

OROVILLE DAM CITIZENS ADVISORY COMMISSION

**Meeting 16
March 1, 2024**

Hosted by the California Natural Resources Agency



**CALIFORNIA
NATURAL
RESOURCES
AGENCY**

ITEM 1

WELCOME AND COMMISSION UPDATES

ROLL CALL

- Commissioner Bateman
- Supervisor Connelly
- Supervisor Conant
- Secretary Crowfoot
- Senator Dahle
- Sergeant Evans
- Supervisor Fuhrer
- Assemblyman Gallagher
- Director Ward
- Supervisor Kimmelshue
- Deputy Licon
- OES Manager Marin
- Supervisor Micheli
- Director Nemeth
- Mayor Pittman
- Vice Mayor Smith
- Director Quintero
- Lieutenant Spear
- Lieutenant Commander Stokes

ACTION ITEM TRACKER

OPENING REMARKS CONTINUED

ITEM 2

OROVILLE FACILITY PROJECT PRIORITIZATION AND SELECTION

State Water Project Planning Process

Oroville Citizens Advisory
Commission Meeting
March 1, 2024

John Yarbrough, PE
SWP Assistant Deputy Director

David Sarkisian, PE, CEG
Dam Safety Services Manager

Agenda

- SWP Planning and Project Selection
- Examples of Oroville Dam Safety Projects



SWP Planning Overview

Planning processes for SWP 2024 activities



Future Resource Planning	Initial 2024 Work Plan/Forecast	Finalize 2024 Work Plan	Accomplish the work
<ul style="list-style-type: none">• Project Concept, Scoping, and preliminary resourcing	<ul style="list-style-type: none">• Prioritizing; detailed resourcing and scheduling	<ul style="list-style-type: none">• Validating and revising the 2024 Work Plan	<ul style="list-style-type: none">• Execute Work Plan• Emergencies• Unplanned work



Annual Planning Process

◆ July



New Project Identification and Reevaluate Current Activities



Program Manager reviews Projects w/Project Manager



Program Managers Prioritize Projects under their Portfolio

◆ October



Draft 2-year Resource Planning



Division/Office-Wide Prioritization



Division/Office Managers meets with Program Managers

◆ December



SWP-Wide Prioritization



SWP Deputy approves activities and budget for upcoming year



External Communication (Final Bulletin 132, SWC, CWC, OCAC)

Execute Work Plan



Project Planning

- Start with our “Annual activities” which are those occurring every year
- Additional projects are identified through inspections, condition assessments, and studies
- Define scope of work
- Identify the resources needed for the work



Project Prioritization

- SWP has more potential projects than could be accomplished in any given year (consistent with most every organization)
- DWR uses Asset Management principles to prioritize our work:
 - Assess the risk reduction for each project
 - Identify the resources needed for each project
- We use prioritization to determine how to:
 - Do the right work
 - At the right time
 - With the right resources



Risk Matrix

Likelihood													
10 times in a year	10												
w/in 1 year	9												
w/ in 3 years	8.5												
w/ in 10 years	8												
w/ in 30 years	7.5												
w/ in 100 years	7												
w/ in 1,000 years	6												
w/in 10,000 years	5												
w/in 100,000 years	4												
w/in 1,000,000 years	3												
w/in 10,000,000 years	2												
> 10,000,000 years	1												
Consequence Category	1	2	3	4	5	6	7	8	9	10	11		
	Insignificant	Minor	Moderate	High	Major	Extreme	Catastrophic						
Public Safety													
Financial Impact													
Personnel Safety													
Compliance													
Flexibility & Reliability - Water Delivery													
Flexibility & Reliability - Other SWP Purposes													
Reputation													



Consequence Criteria

Consequence Category	Consequence										
	1	2	3	4	5	6	7	8	9	10	11
Public Safety	No injury	Near miss	Minor injuries not requiring medical attention	Single injury requiring medical attention	Multiple injuries or permanent disability	Fatality 0 - 1	Fatalities 1 – 10	Fatalities 10 - 100	Fatalities 100 – 1,000	Fatalities 1,000 – 10,000	Fatalities >10,000
Financial Impact	< \$100k	\$100k - \$1M	\$1M - \$10M	\$10M - \$100M	\$100M - \$1B	\$1B - \$10B	\$10B - \$100B	>\$100B			
Personnel Safety	No injury	Near miss or minor injuries not requiring medical attention	Single injury requiring medical attention	Multiple injuries requiring medical attention or permanent disability	Fatality 0 - 1	Fatalities 1 - 10	Fatalities >10				
Compliance	No violation	Minor restrictions or increased oversight.	Violation or fines	Violation(s), fines, restricted use or prosecution	Sanctions. Lose rights to operate a facility						
Flexibility and Reliability – Water Delivery	No impact	Unable to meet delivery schedule in a Field Division	Unable to meet water delivery schedules in multiple Field Divisions	Inability to meet SWP water deliveries; Cascading effect results in damage to other facilities	Inability to meet health and safety water needs; Cascading effect results in uncontrolled release of water						
Flexibility and Reliability – Other SWP Purposes	No impact	Minor impact to recreation and fish & wildlife	Minor impact to power generation Major impact to recreation and fish & wildlife	Minor impact to flood control Major impact to power generation	Major impact to flood control						
Reputation	Questions raised by elected local officials	Questions by State or Federal officials	Negative local media coverage Concerns from State or Federal officials	Negative state media coverage Legislative hearing	Negative national media coverage Legislative action	Consent to operate SWP revoked					



An Example

Potential Failure Mode: *Erosion of unlined portion of Emergency Spillway blocks the Feather River Channel and causes flooding of Hyatt Powerplant*

Likelihood														
10 times in a year	10													
w/in 1 year	9													
w/ in 3 years	8.5													
w/ in 10 years	8													
w/ in 30 years	7.5													
w/ in 100 years	7													
w/ in 1,000 years	6													
w/in 10,000 years	5													
w/in 100,000 years	4													
w/in 1,000,000 years	3													
w/in 10,000,000 years	2													
> 10,000,000 years	1													
Consequence Category		1	2	3	4	5	6	7	8	9	10	11		
		Insignificant	Minor	Moderate	High	Major	Extreme	Catastrophic						
Public Safety														
Financial Impact														
Personnel Safety														
Compliance														
Flexibility & Reliability - Water Delivery														
Flexibility & Reliability - Other SWP Purposes														
Reputation														



Project:
1. High water protection improvements within the Hyatt Powerplant



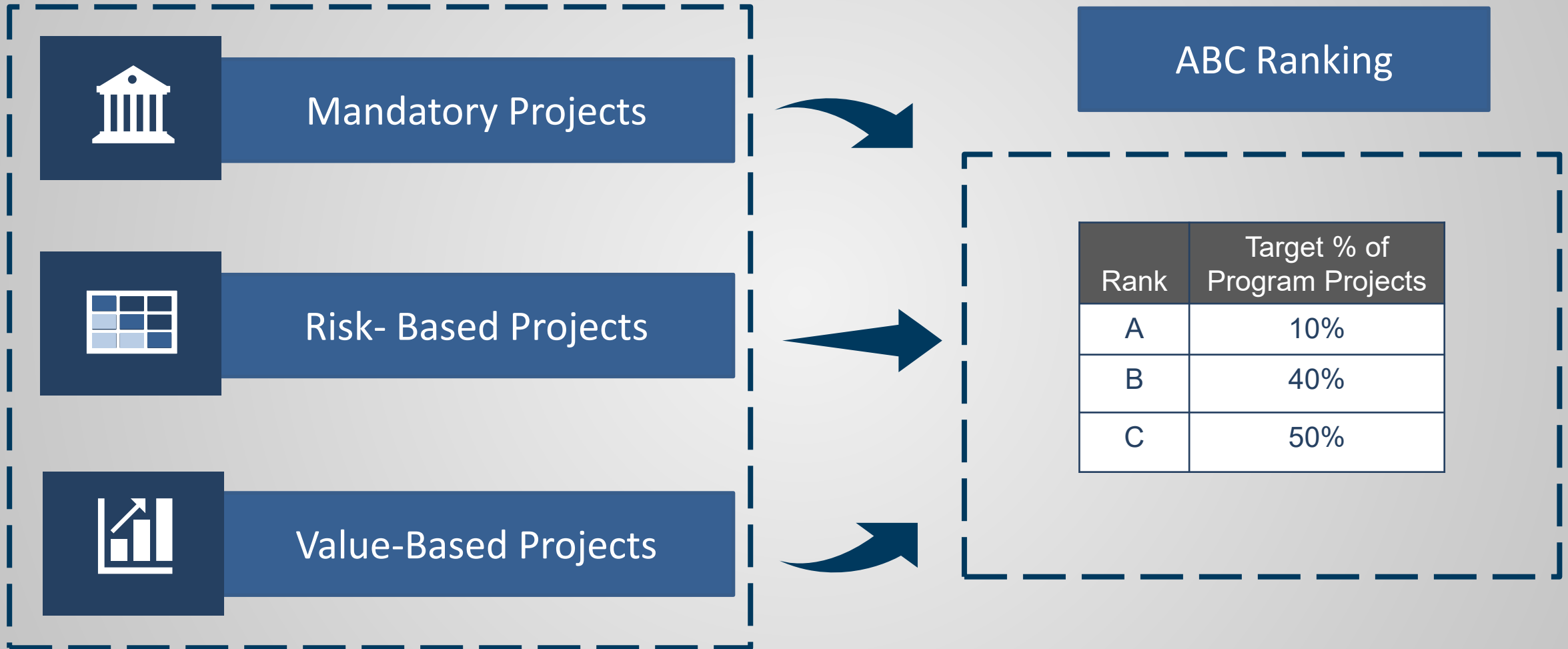
Another Example

Potential Failure Mode: *Cavitation damage during high spillway releases leads to Flood Control Headworks breach*

Likelihood														
10 times in a year	10													
w/in 1 year	9													
w/ in 3 years	8.5													
w/ in 10 years	8													
w/ in 30 years	7.5													
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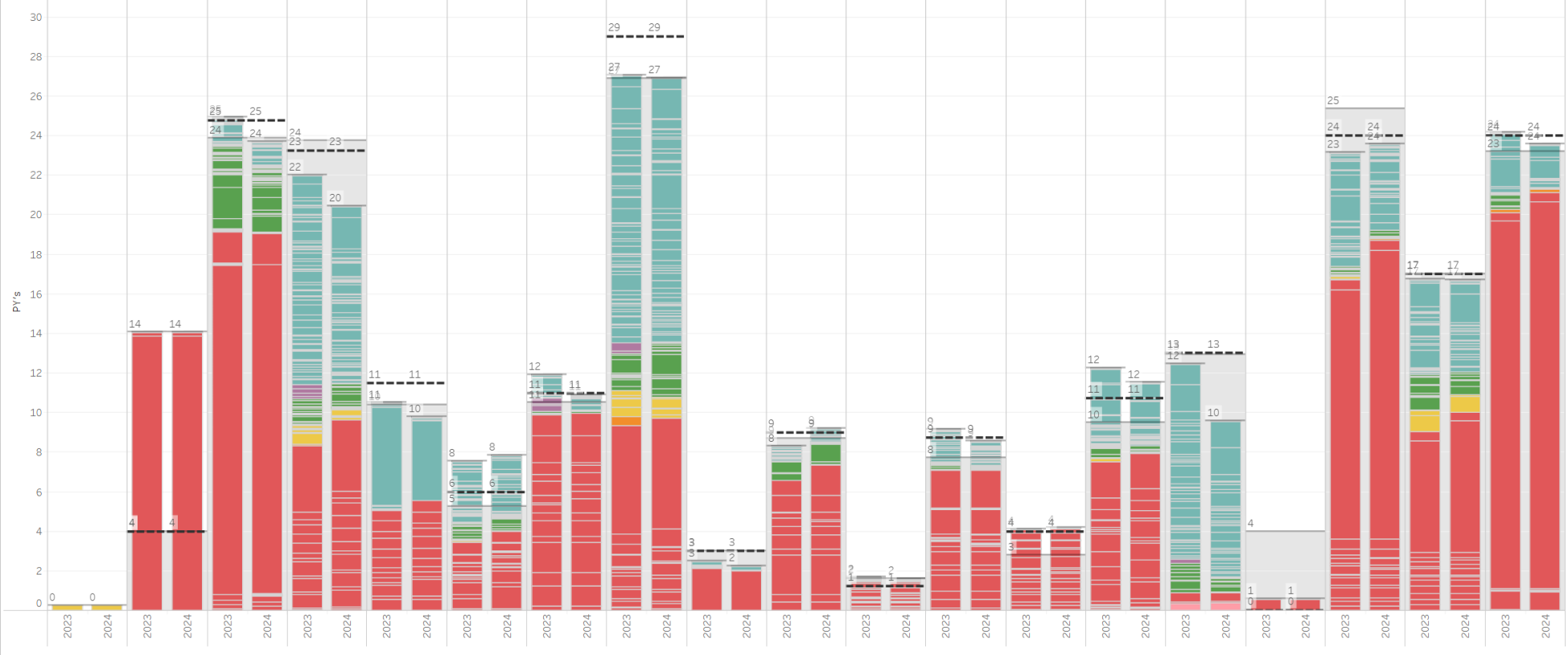
Project:
 1. Resolved thru Oroville Spillway Aeration/Cavation Project, 4 years of research and analysis ending in a Quantitative Risk Analysis (FERC oversight)

Prioritization – Use of ABC Ranking



Resource-Loaded Planning

Annual Activities and Prioritized Projects



Finalized Work Plan

- Result is a plan of activities for the upcoming two years
- Activities have specific resources assigned
- Cost estimate for activities is then used to establish the bills that will be sent to the Public Water Agencies that receive SWP water
- 327 projects planned for 2024 and 2025
- 62 projects in Oroville
 - 6 “A” projects
 - 29 “B” Projects
 - 27 “C” projects

The image shows a 'Risk Prioritization Report' spreadsheet. The report includes a header with the following information: Project ID, System ID, Division Name (Division of Operations and Maintenance), Branch ID, Item Type, Decision Point Name, and Sensitive Project. The main body of the spreadsheet is a table with columns for 'Work', 'Account Name', 'Project ID', 'Project Name', 'Title', 'Start Year', 'End Year', 'Risk Score', 'Risk Category', 'Risk Level', 'Risk Priority', 'Risk Mitigation', 'Risk Transfer', 'Risk Avoidance', 'Risk Reduction', 'Risk Acceptance', 'Risk Retention', 'Risk Elimination', 'Risk Transfer', 'Risk Avoidance', 'Risk Reduction', 'Risk Acceptance', 'Risk Retention', 'Risk Elimination'. The table contains numerous rows of data, including project names like 'Oroville Dam Safety Program', 'Oroville Dam Safety Program', 'Oroville Dam Safety Program', etc., and associated costs and risk scores.



“A” projects in Oroville for 2024

- 62 projects in Oroville totaling \$125 million over next 2 years

Project Name	2024-2025 Budget	Total Estimated Budget
Oroville Dam Flood Control Outlet Spillway Maintenance	\$2.3 M	\$5.7 M
Oroville Dam Grout Gallery Piezometer Installation	\$3.3 M	\$4.8 M
McCabe Cove Cultural Resources Project	\$1.8 M	\$2.1 M
Oroville River Valve Outlet System Project	\$52.5 M	\$120 M
Electrical Vehicle Charging Station Installation	\$0.5 M	\$0.6 M
Feather River Fish Hatchery Water Treatment Upgrades	\$2.6 M	\$8.8 M



SWP Dam Safety Examples

David Sarkisian, PE, CEG

Dam Safety Services Manager



Example “A” Project – Oroville Dam FCO Spillway Maintenance

- CY2022 spillway inspections indicated a sufficient amount of maintenance to justify the use of a Contractor.
 - Joint sealant replacement
 - Minor concrete repairs
 - Underdrain inspections
- Over 2.4 Million acre-feet (about 2/3 of reservoir capacity).
- Spillway use to support RVOS Rehabilitation project
- Multi-year contract.



Photo by K. James, DWR Public Affairs Office, March 10, 2023



Example “B” Project – Oroville Dam Emergency Spillway Studies

- Oroville Dam Risk Analysis estimated *Life Loss* potential failure modes as Remote (Green & Amber).
- “Damage State” potential failure modes plot in the Amber zone.
- Further study of the spillway performance requested by Federal Energy Regulatory Commission in 2022.
- Project scope developed to provide a better understanding of the emergency spillway performance.
- Once erodibility analysis completed the risk will be reassessed

Likelihood Annual Probability			State Water Project Dam Safety Risk Matrix										
			1	2	3	4	5	6	7	8	9	10	11
10 times a year	1x10 ²	10	10	20	30	40	50	60	70	80	90	100	110
within 1 year		9	9	18	27	36	45	54	63	72	81	90	99
within 3 years	< 1x10 ² to 3.3x10 ¹	8.5	8.5	17	25.5	34	42.5	51	59.5	68	76.5	85	94
within 10 years	< 3.3x10 ¹ to 1x10 ¹	8	8	16	24	32	40	48	56	64	72	80	88
within 30 years	< 1x10 ¹ to 3.3x10 ⁰	7.5	7.5	15	22.5	30	37.5	45	52.5	60	67.5	75	83
within 100 years	< 3.3x10 ⁰ to 1x10 ⁰	7	7	14	21	28	35	42	49	56	63	70	77
within 1000 years	< 1x10 ⁰ to 1x10 ⁻¹	6	6	12	18	24	30	36	42	48	54	60	66
within 10,000 years	< 1x10 ⁻¹ to 1x10 ⁻²	5	5	10	15	20	25	30	35	40	45	50	55
within 100,000 years	< 1x10 ⁻² to 1x10 ⁻³	4	4	8	12	16	20	24	28	32	36	40	44
within 1,000,000 years	< 1x10 ⁻³ to 1x10 ⁻⁴	3	3	6	9	12	15	18	21	24	27	30	33
within 10,000,000 years	< 1x10 ⁻⁴ to 1x10 ⁻⁵	2	2	4	6	8	10	12	14	16	18	20	22
> 10,000,000 years	< 1x10 ⁻⁵	1	1	2	3	4	5	6	7	8	9	10	11
Consequence Category			Consequence Level										
Public Safety			No injury	Near miss, Minor injuries	Minor injuries	Single injury	Multiple injuries, perm. Disability	0-1 fatalities	1-10 fatalities	10-100 fatalities	100-1,000 fatalities	1,000-10,000 fatalities	>10,000 fatalities
Financial Impacts			<\$100k	\$100k - \$1M	\$1M - \$10M	\$10M - \$100M	\$100M - \$1B	\$1B - \$10B	\$10B - \$100B	> \$100B			

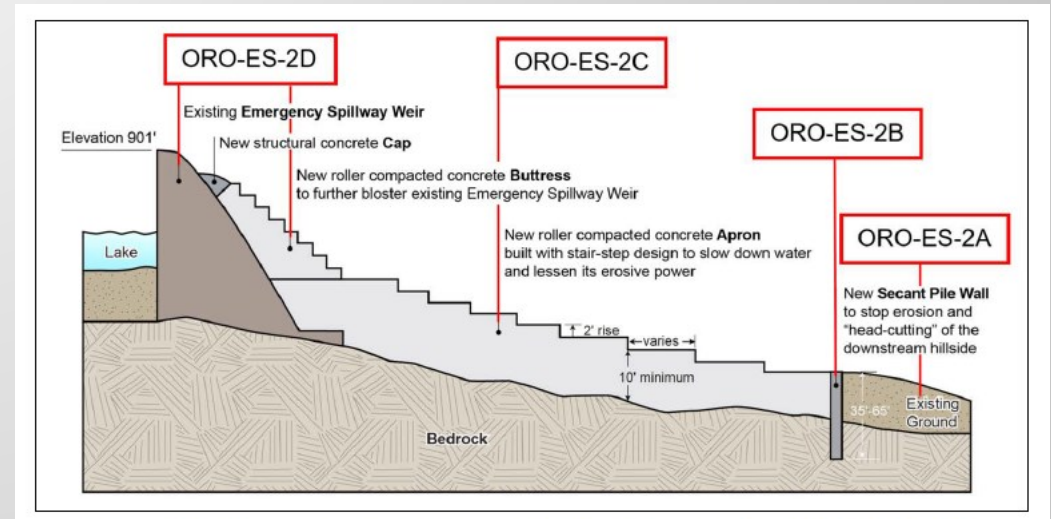


Figure 7-6. Illustration of the Potential Failure Scenarios for PFM ORO-ES-2

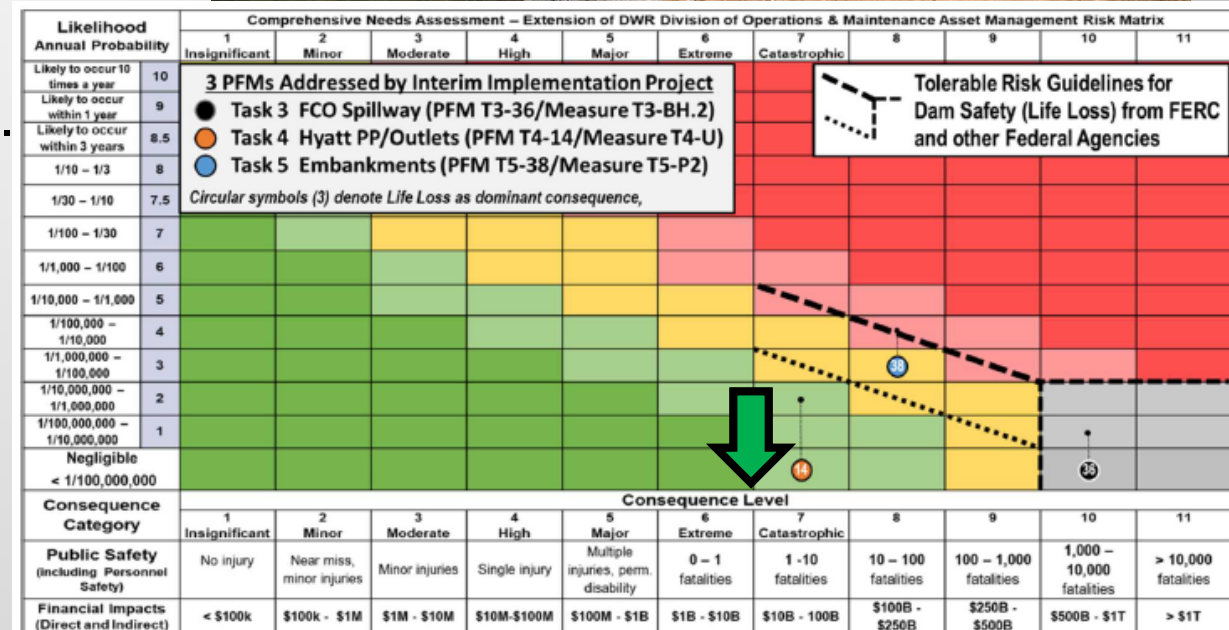


Example “C” Project – Palermo Canal Lining Improvements

- Identified through the Comprehensive Needs Assessment
- Improve canal lining to reduce leakage and potential for landslides/instability above the Hyatt Powerplant switchyard and other facilities.
- Final Drawings, Specifications, and Quality Control and Inspection Plan submitted to FERC on March 20, 2023.
 - New Liner for 130-foot unlined portion
 - Cleaning and maintenance of existing liner
- Start of Construction contingent on FERC approval.




Photo by Florence Low.



ITEM 3

OROVILLE FACILITY EXPENDITURES FORECAST

An aerial photograph of a large reservoir, likely Oroville Lake, filled with numerous white houseboats. The water is a deep blue, and the surrounding landscape includes green hills and a small town with houses visible on the left. The sky is clear and blue with some light clouds. The text is overlaid in white, bold font.

State Water Project Budget & Annual Planning

Oroville Citizens Advisory Commission Meeting
March 1, 2024

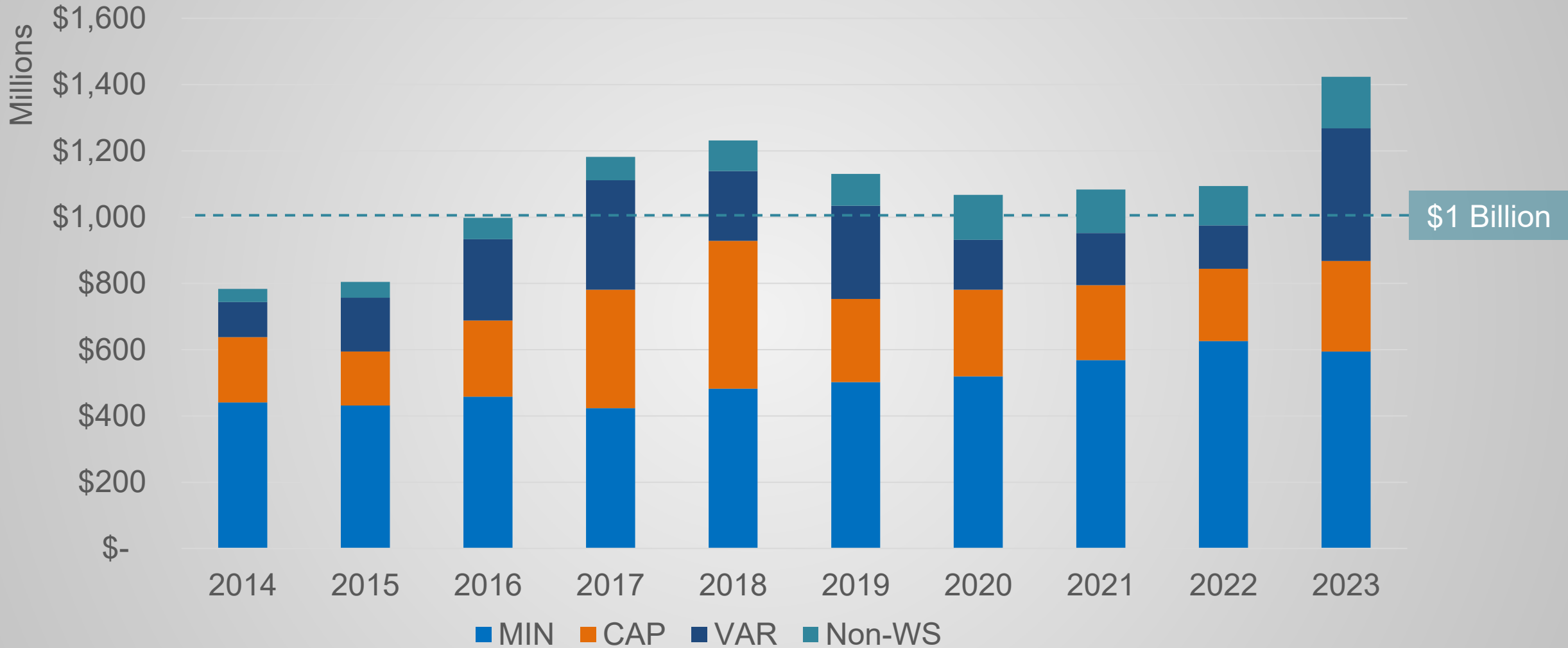
Hong Lin, Financial Manager, State Water Project
California Department of Water Resources

SWP Financial Overview

- Annual Revenue over \$1 Billion
 - 29 SWP Contractors, Cost-share (i.e. Bureau of Reclamation), Power Revenue, Davis-Dolwig (State General Fund)
- Use of Funds
 - SWP Operation & Maintenance, Debt Service, Capital Projects
- Capital Project Planning \$~300 million
- Enhanced Financial Management and Reporting



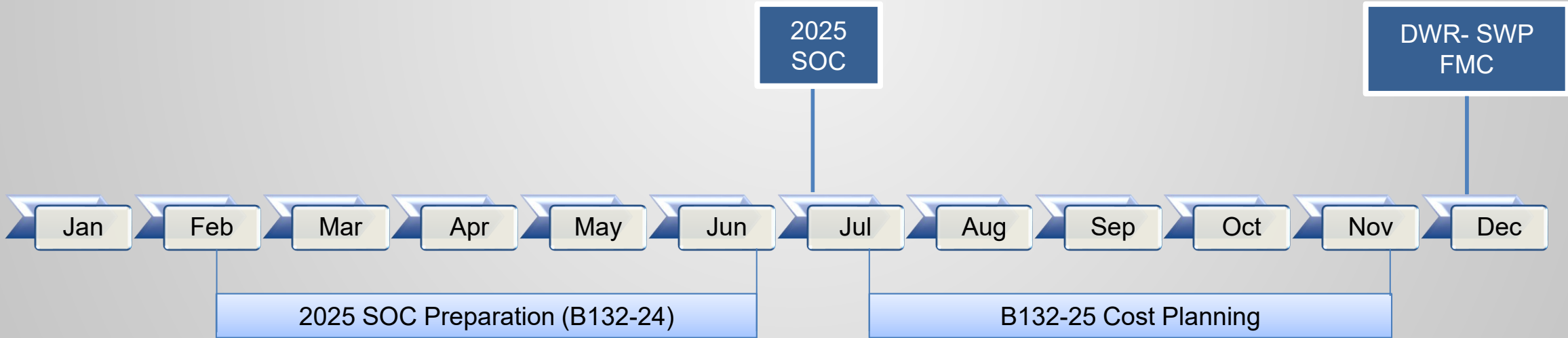
SWP Historical Costs



Non-WS: Non-Water Supply and Power are non-reimbursable from SWP Contractors.

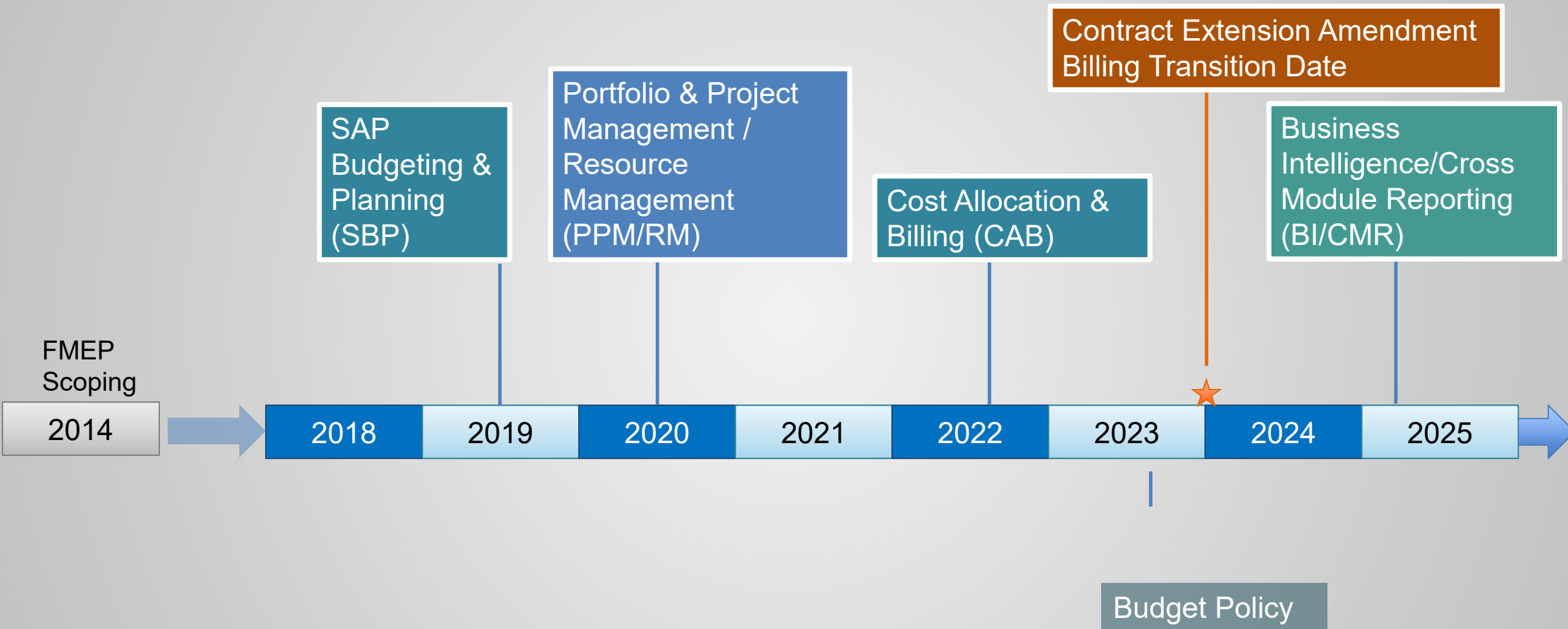
Two-Year Rolling Budget Process

Two-Year Rolling Budget Process				
	Year 1 (2024)	Year 2 (2025)	Year 3 (2026)	Year 4 (2027)
B132-24 Rolling Budget	Budget Year	Bill Year		
B132-25 Rolling Budget		Budget Year	Bill Year	
B132-26 Rolling Budget			Budget Year	Bill Year

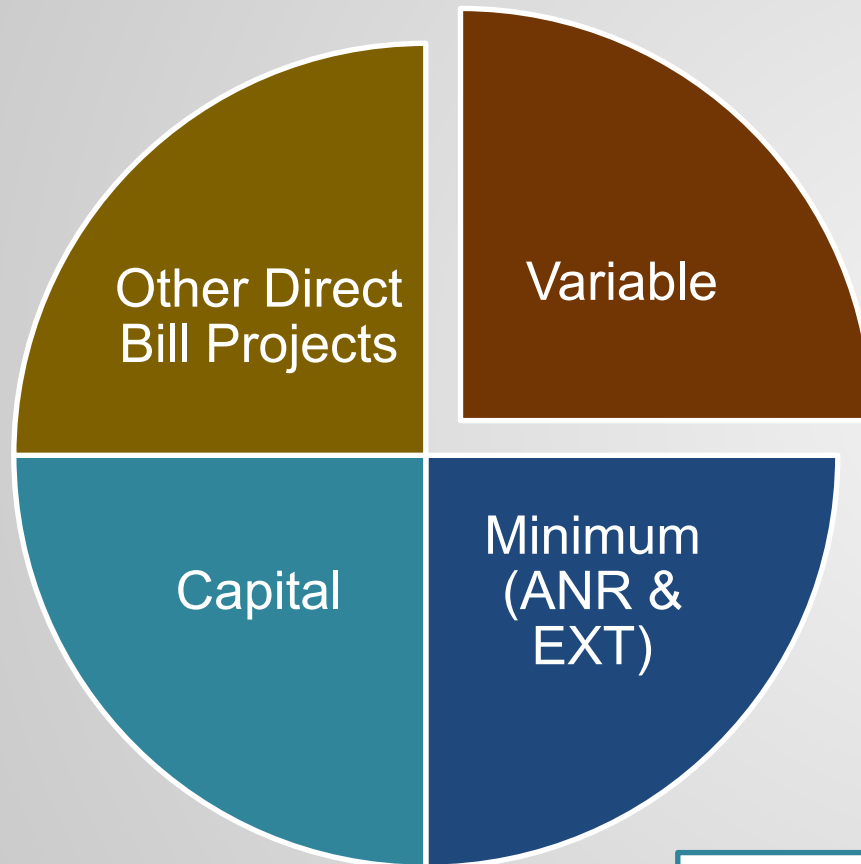


DWR/SWP Financial Management Enhancement

B



SWP Annual Cost Planning (MIN, CAP, VAR)



➤ Power costs (Variable) are planned separately.

➤ Capitalization committee determines eligibility of projects for capitalization and cost recovery.



Oroville Expenditures

Expense Type	Actual Expenditures				Planned Expenditures	
	CY2020	CY2021	CY2022	CY2023	CY2024	CY2025
Annual Operations & Maintenance (O&M)	\$46.2M	\$53.0M	\$60.7M	\$60.3M	\$54.2M	\$55.7M
Capital Projects	\$46.3M	\$45.3M	\$41.5M	\$60.6M	\$41.1M	\$34.4M
TOTAL	\$92.5M	\$98.2M	\$102.2M	\$120.9M	\$95.3M	\$90.1M

Note: Excludes costs for Oroville Spillways Emergency and Reconstruction




Summary

- State Water Project (SWP) financial management has transitioned to the Contract Extension Amendment (January 1, 2024) ensuring affordable long-term financing.
- SWP continues improving the annual planning to meet the budget goals and provide better long-term capital forecast.
- Strategic asset management implementation will improve prioritization and cost planning.
- SWP will continue communicating with public (i.e. update to California Water Commission) on SWP planning and financial management.



ITEM 4

STATE EMERGENCY PREPAREDNESS COORDINATION



Statewide Emergency Management

Involving the whole community



Standardized Emergency Management System (SEMS)



Cal OES
GOVERNOR'S OFFICE
OF EMERGENCY SERVICES

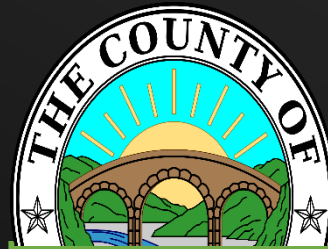
The 5 Levels of SEMS



Field (IC)



Local Government /City



Operational Area/County



OES Region



State

“All disasters start and end at the local level”



Whole Community

Federal, State, Operational Areas, Local Governments, Special Districts, Private Sector, Nongovernmental Organizations, Community-based Organizations, Tribes



How we work together to prepare

- Planning and planning guidance
- Training
- Exercises
- OAFN, Private Sector & NGO Coordination, ListosCalifornia, CERT
- Emergency Services Coordinators
- Flood season prep





How we work together to respond

- State Operations Center (SOC)
 - State agency reps – A-reps
 - Advance planning
 - Priority Populations TF
 - Business Operations Center
- Cal OES Regions
- Mutual aid
 - Fire
 - Law
 - EMMA





How we work together to recover

- IDEs/PDAs/Declarations
- Recovery training
- LACs/DRCs
- Town Halls/Council Meetings
- Safety Assessment Program
- Joint Field Operations (JFO)
- HMGP/BRIC/PrepareCA Jumpstart Program





Questions?

Lori Nezhura
Deputy Director, Planning Preparedness, and Prevention

Tom Graham
Regional Administrator, Cal OES Inland Region

MEETING 17 AGENDA

PROPOSED TOPICS

- Recreation project updates
- FERC Settlement discussion

FEEDBACK DUE DATES

- CNRA will circulate proposed Action Item Tracker updates and proposed Meeting 17 agenda by 3/8/24.
 - Commissioner feedback **due 3/29/24**

ITEM 5 PUBLIC COMMENT

**The Oroville Dam Citizens Advisory
Commission will now take public comment.**

We appreciate your input.

ITEM 6 ADJOURN

Commission Meeting #17

August 2, 2024