR say on water issues?

A: This October 30, 2003 draft contained a revised and expanded discussion of state water policies. A discussion of Resolution 75-58 was added. Additionally, new language was added which would require zero-liquid discharge technologies unless such technologies are shown to be "environmentally undesirable" or "economically unsound." Finally, new language was added to interpret "environmentally undesirable" to mean the same as

having a "significant adverse environmental impact" and "economically unsound" to mean the same as "economically or otherwise infeasible."

Q: Why is this IEPR procedure legally significant?

A: Because these changes were made after the conclusion of the evidentiary hearings and after close of the public comment period. No party had an opportunity to address the discussion of Policy 75-58, the requirement for ZLD or the interpretation of "environmentally undesirable".

The 2003 IEPR was adopted by the Commission on November 12, 2003.

Q: Please summarize your concerns about the 2003 IEPR process

A: In summary, the 2003 IEPR water policy was not adopted in a transparent manner. These policies were not addressed in any public workshop before they were adopted, and the discussion of applicable laws was inserted into the IEPR for the first time after the close of the final public comment period.

Q: Do you have other concerns about the 2003 IEPR policy?

A: Yes. The name is correct. It is a "policy". It is not a regulation and does not have and should not be accorded deference. It carries no weight of the law. It is guidance at best, and guidance that was adopted in a less than transparent process.

Q: Does the Staff LORS discussion accurately describe Water Code Section 13550?

A: No it does not.

The Staff LORS discussion states that section 13550 "*requires the use of recycled water* for industrial purposes subject to recycled water being available and upon a number of criteria including: provisions that the quality and quantity of the recycled water are suitable for the use, the cost is reasonable, the use is not detrimental to public health, and the use will not impact downstream users or biological resources." (Staff Soil and Water Testimony, p. 14; emphasis added)

This is incorrect. Section 13550 does not express a mandatory requirement to use recycled water; Section 13550, subdivision (a) states that the State Water Resources Control Board can order the use of recycled water after the Board makes certain findings and after providing notice and a hearing.

Q: Has the Staff properly characterized Section 13550's requirements related to the financial findings that must be made?

No. Staff mischaracterized the necessary financial finding of section 13550, which is that the Board could order the use of recycled water if the "cost of supplying the treated recycled water is comparable to, or less than, the cost of supplying potable domestic water."

Water Code § 13550, subd. (a)(2) states in full:

> The recycled water may be furnished for these uses at a reasonable cost to the user. *In determining reasonable cost*, the state board

> shall consider all relevant factors, *including, but not limited to, the present and projected costs of supplying, delivering, and treating potable domestic water* for these uses and the *present and projected costs* of supplying and delivering recycled water for these uses, and *shall find that the cost of supplying the treated recycled water is comparable to, or less than, the cost of supplying potable domestic water*." (Emphasis added.)

Q: Has the State Water Board made the findings for HDPP that the "source of recycled water is of adequate quality for these uses and is available for these uses" and that the "recycled water may be furnished for these uses at a reasonable cost to the user" as required Water Code section 13550?

A: No, the State Water Board has not made any findings regarding HDPP use of water, and, significantly, the Staff's Opening Testimony has not offered evidence to support such findings.

Q: Has Staff provided testimony regarding whether the cost of supplying the treated recycled water is comparable to, or less than, the cost of supplying potable domestic water to HDPP, as stated in Water Code section 13550?

A: No. The Staff testimony does not include financial testimony regarding the costs of HDPP using additional recycled water. The Staff testimony cites its response to the HDPP recycled water feasibility study, but the testimony itself does not make the required findings.

Q: Has HDPP provided testimony regarding whether the cost of supplying the treated recycled water is comparable to, or less than, the cost of supplying potable domestic water to HDPP, as stated in Water Code section 13550?

A: Yes, in its Opening Testimony and documents filed in support of its Petition, HDPP demonstrated that the quality of recycled water is not adequate for use without blending other waters of higher quality. Further, undertaking capital improvements to use up to 100% recycled water when available, increases the cost of recycled water, taking into account the additional treatment, such that the cost of recycled water would greatly exceed the cost of the other sources of water.

Q: Does the Staff LORS discussion accurately describe Water Code section 13552?

A: No, it does not. The Staff LORS discussion states the following about section 13552: "This section specifically identifies the use of potable domestic water for cooling towers as unreasonable use of water within the meaning of Article X Section 2 of the California Constitution, if suitable recycled water is available and the water meets the requirements set forth in Section 13550." (Staff Soil and Water Testimony, p. 15.)

That statement is incorrect. Instead, Water Code section 13552 states:

> The amendments to Sections 13550 and 13551 of the Water Code made during the first year of the 1991-92 Regular Session are not intended to alter any rights, remedies, or obligations which may exist prior to January 1, 1992, pursuant to, but not limited to, those

> sections or Chapter 8.5 (commencing with Section 1501) of Part 1 of Division 1 of the Public Utilities Code.

Staff may have intended to cite Water Code section 13552.6, subdivision (a), which states:

> (a) The Legislature hereby finds and declares that the use of potable domestic water for floor trap priming, cooling towers, and air-conditioning devices is a waste or an unreasonable use of water within the meaning of Section 2 of Article X of the California Constitution if recycled water, for these uses, is available to the user, and the water meets the requirements set forth in Section 13550, as determined by the state board after notice and a hearing.
>
> (b) The state board may require a public agency or person subject to this section to submit information that the state board determines may be relevant in making the determination required in subdivision (a).

Like Water Code section 13550, section 13552.6 provides that the State Water Board may make a finding that the use of potable water for "floor trap priming, cooling towers, and air-conditioning devices is a waste or an unreasonable use of water" if recycled water is available and meets the other conditions of section 13550. As discussed in HDPP's Opening Testimony and herein, recycled water availability, both the 4,000 AFY and the 4,000 gallons per minute (gpm) required, is not available at all times and is an inadequate supply in 3 of 10 years. As discussed above, the other conditions of section 13550 are not met.

Q: Does the Staff LORS discussion accurately describe Public Resources Code section 25008?

A: No. The Staff testimony states "Section 25008 of the Energy Commission's enabling statutes echoes the Constitutional concern, by promoting "all feasible means" of water conservation and "all feasible uses" of alternative water supply sources." Staff made a critical omission by not mentioning that the quoted text in Public Resources Code section 25008 is an introduction to a longer statement of policy applicable to "state-owned facilities." Section 25008 does not apply to privately-owned projects like the Facility.

Q: Does the Staff LORS discussion accurately describe the Genesis Solar Project Committee order?

A: No, the Staff discussion does not accurately describe the Genesis Solar Project Committee Order. To begin, the Genesis Order is just that: an interlocutory order in one siting proceeding with no binding precedential effect. The Order cited is not even part of the Final Decision in Genesis. And, significantly, the Commission did not declare the Genesis order to be "Precedential." Accordingly, there was no notice and opportunity to be heard on the precedential nature of the Genesis Order because the Commission did not intend this interlocutory order to be binding precedent.

Nevertheless, the Staff discussion states that the Genesis committee "arrive[d] at a simple, yet flexible, determination for water use by power plants under Commission jurisdiction," which incorrectly implies that the Genesis Order has binding, precedential effect on future CEC actions. The Genesis committee Order has no precedential effect.

Q: Does the Staff LORS discussion accurately describe Water Code sections 10910-10915 and Senate Bill 610? (Staff Soil and Water Testimony, pp. 18-20.)

A: No, the Staff discussion does not accurately describe Water Code sections 10910-10915 and Senate Bill 610. The Staff testimony states that "staff concludes that a Water Supply Assessment (WSA) in accordance with California Water Code Sections 10910-10915 is necessary." This is incorrect. Water Code section 10910, et seq. and the SB 610 Water Supply Assessment provisions do not apply to this proceeding; they apply when there is (1) a discretionary application to a City or County for a new development (Water Code § 10910, subd. (a)) (2) that is a project under CEQA requiring an environmental impact report, a negative declaration, or a mitigated negative declaration (Water Code § 10910 subd. (b)) and (3) that meets one of the defined categories, such as a 500 unit residential development or a project that would demand the equivalent of a 500 unit development (Water Code § 10912, subd. (a)).

In this case, HDPP is not applying to a City or County to develop a project subject to CEQA. Commission review of the petition is subject to CEQA as a certified regulatory program, but Commission approval is exempt from the requirement to prepare an environmental impact report, a negative declaration, or a mitigated negative declaration.

II. THE SEVEN PROJECTS USING RECYCLED WATER SUPPLIES ARE NOT COMPARABLE TO THE FACILITY.

Q: On page 24 of Staff's Soil & Water Resources Testimony, Staff states that "the fact that 7 power plants with [zero liquid discharge] systems use recycled water or a combination of recycled water and impaired groundwater for operation is evidence that use of recycled water for cooling purposes is economically feasible." Have you reviewed the list of seven CEC-jurisdictional projects the Staff cites as similar to HDPP in that they use recycled water and ZLD in Staff's Soil & Water Resources Table 1?

A: Yes. The projects identified in Soil & Water Resources Table 1 ("S&W-Table 1") are the Gilroy Energy Center, the Magnolia Power Plant Project, the Mountainview Power Plant Project, the Riverside Energy Center, the Roseville Energy Park, the Russell City Energy Center, and the Walnut Energy Center.

Q: Are these projects similar to the Facility?

A: No, they are not.

Q: How are these seven projects different from the Facility?

A: To begin, each of the seven projects listed in S&W-Table 1 were all proposed, approved, designed and built to use recycled water. In contrast, the Facility was proposed, approved, designed, and built to use SWP Water.

In short, each of these seven projects have original water treatment system equipment designed to handle and treat recycled water. Unlike these seven projects, HDPP was prohibited by the Commission from using recycled water at the Facility, and the original water treatment system equipment was not designed to process and utilize recycled water. Accordingly, the seven projects listed all have water systems designed for recycled water. The Facility does not.

Q: Are there other difference between HDPP and the seven projects cited in S&W-Table 1 of Staff's testimony?

A: Yes. Two of the seven projects cited are small, simple cycle units with no steam turbines and thus no steam turbine cooling load: the Gilroy Energy Center and the Riverside Energy Center. These simple cycle projects have very low capacity factors as well, 4% and 3%, respectively for the period 2010-2013. These simple cycle projects with single-digit capacity factors are not analogous to the Facility with respect to use of Recycled Water.

Q: What other differences are there between the Facility and the plants cited by Staff?

A: Five of the seven projects cited by Staff use groundwater as a backup water supply source and all five have no defined limits on how much groundwater they can use. Specifically, the Gilroy Energy Center, the Magnolia Project, the Mountainview Power Plant Project, the Riverside Energy Center, the Walnut Energy Center, and the Roseville Energy Park all use groundwater as a backup supply. The use of groundwater as a backup supply is critical for these facilities because of both water quality and reliability issues (i.e., outage causing events) associated with the corresponding wastewater treatment facilities that serve those projects.

Q: Are there any limits on these five project's use of groundwater, like the limits proposed by the Staff for HDPP?

No. None of these five projects have a limit on the amount of groundwater they can use. Accordingly, these five projects have the flexibility to use up to 100% groundwater for their project needs during unlikely but possible outages of their recycled water supplies.

Q: How does the use of groundwater for the Mountainview Power Plant Project ("Mountainview"), owned by Southern California Edison ("SCE"), compare to what Staff has proposed for HDPP?

A: For Mountainview, SCE can use up to 7,500 acre-feet per year of groundwater for the project's cooling needs. Mountainview's permitted use of up to 7,500 acre-feet per year groundwater is almost two and a half times greater than 3,090 requested by HDPP (2.4 times greater).

Q: Would HDPP accept a similar condition for the Facility, which would allow for up to 100% use of groundwater up to 7,500 acre feet per year?

A: Yes.

Q: Does the fact that Mountainview is owned by SCE provide an advantage to that project's ability to incur additional capital costs?

A: Yes. As an Investor-Owned Utility ("IOU") asset, approved capital costs that might be incurred by Mountainview can be placed into SCE's "rate base" and recovered fully, with an additional rate of return on the investment. In marked contrast, as a merchant powerplant, HDPP cannot simply "rate base" new capital additions and pass those onto captive ratepayers. Unlike a regulated investor-owned utility, HDPP does not have a retail customer base from which it can charge rates based upon a "revenue requirement" that is based upon its costs including a rate of return on investor equity. Rather, HDPP's ability to earn revenues from energy and capacity sales is subject to market forces and are not guaranteed.

Q: What about the other four projects you stated have unlimited access to groundwater supplies to meet 100% of their project needs?

A: The Gilroy Energy Center has access to groundwater through on-site wells to back up 100% of its needs without any annual limits.[1] The Magnolia Project has access to 100% of its needs from State Water Project Water or Colorado River Water.[2] The Riverside Energy Center is a simple cycle unit that uses on average only 6 acre-feet a year, supplied from the project-owner city's own wastewater treatment plant. The Roseville Energy Park has access to water from Folsom Lake and the City of Roseville's wells.[3]

Q: Do some of these projects also own or control their recycled water supplies?

A: Yes. In the case of three projects, the powerplant owner and the owner of the recycled water producing wastewater treatment plant are the same entities.

The City of Roseville supplies recycled water from the city-owned treatment plant. The Riverside Energy Center is supplied by a wastewater treatment plant owned by the City. And Magnolia is owned by the Southern California Public Power Authority (SCPPA), which includes the City of Burbank as a Member of SCPPA and the water supplier for Magnolia. For these three projects, the project applicants or their utilities departments are literally in the business of supplying recycled water.

In each case, the City-owned water treatment facilities had both excess supplies of recycled water to sell and unlimited access to other municipal supplies for use at their powerplants. This proves diversity of water supplies, which is critical for all powerplants, including the Facility.

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[1] "The project will use approximately 462 gallons per minute ("gpm") of water at peak use. The existing Co-Generation facility's well water pumps are located within 0.1 miles of the project site. Sufficient well water supply exists to support the project. However, applicant would like to use reclaimed water from the South County Regional Wastewater Authority's existing reclaimed water facility." (Gilroy Decision, p. 2.)

[2] "The first priority for backup supply would be from local groundwater wells.[footnote]61 Additional supply will be available from the State Water Project (SWP) or Colorado River." (Magnolia Decision, p. 197.); Footnote 61 says: "61 Groundwater beneath the site, accessible to the COB from two onsite wells, is contaminated by the Lockheed Superfund site and treated for use at the power station. (Ex. 1, § 5.5.2.1.2; Ex. 3, p. 5.5-15; Ex. 7.) The onsite wells will provide the primary supplemental water supply for the MPP." (Magnolia Decision, p. 197.)

[3] Roseville Decision, p. 257;

Q: Page 9 of the Soil and Water Resources Testimony specifically compares the treatment of secondary wastewater at the Russell City Energy Center ("Russell City") to the treatment of recycled water at the Facility. Are the two projects comparable?

A: No. At 600 MWs, the generating capacity of Russell City is smaller than the generating capacity of the Facility, which is 830 MWs. Like Mountainview, Russell City is not a ZLD project. Instead, sludge is returned to the City of Hayward's wastewater treatment plant because the ZLD system is unable to process the recycled water delivered without the sludge waste stream being sent back to the water treatment facility.

Russell City is also co-located at the City of Hayward's wastewater treatment plant and was over-built, i.e., sized to generate excess recycled water for sale. Thus, like the three municipal entities discussed above, Russell City is in control of its own recycled water supply.

Russell City also has an amendment pending to allow the installation of a recycled water demineralization system to address high organics in the recycled water supply.[4]

Q: Despite controlling its own recycled water supplies, does Russell City have a backup water supply?

A: Yes. Russell City has a backup water supply consisting of groundwater and surface waters from the Hetch Hetchy and Alameda Watersheds.[5] Russell City can use potable water as a backup supply for up to 45 days (1,080 hours) a year. Further, there is no requirement to shut down the project if it exceeds 45 days or 1,080 hours of potable water use.[6]

Q: Finally, how does the Walnut Energy Center's use of water compare to the Facility?

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[4] http://docketpublic.energy.ca.gov/PublicDocuments/01-AFC-07C/TN210084_20160129T141939_Petition_for_Modification_Amendment_No_6.pdf "The plant's Recycled Water Facility (RWF) removes suspended solids but does not remove organic contamination or ammonia present in the secondary effluent delivered to the RWF. These contaminants pass through the RWF, enter the cooling tower with the Title 22 water makeup, concentrate in the cooling tower, and then proceed to the ZLD system. Ammonia and many organics are volatile, so they form vapor in the ZLD brine concentrator and then condense in the ZLD distillate. Both of these contaminants can affect the reliability and operating cost of the plant. The ammonia results in rapid exhaustion of the mixed bed trailers used to treat ZLD distillate as per the original design. The volatile organics are weakly ionized, which means they are not removed by the ion exchange resin contained in the mixed bed trailers. Volatile organics pass through the mixed beds and enter the demineralized water. These organics break down to form organic acids at the elevated temperatures encountered in the steam cycle. Organic acid pH is low and cation conductivity is high. Low pH and high cation conductivity both increase the risk of steam cycle corrosion. Chemistry upsets caused by these contaminants have resulted in forced outages and additional forced outages will occur again if the plant continues to rely on the use of ZLD distillate for demineralized water production. Relying on ZLD distillate for demineralized water production also limits the plant's ability to produce demineralized water on demand. The ZLD system must be operating to produce demineralized water. Because of these problems, which are common to all plants that rely on ZLD distillate to produce demineralized water, the project owner has determined that it is necessary to discontinue use of ZLD distillate to produce demineralized water." (Russell City Decision, Amendment 1, p. 4)

[5] CEC Staff Opening Testimony, Soil & Water Resources Table 1.

[6] Condition SOIL & WATER 4, Russell City Decision, Amendment 1.

A: Similar to several of the other projects listed in S&W- Table 1, the Walnut Energy Center has access to groundwater using onsite wells. The Walnut Energy Center is allowed to use up to 180 acre-feet per year on a five year rolling average, but like the other seven projects, there is no automatic shutdown if those numbers are exceeded.

Q: Are there other differences between the facilities identified in S&W- Table 1 and the Facility?

A: Yes. Unlike the Facility, while all of the projects rely on groundwater as a backup, none of these seven are located in an "adjudicated basin".

In marked contrast, the Facility is located within the Mojave River Basin, which is an adjudicated groundwater basin. The Mojave Water Agency acts as the "Watermaster" to protect the long-term health of the groundwater Basin. Only the Facility has the benefit of being located in a well-managed Basin that has an active Watermaster.

III. A 100% RECYCLED WATER SUPPLY WILL NOT "DROUGHT-PROOF" THE FACILITY AS STAFF CLAIMS BECAUSE THERE IS INSUFFICIENT QUANTITY AND QUALITY OF RECYCLED WATER TO MEET THE PROJECT'S NEEDS.

Q: Staff asserts that use of 100% recycled water will drought-proof the water supply for the Facility. (Soil and Water Resources Staff Analysis/Opening Testimony, p. 1.) Do you agree with Staff's conclusion?

A: No. Staff recommends that the Facility use 100% recycled water for operations when it is available, and provides for only limited use (up to 350 acre feet per year) of a limited backup water supply (banked SWP Water). This recommendation does not comport with the Commission's directive for HDPP to propose a modification that would implement reliable primary and backup water supplies for the Facility, and does not alone drought-proof the Facility's water supply.

Attempting to rely solely on recycled water as the water supply, even with the limited backup water supply, would not drought-proof the water supply for the Facility for three primary reasons that were identified in the Feasibility Study Report (Ex. 1003) conducted by HDPP. First, historically, recycled water has been completely unavailable for use by the Facility due to supplier problems (such as frequent outages) for periods of time ranging from days to multiple months. Second, the recycled water supplies are projected to be insufficient in some years. Third, the recycled water supplier is unable to deliver recycled water in quantities and qualities needed by the project on a 24 hour per day basis. Specifically, VWD cannot supply 4,000 AFY at flow rates of up to 4,000 gpm as required by the Facility's operating parameters. Finally, the limited backup supply amount proposed by Staff is not sufficient to ensure reliable and consistent operation of the Facility. Based on the Facility's historical operations, monthly water use at the Facility has exceeded 350 AFY. When combined with the extended outages that the Facility has experienced, Staff's proposed water supply is simply inadequate to provide the primary and backup water supplies needed to reliably operate the Facility. The

Facility provides generating capacity needed for reliability purposes, and must be able to operate instantaneously when called upon.

Q: When asserting that a 100% recycled water supply would drought-proof the Facility, does the Staff testimony address whether recycled water is available in sufficient quantities and quality to serve as the sole operational water supply for the Project? (Staff Soil and Water Testimony, pp. 3, 23.)

A: No. In fact, Staff's testimony suffers from two fatal flaws relating to its assertion that recycled water supply can act as the sole operational water supply for the Facility.

First, at page 9 of the Staff Soil and Water Testimony, Staff argues that the water available to HDPP is "more than the historic average amount of water used by the project since it started operations, and within 3 percent of the maximum annual amount the project has used." In short, Staff argues that there will be enough recycled water to serve the historical average amount of water used by the Facility. This is an erroneous assumption and one of the fundamental flaws in Staff's argument. The Facility's water supply requirements should not be based on its average historical use. Instead, HDPP's water supply requirements must be sufficient to allow the Facility to respond to grid reliability and market needs on 24 hours a day, seven days a week, 365 days a year (24/7/365), except for during planned maintenance outages. Having enough water on average will not allow the Facility to operate reliably in this manner.

Second, Staff's testimony argues that recycled water can act as the sole water supply for the Facility by asserting that recycled water is available in "7 out of 10 years" from the VVWRA. (Staff Soil and Water Testimony, p. 8.)

Specifically, Staff's testimony admits that recycled water is not sufficient in 3 out of 10 years: "the net amounts of recycled water available to the project from VVWRA plant alone are more than sufficient to meet project needs for more than 7 out of every ten years given the historic maximum amounts the project has used so far." (Staff Soil and Water Testimony, p. 8.) Even if that premise were true, Staff offers no analyses or recommendations about other available sources of supplies for the other 3 out of 10 years.

Again, HDPP must be available 24/7/365. The argument that because recycled water is available in "7 out of every 10 years," recycled water is therefore a "drought-proof" water supply for the Facility is nonsensical at best, and is not supported by the factual record.

Q: Has the Staff consistently argued that an interruptible supply is acceptable?

A: Yes. Staff reached the same conclusion, finding years of water shortages acceptable, in its response to the HDPP recycled water Feasibility Study, discussed below:

> In light of the foregoing, staff concludes that CVV and VVWRA have the flexibility under the MOU to serve the necessary supply for HDPP operation ***for most of the years***, with the exception of a

limited number of years right after commission of some sub-regional treatment plants." (TN# 206321, p. 6; emphasis added.)

The Facility must be able to operate more than just "most of the years."

Staff's view is again a view that there is enough water on average, with a few years (3 out of 10) when there simply will be no sufficient recycled water supplies.

A. By Staff's Own Estimation, The Recycled Water Supplier Has Insufficient Supplies In Every Year To Meet The Project's Needs

Q: Is having water available "on average" 7 out of 10 years a reliable water supply?

A: No. Powerplants like HDPP do not run "on average". They run in real time, meaning they must be capable of varying their output from minimum to maximum on an hourly, daily, monthly and annual basis as required by system reliability and market demands. Rather than giving up on recycled water supplies materializing, the Petition seeks the flexibility needed to blend other sources of water and to operate the Facility, not on average, but under all energy demand and water supply conditions. Recycled water is the least cost source of water and the Facility has already made significant investments to allow the use of Recycled Water and will therefore always be the first choice water supply.

B. The Recycled Water Supplies Do Not Have The Ability To Deliver Recycled Water To Meet The Project's Instantaneous Water Needs On A 24 Hour Per Day, Seven Days Per Week Basis

Q: As to the second finding of the Feasibility Study, HDPP's Opening Testimony reiterated that in addition to having sufficient water supply over the course of a year, the project must have an instantaneous delivery of 4,000 gpm. Does the Staff testimony address this issue?

A: No. The Staff testimony ignores the need for an instantaneous flow of 4,000 gpm. The word "gallon" and the acronym "gpm" do not appear in Staff's testimony anywhere. Staff simply assumes away this critical supply issue.

In prior filings, Staff has acknowledged that there is insufficient flow to meet the instantaneous water needs of the project, estimating that the 4,000 gpm flow could only be sustained uninterrupted for 8 hours and maybe 24 hours "depending on demand and concurrent deliveries." (TN 206231, p. 13.) This language confirms that only an 8 hour continuous supply is available, and further suggests the 24 hour estimate is not a reliable, uninterrupted estimate.

Staff's recommendation of a 100% recycled water supply for the Facility is infeasible because it ignores the undisputed need for 4,000 gpm instantaneous flow, which the recycled water system cannot deliver by Staff's own optimistic estimates uninterrupted for more than 8-24 hours, i.e., a single day during a California "heat storm."

IV. ENVIRONMENTAL IMPACTS OF 100% RECYCLED WATER SUPPLY.

Q: Does Staff's testimony provide an environmental analysis of its proposed modification for retrofit of the Facility to use a 100% recycled water supply?

A: No. For example, Staff did not discuss that recycled water is currently recharged into the Mojave Basin, where it mixes with native groundwater. Increased use of recycled water could therefore decrease groundwater recharge. This is one example of an area where Staff did not consider the environmental effects of its proposed alternative that HDPP construct new treatment facilities use up to 100% recycled water.

V. A 100% RECYCLED WATER SUPPLY IS NOT FEASIBLE FOR THE FACILITY.

Q: Do you agree with Staff's conclusion that use of 100% recycled water is a feasible alternative water supply? (Staff Executive Summary, p. 3; Staff Soil and Water Testimony, p. 23.)

A: No. The use of a 100% recycled water supply is neither technically nor economically feasible for the Facility. Because the Facility was not designed or constructed to utilize recycled water for cooling purposes, the capital improvements required to allow the Facility to operate solely on recycled water are not economically feasible. Furthermore, the proposed significant capital investments advocated by Staff are not required by any applicable LORS or any California policies.

VI. STAFF'S ANALYSIS OF THE FEASIBILITY OF A 100% RECYCLED WATER SUPPLY IGNORES THE FINDINGS SET FORTH IN THE HDPP "FEASIBILITY STUDY"

Q: Does the Staff's testimony analyze whether retrofitting the Facility to operate on a 100% recycled water supply is feasible?

A: No. Staff's testimony does not analyze whether a 100% recycled water supply is either technically or economically feasible for the Facility.

Staff's testimony is completely silent on whether conversion to a 100% recycled water supply is even technically feasible. For example, the analysis does not consider the required equipment, site constraints, or even the development time required to design, permit, procure, and construct a completely new water treatment system for the Facility.

Furthermore, despite asserting that a 100% recycled water supply is economically feasible, Staff's testimony specifically states that it did not consider whether HDPP has access to funds that could be used to finance construction of water treatment facilities to use 100 percent recycled water." (Staff Soil and Water Testimony, p. 13.) Staff's testimony continues to rely on its original response to the HDPP Feasibility Study; however, HDPP rebutted critical assumptions made in Staff's response that are inapplicable to a merchant power plant that cannot charge rates to fund future investments. Further, Staff makes a general argument that because other Commission

jurisdictional facilities operate using recycled water as its primary water supply, it should be feasible for the Facility as well, yet as discussed above, all of those facilities were originally designed to use recycled water, unlike HDPP.

Q: Did HDPP provide Staff with detailed financial information to evaluate the economic feasibility of retrofitting the Facility to operate on a 100% recycled water supply?

A: Yes. HDPP provided Staff with detailed financial information in the November 2014 "Feasibility Study." Staff filed a detailed and unqualified response to the Feasibility Study; that is, Staff did not qualify its response to the Feasibility Study as "lacking awareness" of the Feasibility Study or the financial and cost information provided.

Staff was and is clearly aware of the detailed financial information submitted in support of the Feasibility Study, yet deliberately chose not to conduct its own cost or economic analysis, or even consider the cost and economic data and analyses provided by HDPP.

Q: HDPP asserts that the capital improvements required to allow the Facility to operate solely on recycled water is not economically feasible. How did HDPP determine what is considered "feasible" for the Facility?

A: We understand that for a proposed capital addition to be considered "feasible," it must be "capable of being accomplished in a successful manner within a reasonable period of time, taking into account economic, environmental, social, and technological factors." (Public Resources Code Section 21061.1) Determining the feasibility of any undertaking is not limited to simply technical ability but rather encompasses other elements of achievability including economics and prudency of business operations. Without all of these elements in alignment, no project is feasible.

Q: Has HDPP conducted an analysis of the feasibility of converting the Facility to utilize 100% recycled water?

A: Yes. As directed by the Energy Commission in Order No. 09-118505, the project owner conducted a study from 2009 to 2014 that examined the feasibility of converting the Facility to utilize up to 100% recycled water as its cooling water supply, known as the "Feasibility Study."

HDPP invested approximately several million dollars retaining numerous engineering firms, water treatment equipment design and manufacturing companies, and independent water treatment consultants to review HDPP's water treatment system, perform tests, install and test temporary, alternative treatment technologies, and recommend improvements to allow HDPP to use up to 100% recycled water. Some of the companies HDPP retained were the designer and manufacturer of the original water treatment system. The Feasibility Study Report is identified in Section I.C above as Exhibit 1003.

Q: What were the findings of the Feasibility Study Report (Ex. 1003)?

A: There were four major findings in the Feasibility Study.

The Feasibility Report concluded that it was not feasible to operate the project on 100% recycled water because: (1) the recycled water supplier was projected to have insufficient recycled water supply in some years, (2) the recycled water supplier's inability to deliver recycled water in quantities and qualities needed by the project on a 24 hour per day basis, (3) the project's water treatment system was not designed to operate on 100% recycled water, and (4) the cost to upgrade the water treatment system to operate on 100% recycled water is extremely high and, as a merchant generator, it is not economically feasible for HDPP to incur the cost of conversion.

A. The HDPP Project Design Makes It Infeasible to Use a 100% Recycled Water Supply.

Q: Focusing on the third finding in the Feasibility Study, why does the design of the current water treatment system make it infeasible for 100% recycled water to be utilized as the Facility's water supply?

A: The Facility's water treatment system was designed to utilize SWP Water as the Facility's cooling water supply. The water treatment system was not designed to treat and remove the higher amount of impurities associated with using 100% recycled water as required to maintain the amount of impurities in the cooling tower basin water at acceptable levels to control PM_{10} emissions within the Facility's permitted limits and to protect the Facility's cooling systems and equipment from harmful deposits associated with high amounts of impurities in cooling tower water.

During some months of the Feasibility Study, HDPP was able to blend higher percentages of recycled water with groundwater but sometimes required additional temporary equipment to be brought on-site to supplement the cooling tower blowdown water treatment system as part of the recycled water testing program. Had the Facility been blending recycled water with SWP Water or had the temporary water treatment equipment not been used, HDPP could not have continuously run on the higher percentages of recycled water while maintaining the cooling tower water at acceptable qualities and while maintaining the Facility's PM_{10} emissions within permitted limits. In short, the current water treatment system is not able to operate solely on a 100% recycled water supply.

B. The Large Capital Expenditures Required to Convert the Water Treatment System to Utilize a 100% Recycled Water Supply Are Economically Infeasible.

Q: Focusing on the last finding in the Feasibility Study, is it your testimony that the water treatment system will need to be changed to utilize 100% recycled water as the cooling water supply for the Facility?

A: Yes.

Q: Has HDPP conducted a specific analysis of the capital expenditures required to convert the Facility to utilize 100% recycled water?

A: Yes. This analysis was conducted as part of the Feasibility Study Report, and is presented in Confidential Exhibit B to Exhibit 1005. HDPP commissioned an engineering analysis from Kiewit Power Engineers ("Kiewit), the engineering firm that designed the Facility and specified the water treatment system to be used by the Facility, to evaluate what engineering options were available to allow the Facility to utilize 100% recycled water for cooling purposes.

Q: What options did Kiewit review?

A: Kiewit's scope of work was to consider both onsite and offsite alternatives for the Facility to use 100% recycled water and to provide a preliminary scope of work, cost estimate and schedule to implement the most optimum alternative for HDPP. Kiewit performed a detail study of the impact of using Recycled Water in the Facility's existing water treatment system and identified what improvements were needed to allow the Facility to use 100% Recycled Water. Kiewit concluded that the most optimal process for the Facility to use 100% Recycled Water was to upgrade the existing Facility water treatment systems using any one of the three upgrade projects described below:

- 100% Makeup Pretreatment Option. This option provides for the pre-treatment of 100% of the recycled water supplied to the Facility to remove a considerable portion of the higher amounts of impurities found in recycled water before it is used in the Facility's cooling tower. The estimated schedule for obtaining local permits and approvals, designing, procuring equipment and installing this option is 147 weeks.

- Side-stream Treatment Option. This option provides for recycled water with higher amounts of impurities to be supplied into the cooling tower basin water while concurrently taking a small, constant volume (a "side-stream") of the cooling tower basin water from the basin and treating it to remove a portion of the incremental impurities found in the cooling tower due to the use of recycled water. The estimated schedule for obtaining permits and approvals, designing, procuring equipment and installing this option is 147 weeks.

- Cooling Tower Blowdown Evaporator Option. This option would replace an existing portion of the Facility's water treatment system that was not designed to remove the increased amount of impurities associated with recycled water and replace it with a new evaporator. The new evaporator would be sized to evaporate all of the cooling tower discharge water separating most of the impurities from the evaporated water. The estimated schedule for obtaining permits and approvals, designing, procuring equipment and installing this option is 164 weeks.

The capital cost of these options, as estimated by Kiewit, is provided in confidential Exhibit B to Exhibit 1005.

Q: Did HDPP evaluate the feasibility of implementing the engineering options?

A: Yes. HDPP evaluated the feasibility of implementing the engineering options from a technical and economic perspective.

From a technical perspective, changes to the water treatment system are limited by the original equipment design, layout, and small footprint of the site. The additional equipment needed to treat 100% recycled water would either require the integration of new equipment on the existing site, or expansion of the current site footprint. Kiewit's cost estimate assumed new water treatment equipment could be installed within the Facility's current site footprint. If detailed engineering determines that locating the new water treatment system within the current site footprint is not possible, siting the additional equipment outside the current site footprint would likely require additional land use approvals, land acquisition, and other permitting costs. These costs associated with site control and development were not included in the Kiewit study and would be in addition to those identified in the Kiewit study for the engineering options, and would also likely increase the timelines for implementation presented above, as extra time will be needed to acquire or lease the additional land. Therefore, converting the Facility to use 100% recycled water is infeasible from a technological perspective due to site constraints.

From an economic perspective, based on HDPP's recent historical and future forecasted estimate of cash flows, there are insufficient revenues available from its operations to allow HDPP to fund the large capital expenditures and increased operating and maintenance costs required for the Facility to operate using 100% Recycled Water. HDPP is an exempt wholesale generator pursuant to the Federal Energy Regulatory Commission's ("FERC's") regulations and is authorized to sell energy and capacity pursuant to its market-based rate tariff. As discussed above, HDPP is not guaranteed revenue upon which to recover its costs and to earn a return on its invested capital. Therefore, converting the Facility to utilize solely 100% recycled water is infeasible from an economic perspective as HDPP has no means with which to fund the large capital expenditures and increased operating and maintenance costs.

C. Staff's Testimony Completely Ignores the Economic Infeasibility of a 100% Recycled Water Supply

Q: You stated above that Staff's testimony concludes that use of 100% recycled water is a feasible alternative water supply that can fully replace usage of SWP Water. Based upon your review of Staff's Opening Testimony, how did Staff determine what is considered "feasible" for the Facility?

A: Staff did not explain in its testimony how it concluded that a 100% recycled water supply is a feasible alternative water supply. Instead, Staff referenced a "previous analysis" that it conducted. Staff asserts that this "previous analysis" shows that "use of recycled water for cooling purposes at the project is both environmentally desirable and economically feasible." (Soil and Water Resources Staff Analysis/Opening Testimony, p. 23.)

However, on page 13 of its Soil and Water Resources Opening Testimony, Staff states that it "has not been able to determine whether the project owner has access to funds that

could be used to finance construction of water treatment facilities to use 100% recycled water."

Based upon our review of Staff's testimony, Staff did not consider economic factors that should have been evaluated as part of a determination of the feasibility of its recommendation that the Facility be required to convert to a 100% recycled water supply. Therefore, Staff did not have a basis to conclude that its proposed modification is economically feasible for HDPP.

Q: Have you reviewed the "previous analysis" referenced on page 23 of Staff's Soil and Water Resources Staff Analysis/Opening Testimony?

A: Yes. According to the Staff's Soil and Water Resources Testimony, the "previous analysis" referenced is a document titled, *Staff Analysis of the High Desert Power Plant Recycled Water Feasibility Report*, dated October 9, 2015 (TN#206321). For the purposes of this testimony, we will refer to this document as the October 9th Staff Analysis.

Q: Did the October 9th Staff Analysis conduct an economic analysis of the feasibility of converting the Facility to use 100% recycled water?

A: No. The October 9th Staff Analysis specifically states that Staff did not conduct a detailed cost and economic analysis.

Instead, the October 9th Staff Analysis relied upon the *Energy Commission's 2014 Cost of Generation Model*, and used the model "to estimate the costs of a similar plant with and without the additional water treatment facility, assuming both are new facilities built in 2015." Staff ran the model to provide the deterministic mid case levelized cost, then incorporated the "additional capital costs" of the 100% Makeup Pretreatment Option and Side-stream Treatment Option costs estimates into the model. Staff compared the difference in levelized costs between a new facility without a water treatment plant, and facilities incorporating the two water treatment options in an attempt to simulate the financial impact to HDPP to convert the Facility to use 100% recycled water. Staff concluded that the incremental cost in the levelized cost of electricity is small and should not result in a significant change in economics for the Facility.

Staff's analysis did not consider the source of capital required to pay for the cost to convert the project to use 100% recycled water or the total cash flow impact to HDPP on a dollars per year basis. Analyzing a capital improvement project solely on a levelized cost of energy basis without taking the cash flow impact on the project into consideration demonstrates that Staff does not understand how to perform an economic analysis for an existing, operating merchant project that must have sufficient free cash flow to service debt and to perform capital improvement projects.

Q: In your professional opinion, do you agree that use of the *Energy Commission's 2014 Cost of Generation Model* is an accurate method to determine the economic feasibility of converting the Facility to rely solely upon recycled water as the water supply?

A: No.

First, there are some important caveats to using the *Energy Commission's 2014 Cost of Generation Model* that were not specifically identified in the October 9th Staff Analysis. For example, the *Energy Commission's 2014 Cost of Generation Model* specifically acknowledges that actual costs for projects will vary widely, and states that relying solely on mid case levelized costs is simplistic and can lead to poor planning decisions. Despite this, the mid case levelized cost are relied upon by Staff to assert that converting the Facility to use 100% recycled water is economically feasible.

Second, Staff's economic analysis simply compares the levelized cost of energy on a $/MWh basis for a new power plant with incremental capital costs to simulate the financial impact to HDPP to convert the Facility to use 100% Recycled Water. Staff's analysis does not consider the source of capital required to pay for the cost to convert the Facility to use 100% recycled water and Staff's analysis does not take into consideration the total cash flow impact to HDPP on a dollars per year basis.

The current California energy and capacity markets do not provide sufficient energy and capacity revenue for HDPP to recover the incremental capital and operating cost associated with operating on 100% recycled water. Unlike a regulated investor-owned utility, HDPP cannot simply pass its costs on to retail customers. Rather, HDPP must rely on the capacity and energy markets to recover the capital and operating costs associated with operating on 100% recycled water.

The October 9th Analysis completely ignored specific cost and economic information provided by HDPP, which described HDPP's existing capital structure and that the only source of capital available to fund additional capital projects is that which is created from the free cash flow of HDPP. Moreover, even if HDPP was recapitalized such that it carries less debt than it currently does, there would still not be sufficient cash flow for HDPP to finance additional water treatment system capital improvement projects.

Q: Can you please summarize the differences in the feasibility analyses conducted by Staff and HDPP?

A: HDPP retained multiple experts to evaluate the best engineering options to retrofit the Facility to utilize recycled water as the sole water supply for operations. Subsequently HDPP evaluated the technological and economic feasibility of these options based on specific financial and economic information, and concluded that retrofitting the Facility to utilize 100% recycled water is not feasible.

In contrast, Staff's testimony admits that it did not determine whether HDPP has sufficient cash flow that could be used to finance construction of water treatment facilities to use 100% recycled water. Instead, Staff's testimony states only that it relied on the October 9th Analysis to determine that retrofit of the Facility to utilize 100% recycled water. Yet reliance on the October 9th Analysis itself is flawed, as Staff did not perform a detailed cost and economic analysis, and instead relies on the results from a model that did not incorporate information specifically applicable to the Facility.

In short, Staff's conclusion that retrofitting the Facility to solely use recycled water is economically feasible is not supported by any factual basis.

Q: Is Staff's failure to consider the economic feasibility of requiring HDPP to retrofit the Facility to utilize a 100% recycled water supply consistent with the Commission's IEPR?

A: No. Staff's testimony references the IEPR as a LORS applicable to the Petition. (Staff Soil and Water Testimony, p. 15.) Staff's testimony states that the IEPR applies "where alternative water supply sources or alternative cooling technologies are shown to be ''environmentally undesirable" or "economically unsound" (IEPR (2003), p. 41)." (Staff Soil and Water Testimony, p. 15.) As such, cost and economic information should be considered before determining whether 100% recycled water is a feasible water supply for the Facility.

One portion of the IEPR policy that Staff references is that of economic feasibility: is the option "economically unsound." HDPP did not ask for the debate on economic feasibility; however the IEPR policy Staff relies upon, and the Commission's and CEQA definitions of "feasible" bring those issues into this proceeding. (See, Staff Soil and Water Testimony, p. 16.)

VII. CONVERSION TO 100% RECYCLED WATER WITHIN A THREE-YEAR PERIOD IS INFEASIBLE.

Q: Staff recommends that the Facility be required to convert to 100% recycled water supply within a 3-year period. (Soil and Water Resources Staff Analysis/Opening Testimony, p.1.) Is this feasible?

A: No. As stated above, converting the Facility to utilize a 100% recycled water supply is infeasible. There is insufficient reliable recycled water supply both in terms of quantity and quality. Moreover, the Facility as approved was not designed to run on 100% recycled water and it is economically infeasible to convert the Facility to do so. The Facility can, however, use as much recycled water as possible with the given constraints of the existing treatment system and the quality of SWP Water or other sources which collectively establish the blend ratio required to both (a) maintain the cooling tower water at acceptable qualities and (b) maintain the Facility's PM_{10} emissions within the permitted limit.

VIII. NO COST SAVINGS WOULD BE ACHIEVED BY STAFF'S PROPOSALS.

Q: Staff further asserts that there are "areas where costs savings would be achieved when the conversion is completed", implying that such "cost savings" would offset the significant capital costs to convert the Facility to 100% recycled water, as advocated by the Staff. (Staff Analysis/Opening Testimony, p.) Do you agree?

A. No. Staff's testimony does not analyze or demonstrate that there are areas of costs savings, let alone "significant" cost savings, by requiring the Facility to convert to a 100% recycled water supply. Instead, Staff's testimony speculates that if HDPP were to percolate acquired SWP Water into the groundwater basin, the injection groundwater

bank could be "abandoned", thus resulting in savings of the costs to treat SWP Water for injection, and maintenance of the water injection banking program.

Q: Do you agree that such "cost savings" would occur?

A: No. For example, for every 1,000 acre-feet per year that HDPP would no longer have to bank, HDPP would save approximately $390,000 per year in water treatment costs. However, there is no guarantee that "cost savings" would result, as any "savings" would be offset by whatever cost MWA would charge HDPP to percolate the SWP Water. Furthermore, even assuming there were savings of $390,000 per year, and assuming that there were no extra costs from MWA to percolate the SWP Water, such "cost savings" are not significant enough to offset the massive capital expense of converting the Facility to operate solely on recycled water.

Q: Would such "cost savings" be sufficient to offset the expense of the capital expenditures needed to retrofit the Facility to use 100% recycled water?

A: No. Cash flow from operations does not allow for sufficient funds to pay for a major construction project, such as completely retrofitting the water treatment system of the Facility to utilize a different water source.

Q: To your knowledge, has the Commission ever approved a project with a primary water supply, then after construction and operation of the project, required the project to stop using the primary water supply and expend significant resources to retrofit the project to use another water supply?

A: No.

Q: Are there other issues with Staff's "cost savings" arguments?

A: Yes. Staff proposes that "As stated in the new staff proposed Condition of Certification, SOIL&WATER-1, offset can be done either though implementing conservation, or retirement of agricultural land in an area served by the SWP." (Staff Opening testimony, p. 23.) However, Staff has not estimated the costs of permanent retirement of agricultural lands or the other "offsets" proposed by Staff. Those costs should be accounted for in Staff's assertions of "savings".

IX. CERTAIN OTHER FACTUAL INACCURACIES IN THE STAFF'S TESTIMONY REQUIRE CORRECTION

Q: Page 5 of the Staff Soil and Water Resources Testimony states, "Since some of the same board members that bought the project were also on the board of the original company, staff asserts that the project owner was aware of the 2000 Decision water supply requirements." Is this statement correct?

A: No. TPF Generation Holdings, LLC did not buy the Facility. In 2006, it bought ownership interests in companies that indirectly own HDPP which holds the project. TPF Generation Holdings, LLC did not assume obligations as to the Facility. Rather it bought

companies (HDPP) that continued to have the obligations they had before. The members of the boards of each of the subsidiaries of TPF Generation Holdings, LLC that were acquired in 2006 (including HDPP) were completely different than the members prior to the acquisition.

Q: Page 9 of the Staff Soil and Water Resources Testimony states that it expects the diversion of domestic wastewater to the IWWTP "to result in diluting the TDS levels in the IWWTP's effluent so that it is within the contractual specifications for HDPP." In your experience, has this been the case?

A: No. IWWTP sends HDPP a daily report on the quality of the IWWTP's recycled water. As of January 29, 2016, despite the diversion, the IWWTP's recycled water quality does not meet the quality required under the Facility's recycled water supply agreement with VWD.

Q: Staff also argues that HDPP "failed" to store enough water in the groundwater bank. Is this accurate? (Staff Soil and Water Testimony, p. 10.)

A: No. As the Staff is aware, all of the following conditions must be met in order for the Facility to treat and inject SWP Water: (a) SWP Water must be available and allocated to HDPP by MWA; (b) the allocated quantity must be in excess of the Facility's operating needs; (c) the SWP Water must meet certain concentration limits pertaining to total dissolved solids and trihalomethane content in order to be banked in the aquifer; and (d) the Facility must be operating and producing heat, or have sufficient residual heat after shut down, in order to provide the thermal energy needed to treat SWP Water for banking.

The generalized accusation that the project owner simply did not bank enough SWP water is consistent with the Staff's view that there is enough water available "on average". It is also a serious charge to suggest that the project owner should have done more without providing any analysis to support such a statement.

Q. Does the Staff's testimony reflect current factual water supply circumstances?

A. No. Staff's arguments are stuck in 2000 and 2001, focusing on events that occurred during the 2000 permitting process. (Staff Soil and Water Testimony, p. 5.). And even then, they are only stuck on a few, select factual circumstances from the "Turn of the Century" that benefits Staff's arguments.

To begin, if the project were to be forced to return to 2001, then the Facility would be prohibited from using recycled water at all. This 2001 mandate is clearly no longer applicable.

This 2001 mandate – a complete Commission-certified ban on any use of recycled water – is not mentioned in Staff's arguments regarding whether HDPP had knowledge of the facts supporting the Petition during the certification proceeding for the Facility.

Q. What factual changes since 2000-2001 does Staff's testimony ignore?

A. These are just a few of the important changes in factual circumstances in 2016 that are very different from 2000-2001.

First, in August of 2000, three months after the Commission's certification of the Facility, the California Supreme Court substantially affirmed the Judgment of the Riverside County Superior Court adjudicating the water rights in the Mojave Basin and appointing the MWA to act as the Watermaster to implement the adjudication. Through MWA's leadership, the Mojave Basin has been well-managed, serving as a model for the landmark Sustainable Groundwater Management Act of 2014.

Second, by Memorandum of Understanding ("MOU") dated June 27, 2003 (more than three years after the Commission's certification of the Facility), the California Department of Fish and Wildlife (then California Department of Fish and Game) and VVWRA agreed that VVWRA would continue to discharge at least 9,000 acre feet per year of recycled water to the Mojave River to protect instream resources, thus freeing surplus recycled water for other uses in the region. This MOU settled, and fundamentally reshaped, how water is used and managed for the mutual benefit of the environment and water users in the MRB.

Third, starting in 2007, water deliveries from the State Water Project have been dramatically reduced as a result of court decisions regarding the biological opinion issued to protect the Delta smelt in the Sacramento-San Joaquin Delta ("Delta Smelt Biological Opinion"). The SWP Water reductions have fundamentally altered the Facility's water supply plans. The reduction in pumping undermined the Commission's and HDPP's mutual understanding and belief that SWP Water would be available in sufficient quantities to allow the Facility to "bank" water many years in advance of need, thus assuring a dependable supply. As a result — and acting of its own volition — in 2008 HDPP petitioned the Commission to lift the prohibition and allow for the potential use of recycled water at the Facility.

The suggestion that the Committee should focus on 2000-2001 and ignore these and other significant changed circumstances is ludicrous. The Delta Smelt listing impacts alone in 2007 have caused a dramatic shift in water deliveries. No one in 2000-2001 could foresee these and other events. To suggest otherwise ignores the facts.

Q. Has the Staff testimony mischaracterized the purpose of the Feasibility Study?

A. Yes. Staff's testimony suggests, wrongly, that the Commission's September 10, 2014 order approving revisions to condition of certification SOIL&WATER-1 required HDPP to submit a petition to amend "to convert to 100 percent recycled water use", and that the purpose of the feasibility study was to show "what options could be utilized to convert to 100 percent recycled water use for project operation" (See, Staff Soil and Water Testimony, pp. 2, 5.)

Rather, the Commission's September 10, 2014 required only that the Petition propose modifications to implement reliable primary and backup HDPP water supplies that are consistent with state water policies or an alternate cooling system like dry cooling. As

demonstrated in the HDPP's Petition and testimony in this proceeding, the water supply proposed in the Petition is consistent with state water policies.

Further, the purpose of the Feasibility Study was to "determine the *feasibility* of converting *to up to 100 percent* recycled water use." (See, Commission Order No. 09-1118-5.) As the name implies, the Feasibility Study was intended to determine whether conversion to up to 100% recycled water is "feasible" for the Facility. The Feasibility Study concluded that conversion to 100% recycled is not technically or economically feasible for the Facility. While Staff desire a different outcome, this conclusion is borne out by the expert engineering and financial analyses in the Feasibility Study.

In January of 2016, HDPP provided detailed and updated financial information in advance of a meeting with Staff. On January 7, 2016, HDPP's financial and technical experts met in Sacramento with Staff to present and answer Staff questions about that detailed financial information. In short, HDPP has provided a significant amount of cost and economic information to Staff that should have been reviewed and considered in Staff's testimony. However, the information was not reviewed and considered, and appears to have been intentionally ignored.

Q: Are there other important and erroneous assumptions in Staff's testimony?

A: Yes. Staff argues that the Victorville 2 project "is unlikely to be built, and not without reopening the permit." (Staff Soil and Water Testimony, p. 10.) As such, Staff argues that this permitted project is not "reasonably foreseeable". Such a conclusion, while convenient to Staff's arguments, is contrary to CEQA and established Commission precedent. Further, the argument that the Victorville 2 permit would have to be "reopened" ignores the fact that a project owner always has the right to build an approved project as already approved.

APPENDIX A

WITNESS QUALIFICATIONS AND DECLARATIONS

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Specializes in water and natural resources law, with an emphasis in California water rights, policy and legislation. Regularly practices before the State Water Resources Control Board in matters pertaining to water right permitting, water transfers, and enforcement and compliance. Assists electric generating facilities to acquire and maintain water supplies. Extensive experience in California Environmental Quality Act, National Environmental Policy Act, and California and federal Endangered Species Act compliance. Advocates before administrative and legislative bodies on behalf of water users concerning water policy and legislation.

Associate – Stoel Rives LLP, San Francisco, California (2002-04)

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Law Clerk – Office of the Attorney General of California, Land Law Section (2000)

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U.S. District Court for the Eastern District of California

EDUCATION:

J.D. **University of California, Hastings College of the Law**, 2002

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DECLARATION OF
Peter J. Kiel, Esq.

I, Peter J. Kiel, declare as follows:

1. I am an attorney admitted to practice law in the State of California.

2. I am a partner with Ellison, Schneider & Harris, LLP. My law firm serves as legal counsel to High Desert Power Project, LLC.

3. A copy of my professional qualifications and experience are attached hereto and incorporated herein by reference.

4. The rebuttal testimony on laws, orders, regulations and standards for the High Desert Power Project (97-AFC-1C) in support of the *Petition for Modification to Drought-Proof the High Desert Power Project* was prepared either by me or under my supervision, and is based on my independent analysis, information from reliable sources, and my professional experience and knowledge.

5. It is my professional opinion that the prepared testimony is valid and accurate with respect to the issue(s) addressed herein.

6. I am personally familiar with the facts and conclusions presented in the testimony and if called as a witness could testify competently thereto.

I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct to the best of my knowledge and belief.

Dated: February 12, 2016

Signed: _____

At: Sacramento, California