JOINT AUTHORITY / RESERVOIR COMMITTEE WORKSHOP

DECEMBER 3, 2019

Sites

Purpose

- Review progress and processes
- Review key items influencing upcoming decisions:
  - ✓ Operations
  - ✓ Value Planning
  - ✓ Repayment
- Review proposed future activities

Status

- Informal pre-application consultation discussions
- External water management decisions
  - ✓ New BiOps (ROC on LTO)
  - ✓ Voluntary Agreements
  - ✓ Delta Conveyance
  - ✓ EcoRestore
  - ✓ Drought Resilience Portfolio

Status

- Facilities and operations
  - ✓ Optimized for current conditions
  - ✓ Preserve flexibility to adapt to meet future environmental, agricultural and urban needs
- Participation decisions based on
  - ✓ Deliveries
  - ✓ Costs
  - ✓ Schedule

Accomplishments: Program-wide

- Negotiated WSIP Early Funding Agreement & receiving cost-share for prior work
- Approved the Reservoir Storage Policy
- Approved of Real Estate Policy
- Continued to engage with landowners and community stakeholders
- Established cost and financial management systems
- Process to improve certainty on project cost and deliveries
- Supported Reclamation's focused geotech studies

PRE-APPLICATION ENVIRONMENTAL PROCESS - STATUS

Key Operational Considerations

- Wilkins Slough Bypass Flow
  (Indicator of in-river survival for juvenile salmonids)
- Fremont Weir Notch
  (Protects bypass / floodplain rearing habitat and food production for juvenile salmonids)
- Flows into the Sutter Bypass System
  (Protects bypass / floodplain rearing habitat and food production for juvenile salmonids)
- Freeport Bypass Flow
  (Indicator of Delta survival for juvenile salmonids)
- Net Delta Outflow Index (NDOI)
  (Spring index directly correlates to fall longfin smelt population)

Recent Operations Modeling

- Combination of Calsim and Daily Model analyses conducted at a screening level
- Additional modeling will be needed to:
  - ✓ Determine effects to species that result from the recent operational scenarios (e.g., temperature, species life cycle, Delta hydrodynamics, etc.)
  - ✓ Represent Reclamation solely as a cooperating partner
  - ✓ Incorporate ROC on LTO and new requirements from the NMFS Biological Opinion into the baseline

Next Steps for Pre-application Consultations

- Continue pre-application consultation discussions with CDFW, NMFS, and USFWS on construction and operational effects to listed species
- Continue development of analysis tools for daily operations, bypass criteria, floodplain inundation and other operational effects as well as mitigation concepts
- Discussions leading to a project that may be feasible and affordable based on current funding commitments by:
  - ✓ Sacramento Valley
  - ✓ San Joaquin Valley
  - ✓ Prop 1 (WSIP)
  - ✓ Bay Area
  - ✓ Southern California

Permitting & Operational *Challenges*

- Magnitude of temperature benefits above Red Bluff need to be reassessed due to revised operational criteria
- Discussions with Reclamation and analysis of water rights considerations on within-year exchanges with Shasta
- USFWS is updating the status review for longfin smelt and may propose its listing under the Federal ESA

  (Sites will consult on longfin under CESA)
- Future Delta Conveyance and Voluntary Agreements may effect Sites operations and diversions

  (working to account for these in revised operational criteria)

Permitting & Operations *Opportunities*

- Delta Conveyance, Voluntary Agreements, EcoRestore, and other projects present opportunities for improved fisheries conditions and for collaboration on science, monitoring and mitigation
- Under future climate change scenarios, model results indicate the water supply and ecosystem benefits of Sites increase

Key Takeaways

- Better understanding of a range of permittable operations and established a framework to continue refinements
- Additional science, monitoring and implementation of other actions (e.g. EcoRestore, VAs) could result in more operational flexibility in the future
- Additional detailed modeling is needed to reduce uncertainties and refine analyses
- Additional discussion is needed with the regulatory agencies to develop and refine operational parameters to ensure they are implementable and meet the intended biological outcome

Accomplishments: Operations & Permitting Certainty

- Increased CDFW's understanding of the Project
- Continued to refine and improve analysis tools needed for permitting
- Completed substantial work on the response to comments on Draft EIR/EIS
- Advanced admin drafts for the Biological Assessment, and Section 106 Programmatic Agreement
- Completed permits and continue on-going monitoring of Reclamation-led geotechnical investigations

VALUE PLANNING STATUS

Overview

Purpose: Identify additional options to lower project's costs while achieving the project's objectives.

- Several facility modifications were identified

  Grouped into 9 facility layouts

- Appraisal level costs range from $3.4 to $4.0 billion

  (Alternative D: $5.2 billion, which includes risk adjustments, but not common facility-level cost-reduction concepts)

- Initial screening did not identify any "fatal flaws"
- Further evaluation is needed

Estimated Project Costs

Options	Estimated Costs ($2018 in millions)	Cost Reduction (from Alternative D)
Alt D	$5,235 (‡)	
1	$3,970	24%
2	$3,988	24%
3	$3,868	26%
4a	$3,828	27%
4b	$3,861	26%
5a	$3,548	32%
5b	$3,876	26%
6a	$3,417	35%
6b	$3,584	32%

Finance costs are not included

(‡) Alternative D includes $218 M of risk adjustments (4.2%)

Example - Option 6b ($3.6 B): Reduced reservoir and releases back to Sacramento River further south

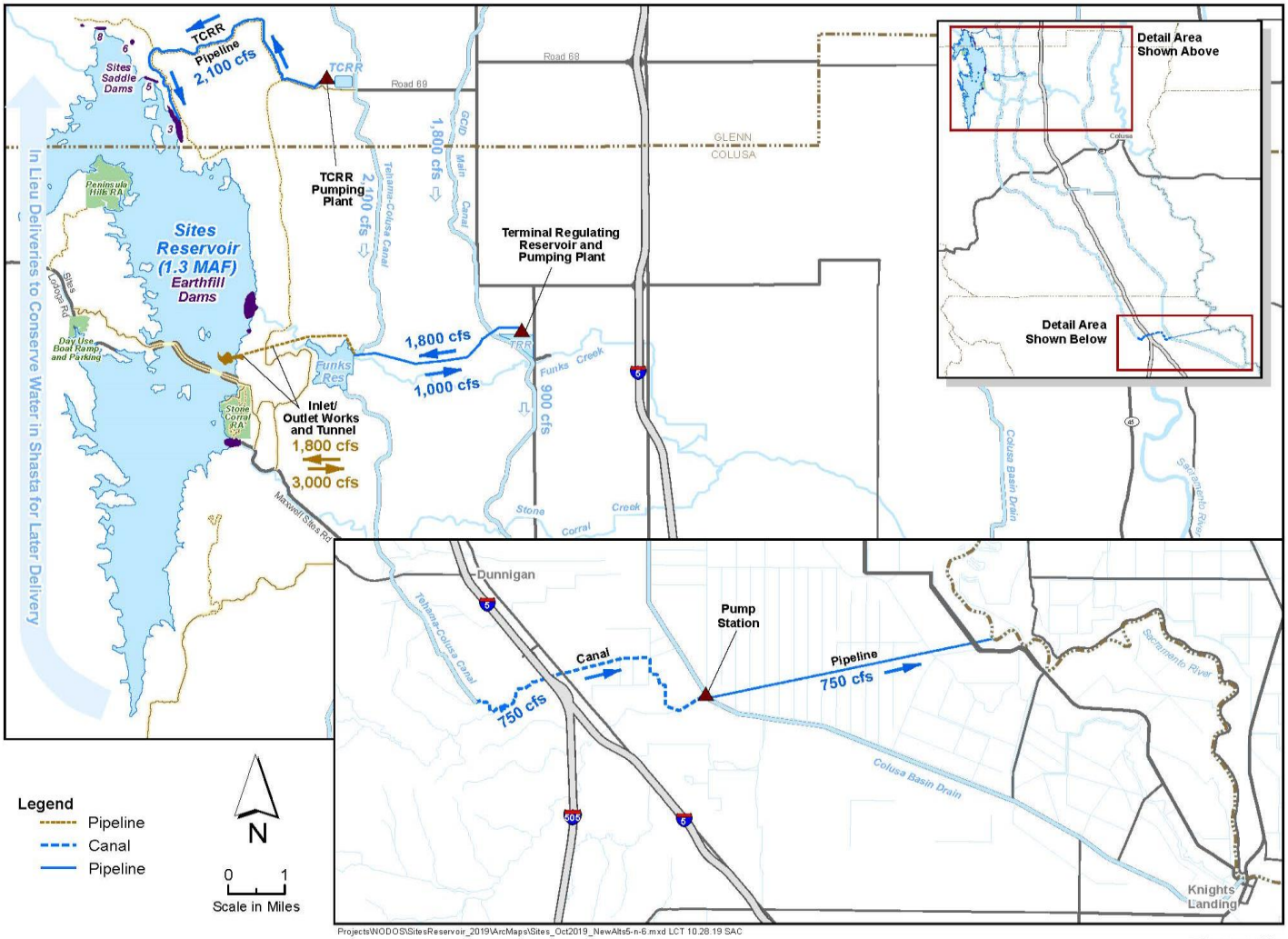


Figure 6b

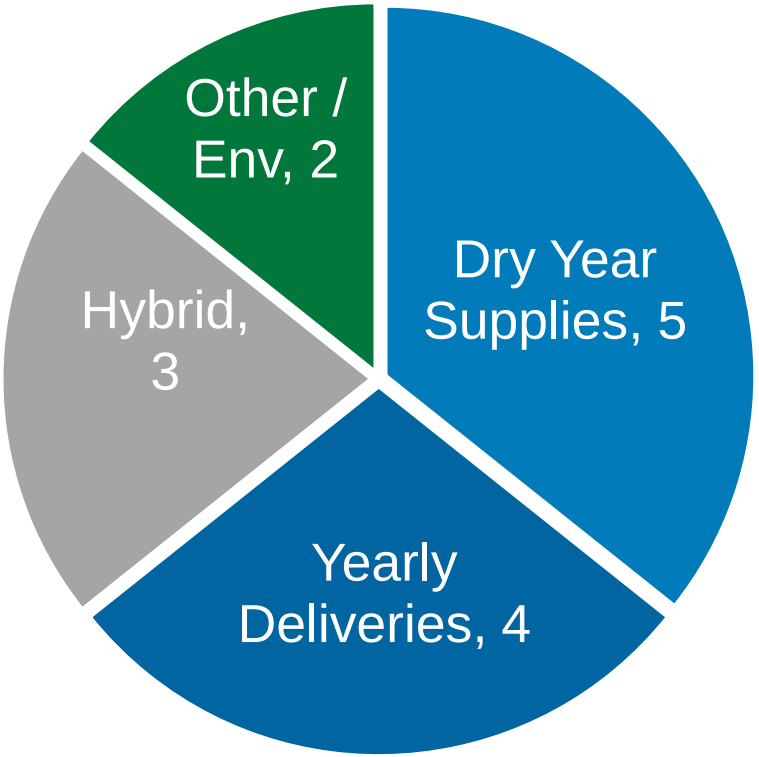
Accomplishments: Engineering

- Initiated Value Planning
- Historic geotechnical data into a GIS-based format
- Assisted Reclamation to update their Feasibility Report
  - ✓ Operations & design review updates
  - ✓ Development of Class 4 cost estimate
  - ✓ Focused geotechnical investigations

OPERATIONS AND REPAYMENT STATUS

Informal Survey Results (2019 August)

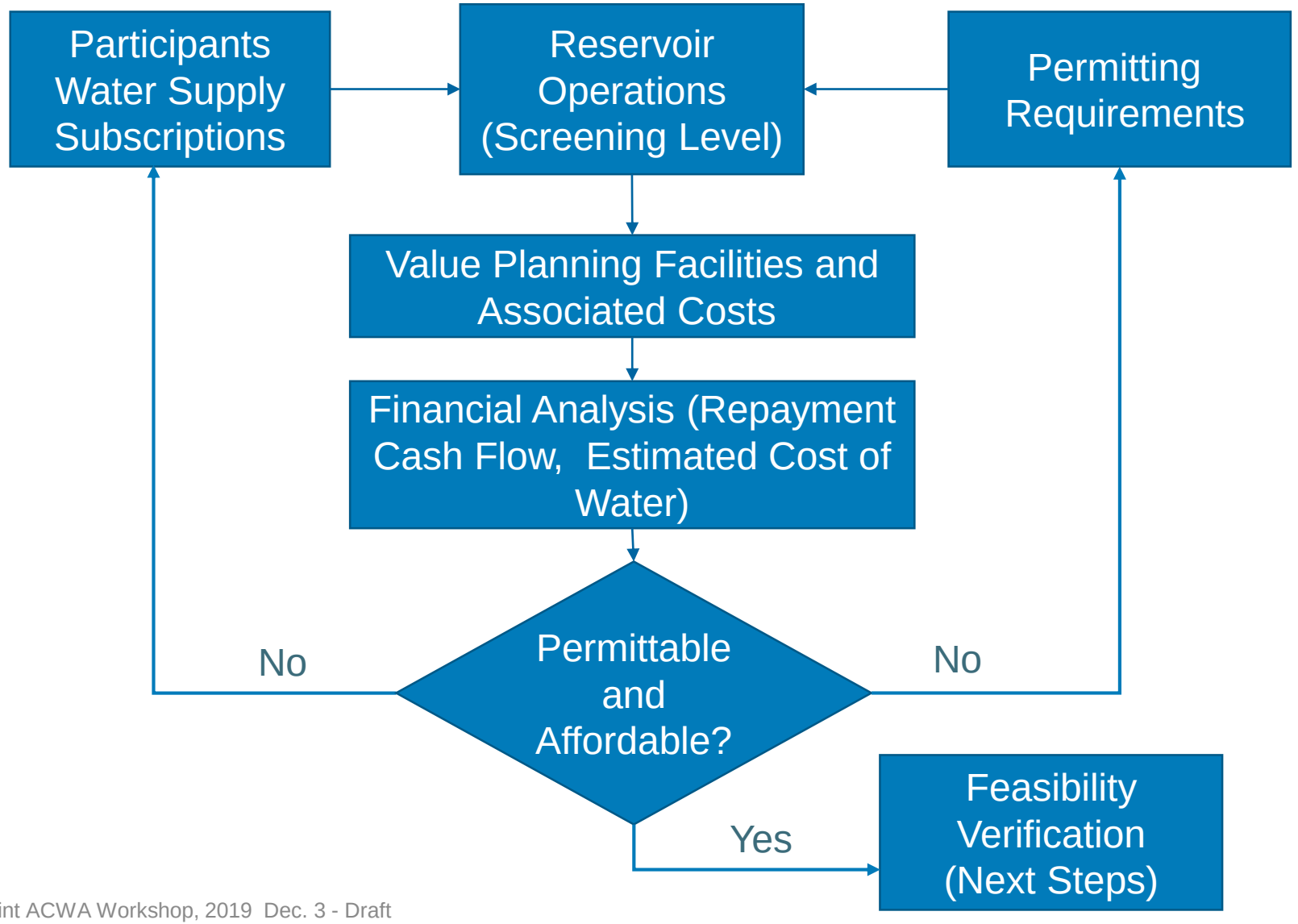
- Responses: 14 of 21
  (108,442 AF of Participation = 56%)
- Diverse set of drivers:
  - ✓ Cost,
  - ✓ Permitting,
  - ✓ Voluntary Agreements
  - ✓ ROC on LTO CVP/SWP
- Participation increases as annualized delivery costs decrease, especially below $750/AF



Purpose of the Operations and Repayment Analysis

- Provide information regarding the potential range of cost of water in terms of annual repayment and operational costs
- Provide information regarding the potential range of annual cash flow requirements – today through repayment and initial operations

Operations and Repayment Analysis Process (Background)



Simplified Repayment Tool

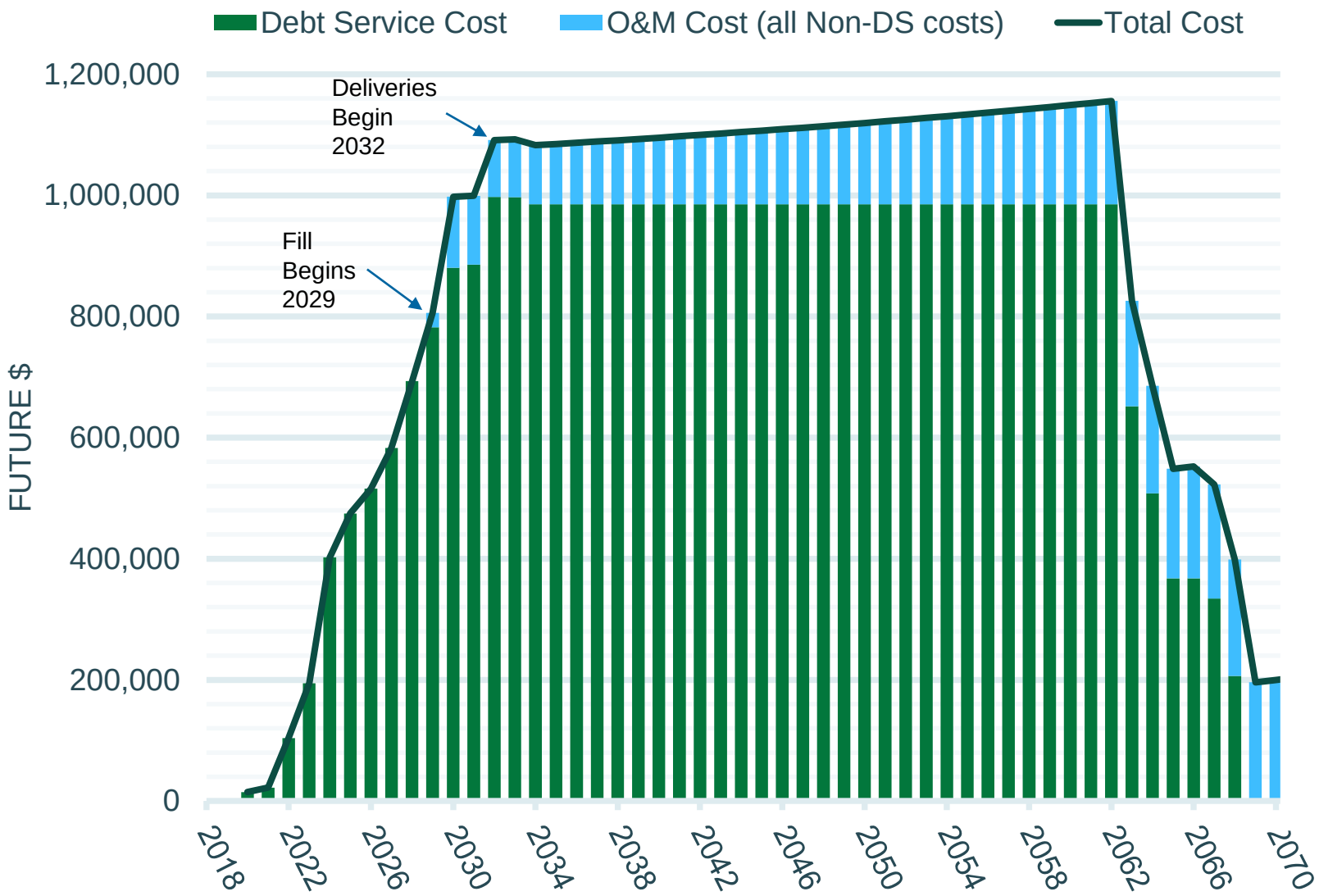
Inputs:

- Project Cost ($3B-4.5B)
- Deliveries at Holthouse (150-250 TAF)
- Participation level (each agency, AF/YR)
- Include WIFIA financing (yes/no)

Outputs: (2018$ and future $)

- Cash flow (each agency)
- Finance costs (debt service)
- OM&R costs
- Annual average cost of water ($/AF) at Holthouse

Annual Expenses for 1,000 AF of Participation
$3.5B Project, 225,000 AF/YR Operations



Simplified Repayment Tool

Input in green cells	Reservoir Cost ($billions, $2018)	3.5
	AF Water Deliveries at Holthouse	225
	Include WIFIA (yes=1, no=0)?	1
	Participation Level	1,000

Water Deliveries (AF)	Reservoir Cost ($2018, billions)			
	3.0	3.5	4.0	4.5
	Total $/AF Released (w/o WIFIA) (2018$)			
250,000	605	705	805	905
225,000	668	780	891	1,002
200,000	747	873	998	1,123
175,000	849	992	1,135	1,278
150,000	984	1,152	1,318	1,485
	Total $/AF Released (w/ WIFIA) (2018$) ($/AF)			
250,000	559	661	762	863
225,000	617	730	842	954
200,000	690	817	943	1,069
175,000	783	929	1,073	1,217
150,000	908	1,077	1,246	1,414

Accomplishments: Financial

- Updated plan of finance
- Analyzed a range of scenarios & performed sensitivity analysis
  - ✓ Ranges of facility sizes
  - ✓ Storage accounts used to allocate costs
  - ✓ Estimates of annualized deliveries to allocate benefits
  - ✓ Repayment with and without WIFIA/RIFIA
- Developed a simplified repayment tool

NEAR TERM IMPLEMENTATION

Where does the Project go from here?

- Conduct detailed hydrodynamic modeling to substantiate expected, screening-level, benefits
  - ✓ Permitting: ESA and CESA
  - ✓ Within-year exchanges with Shasta
  - ✓ Deliveries based on Value Planning facilities to meet current local and state (WSIP) participation commitments
- Advance studies to prepare the water right application
- For the proposed Value Planning facilities, improve certainty in the range of facility costs

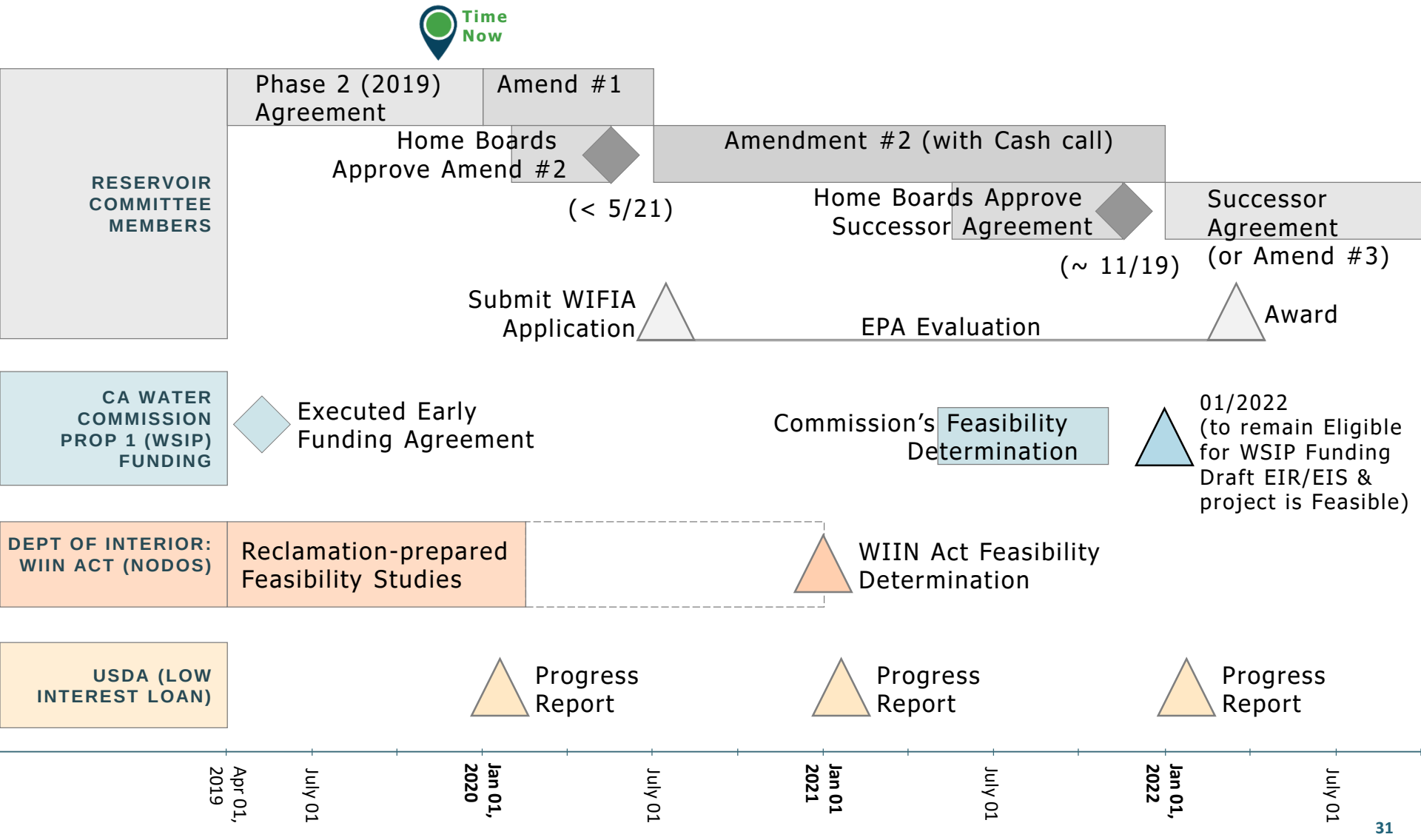
Where does the Project go from here?

- For repayment, confirm the revised range of operations remains affordable for drier year deliveries
- To the extent practicable, utilize Reclamation's federal feasibility studies to develop the WSIP-required feasibility analysis
- Continue to work with Reclamation to define a federal role (beyond USDA's) and timing for any conditional funding commitments (e.g. WIIN Act)

Where does the Project go from here?

- Continue to work with the Water Commission and CDFW to maximize the value of the Prop 1 (WSIP) investment in the creation of an environmental water budget
- Determine the extent of changes to the current description of the preferred project to then develop a revised schedule to complete planning activities
- Revisit decision-making structure & processes
- Revise the current work plan to meet these near-term priorities

Where does the Project go from here?



Key Takeaways

- Continue to incorporate new information into theproject's Implementation Strategy
- Rightsize the project for today's conditions while preserving flexibility to adapt to future human and environmental demands
- Incorporate Value Planning concepts to improve the project's affordability and facilitate development of a scalable project
- Continue to pursue other, lower-cost, funding sources (e.g. TIFIA & RIFIA)
- Sites must make sense for all participants (local, State, and federal) and balance benefits with respective investments