

August 1, 2017

Kimberly D. Bose, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, D.C. 20426

Via Electronic Submittal (E-Filing)

Re: "COMMENTS ON THE POTTER VALLEY PROJECT NOTICE OF INTENT, PRE-APPLICATION DOCUMENT AND SCOPING DOCUMENT 1 AND RECOMMENDATIONS FOR STUDIES" by the Potter Valley Irrigation District for the Federal Energy Regulatory Commission Project Number P-77-285.

Dear Secretary Bose,

The Potter Valley Irrigation District (PVID) wishes to comment on the Notice of Intent (NOI), Pre-Application Document (PAD) and Scoping Document 1 (SD1) for the Potter Valley Project Federal Energy Regulatory Commission (FERC) Project Number P-77-285 (Project). We understand that FERC intends to prepare an Environmental Impact Statement (EIS) evaluating the effects of relicensing the Potter Valley Project (Project) as proposed by Pacific Gas & Electric Company (PG&E), the project licensee, as well as any reasonable alternatives to the licensee's proposed action.

The SD1 outlines the currently proposed action and alternatives. We concur with FERC's determination that the Federal Government Takeover, Non-Power License and Decommissioning alternatives should be eliminated from detailed study. We support the Applicant's Proposal to continue to operate the Project as required by its existing license with the addition of language that includes the model assumptions National Marine Fisheries Service's (NMFS) Reasonable and Prudent Alternative (RPA) utilized during the recent past License Amendment. We will detail the requested language modification later in this filing, but wish to first describe other important concerns of PVID with regards to the relicensing of the Project.

The Importance of Scott Dam and Lake Pillsbury for Water Supply and Habitat Enhancement

The Potter Valley Irrigation District did not exist prior to the building of Scott Dam forming Lake Pillsbury in the 1920s. Before Scott Dam was built the Potter Valley Project was only able to divert water to the Powerhouse from the Van Arsdale reservoir during times of high flows on the Upper Main Eel River in the winter and early spring. This is referred to as a "run of the river" diversion. This branch of the Eel River, like many other Eel River tributaries, normally has very low natural flows during the late spring, summer and fall. The reason that Scott Dam was

built was to store winter runoff, in the newly formed Lake Pillsbury, to provide a supply of water that could be diverted to the Powerhouse for power production during times of the year when natural flows become extremely low.

Until Scott Dam was built Potter Valley farmers relied on natural flow in the small tributaries within the valley's drainage to the East Fork of the Russian River. On a normal rainfall year this water supply provided irrigation water until early June. Run of the river wintertime flows diverted through the Powerhouse were of no use to Potter Valley prior to 1922 and today, even with increased storage capacity, are still of very little, to no, value for Potter Valley agriculture. The Potter Valley Irrigation District was formed in April of 1924 and a contract for the delivery of water from the Project was negotiated with Snow Mountain Water and Power and signed in 1926. With the advent of summer irrigation agricultural production in Potter Valley was transformed and the economic viability of the residents who invested in farming has flourished for over 90 years.

We bring up this very important issue because there is an effort by some political and advocacy groups to suggest a scenario that includes the removal of Scott Dam and to then have the Potter Valley Project divert water under a "run of the river" scheme. Obviously the water supply and hydropower production value of such an alternative is negligible. This proposal completely ignores the impact that such a plan would have on the water supply for the people in Potter Valley who are directly dependent on the diversion. The proposal would also seriously jeopardize the water supply for hundreds of thousands of people and fishery resources along the Russian River below Potter Valley who depend on water that is diverted from the Project and stored in Lake Mendocino.

When Scott Dam was built access to approximately 8% of the Eel River watershed, in terms of square miles, was cut off to migrating salmonids. While the actual number of miles of prime spawning habitat is still being determined, the fact remains that, without access to the area above Scott Dam, a certain amount of habitat was lost to migration. However, the water stored in Lake Pillsbury is released based on a very complex model to protect the riverine habitat between Scott Dam and Van Arsdale Reservoir. Below Van Arsdale Reservoir releases continue to be made in an attempt to mimic the natural hydrograph. In addition to PG&E's efforts to adjust the Project flows on a daily basis, water stored in Lake Pillsbury has been used over the years to augment natural flows for very specific purposes. As part of the license amendment proceedings a volume of water, known as blockwater, is reserved in Lake Pillsbury for use at the discretion of fishery agencies to enhance migration flows at critical points in the life stages of salmonids. Over the years the blockwater has been used in an attempt to cue emigration of juvenile salmonids in the spring and to protect migrating adult fish in the fall. Cold water released from

the needle valve at the base of Scott Dam provides very productive summer habitat for juvenile steelhead. Recently, during the severe drought of 2015, a group of stakeholders working with PG&E formed the Potter Valley Drought Working Group (PVDWG) in an attempt to protect storage in Lake Pillsbury and manage the rapidly diminishing water supply. The Potter Valley Irrigation District was a member of the PVDWG and closely involved in this effort. Flows from Lake Pillsbury were reduced as were diversions through the Project and below Van Arsdale Reservoir. Potter Valley Irrigation District voluntarily curtailed deliveries of water to our customers resulting in fields being fallowed and reduction in crop yields. Water stored in Lake Pillsbury was used in an attempt to augment what little natural flow existed to protect salmon that had already migrated into the lower Eel River but had become stranded due to the drought.

We bring up this subject because there is a false narrative by some advocacy groups that the water stored in Lake Pillsbury has not been used to benefit the native fishery. Obviously this is inaccurate as not only has stored water been used by PG&E, based on a very complex modeling regime, to mimic the natural hydrograph below the Project, stored blockwater has also been utilized by fishery agencies to augment natural flows as described above. The FERC license requires PG&E to adhere to a very precise daily flow release schedule specifically to benefit the native fishery between the dams and below the Project.

It should also be mentioned that, as described in both the PAD and the SD1, PG&E has undertaken extensive fishery and biological studies that have informed the operation of the Project and allowed the flows to be even more carefully adjusted to enhance conditions for salmonids in the Upper Main Eel River. In summary of these efforts is a quote from the SD1; "Today, NMFS continues to closely evaluate flows in the Eel and Russian Rivers, seeking to balance the benefits to salmon and steelhead in both rivers while considering other beneficial uses. PG&E continues to conduct annual fisheries monitoring studies in the Eel River and closely communicates with NMFS, CDFW (California Department of Fish and Wildlife) and Native American Tribes regarding the protected salmon and steelhead populations".

There are numerous potential analyses of resource issues suggested in the PAD (Section 6.2) and listed in the SD1 that may warrant further investigation. These run the gamut from hydrology, water quality, biology of wildlife including fish, recreation and cultural resources. Some of the proposed biological studies identify certain data gaps that exist which, if better understood, could potentially further PG&E's ability to adjust flows at the Project making it even more sensitive to the natural hydrograph and the life histories for species of concern.

Comments on the Applicant's Proposal, "Lost" NMFS RPA Modeling Assumptions and Request for Study and Analysis of Impacts

In Section 3.2 of the SD1 it states that "PG&E proposes to operate and maintain the Potter Valley Project as required by its existing license. PG&E does not propose any new development or changes in project operation at this time". Further in Section 3.2.2 is the statement that "PG&E does not propose any additional PM&E measures at this time (Protection, Mitigation and Enhancement Measures). On the face of this decision one would think that continued operation of the Project, as currently required by the license, would be welcomed by those beneficial water users that are dependent upon the Project for their water supply. However, there is a glaring omission of any discussion in either the PAD or the SD1 regarding the unintended consequences that occurred as the rules within the Final FERC Order Amending the License (January 28, 2004) were being applied to operations of the Project between 2004 and 2006. The omission is simply that some RPA modeling assumptions were not clearly stated, or included, in FERC's Final Order. This omission has caused significant impacts to beneficial water users, the water supply in Lake Mendocino and ultimately to the ability of fishery agencies to utilize stored water to enhance habitat conditions in the Russian River.

For background information, at the end of the Potter Valley Project License Amendment Proceeding, FERC produced a Final Order (January 28, 2004) based on the RPA prepared by NMFS during the Section 7 Consultation that was initiated after FERC completed their Final Environmental Impact Statement (FERC-EIS-0119F, or FEIS) in May, 2000. Potter Valley Irrigation District, and many others, requested a rehearing of the Final Order due to concerns about impacts on water supplies in the Russian River watershed. NMFS informed PVID, and others, that in a normal water year, as defined in the NMFS Biological Opinion (BO) (November 26, 2002, Page 83, Paragraph 3), flows through the Potter Valley Project would be approximately 15% less than the flows previously released under Article 38 of the FERC license (FERC Project No. 77) implemented in 1983. All of the agencies, including FERC, involved with the proceedings concurred, based on various models, that the impacts were accurately determined. No one ever imagined that, as a result of implementation of the RPA, there would be an approximately 50% reduction in the diversion per annum.

In August, 2006 the California Department of Fish and Game (now California Department of Fish and Wildlife, CDFW), and NMFS wrote to FERC describing what they perceived to be releases over the amounts allowed by the Final Order for the Project into the East Branch of the Russian River (EBRR). After review, PG&E responded to FERC on October 16, 2006 acknowledging that PG&E had not properly implemented the flow regime required in the Final Order. As PG&E studied the literal interpretation of the provisions of the Final Order it became clear to them that the ordered flows through the Project would not result in a reduction on

average of 15% per year, but rather an approximate 30% reduction in flows for the 21 year period of record originally modeled by the Department of the Interior (DOI) and FERC. PG&E contacted PVID to discuss the newly discovered impact of the revised flow reductions and their more restricted ability to honor their contractual agreement for the delivery of water. Of critical importance was that the new regime eliminated PVID's ability to deliver frost water in the spring from early March until April 14th and then at the end of the irrigation season for post harvest irrigation after October 15th. FERC has since granted an amendment to the license allowing PVID to request frost water and post harvest water under the Order Granting Amendment of License Article 52, Issued October 14, 2009, for FERC Project No. P-77-212. But now, after eleven years of diversions under the flow regime adjustments made in 2006, we know that the reduction in flows through the Project have actually been closer to 50% less than the Article 38 flows implemented in 1983. The timing of the reduction in diversion amounts coincides with the end of the rainy season in the spring and this has made the overall impacts particularly adverse. Specifically, besides impacting the spring water supply for frost protection in Potter Valley, the reduction in the diversion has had serious impacts on the water supply for Lake Mendocino, and subsequently for all of the people dependent upon that water supply.

In 2007 we wrote a letter to FERC requesting a review of the errors and discrepancies identified in the FERC Final Order. The Final Order was based on the NMFS RPA. However, there were modeling assumptions that were not considered when the RPA language of the Final Order was "literally" interpreted. This error can be easily resolved with a simple insertion of the previously agreed upon conditions for Section E.5 of the RPA. The rationale for this follows.

The operational rules found in the NMFS RPA were developed, for the most part, during a long period of consultation between many agencies and stakeholders. They are based on complex variables. To begin to understand the purpose of the rules it is necessary to understand these components. Understanding the rule curve storage management system, and its original purpose, appears to be key to understanding the intent and rationale behind the rule curve system in general. The Lake Pillsbury rule curve storage management system was developed to provide daily target storage values to insure that adequate storage would be preserved in Lake Pillsbury at the end of summer every year. The purpose for preserving a prudent reserve in Lake Pillsbury is to attempt to assure that, at the end of summer, for any year, all the water demand criteria for fish flows and water supply are protected as much as possible for the following water year. These prudent lake storage values were based on the "worst case" scenario, which would be a dry year followed by a drought year, or comparable natural disaster.

To develop the rule curve system historical records were analyzed to determine typical reservoir management patterns. A series of curves were developed to accommodate varying water supply and demand situations. Originally, hundreds of hydrologic model runs were performed for each

flow proposal for the 21 year period of record. The outputs of these model runs were analyzed to determine the lowest level that Lake Pillsbury could be drawn down during the late summer and early fall each year while still protecting the minimum releases and contractual agreements that were in place. There was always an attempt in these model runs to never allow Lake Pillsbury to be drawn down below 10,000 to 15,000 acre feet even in a situation as severe as back-to-back drought years. DOI, Sonoma County Water Agency and PG&E used this rule curve system during the development of their flow proposals, and FERC used this system to analyze the impacts of all these proposals during preparation of the Final Environmental Impact Statement.

As difficult as it is for most of us to understand, there is an important reason that the rule curves (Target Storage Curves A,B, and C), provided in the RPA, appear to have lake capacity levels in the spring that are physically unattainable. These unreachable lake capacity numbers were put into place to insure that every possible effort is made to maximize storage in Lake Pillsbury during the critical pre-dry-season period each year. As the rule curves were developed it became clear that it was virtually impossible to set the exact attainable lake capacity target values on a daily basis because of a combination of very complicated variables that must always be taken into account. Briefly, these include the exact date the gates are allowed to be closed at Scott Dam, the seasonal strategy used to top off the lake and safe management of the reservoir requiring that an adequate flood-control reserve be maintained until late into the spring. In other words, the operators of Scott Dam are constrained by the unpredictable nature of weather, the state regulations regarding dam safety, as well as a series of water flow demands that are in place for both the protection of fish and the water supply for people. The higher than attainable segment of the rule curve was a simple, practical solution to an otherwise prohibitively complex problem of defining maximum prudent storage values. This approach assured that storage would be maximized to the extent physically possible while preserving operator flexibility necessary to accommodate all of the above factors. [As a side note here. PG&E has completed more recent bathymetric surveys of Lake Pillsbury the results of which may allow the rule curves to be slightly adjusted. We assume this will be included as part of the analyses of operations for the Project during the relicensing process.]

The problem in interpretation of how the RPA rule curve system should apply during the spring when it is physically impossible to attain or exceed the rule curve is the real issue. One interpretation is the "as modeled", consistently applied, approach that was present in all of the model simulations of rule-curve based proposals as well as the baseline Article 38 simulations performed by DOI and by FERC in their FEIS. The other interpretation is the one that was mandated by NMFS that you "literally" follow the language in the RPA, especially regarding clause E.5. that inadequately defines exceptions to the rule requiring minimum diversions at the Powerhouse unless Lake Pillsbury storage is above the rule curve.

The most important impact of the Final Order is that all of the modeling and subsequent analyses of impacts of the flow alternatives compared by FERC in their FEIS were originally performed with the assumption by FERC, DOI, NMFS and PG&E that excess forced spill from Lake Pillsbury, during periods of high runoff during the "unattainable target storage" period (as well as accretion between the dams), could be diverted through the Potter Valley Project tunnel up to the tunnel's capacity, so long as required minimum releases were being met in the Eel River below Cape Horn Dam. To clarify, "forced spill" is understood to be flows from Scott Dam when the dam gates are open, at times during the spring when weather conditions preclude closing the gates due to safety concerns, and at the time when the target storage curve increases on a daily basis towards the unattainable level.

This basic principle of operation is literally specified in documentation for the DOI's model (Generalized Hydrologic/Operational Model of the Upper Eel River Basin/Potter Valley Project, Version 2.1, May, 1999), as well as its actual core operating code, which formed the basis for the RPA. Further, this principle is clearly in effect in all model outputs. The language of the DOI model documentation, Version 2.1, May, 1999 states, on Page 7, "Next, the end-of-day Lake Pillsbury storage is compared to the maximum reservoir storage in order to determine whether a spill over Scott Dam is required. The maximum reservoir storage is prescribed as a daily input variable and thus can vary from year to year and during the year (for example, to accommodate opening and closing of the spillway gates). If the end-of-day storage is greater than the maximum storage then the difference between the two storage volumes is spilled. In this case, if the tunnel diversion is below the tunnel capacity, then the spill volume is directed to the tunnel up to the tunnel capacity. Any remaining spill is released below Cape Horn Dam," This was the basis for all of the analyses of all of the proposals with rule curves throughout all of FERC's evaluation proceedings including the FEIS. Until August of 2006, when CDFG and NMFS reported to FERC that PG&E was releasing too much water through the project, no one had ever questioned this operational principle.

The "literal" interpretation of the language of the RPA clearly conflicts with the DOI model code, DOI analysis of impacts, NMFS analysis of impacts and the FERC analysis of impacts. Instead of allowing PG&E to maximize diversions during the period described above, it actually requires that all diversions be minimized, and that all excess forced spill and accretion flows be passed down the Eel River over Cape Horn Dam. This was never intended, and this is the reason for the discrepancy between the expected 15% reduction and the approximately 50% reduction we are now experiencing. If this interpretation had been used by FERC in preparation of their FEIS it would have radically altered several important conclusions regarding the impacts of the alternative flow proposals.

A model sub-routine, while clearly in the model utilized to produce the January 28, 2004 Order Amending the License, apparently was not included in the language defining flow prescriptions found in the RPA. This omission in the RPA contributes significantly to the current diminished flows through the Potter Valley Project that we now recognize to be an unintended consequence of the Final Order. It would appear that a simple reinsertion of the sub-routine function into the flow requirements of the RPA would correct this error. The corrective language should be placed in Section E.5. of the RPA.

Currently, in the RPA, Section E.5. reads, "Diversions in excess of the sum of the minimum flow MF16 specified in Section C and the release to the Potter Valley Irrigation District specified in Section E.4. can only be made when Lake Pillsbury Storage is above the Target Storage Curve. Exception to the rule can occur only due to *rate* [spelling error in original RPA] and brief emergency power and water demands." We suggest that the language of E.5. be modified to accurately describe the model code in the following way.

Proposed New Language:

E.5. Diversions in excess of the sum of the minimum flow MF16 specified in Section C and the release to the Potter Valley Irrigation District specified in Section E.4. can only be made when Lake Pillsbury Storage equals or exceeds the Target Storage Rule Curve. Exceptions to this rule can be made in the following cases:

1. during rare and brief emergency power and water demands,
2. when it is necessary to spill water from Lake Pillsbury to avoid exceeding maximum safe storage levels in Lake Pillsbury, particularly during the spring,
3. when the sum of accretion between the dams plus the minimum release from Scott Dam exceeds what is necessary to supply minimum release requirements downstream, specifically minimum release at Cape Horn Dam plus blockwater request plus minimum release to the East Branch Russian River plus Potter Valley Irrigation District request.

This language addition would bring the RPA into conformity with the clear intent of the DOI model documentation and simulations and would, therefore, realign the impacts of the flow changes with the intended 15% reduction from Article 38 flows originally calculated by DOI, NMFS and FERC.

Before any alternatives are considered during the current relicensing process these modeling assumptions need to be reconsidered or the analysis of newly proposed alternatives cannot be accurately compared to the Applicant's Proposal. Also, because the No-Action Alternative must

be considered, an analysis of the RPA "as modeled" vs. the "literal" interpretation must be completed to accurately assess the true impacts of the RPA which forms the basis of the No-Action Alternative. The way in which the current license for the Project is being applied is not what was originally agreed upon in the FERC FEIS.

Discussion, Conclusions and Request for Analysis

The farming community of Potter Valley has been dependent upon the water diverted from the Eel River since the 1920s. Our agricultural economy is based on the commodities we produce using this water for irrigation. Within the small watershed of Potter Valley our natural source of irrigation water quickly becomes unavailable after the spring rains end. It is not an exaggeration to say that the community of Potter Valley is completely dependent upon the continued operation of the Project. It provides our water supply, without which our economy would collapse, and our very way of life and our quality of life would be truly diminished. Potter Valley Irrigation District has been an active participant in all of the Potter Valley Project licensing and amendment proceedings since our contract with Snow Mountain Water and Power was signed many years ago. We have provided comments and detailed some concerns that we have with the relicensing process. They are summarized here.

1. While FERC has eliminated from detailed study any consideration of Decommissioning the Project, a Federal Takeover of the Project or a Non-Power License for the Project there are those who are advocating removal of Scott Dam and reducing the existing diversion to a "run of the river" Project diverting water in high winter flows. We wish to make it very clear that a "run of the river" diversion of water that occurs in the winter would be of no value to the community of Potter Valley or to the hundreds of thousands of people dependent upon water stored in Lake Mendocino.
2. The second paragraph in Section 6.0 of the PAD summarizes the reasons that the Project is unique in comparison to many of FERC's hydroelectric projects currently being relicensed. These include the fact that there is an abundance of historical and recent Project information, the relatively recent license amendment proceedings required detailed monitoring of all aquatic resources within the area of the Project and many of these studies are ongoing, literally millions of dollars have been spent by PG&E in recent years to improve the fish facilities, and of great importance are the ongoing consultations that PG&E has facilitated between all of the very diverse Project stakeholders. All of this information will, hopefully, preclude gathering anew much of the basic information required to inform the relicensing process. However, of concern to us as we move into the relicensing process, is that some interests present a narrative describing operations of the Project not being managed with the goal of protecting native

species. Review of the efforts undertaken by PG&E in compliance with the license clearly shows that this perception is not based on fact.

3. Potter Valley Irrigation District has reviewed the PAD and SD1. We agree, with one important modification, with the SD1's suggested analysis of the No-Action Alternative and the Applicant's Proposal. However, neither of these alternatives can be fully analyzed unless the original modeling assumptions (which includes a specific model sub-routine described in detail above) are included in the analysis. **Without proper analysis of current license operations, compared to what was originally modeled, the entire exercise of comparing any of the listed alternatives is obviously flawed.** We therefore ask FERC to include an analysis of the "as-modeled" vs. the "literal" interpretations of the RPA rule curve system as an important part of the relicensing environmental review. Without this analysis the Environmental Impact Statement cannot meet your stated goal of being "thorough and balanced".

In closing, Potter Valley Irrigation District is committed to working closely with FERC, PG&E and other stakeholders during the relicensing process. We are hopeful that the resulting license for the Potter Valley Project will balance the needs of endangered species of fish with the historical dependence upon this water by people in the Russian River watershed.

Respectfully Submitted,



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