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BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT COMMISSION OF THE STATE OF CALIFORNIA

Application for Certification for the HIGH DESERT POWER PROJECT	Docket No. 97-AFC-1C

HIGH DESERT POWER PROJECT, LLC

RESPONSE TO COMMITTEE QUESTIONS FOR PARTIES AND OTHER INTERESTED PERSONS

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INTRODUCTION

High Desert Power Project, LLC ("HDPP") hereby files its response to the Committee's Memorandum entitled, *Committee Questions for Parties* issued on February 16, 2016 ("Response").

RESPONSE TO QUESTIONS FROM THE COMMITTEE

1. *In the 2000 Final Decision, emphasis was placed on not allowing the project to use groundwater from the adjudicated basin because of impacts to sensitive habitat and threatened/endangered species reliant on that habitat. With the passage of time, and particularly the last four years of drought conditions:*
   a. *What is the status of the identified habitat?*

RESPONSE: The habitat is greatly improved due to the Riverside County Superior Court *Judgment After Trial: Mojave Basin Area Adjudication* ("Judgment"), which was substantially affirmed by the California Supreme Court in August of 2003.[1] Pursuant to the Judgment, a Physical Solution was established to "achieve the water table standards. . . proposed by [the California Department of Fish and Wildlife ("DFW")] as being necessary to maintain and converse [*sic*] the riparian resources." As part of the Physical Solution, the Mojave Water Agency ("MWA") is required to consider the Production Safe Yield[2] of the Basin, riparian habitat and the protection of public trust resources when managing the Basin. The Judgment also required MWA to establish a Biological Resources Trust Fund, and required DFW to draft a habitat water supply management plan for the benefit of riparian habitat areas and species described in the Judgment.

The Final Decision for the High Desert Power Project ("2000 Final Decision") summarized testimony regarding the fish and wildlife resources of the Mojave River riparian areas, which includes riparian habitat in the Mojave River "Transition Zone," Mojave River Narrows Regional Park and Camp Cady Wildlife Area, and the relationships between surface flows in

[1] *City of Barstow, et al v. City of Adelanto, et al*., (Super. Ct. Riverside County, 1996, No. 208568).
[2] Production Safe Yield is defined, in part, as the "highest average Annual Amount of water that can be produced from a Subarea". (See, Judgment, § 4aa.)

these riparian area to groundwater pumping from the interconnected groundwater basin and to the discharge of recycled water from the Victor Valley Wastewater Reclamation Authority ("VVWRA") Plant to the Mojave River. These riparian areas are addressed by the Judgment and the *Habitat Water Supply Management Plan for the Adjudicated Area of the Mojave River Basin* prepared by DFW.

At the time of the 2000 Final Decision, DFW (then the California Department of Fish and Game) expressed concerns about the use of both recycled water and Mojave River Basin ("MRB") adjudicated water "since such use would take water from the basin and potentially cause adverse impacts to riparian vegetation as a result of lowering of groundwater levels. (10/7/99 RT 151-55; see also Exs. 14, 15, 65.)" (2000 Final Decision at 223.) The 2000 Final Decision also discussed that the Mojave Adjudication anticipated recovery of groundwater levels through the import of State Water Project ("SWP") Water but that, at the time, the MWA did not have the revenue to import substantial quantities of SWP Water. Those factors led the Commission in 2000 to authorize HDPP to use only SWP Water for the High Desert Power Project ("Facility"). The Commission specifically did not authorize HDPP to use recycled water or MRB Adjudicated Water.

Subsequent to the 2000 Final Decision, the Mojave Adjudication was substantially affirmed by the California Supreme Court ("Court"), as noted above. MWA, acting as Watermaster, has fully implemented the Judgment. Replacement Water Assessments ("RWA") collected by Watermaster have enabled MWA to purchase SWP Water to recharge the Basin. The recharge of SWP Water, in addition to the "ramp down" of pumping, has resulted in the achievement of stable groundwater levels for the Alto Subarea of the Basin where the Facility is located (i.e., the Alto Subarea is in "safe yield" or "sustainable yield"). (Watermaster Annual Report, May 2015 for WY 2013/14.) Also, the Alto Subarea has accomplished the Judgment's groundwater elevation targets and the Judgment's requirement to provide flows downstream/downgradient to the Transition Zone.

The following provisions of the Judgment describe how riparian habitat is protected by the Judgment.

Minimum groundwater elevation targets were established to provide base flows in the Mojave River riparian areas. (Judgment, Appendix C [estimation of surface flow arising as groundwater base flow versus stormwater], Appendix H Biological Resource Mitigation, Ex H-11 [water levels]). Public trust considerations were considered by the Court:

> In arriving at a Physical Solution, the Parties have taken into consideration the water needs of the public trust resources of the Mojave Basin Area, including but not limited to, those species listed in Table H-1 within each of the areas as shown on Figure H-1 and the riparian habitat areas shown on Figure H-1…[3]

[3] Judgment, Ex. H, para 1.

DFW is a party to the Judgment and the Court adopted "water table standards set forth in Table H-2 which were proposed by DFW as being necessary to maintain and converse [*sic*] the riparian resources." (Judgment After Trial, Ex. H, para 2.) The health of Mojave River riparian habitat is an ongoing consideration for Watermaster in setting Free Production Allowances. (Judgment, Ex. H, para 2(2).)

The Judgment provides:

> 2. Protection Pursuant to Physical Solution. The following aspects of the Physical Solution must be implemented to seek to achieve the water table standards set forth in Table H-2 which were proposed by DFG as being necessary to maintain and converse [*sic*] the riparian resources in the areas shown on Figure H-1, including the species listed in Table H-1:
>
> a. Pursuant to Paragraph 24(o) of the Judgment, the Watermaster in recommending an adjustment in Free Production Allowance, shall compare the Free Production Allowance with the estimated Production Safe Yield. In the event the Free Production Allowance exceeds the estimated Production Safe Yield by five percent or more, Watermaster shall recommend a reduction of the Free Production Allowance equal to a full five percent of the aggregate Subarea Base Annual Production. In considering whether to increase or decrease the Free Production Allowance in a Subarea, Watermaster shall, among other factors, take into consideration for the areas shown on Figure H-1 the Consumptive Use of water by riparian habitat, the protection of public trust resources, including the species listed in Table H-1 and the riparian habitat areas shown on Figure H-1, and whether an increase would be detrimental to the protection of public trust resources.[4]

The Judgment also imposes a RWA on pumping from the Transition Zone (which is not applicable to Victorville Water District ("VWD") pumping for the Facility in the Alto Subarea) expressly to provide for replacement water to benefit the area downstream of the Calico-Newberry Fault, the geologic feature that facilitates surface flow in the Narrows. (Judgment, Paragraph 38.)

The Judgment also imposes obligations of the Alto Subarea (where pumping by the Facility occurs) to contribute subsurface flow and base flow to the downstream Transition Zone, which is necessary to maintain Mojave River riparian habitat. (Judgment, Appendix G-2.)

The 2003 Memorandum of Understanding ("MOU") between DFW and VVWRA also ensures that quantities of recycled water are discharged to percolation ponds and directly to the Mojave River to maintain flows in the Mojave River riparian zones. The MOU addressed DFW's concerns that VVWRA's proposed subregional recycled water plants would capture wastewater

[4] Judgment After Trial, Ex. H, paragraph 2.

flows that would otherwise be sent to the VVWRA Shay Road Plant and would thereby reduce the discharge of recycled water from the Shay Road Plant to the Mojave River riparian zones. The compromise reached in the MOU requires VVWRA "to discharge 9,000 acre feet annually and not less than 24.7 acre-feet per day [fn] of 'available recycled water' at its existing permitted points of discharge at VVWRA's Shay Road Plant" and "not less than twenty percent (20%) of the amount of recycled water resulting from any increases in the amount of daily influent wastewater flow to VVWRA's Shay Road Plant after the effective date of this MOU" (MOU, ¶ 3); however, "VVWRA's discharge to the Mojave River need not be more than is necessary to produce, in combination with the base flow measured at the Lower Narrows gage, a total of 15,000 acre feet annually" (MOU, ¶ 3A).

The Facility's use of recycled water does not alter VVWRA's obligations to discharge recycled water to the Mojave River[5] but the discharge obligation may limit the future availability of recycled water to the Facility.

b. Are the threatened/endangered species (i) still in the region and (ii) still listed as threatened or endangered?

RESPONSE: Yes, the two federal or state listed threatened or endangered species that were identified in the 2000 Final Decision, are still in the region and both are still listed: (1) the federally listed desert tortoise and (2) the state listed Mojave ground squirrel.[6]

Both of these species are terrestrial, not aquatic species and not threatened or affected by groundwater pumping. Potential impacts to these species were focused primarily on the High Desert Power Project's ("Facility's") off-site linears, the natural gas line in particular, as the Facility was sited at the already developed former George Air Force Base. This Petition for Modification ("Petition") proposes no new infrastructure or physical changes to the environment. Thus, this Petition will have no impact on the desert tortoise or the Mojave ground squirrel.

2. Please provide the following information regarding water usage. For each, also provide actual usage and the source of water used:
   a. Peak flow demand
   b. Monthly flow demand
   c. Update "Table 1. Historical Water Usage for the Facility," found at .pdf page 59 of the Petition for Modification (TN 206468), to include data for 2015.

RESPONSE: Please see Attachment A for the responses to Question 2(a)-(c). As shown in updated Table 1, during the eleven year period from 2004-2015, Total Water Used for Power

[5] VVWRA's obligation to discharge at least 24.7 acre-feet per day is limited to the "available recycled water," which means "the daily influent wastewater flow to the Shay Road Plant, less any flows removed for sewage and solids processing, and less any flows used for recycling on-site at VVWRA, and less any flows used for irrigation of the 9-hole Westwinds Golf Course as approved by Lahontan Board Order No. R6V-2003-028 (WDID No. 6B360207001)." (MOU, ¶ 3.) Use of recycled water by the Facility does not limit VVWRA's minimum daily discharges.

[6] The Biological Opinion for the Project examined the potential "effects on the federally threatened desert tortoise (Gopherus agassizii) and the unlisted Mojave ground squirrel (Spermophilus mohavensis)." (Biological Opinion, p. 1; the Committee can take Official Notice of the Biological Opinion as necessary.)

generation averaged 2,742 acre-feet per year ("afy") and peaked at 3,412 afy. During this same period, Total Water Use for Power generation plus Aquifer banking averaged 3,312 and peaked at 4,233 afy. These annual numbers are consistent with HDPP's request for access up to 3,090 afy.

3. *Regarding plant operations:*
   a. *Provide the number of starts and operation duration per month for each year of plant operation.*

RESPONSE: Please see Attachment B for the responses to Question 3(a).

   b. *Describe any critical needs that the plant satisfies (e.g., grid support).*

RESPONSE: The Facility satisfies three critical needs: supply diversity; grid support; and integration of renewable energy resources.

The Facility provides supply diversity through its interconnection to the Kern River Gas Transmission Company interstate pipeline ("Kern River Pipeline"). Due to its location on the Kern River Pipeline, the Facility meets a critical need for supply diversity, particularly in the wake of the Aliso Canyon natural gas storage leak. The 2016 Integrated Energy Policy Report ("IEPR") notice requesting comments notes, among other things, the need to develop "reliability assessments and action plans" in light of "the moratorium on gas injections into the Aliso Canyon Natural Gas Storage Facility."[7] The Facility is an efficient, flexible, natural gas-fired combined cycle plant that is not directly impacted by the Aliso Canyon natural gas storage leak.

The Facility's operating history supports the conclusion that the Facility's location on the interstate pipeline will be critical to address the reliability issues similar to those raised by the Aliso Canyon natural gas storage leak. Specifically, in February 2014, due to low gas inventories in the Southern California area on the SoCalGas and Southwest Gas system, several natural gas units in Southern California were required to either reduce their power output or be shut offline. Because the Facility was not impacted by the SoCalGas issues, the California Independent System Operator ("CAISO") issued an Exceptional Dispatch Capacity Procurement Mechanism designation to the Facility to ensure that there was sufficient capacity to meet load and maintain the CAISO's operating reserve requirement.[8] As the CAISO Notice stated:

> Due to low gas inventories in the Southern California area on the SoCal Gas and Southwest Gas system, the gas company forced multiple natural gas units in Southern California to reduce their power output and, for some, to be shut off line. This resulted in forced reduction of over 2000 MW of capacity. When we evaluated our system capacity and evening peak load it was determined we would not have enough capacity to meet our load and operating reserve obligations. We decided to issue the ED

[7] IEPR Notice, 2/19/16, TN 210475, pp 3, 6.

[8] https://www.caiso.com/Documents/February2014-ExceptionalDispatchCPMDesignationReport.pdf

> CPM to High Desert since it was not impacted by the SoCal Gas issues to help meet our operating reserve requirements and avoid going into a Stage 1 Emergency.[9]

The capacity provided by the Facility allowed the CAISO to avoid going into a Stage 1 Emergency.[10] A facility like HDPP, which is located favorably on the interstate pipeline system and not reliant upon natural gas storage facilities in Southern California, provides great value to a system stressed by the events at Aliso Canyon.

Second, the 830 megawatt ("MW") Facility provides grid support through the provision of flexible capacity, baseload energy, ancillary services, and Resource Adequacy capacity. As just one additional example of the manner in which the Facility provides grid support, in 2015 the Facility was committed in CAISO's residual unit commitment ("RUC") process[11] for 30% of the hours the Facility was on-line.

Finally, the Facility meets a critical need by supporting the integration of renewable energy resources. The Facility's day-ahead and instantaneous dispatch schedule is a clear indication of the Facility's importance in meeting this renewable integration need. The Facility's dispatch schedule fluctuates daily, (up or down) to provide instantaneous support to unexpected drop-off or ramp-up of renewable energy (e.g., unexpected cloud cover or missed wind forecasts). The Facility also routinely ramps from 746 megawatts ("MW") to 200 MW for the morning renewables ramp up, and from 200 MW to 746 MW for the evening renewables ramp down.

4. *Regarding the use of reclaimed/recycled water from the City of Victorville (CVV):*
   a. *Initial concerns regarding the amount of water available to the High Desert Power Plant (HDPP) were based on the Victorville 2 power plant having priority rights. What is the status of Victorville2? Does the CVV have sufficient reclaimed water to satisfy the needs of both HDPP and Victorville 2?*

RESPONSE: On July 2, 2013, the Commission approved a petition to extend the deadline for the start of construction of the Victorville 2 Hybrid Power Project ("VV2") to July 16, 2018. Therefore, it is reasonably foreseeable that VV2 might be constructed and come on line, assuming a 24 month construction schedule, sometime between 2018 and 2020. Whether or not VV2 is ever constructed, CVV will not have sufficient reclaimed water to satisfy the Facility's needs.

The GSI Report attached to the Petition demonstrates that even without VV2, there is insufficient supply in all years to meet the needs of HDPP. With VV2 operating, there would even a greater deficit in necessary supply.

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[9] *Id.*, p. 1

[10] https://www.caiso.com/Documents/February2014-ExceptionalDispatchCPMDesignationReport.pdf

[11] *See*, CAISO Tariff, Appendix A, defining Residual Unit Commitment," RUC", as "the process conducted by CAISO in the Day-Ahead Market after the [CAISO integrated forward market] has been executed to ensure sufficient Generating Units, System Units, Systems Resources, Participating Loads, and Proxy Demand Resources are committed to meet CAISO Forecast of CAISO Demand." Also *see*, CAISO Tariff §§ 31.5, et seq.

The GSI Report modeled Scenarios 1A-1C, assuming that VV2 is not built. It also modeled Scenarios 2A-2C, assuming VV2 is built and uses 3,150 afy of Recycled Water. (GSI Report, Section 3, pp. 21-34.) Each set of Water Supply Scenarios, with and without VV2, includes three lettered "sub-scenarios": (A) the "A" Scenarios, the Best Case, non-emergency conditions, including wet climate and high population growth assumptions to reflect the highest expected Recycled Water, SWP Water, and Banked SWP usage; (B) the "B" Scenarios, the Average Case, non-emergency conditions assuming average climate and moderate growth assumptions; and (C), the "C" Scenarios, the Worst Case assuming dry climate and low growth assumptions. The results set forth in the GSI Report are definitive: there is insufficient Recycled Water Supply to meet all of HDPP's needs, with and without VV2.

b. What is the volume of reclaimed water available from the treatment plant on both a peak demand and average demand day for flows to operate HDPP? How do the availability volume and demand volumes compare on a peak and on an average day?

RESPONSE: The volume of reclaimed water available from the treatment plant on both a peak demand and average demand day is provided in Exhibit 1004, p. 6.

The available volume of recycled water on a continuous sustained basis that is available to HDPP is 2,200 gallons per minute ("gpm"). This water is delivered to the Facility from the VVWRA Shay Road Plant. VWD has also offered 360 gpm on a continuous sustained basis from the Industrial Wastewater Treatment Plant ("IWWTP"); however, this water cannot be used by the Facility because it does not meet the minimum water quality specifications for the plant as set forth in the water supply agreement between VWD and HDPP.

Therefore, on a peak demand day when HDPP's instantaneous demand requirement is up to 4,000 gpm, only 55% of the needed water is available from the VVWRA Shay Road Plant on a continuous basis to meet peak demand. Even if water from the IWWTP could meet HDPP's minimum water quality standards, recycled water from the combined facilities on a continuous basis would meet only 64% of the Facility's peak demand. Table 2a in Attachment A shows that the Facility's peak demand flow for power generation in August and September 2014 ranged from 3,356 gpm over a 48 hour period up to 4,752 gpm over a 1 hour period.

c. What is the constituent load of the reclaimed water from the treatment plant?

RESPONSE: The constituent load of reclaimed water is described in Confidential Appendices C and E to Confidential Exhibit 1003. (See, Exhibit 1003, Ex. B, Appendices C, E.) HDPP is also providing as Attachment C to this Response a February 2016 email from IWWTP personnel to HDPP indicating that the electrical conductivity of the IWWTP reclaimed water ("EC") is 800 µS/cm. The electrical conductivity limit in the Reclaimed Water Service Agreement between HDPP and VWD is 670 µS/cm on a 3-day rolling average basis. Because recycled water from the IWWTP has continually exceeded the 670 µS/cm limit, HDPP has used only limited amounts of recycled water from the IWWTP.

d. What upgrades might be necessary (pre-treatment, storage, post-use disposal) at HDPP to accommodate usage of additional reclaimed water from CVV?

RESPONSE: HDPP provided a detailed engineering analysis to answer this very question: what sort of upgrades would be required to convert the Facility — which was reviewed, certified, designed and built to use SWP Water — to 100% recycled water?

The 2014 HDPP Feasibility Study included, among other things, the Kiewit Study. HDPP retained Kiewit Power Engineers ("Kiewit"), the engineering company that originally designed the Facility when it was constructed, to study several options for the Facility to use 100% Recycled Water. The public (non-confidential) 2014 Feasibility Study provides the following information:

- 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.
- (i) 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. This schedule allows for 24 weeks to obtain the CEC and environmental permits. Any additional time required to secure those permits will result in a day-for-day increase in total project schedule. The estimated capital cost for this option is provided in confidential Exhibit B.
- (ii) 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. This schedule allows for 24 weeks to obtain the CEC and environmental permits. Any additional time required to secure those permits will result in a day-for-day increase in total project schedule. The estimated capital cost for this option is provided in confidential Exhibit B.
- (iii) 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. This schedule allows for 24 weeks to obtain the CEC and environmental permits. Any additional time required to secure those permits will result in a day-for-day increase in total project schedule. The estimated capital cost for this option is provided in confidential Exhibit B.
- Kiewit's report noted that the existing Facility site may not be large enough to accommodate the upgrade projects described above and that HDPP may need to acquire

additional land. The costs and schedules noted above do not include the time or cost required to acquire or lease additional land, nor does the Kiewet report discuss whether acquisition or leasing of additional land is feasible.

Detailed financial information on all three options is set forth in Exhibit B to the 2014 Feasibility Study, "Kiewit Power Engineers Exhibit - Recycled Water Technical Feasibility Study (Confidential)."

5. *The recent records of conversation among Energy Commission Staff, Mojave Water Agency (MWA), and CVV indicate that MWA may not have water available for HDPP, particularly over the long term.*
   a. *What mechanism could be used to ensure the availability of water from MWA?*

RESPONSE: The mechanism to ensure the availability of water from MWA is the Adjudication, as enforced by the Judgment. On February 19, 2016, the MWA sent a letter to the Commission, explaining, in relevant part, how the agency makes water available while keeping the basis "net neutral":

> 3. Any water that is pumped from the groundwater basin by City of Victorville (other than water that is pumped from HDPP's current permitted storage bank) is pursuant to the Adjudication. City of Victorville has a Base Annual Production right, based in part on the natural water supply of the Alto Subarea of the Mojave Basin, and includes return flow of production per the Court Judgment in City of Barstow, et al. v. City of Adelanto, et al., Riverside County Superior Court Case No. 208568. The Judgment contains a clause that requires that any change in consumptive use of the water being pumped, requires an adjustment to the parties' available Free Production Allowance. This adjustment mitigates for loss of return flows to the groundwater basin as a result of increased consumptive use.
>
> Specifically, groundwater pumping by City of Victorville for HDPP results in a change in consumptive use as the power plant consumes 100% of the water it uses. In order to mitigate for this change in consumptive use, Watermaster will charge City of Victorville's available yearly Free Production Allowance at two (2) acre-feet for each (1) acre-foot (2: 1) delivered to the power project for water delivered under its "untreated water delivery service agreement" with HDPP. *The adjustment made by Watermaster for this pumping results in a net neutral position to the groundwater basin as required by the Judgment.* HDPP is not a party to the Judgment, but we will continue implement the Judgment as it pertains to the City of Victorville.[12]

[12] Letter from Mojave Water Agency to Abdel-Karim Abulaban (CEC) dated February 19, 2016 (TN # 210498), p. 2; first emphasis in original; underlined and italicized emphasis added.

Thus, the mechanism to ensure the availability of water from MWA is the Adjudication, as enforced by the Judgment.

Representatives of MWA acting as Watermaster for the Mojave River Basin have stated to HDPP that MWA's obligation is to meticulously follow the rules of the Judgment. As reported to HDPP by MWA, the Judgement's rules are transaction-based and result in a zero sum process which balances water supply in the Basin. There is no significant adverse environmental effect from withdrawal from the basin, nor can there be pursuant to the Judgment. "Net neutral", as emphasized in MWA's February 19, 2016 letter to the Commission, can only be construed to mean no significant adverse environmental effects.

MWA's leadership in implementing the rules of the Judgment and managing the Basin's water supply balance since the Judgment will continue to ensure that there are no significant adverse environmental effect from any user's withdrawal.

b. For the last two years, HDPP has had the ability to use water from the adjudicated basin overseen by MWA. How much such water has been actually used? From what source was that water acquired?

RESPONSE: MRB Adjudicated Water use from City of Victorville:

- October 1, 2014 – September 30, 2015: 278 ac-ft
- October 1, 2015 – September 30, 2016: 364 ac-ft (through February 2016)

For the period of October 1, 2014 through September 30, 2015, the Facility did not begin receiving MRB Adjudicated Water until August 2015 due to the time required for completion of the transactional documents with VWD for the water use.

c. Does HDPP's banking agreement with MWA allow HDPP to bank water from sources other than the State Water Project?

RESPONSE: HDPP has an "Aquifer Storage and Recovery Agreement" with the VWD whereby VWD injects and stores water into an aquifer bank on behalf of HDPP.[13] HDPP does not have a "banking agreement" with MWA.

Pursuant to the Aquifer Storage and Recovery Agreement, the water is stored in VWD's name, but is designated as being for the benefit of HDPP. In turn, VWD has a "Storage Agreement" with the Mojave Basin Area Watermaster ". . . intended to allow supplemental water to be stored in the groundwater basin for later extraction by High Desert Power Project. . ." VWD's Operational Plan is Exhibit "A" to the Storage Agreement and specifies that the source of supplemental water ". . . will be California State Water Project ("SWP")." Consequently, only SWP Water may be banked on behalf of HDPP.

[13] VWD is the successor to the Victor Valley Water District who originally entered into both agreements.

SWP Water may also be percolated by MWA, and HDPP's Petition requests the authority to pursue percolation as an additional method to build the project's groundwater bank. HDPP has proposed changes to existing Conditions of Certification SOILS&WATER-4, 5, 6, 12 and 13, which would allow HDPP to seek an additional method to build the project's groundwater bank, vis-à-vis seeking an agreement with MWA that would allow HDPP to bank SWP Water in the Basin via percolation using existing MWA facilities. This percolation would allow HDPP to bank SWP Water even when the Facility is not running.

March 1, 2016

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ATTACHMENT A

Response to Question 2(a)-(c).

2. Please provide the following information regarding water usage. For each, also provide actual usage and the source of water used:

a. Peak flow demand

Table 2a. HDPP Peak Water Demand Flows for Power Generation

Averaging Period	HDPP Power Plant Peak Water Flow Demand for Power Generation (gpm)	Recycled Water Used (%)	SWP Water Used (%) (Note 1)	Banked SWP Water Used (%)	VWD 1 Million Gallon Elevated Storage Tank Storage Capacity if HDPP Using 100% Recycled Water at Given Demand (Time Until Tank is Emptied - hrs) (Notes 2, 3, 4)
1 hr	4752	63.3%	0.0%	36.7%	6.5
4 hr Rolling Average	4162	70.2%	0.0%	29.8%	8.5
8 hr Rolling Average	3793	74.1%	0.0%	25.9%	10.5
16 hr Rolling Average	3650	49.6%	0.0%	50.4%	11.5
24 hr Rolling Average	3438	70.8%	0.0%	29.2%	13.5
48 hr Rolling Average	3356	60.1%	0.0%	39.9%	14.4

1. SWP Water allocation available to HDPP during this period was zero due to severe drought conditions.
2. The above data is from the period July 30 - Aug 2, 2014.
3. Storage capacity assumes tank is full at beginning of the averaging period and that VWD golf course pond pumps' combined capacity is 2200 gpm.
4. After tank is emptied, the max flowrate VWD can deliver for extended time periods is 2200 gpm. Tank cannot deliver water to HDPP and be refilled at the same time.

b. Monthly flow demand

Table 2b. HDPP Monthly Flow Demand

Month	SWP Water Use for Power Production + Aquifer Banking (AF)	SWP Water Injected Into Aquifer Bank (AF)	Banked SWP Water Extracted from Aquifer Bank for Power (AF)	MRB Adjudicated Groundwater Use for Power Production (1.) (AF)	Recycled Water Use for Power Production (AF)	SWP Water Use for Power Production (AF)	Total Water Use for Power Production (AF)	Total Water Use for Power Production + Aquifer Banking (AF)	Recycled Water Use for Power Production (%)	SWP Water Use for Power Production (%)	Banked SWP Water Use for Power Production (%)	MRB Adjudicated Groundwater Use for Power Production (%)
Jan-12	355	96	0		14	259	273	368	5.0%	95.0%	0.0%	0.0%
Feb-12	221	0	10		15	221	246	246	6.1%	89.9%	3.9%	0.0%
Mar-12	278	60	0		64	218	282	342	22.8%	77.2%	0.0%	0.0%
Apr-12	393	118	8		19	275	302	420	6.2%	91.0%	2.8%	0.0%
May-12	214	39	4		0	174	179	218	0.0%	97.6%	2.4%	0.0%
Jun-12	390	104	0		0	286	286	390	0.0%	100.0%	0.0%	0.0%
Jul-12	401	78	0		0	323	323	401	0.0%	100.0%	0.0%	0.0%
Aug-12	347	89	0		0	258	258	347	0.0%	100.0%	0.0%	0.0%
Sep-12	443	102	0		0	341	341	443	0.0%	100.0%	0.0%	0.0%
Oct-12	218	44	116		0	174	289	333	0.0%	60.0%	40.0%	0.0%
Nov-12	111	0	78		0	111	188	188	0.0%	58.8%	41.2%	0.0%
Dec-12	370	90	73		0	279	352	442	0.0%	79.4%	20.6%	0.0%
Jan-13	328	89	38		0	239	277	367	0.0%	86.2%	13.8%	0.0%
Feb-13	259	93	89		0	167	256	348	0.0%	65.1%	34.9%	0.0%
Mar-13	176	56	196		0	120	316	372	0.0%	38.0%	62.0%	0.0%
Apr-13	259	42	104		0	217	320	362	0.0%	67.6%	32.4%	0.0%
May-13	205	0	88		0	205	294	294	0.0%	69.9%	30.1%	0.0%
Jun-13	148	12	173		0	137	310	321	0.0%	44.1%	55.9%	0.0%
Jul-13	80	13	194		55	67	316	329	17.4%	21.3%	61.3%	0.0%
Aug-13	273	33	1		10	240	250	283	3.8%	95.9%	0.2%	0.0%
Sep-13	342	65	0		0	277	277	342	0.0%	100.0%	0.0%	0.0%

Table 2b. HDPP Monthly Flow Demand

Month	SWP Water Use for Power Production + Aquifer Banking (AF)	SWP Water Injected Into Aquifer Bank (AF)	Banked SWP Water Extracted from Aquifer Bank for Power (AF)	MRB Adjudicated Groundwater Use for Power Production (1.) (AF)	Recycled Water Use for Power Production (AF)	SWP Water Use for Power Production (AF)	Total Water Use for Power Production (AF)	Total Water Use for Power Production + Aquifer Banking (AF)	Recycled Water Use for Power Production (%)	SWP Water Use for Power Production (%)	Banked SWP Water Use for Power Production (%)	MRB Adjudicated Groundwater Use for Power Production (%)
Oct-13	234	0	0		0	234	234	234	0.0%	100.0%	0.0%	0.0%
Nov-13	8	0	116		0	8	124	124	0.0%	6.1%	93.9%	0.0%
Dec-13	0	0	309		0	0	309	309	0.0%	0.0%	100.0%	0.0%
Jan-14	332	42	20		0	290	309	351	0.0%	93.7%	6.3%	0.0%
Feb-14	34	16	126		16	17	160	176	10.3%	10.8%	78.9%	0.0%
Mar-14	0	0	104		70	0	173	173	40.2%	0.0%	59.8%	0.0%
Apr-14	0	0	62		142	0	204	204	69.6%	0.0%	30.4%	0.0%
May-14	0	0	68		76	0	145	145	52.8%	0.0%	47.2%	0.0%
Jun-14	0	0	150		162	0	312	312	52.0%	0.0%	48.0%	0.0%
Jul-14	0	0	135		181	0	316	316	57.4%	0.0%	42.6%	0.0%
Aug-14	0	0	160		192	0	352	352	54.6%	0.0%	45.4%	0.0%
Sep-14	74	0	170		93	74	337	337	27.6%	21.9%	50.5%	0.0%
Oct-14	10	0	222	0	127	10	358	358	35.3%	2.7%	61.9%	0.0%
Nov-14	75	34	42	0	39	41	122	156	32.3%	33.3%	34.4%	0.0%
Dec-14	41	0	123	0	41	41	204	204	20.0%	19.9%	60.1%	0.0%
Jan-15	50	17	40	0	47	33	119	137	39.0%	27.6%	33.4%	0.0%
Feb-15	300	120	0	0	35	180	215	335	16.3%	83.7%	0.0%	0.0%
Mar-15	238	141	6	0	21	96	123	265	17.3%	78.1%	4.6%	0.0%
Apr-15	186	88	43	0	34	98	176	263	19.5%	56.0%	24.4%	0.0%
May-15	101	40	39	0	0	61	100	140	0.0%	60.9%	39.1%	0.0%
Jun-15	322	101	3	0	77	228	308	402	25.0%	74.0%	1.0%	0.0%
Jul-15	144	0	73	0	94	144	311	311	30.3%	46.2%	23.5%	0.0%
Aug-15	9	0	118	83	109	9	320	320	34.1%	2.9%	37.0%	26.0%
Sep-15	99	0	0	194	42	99	335	335	12.5%	29.5%	0.0%	58.0%

Table 2b. HDPP Monthly Flow Demand

Month	SWP Water Use for Power Production + Aquifer Banking (AF)	SWP Water Injected Into Aquifer Bank (AF)	Banked SWP Water Extracted from Aquifer Bank for Power (AF)	MRB Adjudicated Groundwater Use for Power Production (1.) (AF)	Recycled Water Use for Power Production (AF)	SWP Water Use for Power Production (AF)	Total Water Use for Power Production (AF)	Total Water Use for Power Production + Aquifer Banking (AF)	Recycled Water Use for Power Production (%)	SWP Water Use for Power Production (%)	Banked SWP Water Use for Power Production (%)	MRB Adjudicated Groundwater Use for Power Production (%)
Oct-15	94	0	0	157	97	94	347	347	27.9%	27.0%	0.0%	45.2%
Nov-15	7	0	0	138	11	7	156	156	7.1%	4.5%	0.0%	88.4%
Dec-15	128	0	0	60	30	128	218	218	13.7%	58.8%	0.0%	27.5%
Jan-16	159	0	0	6	40	159	204	204	19.6%	77.6%	0.0%	2.8%
Feb-16	203	100	0	3	57	103	162	263	34.8%	63.5%	0.0%	1.7%

Notes:

1. MRB adjudicated groundwater use available to HDPP only for the period October 2014 through September 2016.

c. Update "Table 1. Historical Water Usage for the Facility," found at .pdf page 59 of the Petition for Modification (TN 206468), to include data for 2015.

Table 1 (revised) High Desert Historical Water Use at the Facility

	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
SWP Water Allocation Requested by HDPP (AF)	8000	8000	8000	8000	8000	8000	8000	6500	6500	6500	6500	6500
SWP Water Allocation (AF)	8000	8000	8000	8000	3280	2706	3486	6500	6500	6500	565	2171
SWP Water Use for Power Production + Aquifer Banking (AF)	3433	3191	3915	3154	3229	2532	2813	1518	3833	2312	564	1677
SWP Water Injected into Aquifer Bank (AF)	502	773	1431	537	377	507	553	342	820	402	93	507
Banked SWP Water Extracted from Aquifer Bank for Power (AF)	4	11	25	214	526	723	98	33	288	1308	1381	322
Banked SWP Water Cumulative Net Injection (AF)	1939	2701	4107	4431	4284	4065	4520	4823	5355	4449	3161	3346
Banked SWP Water Available for Power[1] (AF)	NA	NA	NA	NA	3135	2919	3364	3600	4122	3360	1780	1869
MRB Adjudicated Water Use for Power Production[2] (AF)	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	0	649
Recyled Water Use for Power (AF)	NA	NA	NA	NA	NA	0	0	71	112	65	1140	597
SWP Water Use for Power (AF)	2932	2418	2484	2617	2852	2025	2261	1176	3013	1910	472	1177
Total Water Use for Power Only (AF)	**2935**	**2429**	**2508**	**2831**	**3378**	**2748**	**2359**	**1280**	**3412**	**3283**	**2992**	**2744**
Total Water Use for Power + Aquifer Banking (AF)	**3437**	**3203**	**3939**	**3368**	**3755**	**3255**	**2911**	**1622**	**4233**	**3685**	**3085**	**3251**

1. Excludes first 1000 acre feet banked by project and losses incurred due to groundwater dissipation, which is calculated by the CEC. 2014-15 values updated by CEC in Feb 2016.
2. MRB Adjudicated Water was temporarily made available to HDPP from Oct 2014 - Sep 2016.

ATTACHMENT B

Response to Question 3(a)

3. Regarding plant operations:

a. Provide the number of starts and operation duration per month for each year of plant operation.

Table 3.a. **High Desert Power Project. Generation, Starts and Operating Hours 2004 - Feb 2016**				
Operating Month	**Plant Net Generation (MWh)**	**No. Plant Starts**	**No. Combustion Turbine Starts**	**Plant Operating Hours**
January 2004	216,048	5	12	325
February 2004	309,805	3	10	505
March 2004	399,170	5	12	633
April 2004	374,470	5	19	610
May 2004	151,246	5	13	251
June 2004	207,057	23	64	345
July 2004	377,842	11	33	600
August 2004	398,294	15	45	618
September 2004	295,171	21	60	474
October 2004	217,142	8	23	370
November 2004	405,179	2	6	637
December 2004	433,658	3	10	660
January 2005	450,978	7	24	643
February 2005	398,137	4	13	570
March 2005	318,310	10	30	481
April 2005	311,762	8	22	494
May 2005	131,050	11	30	224
June 2005	195,102	22	65	312
July 2005	338,898	21	66	529
August 2005	414,361	13	40	646
September 2005	305,500	17	50	468
October 2005	225,063	17	51	347
November 2005	334,853	14	39	496
December 2005	232,103	9	28	367
January 2006	303,822	20	57	489
February 2006	18,741	2	6	35
March 2006	340,272	9	33	516
April 2006	288,834	18	54	464
May 2006	246,103	24	73	383
June 2006	252,762	28	72	457
July 2006	424,435	13	40	646
August 2006	419,583	11	34	641
September 2006	440,711	8	24	652

Table 3.a. **High Desert Power Project. Generation, Starts and Operating Hours 2004 - Feb 2016**				
Operating Month	**Plant Net Generation (MWh)**	**No. Plant Starts**	**No. Combustion Turbine Starts**	**Plant Operating Hours**
October 2006	292,113	7	22	448
November 2006	439,752	5	19	664
December 2006	459,554	5	16	690
January 2007	432,229	4	8	689
February 2007	350,158	9	19	525
March 2007	330,865	13	39	520
April 2007	362,254	15	46	577
May 2007	207,355	13	39	346
June 2007	367,280	19	58	569
July 2007	412,867	16	48	624
August 2007	456,013	10	31	677
September 2007	415,276	12	36	636
October 2007	179,800	3	25	306
November 2007	438,930	4	14	660
December 2007	504,639	1	3	738
January 2008	521,731	0	1	744
February 2008	467,213	1	3	689
March 2008	463,192	8	26	688
April 2008	312,510	4	10	459
May 2008	340,490	20	60	537
June 2008	269,429	28	81	461
July 2008	305,360	28	89	515
August 2008	386,715	19	55	613
September 2008	440,199	7	21	663
October 2008	168,866	0	0	240
November 2008	458,317	2	6	685
December 2008	484,713	1	3	717
January 2009	491,759	0	3	744
February 2009	443,342	0	5	672
March 2009	491,142	0	5	743
April 2009	310,923	0	9	528
May 2009	3,164	1	4	2
June 2009	19,778	3	9	49
July 2009	452,479	1	7	687
August 2009	497,295	1	3	737
September 2009	483,346	0	0	720
October 2009	289,303	2	5	452

Table 3.a. **High Desert Power Project. Generation, Starts and Operating Hours 2004 - Feb 2016**				
Operating Month	**Plant Net Generation (MWh)**	**No. Plant Starts**	**No. Combustion Turbine Starts**	**Plant Operating Hours**
November 2009	236,159	1	4	454
December 2009	444,828	0	2	744
January 2010	339,986	4	13	492
February 2010	269,042	5	16	414
March 2010	425,292	3	6	598
April 2010	151,336	0	0	217
May 2010	10,337	4	10	18
June 2010	2,036	1	5	6
July 2010	62,365	3	11	101
August 2010	404,923	1	3	616
September 2010	322,852	4	13	482
October 2010	529,513	0	0	744
November 2010	272,687	3	10	422
December 2010	489,181	0	1	744
January 2011	163,216	3	7	230
February 2011	180,214	8	28	307
March 2011	29,193	4	9	56
April 2011	19,120	2	7	38
May 2011	6,890	2	2	16
June 2011	40,034	4	12	71
July 2011	249,136	22	67	407
August 2011	277,411	7	36	516
September 2011	321,620	5	22	563
October 2011	223,337	3	9	376
November 2011	106,018	2	8	221
December 2011	251,648	1	4	403
January 2012	430,032	1	3	691
February 2012	409,580	3	12	651
March 2012	467,984	0	2	743
April 2012	429,735	2	6	685
May 2012	249,947	1	6	426
June 2012	397,082	0	28	720
July 2012	432,058	1	14	743
August 2012	470,018	0	0	744
September 2012	459,029	0	0	720
October 2012	444,673	1	12	743
November 2012	273,319	2	22	449

Table 3.a. **High Desert Power Project. Generation, Starts and Operating Hours 2004 - Feb 2016**				
Operating Month	**Plant Net Generation (MWh)**	**No. Plant Starts**	**No. Combustion Turbine Starts**	**Plant Operating Hours**
December 2012	426,533	1	26	742
January 2013	483,508	0	13	744
February 2013	443,268	0	4	672
March 2013	491,870	0	2	743
April 2013	462,076	0	6	720
May 2013	140,422	3	9	277
June 2013	411,865	1	21	713
July 2013	363,420	8	42	643
August 2013	302,501	18	61	521
September 2013	349,869	8	41	620
October 2013	340,790	2	28	617
November 2013	195,986	1	5	325
December 2013	472,467	1	8	744
January 2014	442,878	0	19	744
February 2014	242,240	7	19	504
March 2014	238,891	3	25	443
April 2014	277,749	3	19	484
May 2014	174,221	7	24	341
June 2014	367,889	3	38	691
July 2014	383,724	2	29	669
August 2014	423,735	1	14	743
September 2014	395,276	3	31	710
October 2014	467,055	0	10	744
November 2014	172,973	3	27	370
December 2014	307,612	1	52	612
January 2015	168,100	3	28	322
February 2015	292,420	1	51	623
March 2015	167,641	5	12	385
April 2015	248,795	6	27	492
May 2015	107,977	3	17	214
June 2015	365,276	1	21	644
July 2015	392,564	1	31	716
August 2015	388,241	0	42	744
September 2015	391,367	0	19	720
October 2015	466,618	0	7	744
November 2015	216,109	2	14	424
December 2015	337,131	6	31	642

Table 3.a. **High Desert Power Project. Generation, Starts and Operating Hours 2004 - Feb 2016**				
Operating Month	**Plant Net Generation (MWh)**	**No. Plant Starts**	**No. Combustion Turbine Starts**	**Plant Operating Hours**
January 2016	325,030	3	29	667
February 2016	239,007	3	31	543

ATTACHMENT C

Response to Question 4(c)