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Memorandum

To: Regional Director, Mid Pacific Region
Attention: Ernest Conant
Acting Director, Policy and Administration
Attention: Karl Stock
Senior Advisor, Hydropower
Attention: Max Spiker

From: Brenda Burman
Commissioner

Subject: Directives Resulting from the Central Valley Project Power Initiative

Section 1: Overview

During the 20th century, the Federal Government invested enormous resources in water infrastructure throughout the western United States to reduce flood risks to communities; to provide reliable water supplies for farms, families, businesses, and fish and wildlife; and to generate dependable, renewable hydropower. The Bureau of Reclamation (Reclamation) was created by Congress in the early 20th century to manage water and power resources to facilitate westward expansion of the United States. Hydropower has been key to Reclamation's success starting with some of the first projects authorized under the Reclamation Act of 1902. Hydropower generated by the water moved through Reclamation projects provides energy for moving project water supplies and provides revenue generated through the sale of surplus energy to offset project costs. Hydropower is critical to ensuring that Reclamation is able to provide cost-effective water supplies both directly and indirectly.

The Central Valley Project (CVP), like many other Reclamation projects, relies on hydropower generation. Surplus energy in the CVP is sold through Preference Power Contracts and provides value to all CVP stakeholders through the sharing of total project construction and operating costs. Through actions directed by the Central Valley Project Improvement Act (CVPIA), the CVP Preference Power Customers also provide considerable funding for the implementation of habitat restoration and mitigation programs. Between 1992 and 2016 CVP Preference Power Customers provided hundreds of millions of dollars in direct funding to support habitat restoration and mitigation actions.

Historically, CVP Preference Power contracts have provided value to California's not-for-profit power utilities, government contractors, and irrigation districts by making available cost-competitive power contracts that allow the savings of the low-cost power to be passed along to their customers. Additionally, the not-for-profit power utilities that make up the CVP Preference Power Pool have tremendous impact on California's economy through providing affordable and value-added power to communities, farms, and industry.

Over the past decade energy market dynamics in California have changed dramatically. Increased renewable penetration has deflated electricity market prices on average, while initiating large swings in hourly, daily, and seasonal prices. At the same time, the average cost per-megawatt-hour of CVP preference power has trended upward as a result of environmental regulations on the CVP and challenging hydrologic conditions. The trends are worrisome and have resulted in concerns from CVP Preference Power Customers about the future viability of CVP Preference Power. These concerns indicate a need to evaluate challenges and opportunities. Reclamation has a long history of delivering reliable, low-cost hydropower in the Central Valley; however, the achievement of future success will require collaborative efforts from Reclamation, the Western Area Power Administration (WAPA), power and water customers, and other stakeholders.

Section 2: The Central Valley Project Power Initiative

In response to the concerns raised by CVP Preference Power Customers, I called for a listening session in coordination with WAPA Administrator Mark Gabriel on October 16, 2018, in Sacramento. At that listening session, I directed a team lead by Reclamation's Senior Advisor for Hydropower to work with staff from the Mid Pacific Region, WAPA, and individual power customers to explore opportunities to address the areas of concern raised by CVP Preference Power Customers. As an outcome of the listening session, the Senior Advisor for Hydropower created the Central Valley Project Power Initiative (the Power Initiative) to evaluate the concerns raised by CVP Preference Power Customers and to provide me with recommendations to address power customer concerns by May 31, 2019.

The Power Initiative focused on four main areas of concern: *Cost Stability, Lost Production Opportunity, Value of the Resource, and Customer Service*. Through the Power Initiative, the Senior Advisor for Hydropower and Reclamation staff worked with WAPA and individual power customers to better understand concerns and identify recommendations for improving the future viability of the CVP hydropower resource.

Section 3: Reclamation Directives

On May 31, 2019, I received a robust list of recommendations from the Senior Advisor for Hydropower which was inclusive of collaboration, input, and agreement from the Mid Pacific Regional Director and the Acting Director for Policy and Administration. The recommendations received reflect many months of hard work and collaboration from the Reclamation team, WAPA, and the power customers. Based on the recommendations, I have developed a list of directives designed to improve the long-term viability of the CVP hydropower resource.

Therefore, the following directives shall be implemented by the appropriate divisions within Reclamation:

(I) Reporting and Implementation of Directives

1. The Regional Director will
 - a. within 60 days from the date of this memorandum, coordinate with appropriate Reclamation Directorates and provide a coordinated action plan, complete with milestones, tasks, and target completion dates for each directive outlined herein; and
 - b. within 120 days from the date of this memorandum, provide a report on the status of implementation of the action plan, with status reports provided every 6 months thereafter.
2. The Action Plan and status reports identified in Section 3(A)(I) will be addressed to the Commissioner and Deputy Commissioners.

(II) Cost Stability – Predictability and Transparency

1. The Regional Director will
 - a. work with preference power customers, WAPA, and the project proponent of the proposed Sites/North of Delta Off-Stream Storage (NODOS) Project to ensure that benefits, costs, and financial impacts associated with the draft Feasibility Report's inclusion of a hydropower purpose to the proposed project are analyzed, evaluated, and considered as the project moves forward;
 - b. communicate any necessary modifications to the benefits analysis in the NODOS Feasibility Report to power customers and other stakeholders as appropriate;
 - c. work with Reclamation's Policy and Administration Directorate, the non-Federal cost share partners, preference power customers, WAPA, and other stakeholders to update the benefits, costs and financial impacts associated with inclusion of a hydropower purpose for the proposed Shasta Dam and Reservoir Enlargement project during the pre-construction true-up process;
 - d. work with preference power customers and WAPA as appropriate to ensure that the benefits, costs, and financial impacts associated with inclusion of a hydropower purpose for proposed projects are analyzed, evaluated, and considered as projects move forward;
 - i. if feasibility is appropriately determined and Congressional authorization is provided for a proposed project, work with power customers and WAPA, in addition to the project proponents, water contractors, and other interested

stakeholders to start development of a detailed operations plans for authorized projects;

- e. coordinate with the CVP Financial Affairs Committee (FAC) and within 60 days, develop a Standard Operating Procedure (SOP) to document the methodology and procedures for construction cost recovery to review progress towards construction and O&M repayment as the 2030 contractual repayment term approaches. The SOP will include providing annual updates to the FAC as well as providing joint updates with WAPA at WAPA Customer Meetings as appropriate;
- f. within 60 days from the date of this memorandum, work with the Policy and Administration Directorate to develop an appropriate document that describes handling of aid-to-irrigation for Water Infrastructure Improvements for the Nation (WIIN) Act construction prepayment and new construction projects funded under WIIN authorities;
- g. share the SOP (currently under development by the Mid Pacific Region) that documents the methodology for treatment of non-permanent revenue, including rescheduling fees, when the SOP is finalized;
- h. work with WAPA to maintain a rolling 10-year forecast of capital improvements for CVP power infrastructure on an annual basis and review with CVP customers at Technical Committee Meetings;
- i. work with WAPA, power customers, and other interested stakeholders to develop an appropriate variance percentage threshold between budgeted and actual expenditures for transparency of multipurpose O&M and construction costs and collaborate with stakeholders on process to share information; and
- j. implement benchmarking of CVP hydropower data relative to industry standards and share findings to Reclamation management and power customer groups on an annual basis.

(III) Lost Production Opportunities

- 1. The Regional Director will
 - a. use best available science when evaluating power plant bypass operations for species mitigation;
 - b. invite the WAPA fisheries biologist to participate in adaptive management committees to help ensure requests for power bypass operations are supported by best available science;
 - c. review the potential for using forecast-informed reservoir operations should the Shasta Reservoir Water Control Manual undergo review or revision;

- d. continue to provide updates on flood control operations on the American River and Sacramento River to WAPA and power customers at meetings of the Customer Coordination Committee;
 - e. adopt the concepts in the CVP Hydropower Outage Scheduling framework document (Attachment 1) collaboratively developed between Reclamation, WAPA, and individual power customers; and
 - f. continue to coordinate maintenance and outage scheduling with WAPA and individual power customers at the quarterly Maintenance and Major Project Planning Committee customer meetings to identify opportunities to minimize impacts to power customers of foregone generation.
2. The Power Resource Office (PRO) will
 - a. revise the existing Hydropower Program Policy (FAC P04) to incorporate the requirement that the PRO will maintain, monitor, and renew procurement options to streamline regional hydropower program services in a way that is consistent with existing law and regulation; and
 - b. develop benchmarks to track and evaluate the performance of implemented procurement streamlining solutions.

(IV) Value of the Resource

1. The Regional Director will
 - a. continue to provide support for evaluation currently underway by WAPA and Reclamation to determine if it is prudent for WAPA to join the energy imbalance market;
 - b. work with the San Luis & Delta-Mendota Water Authority, operating entity, to explore options to improve water order schedules of water users to allow for better forecasting of O'Neil Pump/Generation Plant operations and power demands;
 - c. adopt the principles outlined in the framework on Improved Operational Flexibility (Attachment 2) developed between Reclamation, WAPA, and individual power customers; and
 - d. utilizing the concepts outlined in the framework, continue to advance discussions with power customer and other stakeholders as appropriate for optimizing generation scheduling and market value within existing statutory, contractual, and regulatory requirements.

2. The PRO will continue to track the schedule for the California zero carbon and carbon neutral energy rulemaking process and when appropriate, engage with the Mid Pacific Power office and the joint agencies' Hydropower Operations Committee (HPOC). The Reclamation team will work together with the HPOC to analyze the operational benefits and environmental attributes of the CVP resource and identify if opportunities exist to inform State policy development efforts.

(V) Improved Customer Service

1. The Regional Director will
 - a. adopt the framework document developed between Reclamation, WAPA, and individual power customers that outlines Preference Power customer concerns regarding any potential large-scale delta conveyance facility (Attachment 3); and
 - b. develop a Mid Pacific webpage on Reclamation's website that will contain the coordinated action plan, biannual updates, accomplishments, and reference materials as appropriate for the CVP Power Initiative.

Section 4: General Provisions

These directives and any resulting reports or recommendations are not intended to, and do not, create any right or benefit, substantive or procedural, enforceable at law or equity by a party against the United States, its departments, agencies, instrumentalities or entities, its officers or employees, or any other person. To the extent there is any inconsistency between the provisions of these directives and any Federal laws or regulations, the laws or regulations will control.

Attachments-3

Attachment 1

Central Valley Project (CVP) Hydropower Outage Scheduling – Framework

Maintenance outages and generation/transmission/capital improvement outages are generally longer term, planned and scheduled in advance. The Central Valley Operations Office (CVO) along with the Reclamation Area Offices (AO) use long range, short range, and real-time outage schedules to coordinate outages. The outage time varies with the work that is anticipated to be completed and planned accordingly.

Maintenance outages and generation/transmission/capital improvement outage schedules are coordinated and discussed at the Mid Pacific/Sierra Nevada Region (MP/SNR) Quarterly Outages, Operations and Maintenance Coordination meetings. At these meetings, maintenance outages, generation/transmission/capital improvement outages and projects requiring coordination are discussed on a project-by-project basis. Also, the Maintenance and Major Project Planning Committee (MMPPC) discusses generation and transmission capital improvement outages among the group participants.

The MMPPC provides CVP power customers the opportunity to evaluate major maintenance and projects that are needed on the system in the future. The planning of outages is based on the timeframe the project needs to be completed within, and when the best time to suggest the outage take place. To provide power customers an opportunity for evaluating these outages and understand the general processes involved, Reclamation and WAPA have developed this Framework.

- Maintenance outages and generation capital improvement work that requires outages involving Reclamation is submitted as outage requests by the AO to Central Valley Operations Control Center (CVOCC). CVOCC evaluates each request on factors including, but not limited to the season the outage is being requested, the timeframe the outage will require and the best time to take the outage related to water and power needs. If the outage will result in reduced CVP generation output, CVOCC will work with WAPA Power Marketing to determine the economic impact of the outage and, if necessary, establish alternative schedules for the outage to mitigate financial impacts to customers when feasible. WAPA transmission work that requires outages is submitted to the SNR outage office and is similarly evaluated.
- Once Reclamation maintenance and generation capital improvement outages are approved by CVOCC with input from WAPA SNR outage office, the AO outage requestor is notified that the outage has been approved and has been added to the outage schedule. Pending verification from bulk electric system reliability entities that real-time conditions still support the outage as planned, the outage is authorized to proceed on the date requested. Maintenance outages and transmission capital improvement outages that affect CVP generation facilities are integrated and coordinated between Reclamation and WAPA.
- WAPA and Reclamation can share lessons learned on prior outages with the MMPPC as requested.

Attachment 1

- The coordination and discussion with the MMPPC provide a path for feedback on past, current and future outage processes and performance and seeks to identify opportunities for improvement. The findings of the MMPPC are also brought to the MP/SNR meetings. Concerns or requests from the MMPPC are considered in outage scheduling.
- Reclamation, WAPA and Preference Power customers may revisit this Framework from time to time to evaluate its applicability and identify if changes are necessary if requested by Reclamation, WAPA or Preference Power Customers.
- This document does not provide any express or implied right to power customers beyond those already defined by existing law or contracts.

Attachment 2

Central Valley Project (CVP) Hydropower Improved Operational Flexibility – Framework

Individual CVP Preference Power Customers have executed contracts with WAPA to receive benefits from the CVP hydropower function under a variety of power supply, ancillary services, power scheduling, portfolio management, and power transmission contracts. To maximize the value of their CVP preference power contracts within existing statutory, regulatory, and legal obligations in the ever-changing California energy markets, the power customers have requested that Reclamation commit to evaluating opportunities to improve the flexibility and dispatchability of the hydropower resources of the CVP.

The State mandate requiring California electric utilities to increase renewable energy production will likely result in an increase in the use of intermittent renewable energy generation sources, such as solar and wind. This mandate will mean a larger portion of CVP Preference Power customers' power resource portfolios will include intermittent renewable sources in the future. These mandates in a continually changing market have had a negative impact on the value of the CVP hydropower resource, and accordingly, generated customer interest in determining whether additional flexibility in hydropower operations of the CVP and their contracts may exist.

Increased flexibility of CVP hydropower resources to address these changing needs will help the customers meet their power resource portfolio goals and may increase the value of their hydropower resource allocation and value of CVP hydropower.

Power customers continuously evaluate the energy market conditions and energy usage to identify least-cost power resource options for serving their own customer loads. Through market and resource evaluations, CVP Preference Power Customers may be able to identify and develop alternative scheduling or operational regimes for which they would like the Bureau of Reclamation (Reclamation) and Western Area Power Administration (WAPA) to evaluate operations.

To provide a clear path for evaluating potential alternative scheduling, and operational regimes under existing regulatory and contractual structures, the power customers have developed this Framework to establish a process to request data or evaluate operating alternatives related to generation flexibility, scheduling and optimizing market value, and to propose potential alternatives for implementation by Reclamation and WAPA through their respective contracts. This document does not restrict CVP Preference Power Customers from contacting WAPA and Reclamation directly at any time to discuss any individual issues that a CVP Preference Power Customer may have.

- The Customer Coordination Committee (CCC) is a customer-staffed work group established and managed by the CVP Preference Power Customers. The CCC is the forum where customers can bring forward proposals for discussion and submission to the Federal agencies and evaluating the success of each alternative for implementation.

Attachment 2

- Membership in the CCC is not a requirement for individual CVP Preference Power Customers, or groups of customers, to bring forward proposals to the CCC that they would like Reclamation and WAPA to consider under their respective contracts.
- Proposals shall be presented to the CCC while appropriate subject matter experts from WAPA and Reclamation are in attendance. WAPA and Reclamation may attend CCC meetings for information only and do not vote on CCC matters.
- Since the CCC considers proposals presented by a CVP Preference Power Customers(s), before deciding whether the CCC recommends a proposal to be evaluated by Reclamation and WAPA, it should generally ensure that all proposals it recommends for evaluation are a benefit to the CVP hydropower function and a majority of the CVP preference power customers.
- If a proposal is recommended by the CCC, within 60 days, Reclamation and WAPA will evaluate whether the proposal is within each agency's existing statutory authority or contractual abilities.
- If legal authority for the proposal exists, and WAPA and Reclamation agree on its merits, WAPA and Reclamation will prepare: (1) a project timeline for evaluating the proposal, (2) metrics for evaluating the proposal, and (3) as necessary, an estimate of the costs to CVP Preference Power Customers of fully evaluating the proposal. The results of such evaluation will be provided at the next meeting of the CCC.
- The results of evaluations will be reported by the non-voting federal CCC members to the senior regional management of WAPA (i.e., Regional Manager or delegate) and Reclamation (i.e., Regional Director or delegate) and at the biannual CCC Meeting. The non-voting federal CCC members will share information on the alternatives being considered, proposals and experiments that are currently implemented, and the data behind the support of experiments that plan to be updated. Reclamation and WAPA retain the ultimate discretion over implementation of operations at federal facilities, consistent with applicable law and contracts.
- All proposals submitted for consideration to WAPA and Reclamation through the CCC shall ensure that CVP customers (water and power) benefit, and will not take away any existing flexibility, operational capacity, or benefits to other authorized purposes of the CVP. Reclamation, WAPA and Preference Power customers may revisit this Framework from time to time to evaluate its applicability and identify if changes are necessary if requested by Reclamation, WAPA or Preference Power Customers.
- This document does not provide any express or implied rights to CVP Preference Power Customers beyond those already defined by existing law or contracts.

Attachment 3

Large-Scale Delta Conveyance Power Initiative Framework

Central Valley Project (CVP) Preference Power customers and Western Area Power Administration (WAPA) have raised concerns of the potential impacts related to the timing, quantity, and availability of power generated from the CVP as a result of the proposed construction and operation of the water infrastructure project formerly known as the California WaterFix (CWF). Recent State direction to rescind the previously obtained permits leaves significant uncertainty as to how a large-scale delta conveyance facility may proceed in the future. Considering this uncertainty and the potential development of a new project, the Bureau of Reclamation (Reclamation), Preference Power customers, and WAPA have developed this Framework to establish coordination on developing a new project description and operational considerations for a new large-scale delta conveyance project.

CVP Preference Power customers and WAPA are concerned about changes to the timing and delivery of CVP energy and capacity, ancillary services, and other CVP hydropower products resulting from the construction and operation of a potential new large-scale delta conveyance facility that could ultimately change the coordinated operation of the SWP and CVP.

- CVP Preference Power Customers and WAPA have shared concerns that previous efforts to develop the CWF project description and associated permits and agreements did not provide adequate opportunity for CVP Preference Power Customers to participate.
- For Reclamation to better understand the potential effects to power customers and to CVP hydropower from the operation of a new large-scale delta conveyance facility, Reclamation has worked with Preference Power customers and WAPA to identify potential operational considerations when developing and/or evaluating a project description for a new large-scale delta conveyance facility. The operational considerations and corresponding Reclamation commitments are detailed in this framework document.
- Reclamation will work with the Preference Power customers to receive input and feedback on the development of a project description for a new large-scale delta conveyance facility. In developing the project description, Reclamation will work in good faith to influence the project description in a manner that minimizes impacts to Preference Power customers while still meeting Congress's intent in authorizing the CVP.
- If Reclamation and/or the Preference Power customers identify unforeseen impacts on the timing and delivery of CVP energy, capacity, or other hydropower products resulting from actual operations of a new large-scale delta conveyance facility, Reclamation commits to consulting with Preference Power customers to identify the potential for operational flexibility within Reclamation's statutory and contractual responsibilities to reduce or minimize impacts to power generation resulting from the operation of a new large-scale delta conveyance facility.

Attachment 3

- As additional information on the new large-scale delta conveyance facility becomes better defined and certain, Reclamation, Preference Power customers, and WAPA may revisit this Framework to evaluate its applicability and identify if changes are necessary.
- Reclamation will continue to provide updates to Preference Power customers and WAPA as information becomes publicly available. As information becomes available, Reclamation will work to inform all stakeholders, including CVP Preference Power customer on how the proposed project is expected to operate with the CVP.
- Reclamation will continue to ensure that all CVP water deliveries are properly assessed charges for the CVP Restoration Fund.
- Reclamation, WAPA and Preference Power customers may revisit this Framework from time to time to evaluate its applicability and identify if changes are necessary if requested by Reclamation, WAPA or Preference Power Customers.
- This document does not provide any express or implied rights to power customers beyond those already defined by existing law or contract.
- Power Customers agree to participate, to the extent feasible and appropriate, in public forums and comment periods established by NEPA, CEQA, and other venues as established by law.

Preference Power Considerations: Preference Power Customers, WAPA, and Reclamation have identified the following areas of concern for Reclamation to take into consideration when working with the State of California in the development of a project description for a new large-scale delta conveyance facility. The parameters to be considered include, but are not necessarily limited to:

1. reductions to CVP preference power due to increased CVP pumping requirements;
2. changes in quantity and/or timing of the CVP power resource whether hourly, daily, or seasonally that may require preference power customers to purchase or dispatch replacement supplies taking into consideration the cost of carbon emissions credits;
3. reductions to CVP preference power due to increased CVP power by-pass requirements; and
4. lost collections from CVP Water Users to the CVP Restoration Fund, resulting from potential reduced water deliveries that can be shown because of the operation of a new large-scale delta conveyance facility.