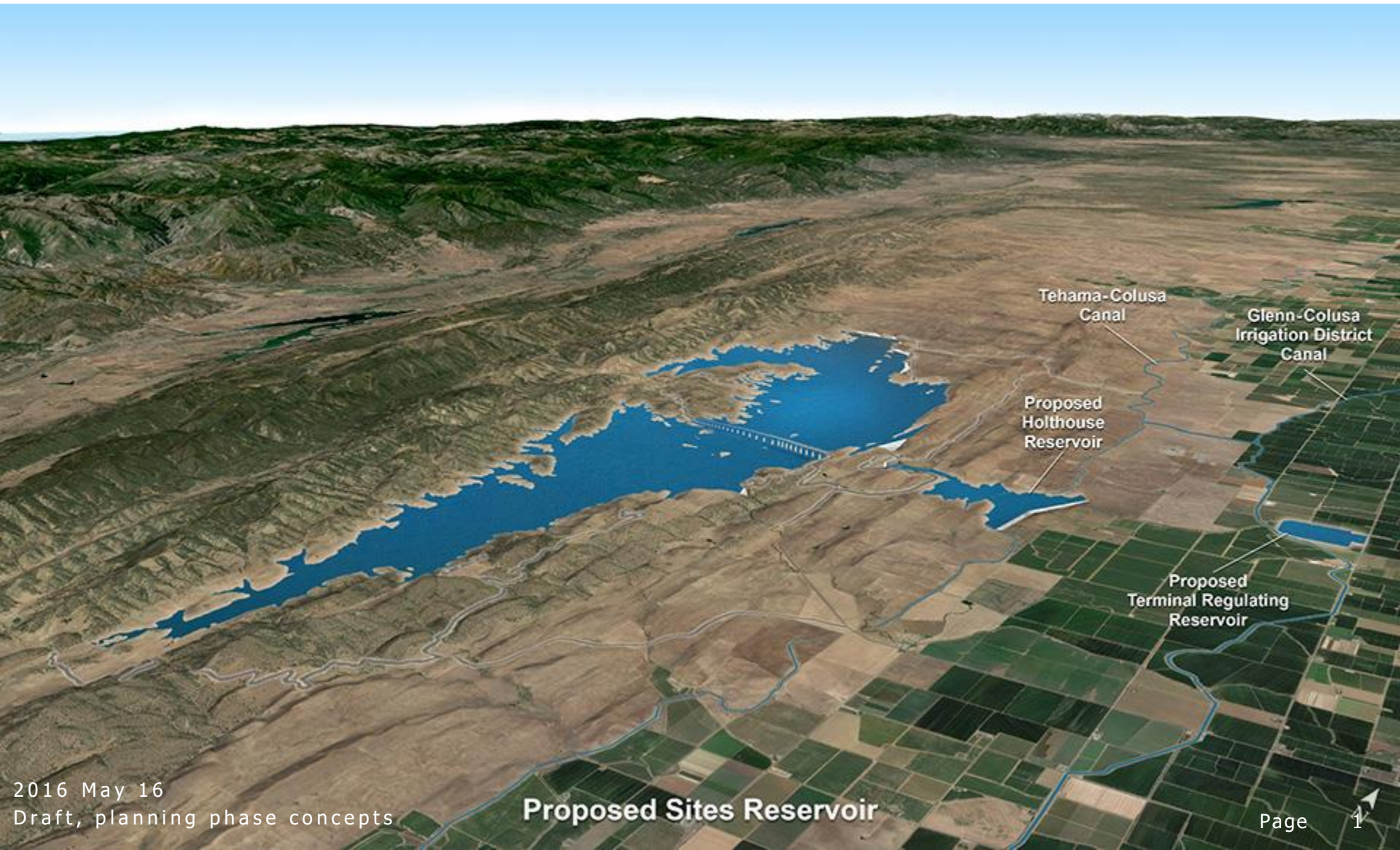


Sites Reservoir Project



Tehama-Colusa
Canal

Glenn-Colusa
Irrigation District
Canal

Proposed
Holthouse
Reservoir

Proposed
Terminal Regulating
Reservoir

Proposed Sites Reservoir

California's Surface Water System:

↑ **2/3 to 3/4 of Supply**

City of Sacramento

↓ **2/3 to 3/4 of Demand**

<u>Water User</u>	<u>Average Water Year (acre-ft)(*)</u>
Urban	8,900,000.
Agriculture	34,200,000.
Environmental	39,400,000.
Total:	82,500,000.

(Folsom is 1,010,000.)



(*) 1 Acre-ft. = 326,000 gallons

≈ 1/2 Olympic-sized swimming pool

Sacramento Valley Watershed:

Water source

Unregulated tributaries

1977 Water Rights application

Proposed Sites Reservoir

- 1957 Water Plan as a local storage project
- Offstream Storage
- Integrated Operations



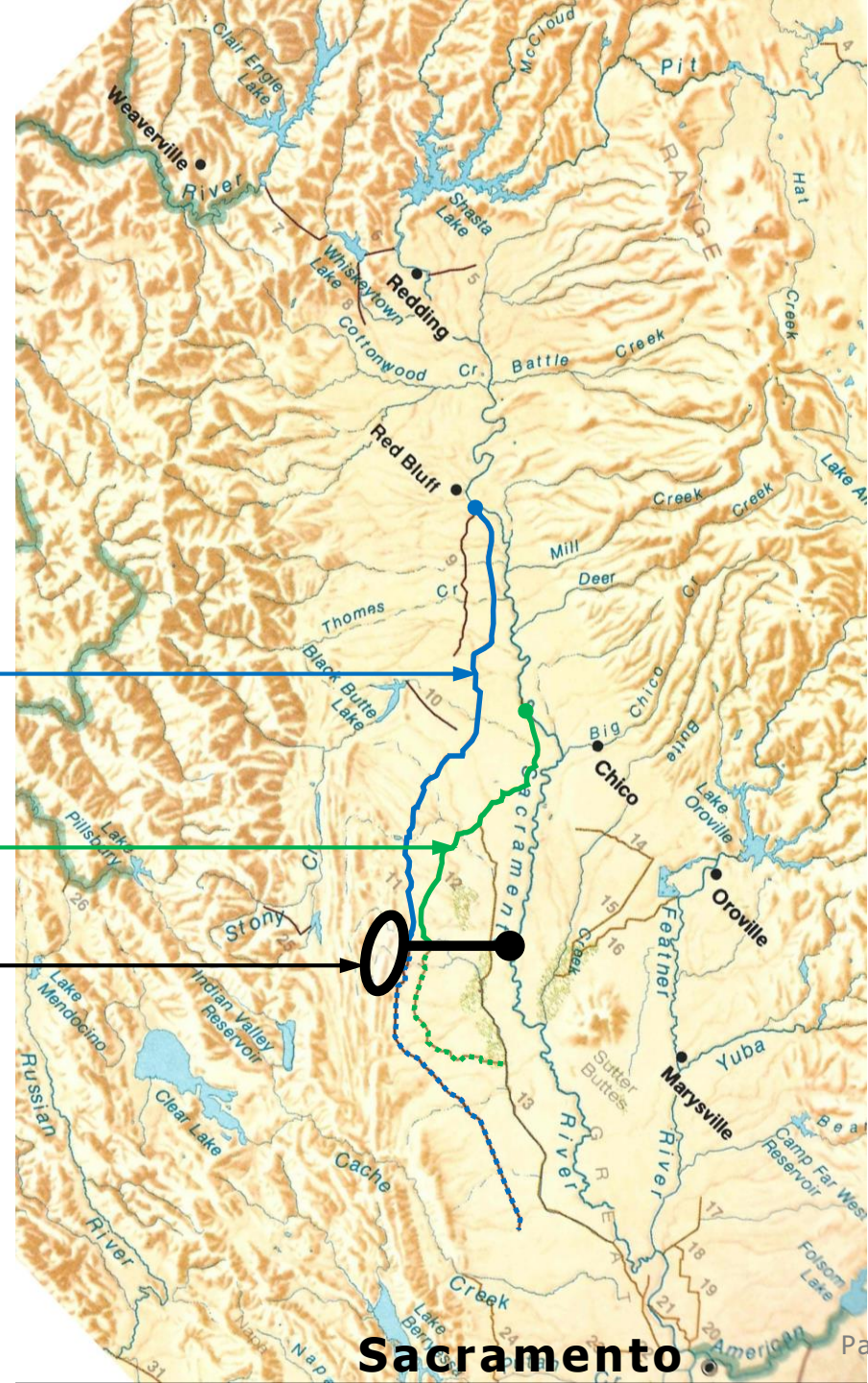
Project Location:

Tehama-Colusa Canal

Glenn-Colusa Canal

Sites Reservoir

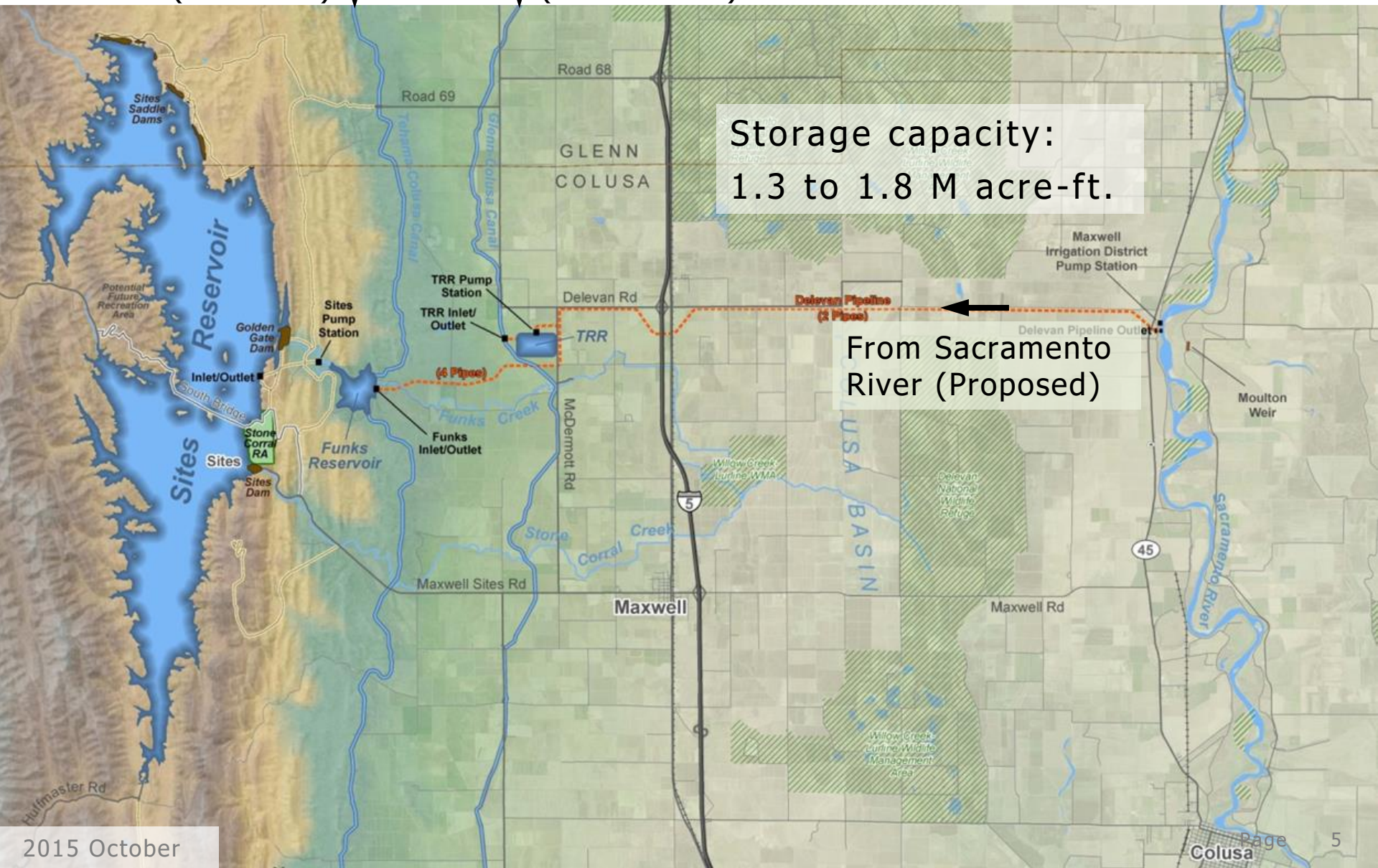
~ 75 miles northwest
of Sacramento



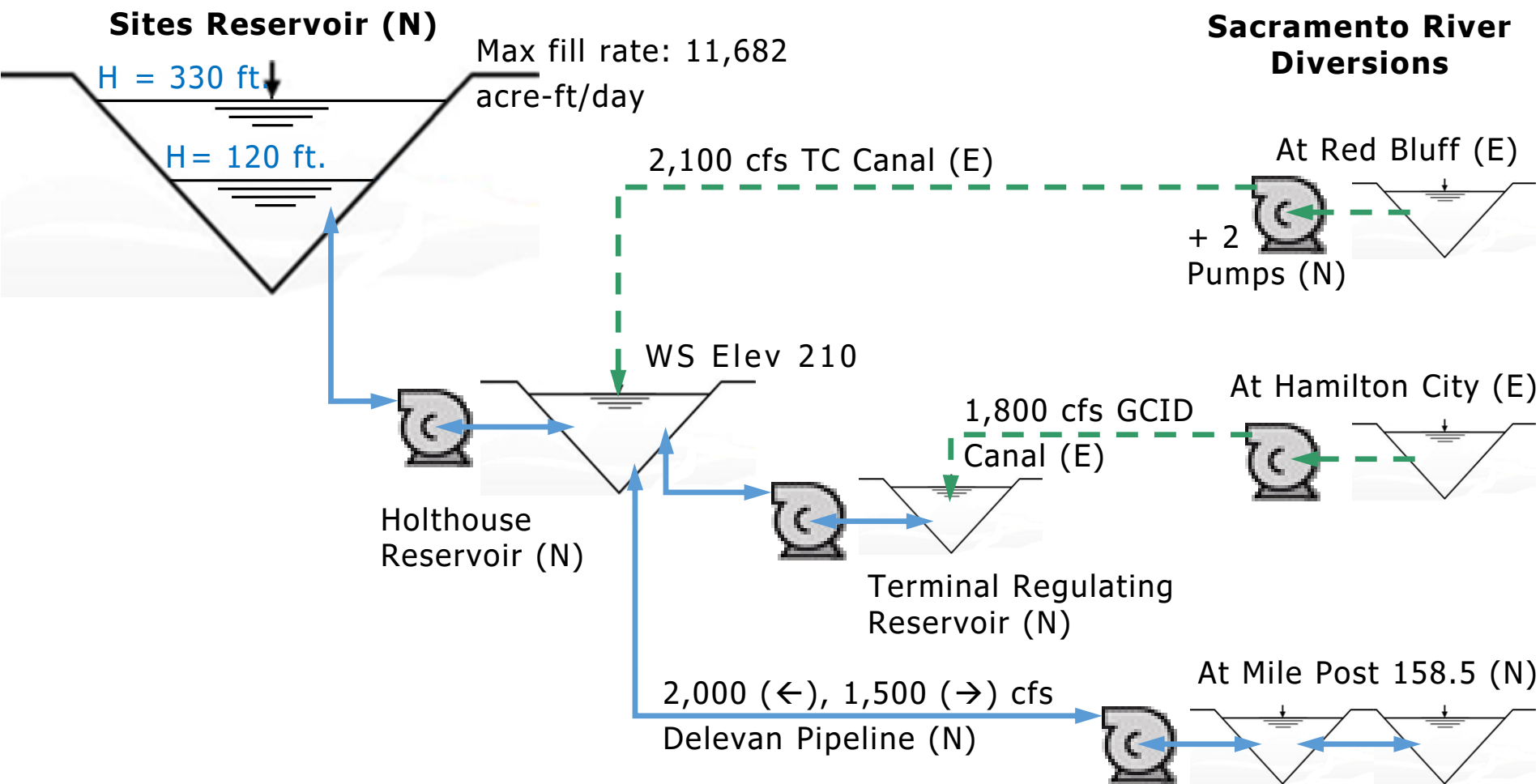
Facilities:

From Red Bluff
(TC Canal) ↓

From Hamilton City
(GCID Canal) ↓



Schematic:

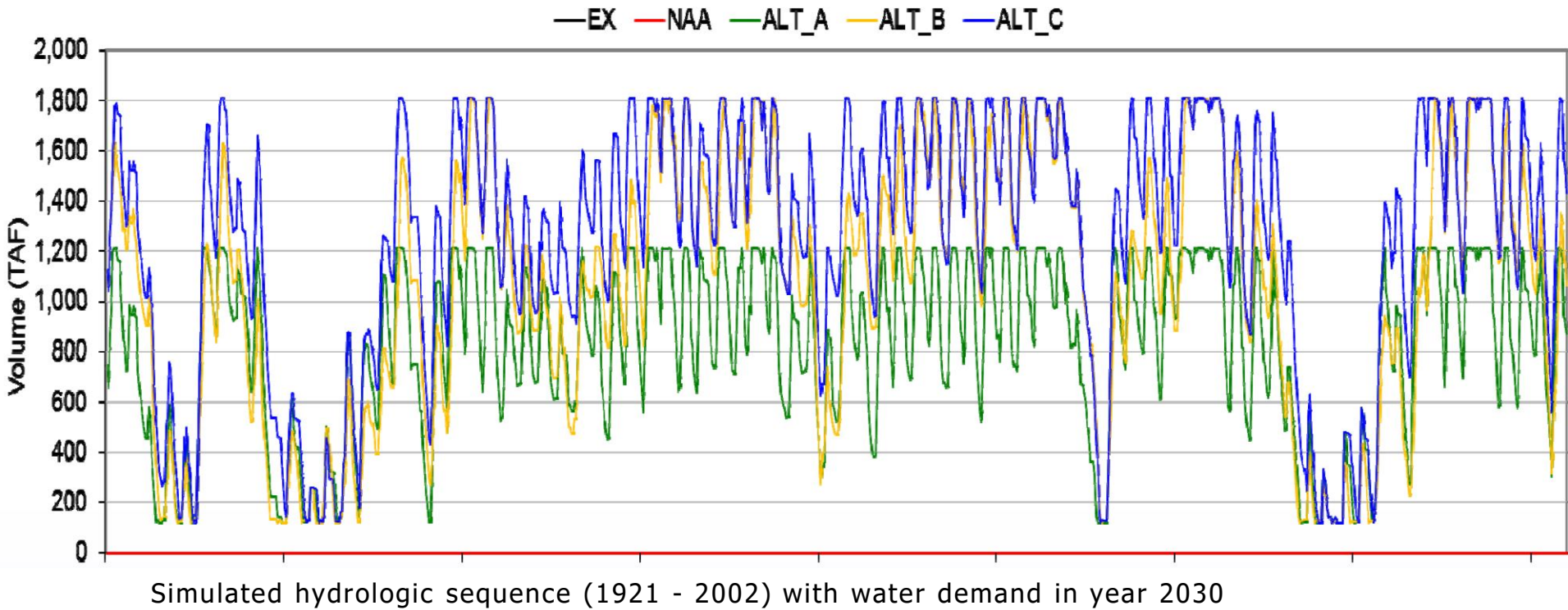


Plant Mode	Pumping Mode					Generation Mode		
Plant Name	TC Canal	GCID Canal	TRR	Sac River	Sites	Sites	TRR	Sac River
Planned Capacity, MW	6	3.39	19.68	65.65	181.35	123	9.8	10.8
Planned Capacity, cfs	2250	3000	1890	2000	5900	5100	1500	1500

Source: DWR Report (2013 Dec), Appendix H: Power Planning Study, Figure H.4-2. NODOS Project, Schematic of Conveyance and Storage Interconnection

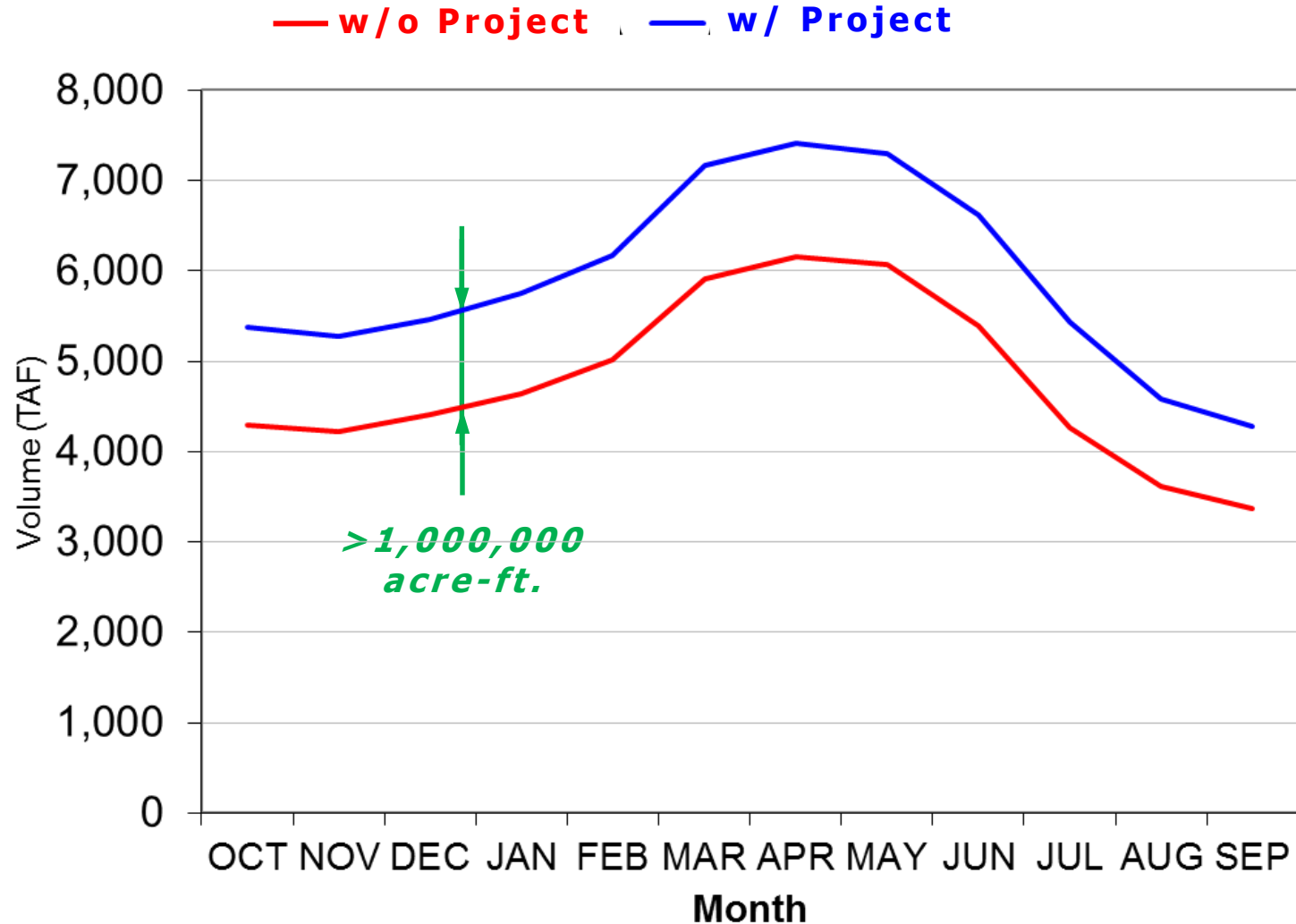
Refill Frequency:

On Average, every 3 to 5 years

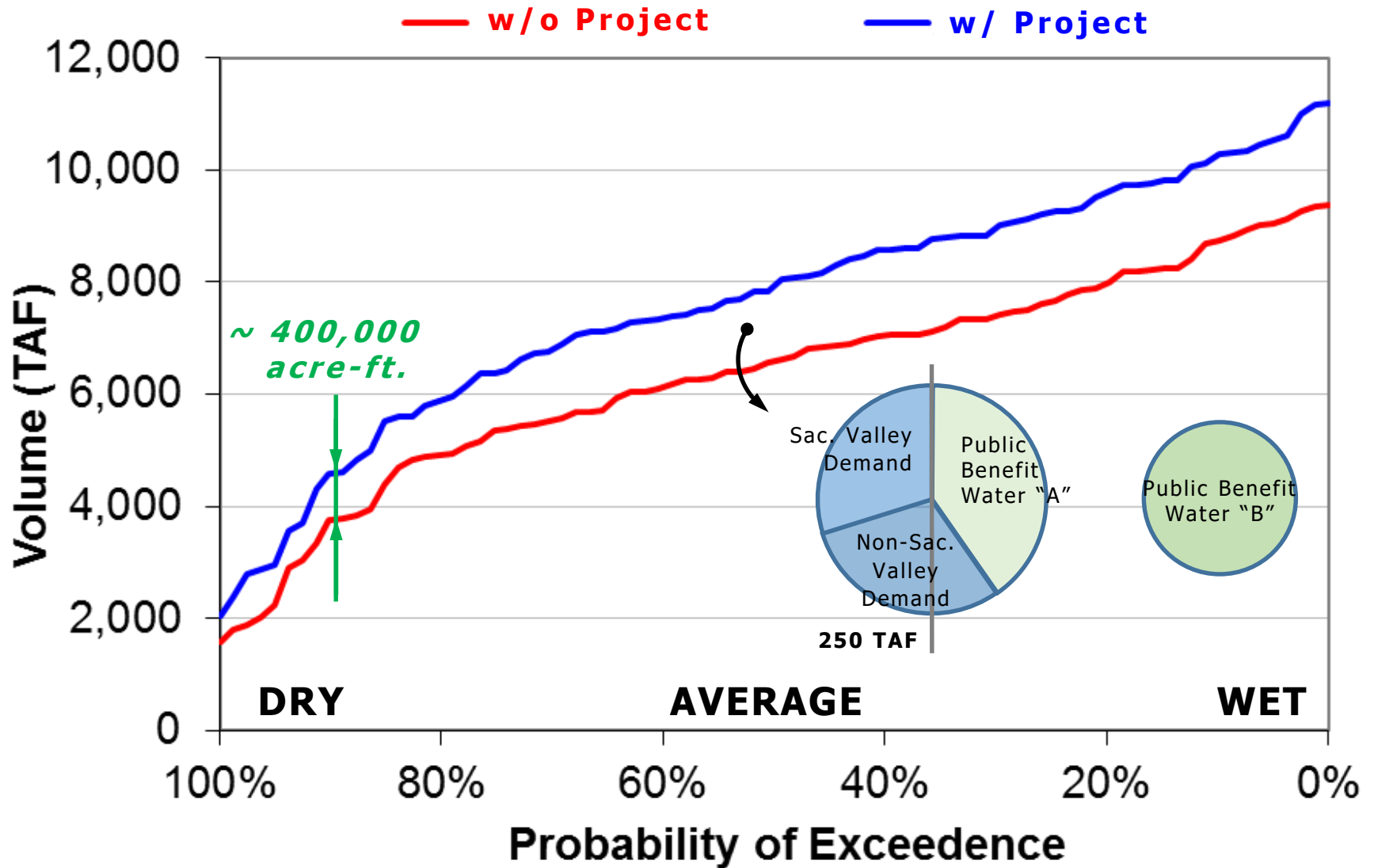


Monthly Storage (Shasta, Oroville & Sites)

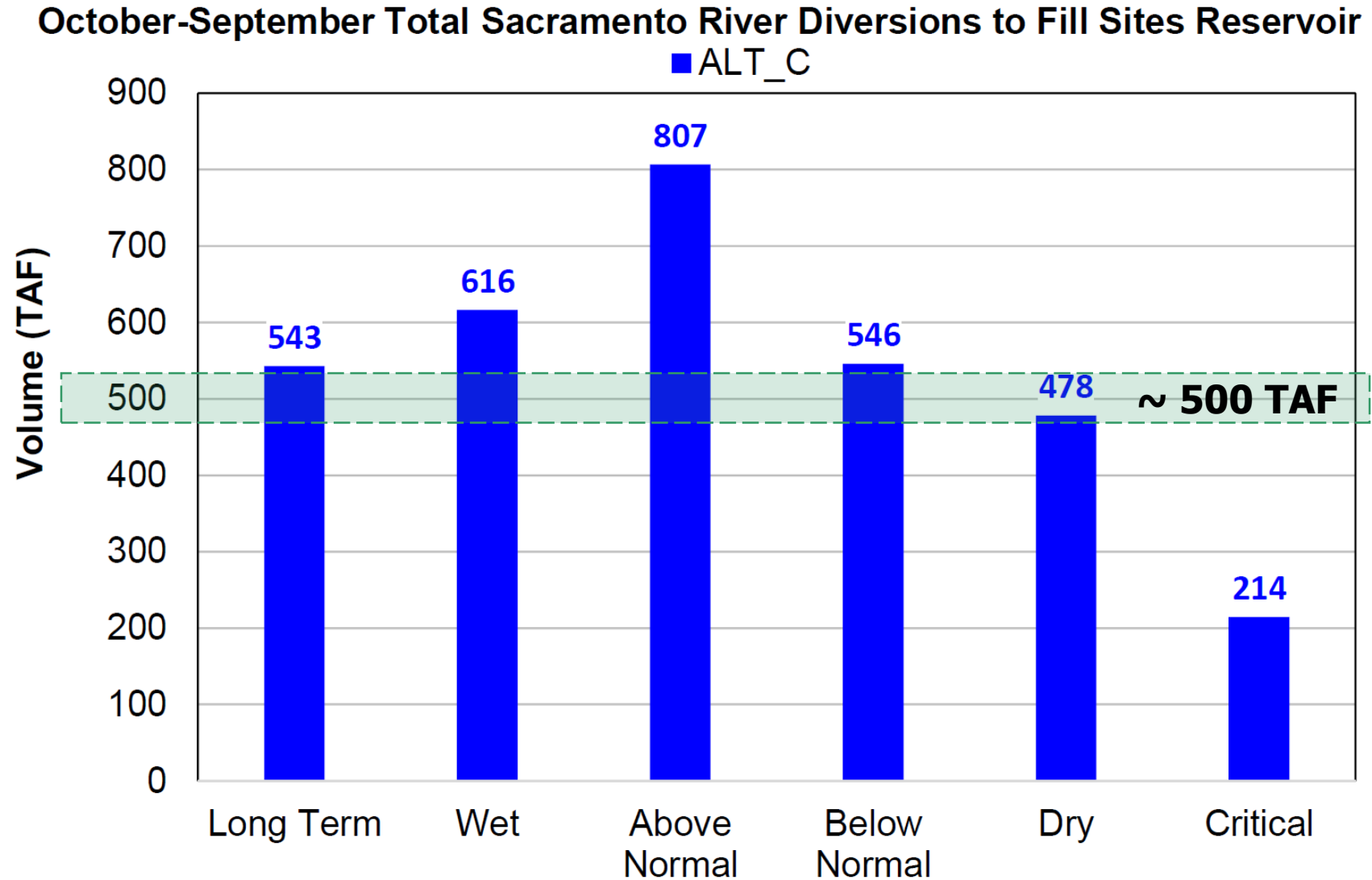
Total NOD CVP/SWP Storage Driest Periods (29-34,76-77,87-92)



September Storage (Shasta, Oroville & Sites)





Reservoir Storage By Water Year Type



Why Sites?

If Sites operated in 2015

With drought conditions, water available to increase storage:

<u>Reservoir</u>	<u>Storage (acre-ft.)</u>	<u>Percent increase</u>	
Shasta	240,000	12.1	 <i>Indirect Benefits</i>
Oroville	105,000	7.1	
Folsom	37,000	9.6	
Trinity	79,000	8.5	
<i>Not eligible for Prop 1, Chapter 8 funding</i>			
<u>Sites</u>	<u>660,000</u>	<u>(*)</u>	 <i>Direct Benefit</i>
Total	1,121,000	23.4	

While meeting the existing water quality and flow obligations of the CVP & SWP

() This water is independent of CVP & SWP water contracts*

Why Sites?

If Sites operated in 2016

California **NEEDS** Sites Reservoir

If constructed, Sites would
already have captured some

1,065,000*

acre-feet of water this year

That's

347 billion

gallons of water



Source: CA Department of Water Resources

© CA Rice Commission

* Through May 1

Proposition 1

<u>Funding Categories</u>	<u>Chapter</u>	<u>Amount</u>
▪ Clean, Safe and Reliable Drinking Water	5	\$ 520. M
▪ Protecting Rivers, Lakes, Streams, Coastal Waters and Watersheds	6	\$ 1,495. M
▪ <u>Regional</u> Water Security, Climate, and Drought Preparedness	7	\$ 810. M
▪ <u>Statewide</u> Water System Operational Improvement and Drought Preparedness	8	\$ 2,700. M
▪ Water Recycling	9	\$ 725. M
▪ Groundwater Sustainability	10	\$ 900. M
▪ Flood Management	11	\$ 395. M
Total		\$ 7,545. M

Proposition 1, Chapter 8

Eligible Projects

- ☐ **CALFED** & Groundwater Storage
- ☐ Conjunctive Use and Reservoir Reoperation
- ☐ Local and Regional Surface Storage

Eligible Public Benefits

- ☐ Ecosystem Improvement DFW
- ☐ Water Quality Improvement SWRCB
- ☐ Emergency Response DWR
- ☐ Flood Control DWR
- ☐ Recreation DWR

Maximum State Cost-Share for **Funded Public Benefits**



50%

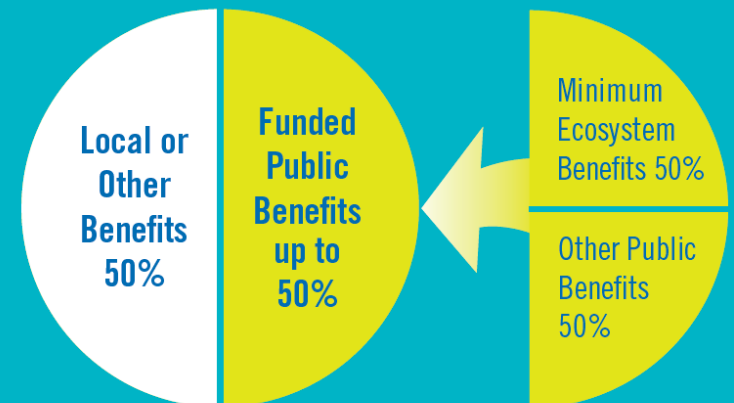
Ecosystem Benefits must be

50%

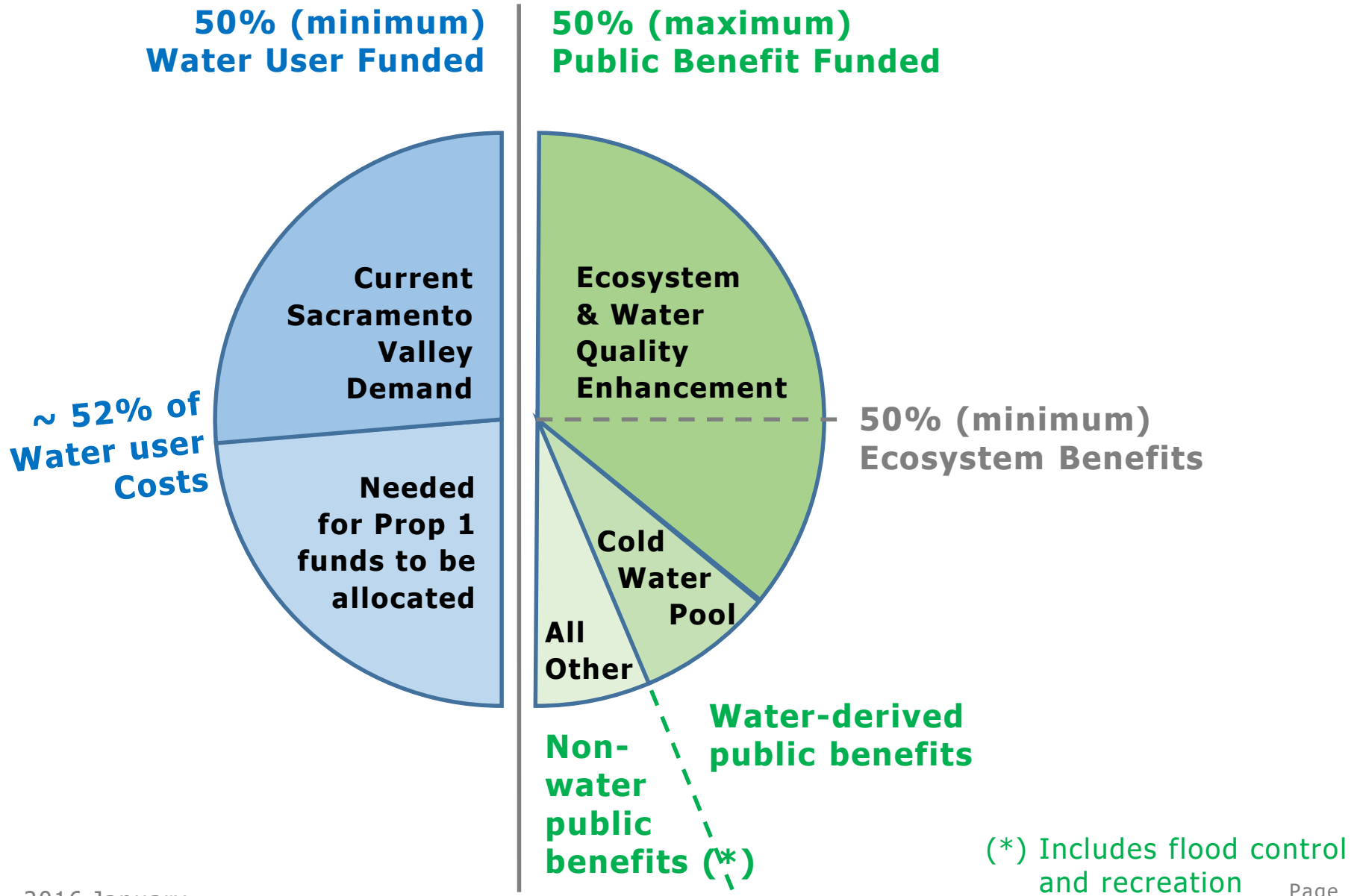
of the funded public benefits

**TOTAL
BENEFITS**

**Funded Public
Benefits**

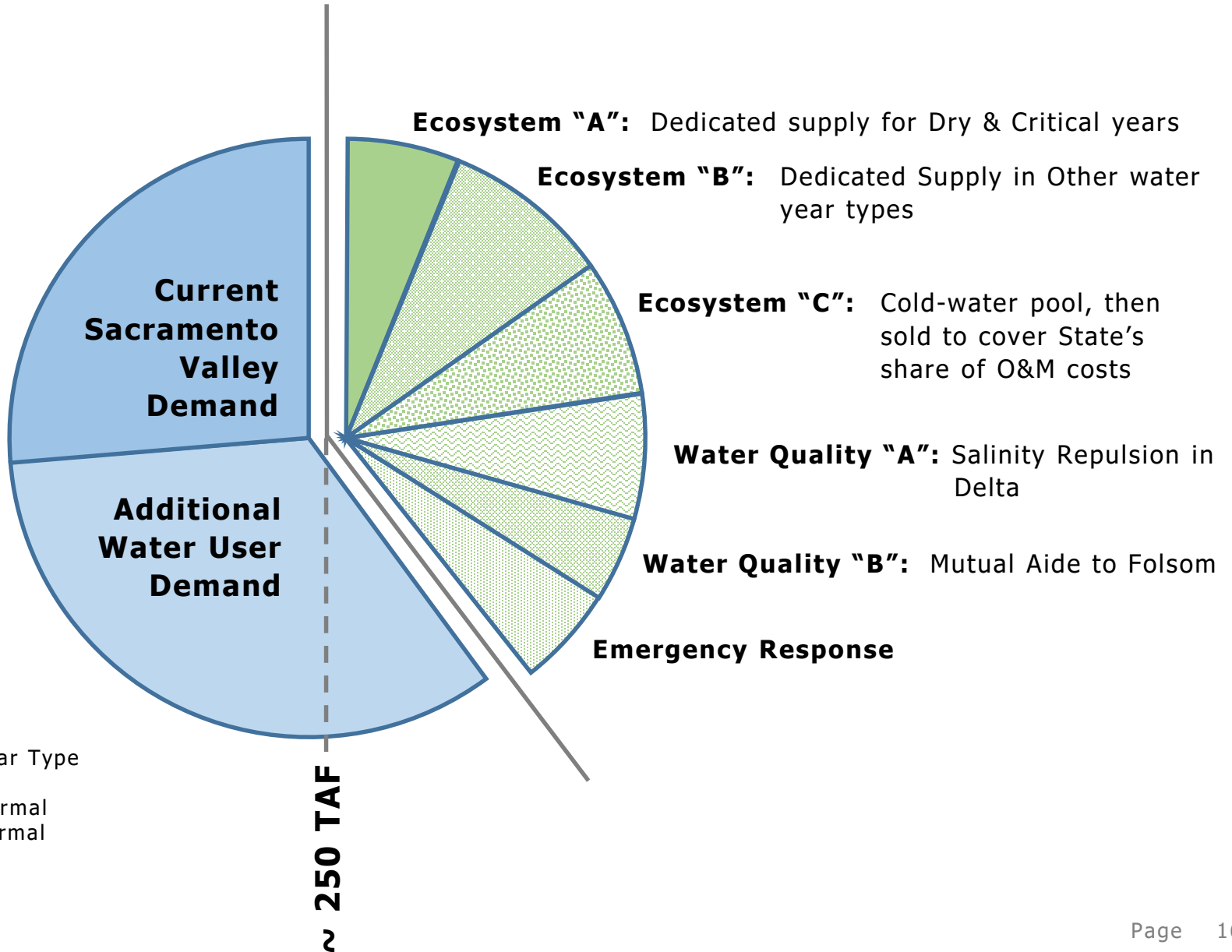


Cost Allocation: *(capital costs only)*



Yield-Based Allocation:

(Hypothetical)



Applicant's Requirements:

CALFED Project Eligibility:

(§ 79759)

- Must be a local joint powers authority (JPA)
- JPA must be located "within the applicable hydrologic region"
- JPA "shall own, govern, manage, and operate"
- JPA "may include [] partners in financing the surface storage projects"
- DWR "shall not control the governance, management, or operation"

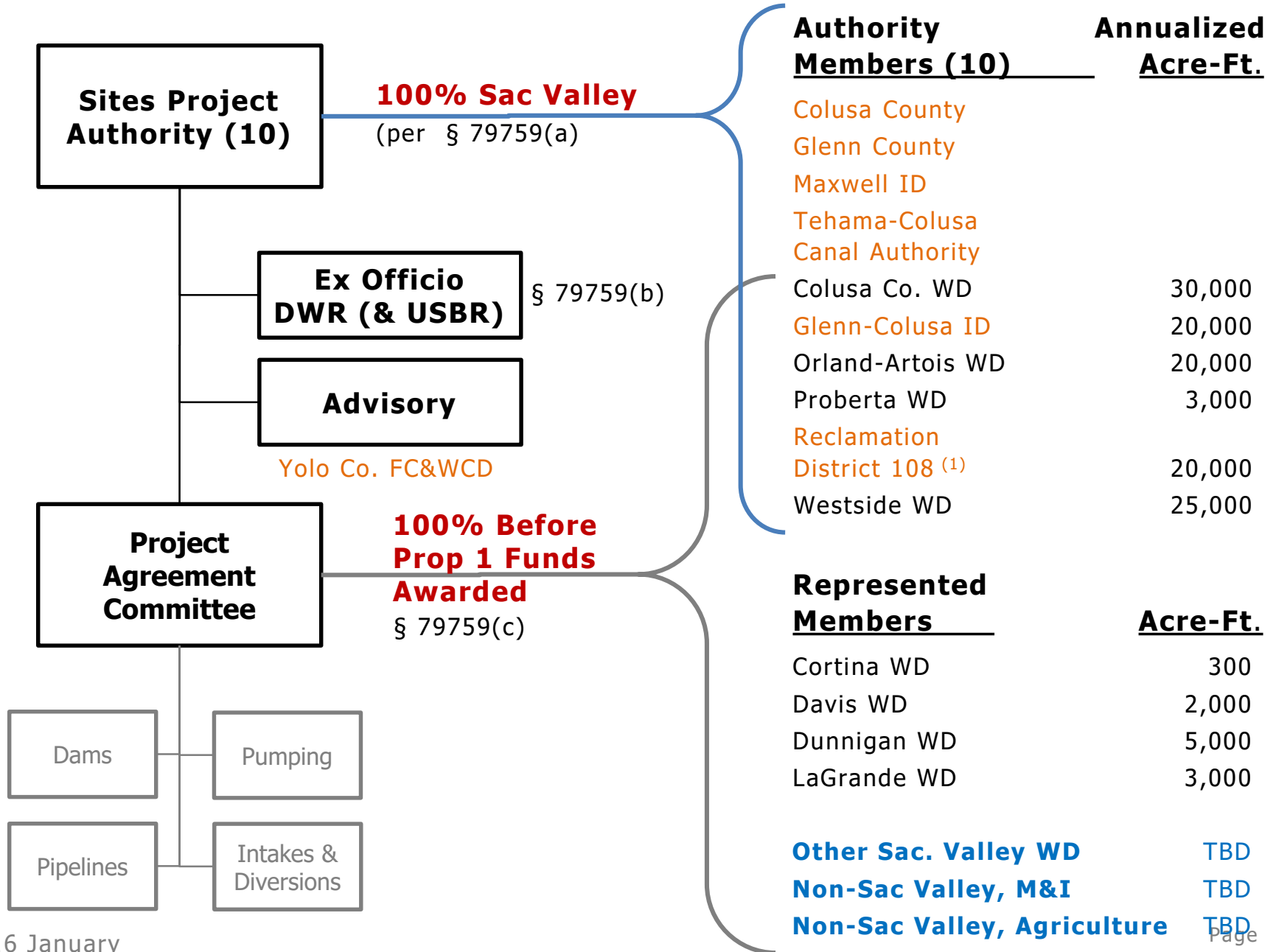
For Funding:

(Draft regulations)

Applicant has

1. sufficient "technical, managerial, and financial capacity"
2. Ability to contract with the CA Water Commission for funding
3. Ability to contract for public benefits [w/ DFW, SWRCB, DWR]

Sites Project Authority:



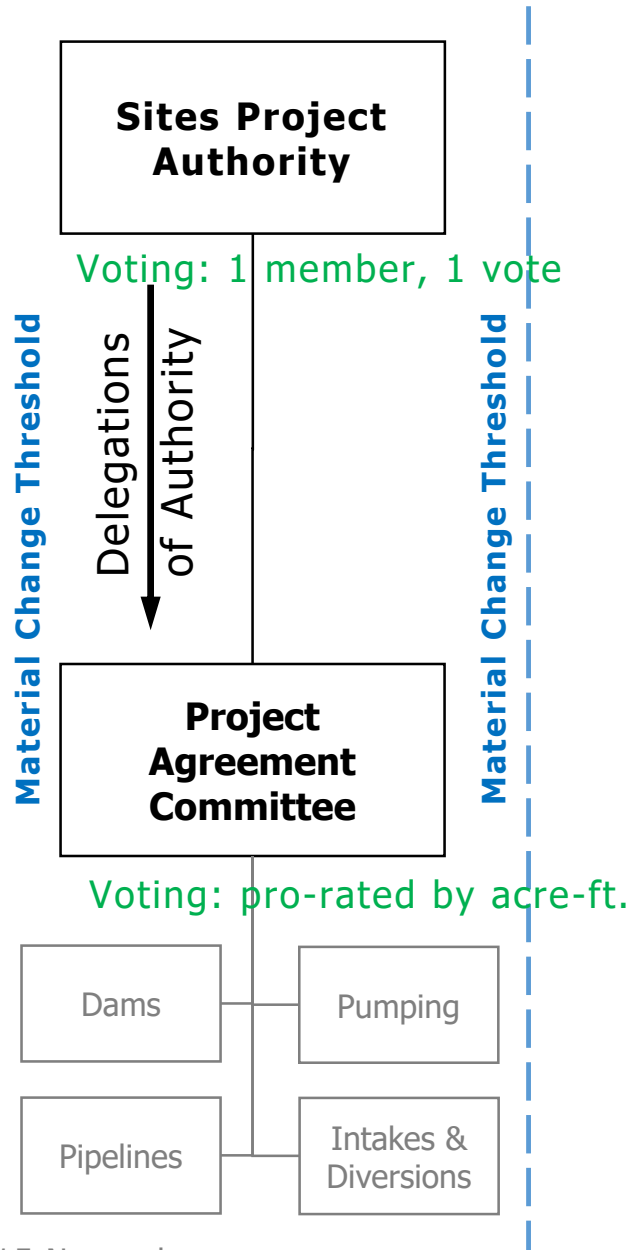
Decision Making:

Approach:

- ❑ Sites Project Authority: Chartering Document and Bylaws
- ❑ Project Agreement Committee: Bylaws and compliance with terms and conditions of the Project Agreement (delegated by the Sites Project Authority).

Material Change Categories:

- Prop 1 eligibility
- Changes in scope, schedule &/or cost
- Changes in facility performance or reliability
- Change in power or generation
- Shifting of significant risk
- Changes to water rights and/or annualized yield
- Compliance with laws & regulations (e.g. dam safety)
- Changes in environmental mitigation or compliance obligations.



Key Performance Measures:

- ❑ "Priority will be given to projects that **leverage private, federal, or local funding** to produce the greatest public benefit.

§ 79707 (chapter 4)

- ❑ Funds provided for "public benefits associated with water storage projects that **improve the operation of the state water system**, are **cost effective**, and provide a **net improvement in ecosystem and water quality conditions**."

§ 79750(b)

- ❑ Projects selected "through a competitive public process [ranked by] the [magnitude of the] **expected return for public investment**."

§ 79759(c)

- ❑ The project provides "**measureable improvement** to the **Delta ecosystem** **or** to **tributaries** to the Delta"

§ 79752

- ❑ The project "will advance the **long-term** objectives of restoring **ecological health** and improving water management for beneficial uses **of the Delta**"

§ 79755(a)(5)(B)

& § 79757(a)(2)

Public Benefit Priorities:

Priorities

Surface Flows

DFW

✓ Salmonids: all life stages, fish passage & migration

✓ Wildlife: Increase flows (ecosystem water quality)

SWRCB (impaired water bodies)

✓ **Improve Delta Tributary Flows** (Sacramento-San Joaquin Delta ecosystem)

✓ **Delta Water** (improve flow conditions)

Habitat

✓ Enhance temporal & spatial distribution

Floodplain: ? Frequency & duration of inundation

Riparian: ✓ Flow quantity & quality

Wetlands: ? Enhance

Water Quality

Temperature

✓ **Provide Cold Water** (to improve survival)

✓ Improve Water Temperature

Salinity

✓ **Increase Delta Outflow** (low salinity habitat)

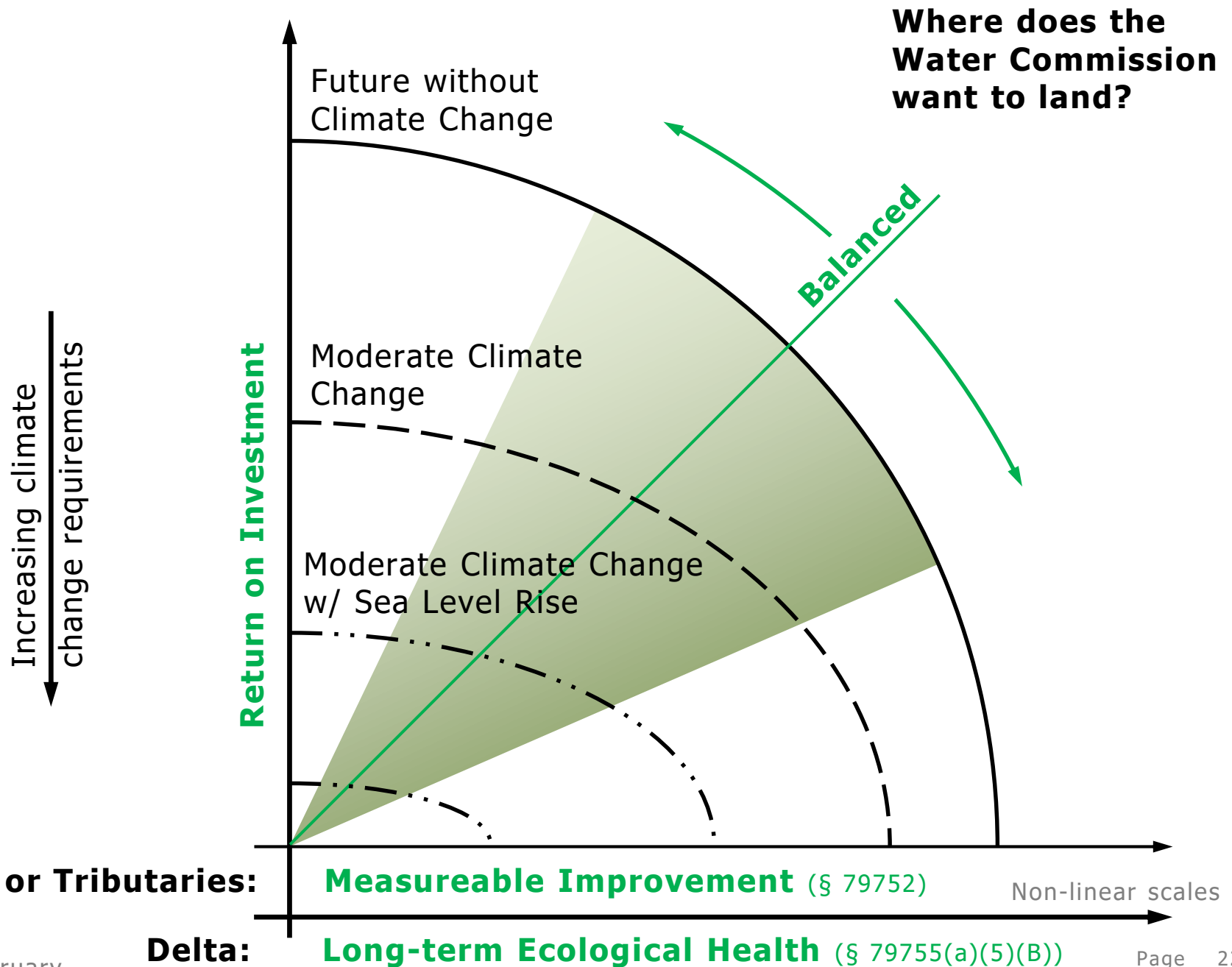
✓ **Improve salinity conditions** (Electrical Conduct. & TDS)

Other

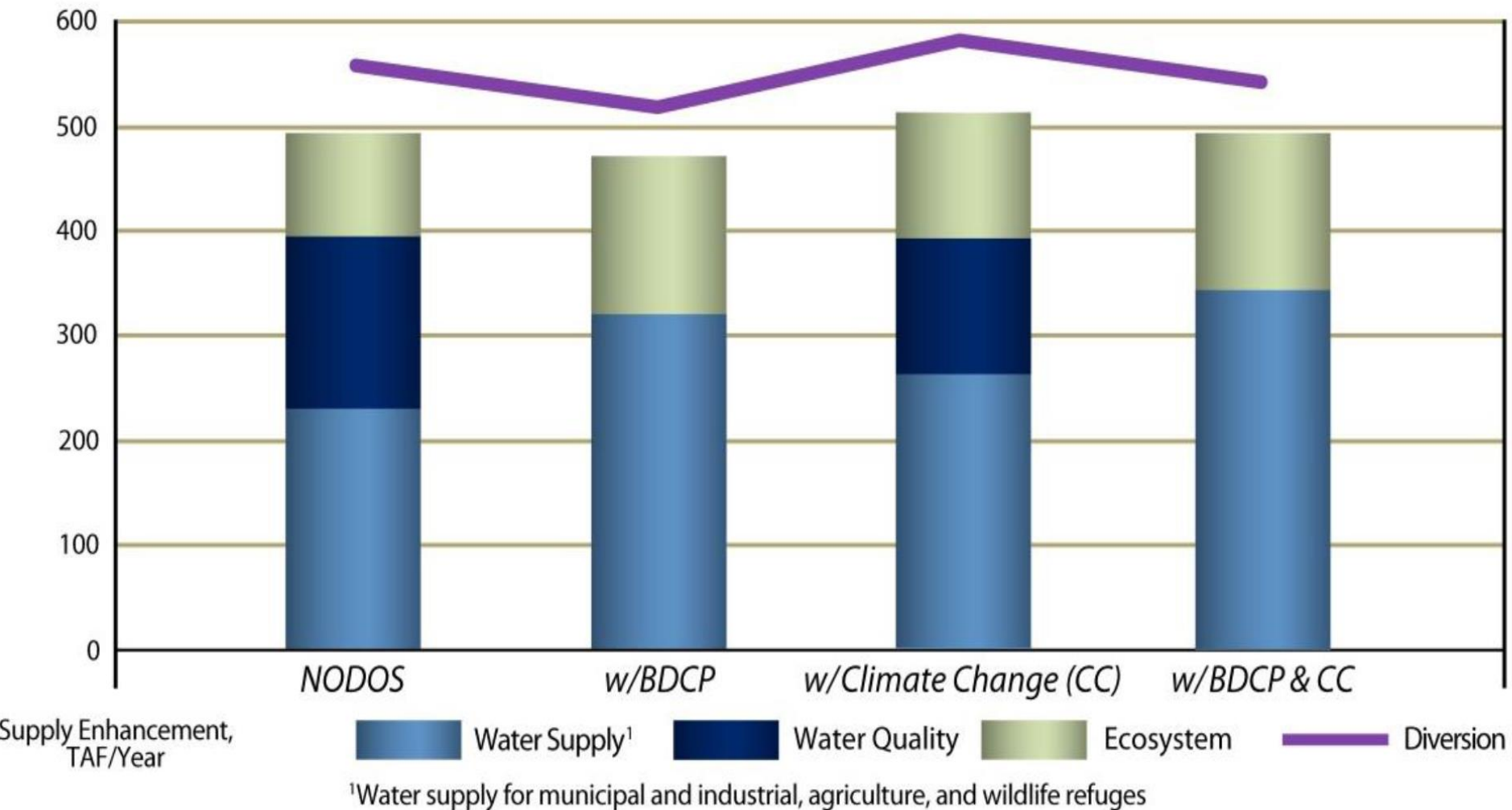
? Mercury (↓), Dissolved oxygen (↑), Nutrients (↓)

✓ Provide water for basic human needs

Selection Criteria:



Resilience to Climate Change:



Source: Safeguarding California: Implementation Action Plan, Draft Report. CA Natural Resources Agency, 2015 October.

Water Commission's Timeline:

- ❑ Voter-approval: Nov 2014

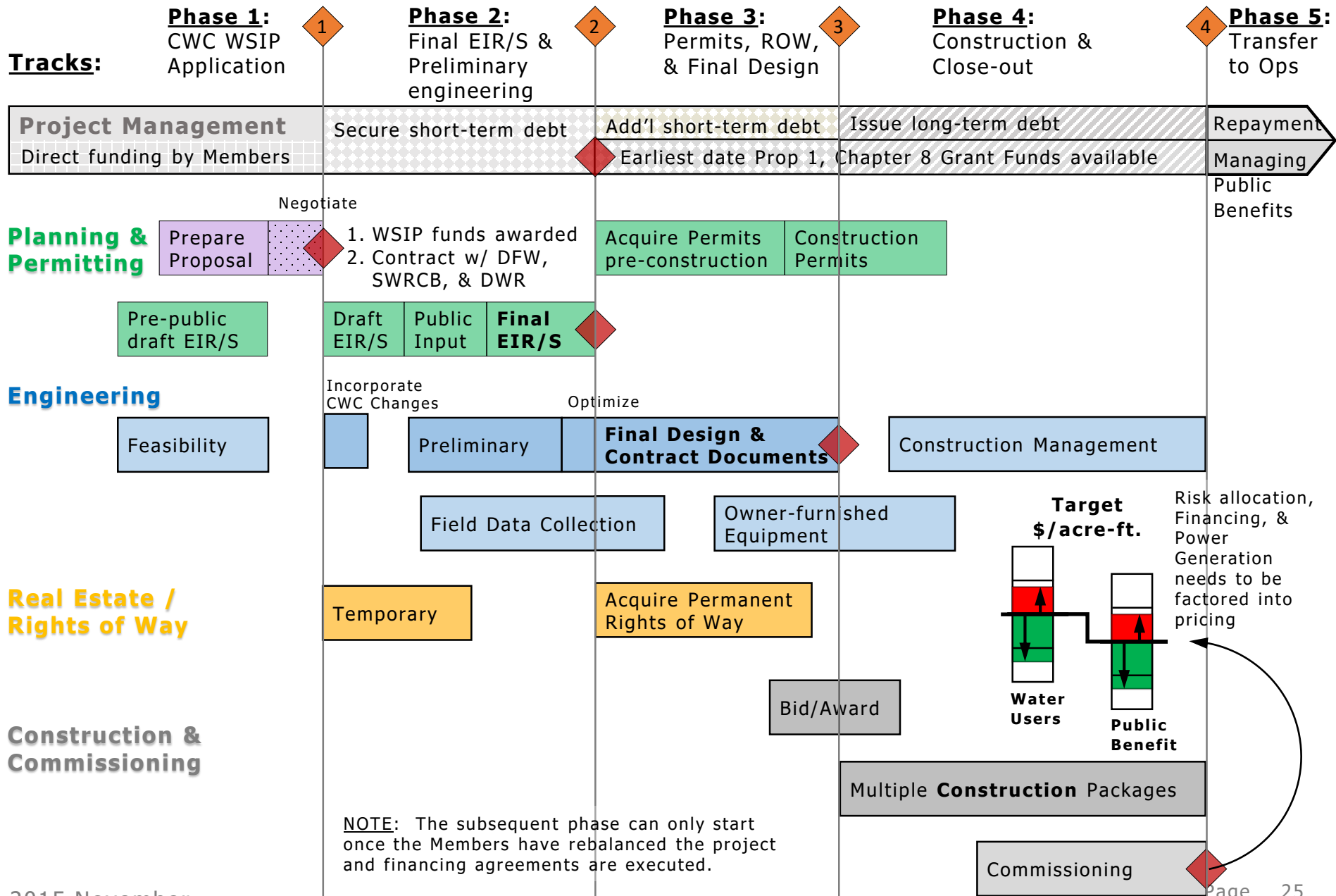
- ❑ Regulations:
 - 1. Selection Process: Public comment period ended March 14
 - 2. Criteria: Ready for public review by mid-year
(needs to be scaled back)

- ❑ **Applications:**
 - Concept papers: March 2016
 - Preliminary: ~~Spring~~ **early**-2017
 - Full: ~~End of~~ **mid**-2017

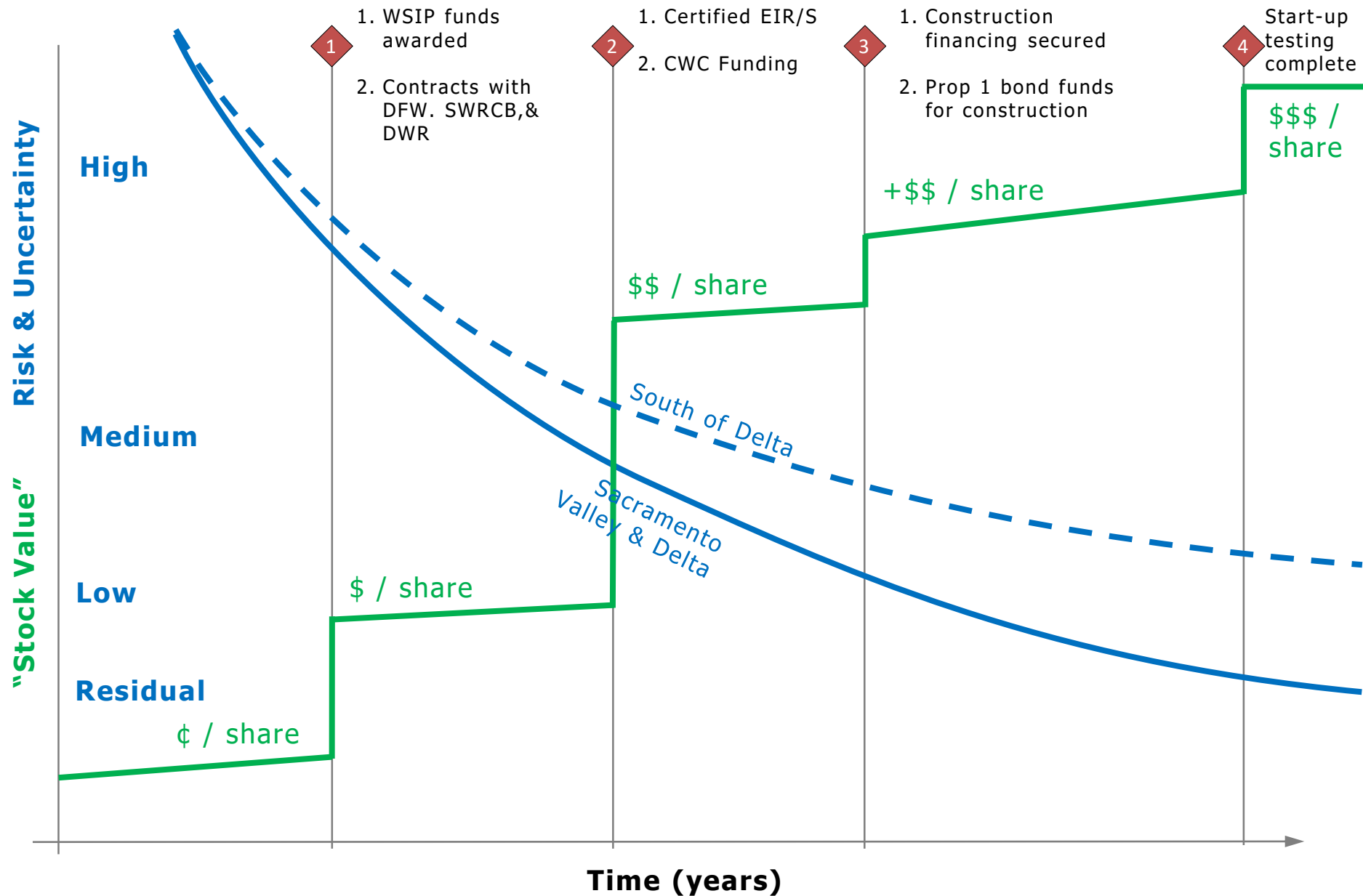
- ❑ **Commission decision:** ~~End of~~ **mid**-2018

- ❑ Funds encumbered: Project specific

Project's Phase Schedule



Project's Risk & Uncertainty vs. Value

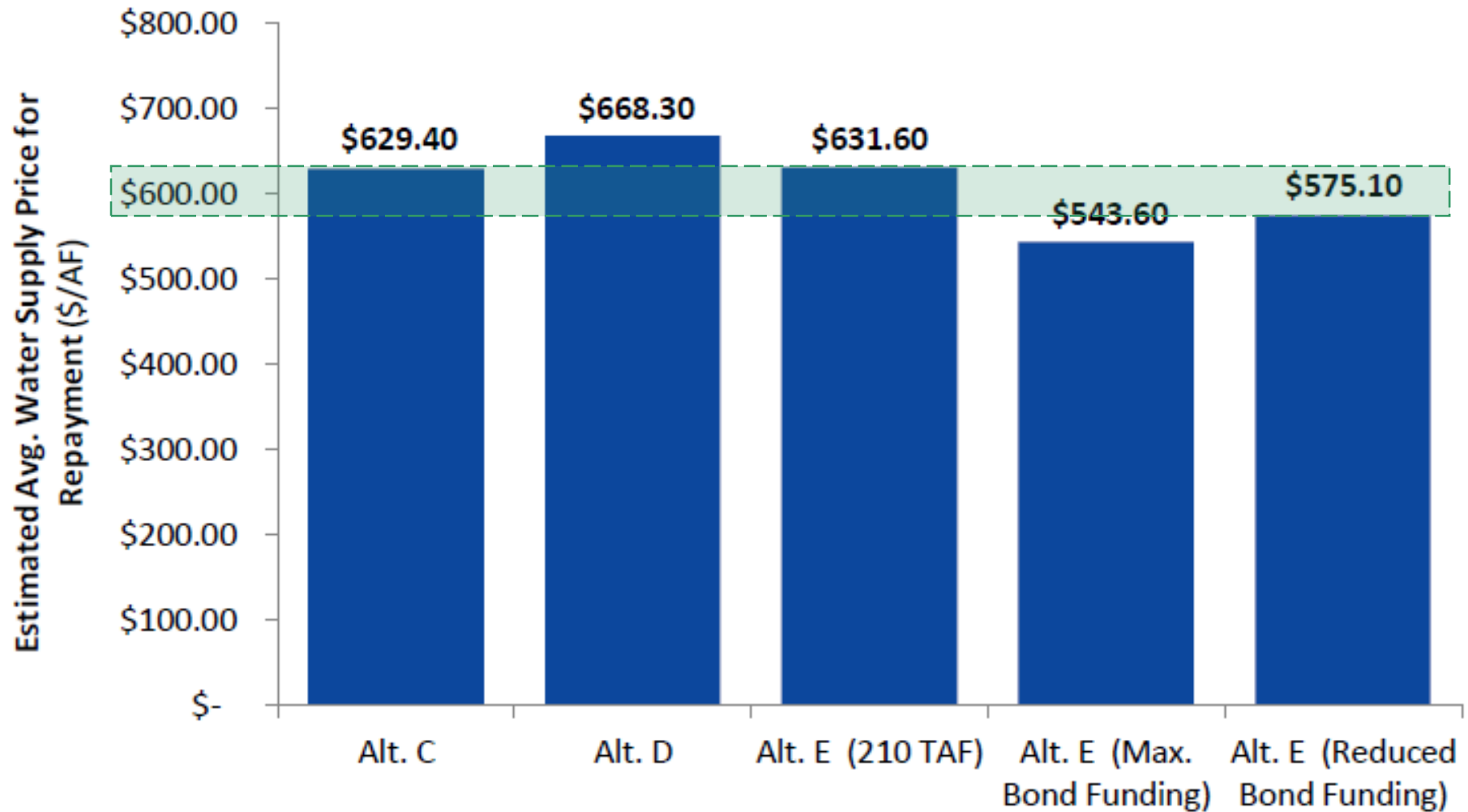


Range of Project Costs:

Reservoirs and Dams:	\$1. B - \$1.7 B
Pumping and Generating Plants:	\$1. B - \$1.5 B
Pipelines:	\$1. B - \$1.2 B
Total:	\$3. B - \$4.4 B

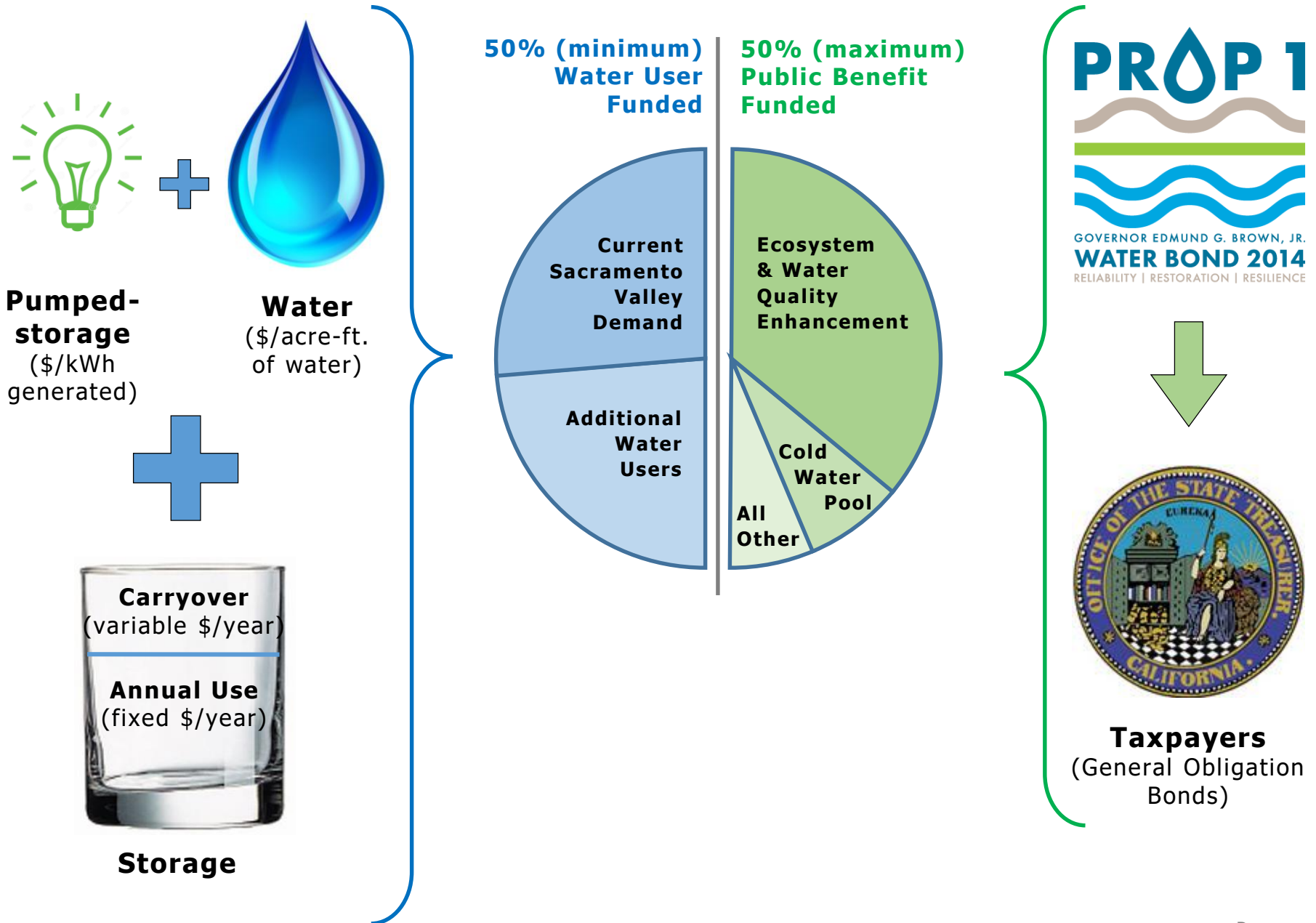
- Escalated to 2015 dollars
- w/o finance cost
- Includes contingency

Water User's Mortgage Payment:



* Price is FOB Sacramento River (North of Maxwell)

Finance & Repayment:



Discussion

