



Topic: **Reservoir Committee Agenda Item 3.4** **2020 August 21**

Subject: **Engineering Feasibility and Cost Certainty Considerations**

Requested Action:

Review and Comment on Engineering Feasibility Approach for Improved Cost Certainty.

Detailed Description/Background:

In the fall of 2019, the Sites Project Authority undertook a value planning effort that assessed the “right size” of the project based on overall objectives, participation levels, and expected permitting criteria. The result of this assessment is a 1.5 million-acre-foot (MAF) reservoir that utilizes existing conveyance systems for water diversions and releases. The “right size” facility changes, along with other project modifications, resulted in a project cost savings of over \$2 billion.

This new project configuration is currently undergoing feasibility-level design and, as result of project changes, has technical uncertainties that may impact design assumptions and project cost estimates. A high-level gap analysis has been prepared on the focus areas that may have the greatest near-term impact on project feasibility and cost certainty as follows:

- Geologic and Geotechnical Data – there is insufficient historical data to inform feasibility design. This lack of information may influence the engineering team to make misinformed decisions on design approaches, which can affect project cost and affordability certainty. In order to mitigate this uncertainty, the Bureau of Reclamation will be assisting the project with support of additional geologic and geotechnical investigations to inform and verify project feasibility design.
- Colusa Basin Drain (CBD) Feasibility - the preferred conveyance operation for releases from Sites Reservoir will allow up to 1,000 cubic feet per second (cfs) of water to be released through the Dunnigan pipeline alignment and into the CBD. Hydraulic analysis of the CBD as a viable project conveyance feature has not been completed. If the CBD cannot accommodate project flows, then an alternative option is to extend the Dunnigan pipeline alignment further east to the Sacramento River. The cost difference between the Dunnigan pipeline alternatives will influence project cost and affordability. The engineering team is currently working to complete hydraulic modeling of the CBD to verify conveyance capacity and other considerations.
- Regulatory Required Emergency Drawdown and Release Impacts – in the extreme and unanticipated condition that the reservoir has to be drawdown due to emergency, localized flooding downstream may occur. The extent of these potential impacts have not yet been evaluated in detail. It should be noted that the reservoir provides flood control benefits by controlling currently uncontrolled streams and creeks, which will reduce localized flooding on a regular basis. On net the frequent flood control benefits far outweigh the very low risk of infrequent, if ever, emergency releases. To improve understanding of the risk and the potential scale of these rare emergency events, an inundation review encompassing the potential release areas will be performed.
- Power Transmission and Delivery - there are two power transmission and delivery service providers located within vicinity of the project: Pacific Gas and Electric (PG&E) and Western Area Power Administration (WAPA). In order to progress with feasibility design and

analysis, the project requires coordination with both providers for information about their existing facilities, planned facilities, capacity, and design guidance. Contact has been initiated with PG&E and WAPA, and the next step in advancing coordination and data needs is to submit an Interconnection Application. The applications allow PG&E and WAPA to initiate their respective System Impact Study and Facilities Study, which will inform feasibility design and appropriate cost estimate of the project electrical facilities.

- Salt Laden Spring Water in Reservoir Area – Saline water has been observed to seep from underground springs within the proposed inundation area of the Sites Reservoir. Mitigation measures may be needed to address the situation. This uncertainty affects the project permit ability and cost certainty.
- Agency Coordination and Reviews – the project will require jurisdiction approvals from the Department of Water Resources Division of Safety of Dams (DWR DSOD). The project team will implement an early engagement plan with the DWR DSOD to assist with expediting reviews and acceptance of project features. This will also provide improved project cost certainty.

The above focus areas will be priority for the upcoming Phase 2 work. A well-developed feasibility study will be prepared, which is essential for obtaining improved project cost and affordability certainty.

These focus areas have been reviewed with the Operations and Engineering Workgroup. Another potential risk raised by the workgroup members is project soil material needs and source sufficiency, which will be addressed as part of the Phase 2 feasibility analysis.

Prior Action:

None.

Fiscal Impact/Funding Source:

Sufficient funds exist within the revised work plan (budget) to accommodate completing this work as part of Phase 2 efforts. The results of this work feeds into the project cost estimate task, which will occur as part of the feasibility analysis. The scheduled completion date for the feasibility analysis is July 1, 2021.

Staff Contact:

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Attachments:

None.