American River Basin Study

Executive Steering Committee Meeting # 4

July 9, 2018, 1-3 pm

City of Folsom — Distinctive by Nature
City of Roseville California
City of Sacramento
PCWA — water • energy • stewardship
RWA — Regional Water Authority
El Dorado County Water Agency
U.S. Department of the Interior — Bureau of Reclamation
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Meeting Agenda

1. **Introductions**
2. **Background & Budget Update**
3. **Study Progress & Key Achievements**
   - Climate Change Hydrology Development
   - CalSim 3 Model Preparation
   - Temperature Models Review
4. **Discussion**
   - M&I & Agricultural Demands Projections
   - Formulation of Adaptation Portfolios
   - Communication & Outreach Plan
5. **Related Regional Efforts Updates**
6. **Next-Steps/Action Items**

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Background & Budget Update

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Key Milestones

March 2016 - Reclamation released Basin Study solicitation

June 2016 - Proposal for an American River Basin Study (ARBS) submitted by six non-Federal Partners

September 2016 - Award of $650K by Reclamation; $1.8M proposed by non-Federal Partners as in-kind matching contributions.

June 28, 2017 – MOA for the ARBS fully signed by Reclamation and six non-Federal Partners

September 21, 2017 – Reclamation awarded contract for preparation of the ARBS ($557K)

October 2020 – ARBS Final Report expected

December 28, 2020 – MOA expires

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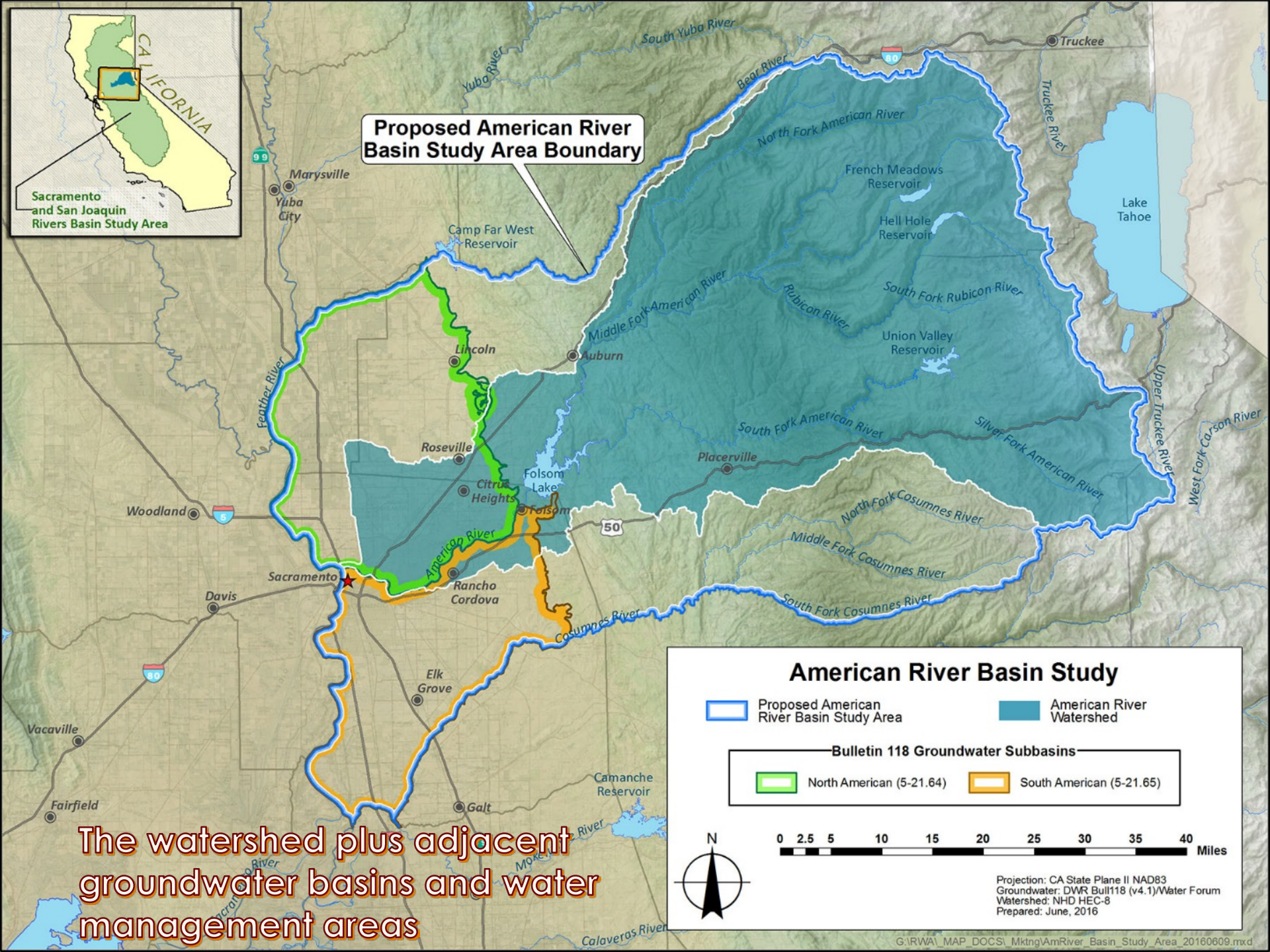

The watershed plus adjacent groundwater basins and water management areas

Study Objectives

- Further refine the assessment of water supplies and demands for the American River Basin
- Address regional **demand-supply imbalance** and infrastructure deficiencies under the existing and **future climate change conditions**.
- Improve regional collaboration for sustainable water resources management.
- Improve **coordination of local and Federal water management**.
- Align water management tools, strategies, and planning efforts of Reclamation and water agencies in the basin.

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ARBS Anticipated Outcomes

- Consistent modeling data, and assumptions for Federal and Regional planning in the American River Basin (climate change hydrology, upper watershed operations, and temperature).
- Assessment of imbalance at build-out under climate change conditions
- Assessment of how a range of selected adaptations can reduce these imbalances

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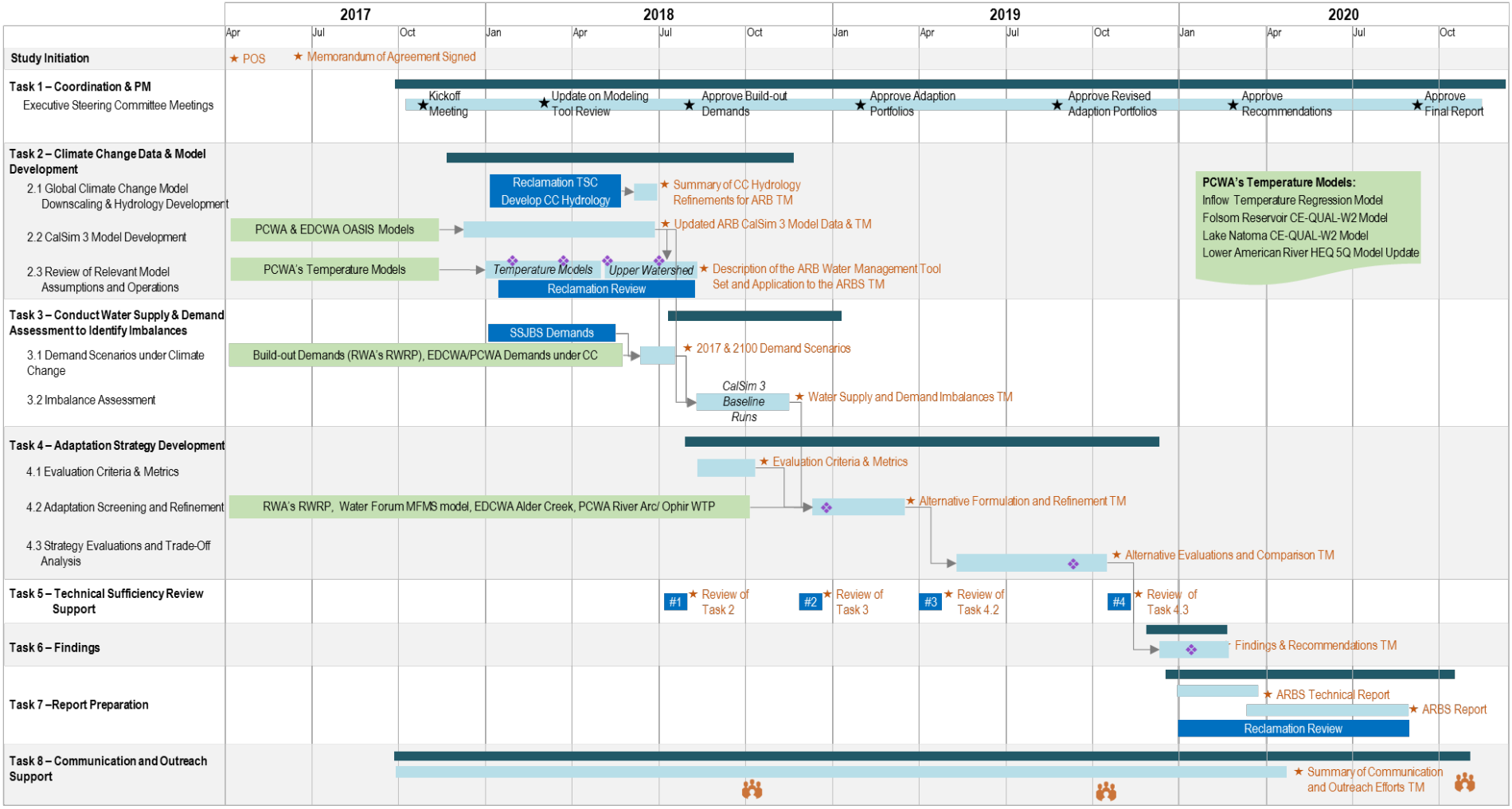
ARBS Schedule



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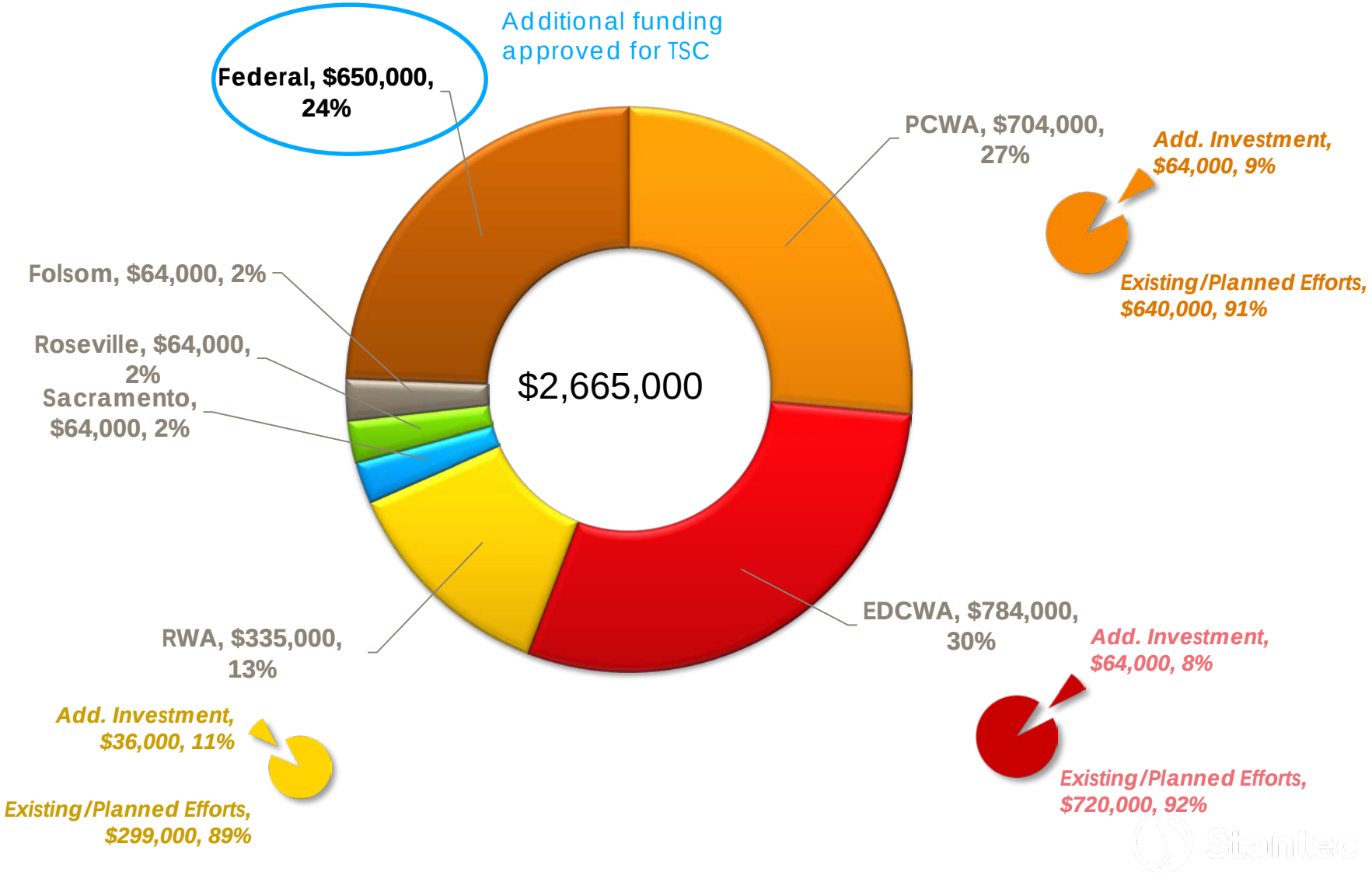
ARBS Budget Update



Bi-Annual Report of Non-Federal Partner's In-Kind Cost Share Form

Partner/Agency Name:

Study Period(s) Covered: 6 month Period from _____ to _____

Labor Expenses:

Employee (optional)	Job Category	Hourly Rate[1]	Number of Hours	Total Cost
				$0
				$0
				$0
				$0
				$0
				$0
				$0
				$0
				$0
			Total	$0

[1] Estimated hourly cost of the employee or job category, including overhead and indirect costs

Other In Kind Contributions:[2]

Description	Total Cost
	$0
	$0
	$0
	$0
	$0
	$0
	$0
Total	$0

[2] Other "in-Kind" Contributions includes the estimated value of technical studies, water plans and reports utilized this reporting period which provides data used in preparation of the Basin Study, including work conducted by consultants or contractors.

Other Expenses:[3]

Description	Total Cost
	$0
	$0
	$0
	$0
	$0
Total	$0

[3] Other expenses necessary to accomplish the work (i.e., printing, shipping, etc.)

Travel:

Location	Reason for Trip	Number of Travelers	Total Cost
			$0
			$0
			$0
			$0
		Total	$0

Cash Contributions:

Date	Total Amount
Total	$0

Total Expenses:

Cost Category	Amount
Labor	$0
Other In Kind Contributions	$0
Other Expenses	$0
Travel	$0
Cash Contributions	$0
Total Non-Federal Expenditures	$0

Note: Back-up Documentation for staff, travel, study costs, etc. does not need to be submitted to Reclamation. However, this data should retained during the duration of preparation of the Basin Study and made available to Reclamation upon request.

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Study Progress & Key Achievement

- Climate Change Hydrology Development
- CalSim 3 Model Preparation
- Temperature Models Review

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ARBS Climate Change Approach

- Confirmed the selection of the Fixed Level of Development climate change approach
  - More appropriate for the study needs compared to the transient analysis approach.

- Selected Future Periods: 2015 (baseline), 2050 (2035-2064), 2070 (2055-2084), 2085 (2070-2099)
  - Reflect build-out conditions of local agencies under current land use assumptions
  - Reflect conditions at the furthest distant future, per available dataset.
  - Leverage existing state-wide climate change data and tools.

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Climate Change Hydrology Development

- Additional funding for Reclamation TSC support
- Completed downscaling of climate data for the ARB and Central Valley (2050, 2070, 2085)
  - Dataset can be leveraged for other Reclamation and State-wide studies
- Developing climate change hydrology using the VIC model:
  - ARB defined sub-watersheds (based on OASIS)
  - Central Valley (CalSim 3 domain)
  - Expected completion by end of July
- Next steps:
  - Bias correction of VIC outputs (runoff, evapotranspiration)

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CalSim 3 Model Preparations

- CalSim 3 model refinement of upper Watershed operations under the ARBS
  - Middle Fork American River
  - South Form American River
- Additional model refinement leveraging DWR efforts
  - Yuba – Bear Watershed (DWR)
  - North Fork American River (DWR)

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CalSim 3 Model Preparations

- ☑ Completed CalSim 3 updates for representation of:
  - Middle Fork Project
  - Upper American River Project
  - EID - Project 184
- ☑ Major model updates
  - Implemented new FERC license requirements
  - Implemented water right requirements
  - Implemented Discretionary releases for water supply and hydropower
  - Added Project-specific operating agreements and contracts

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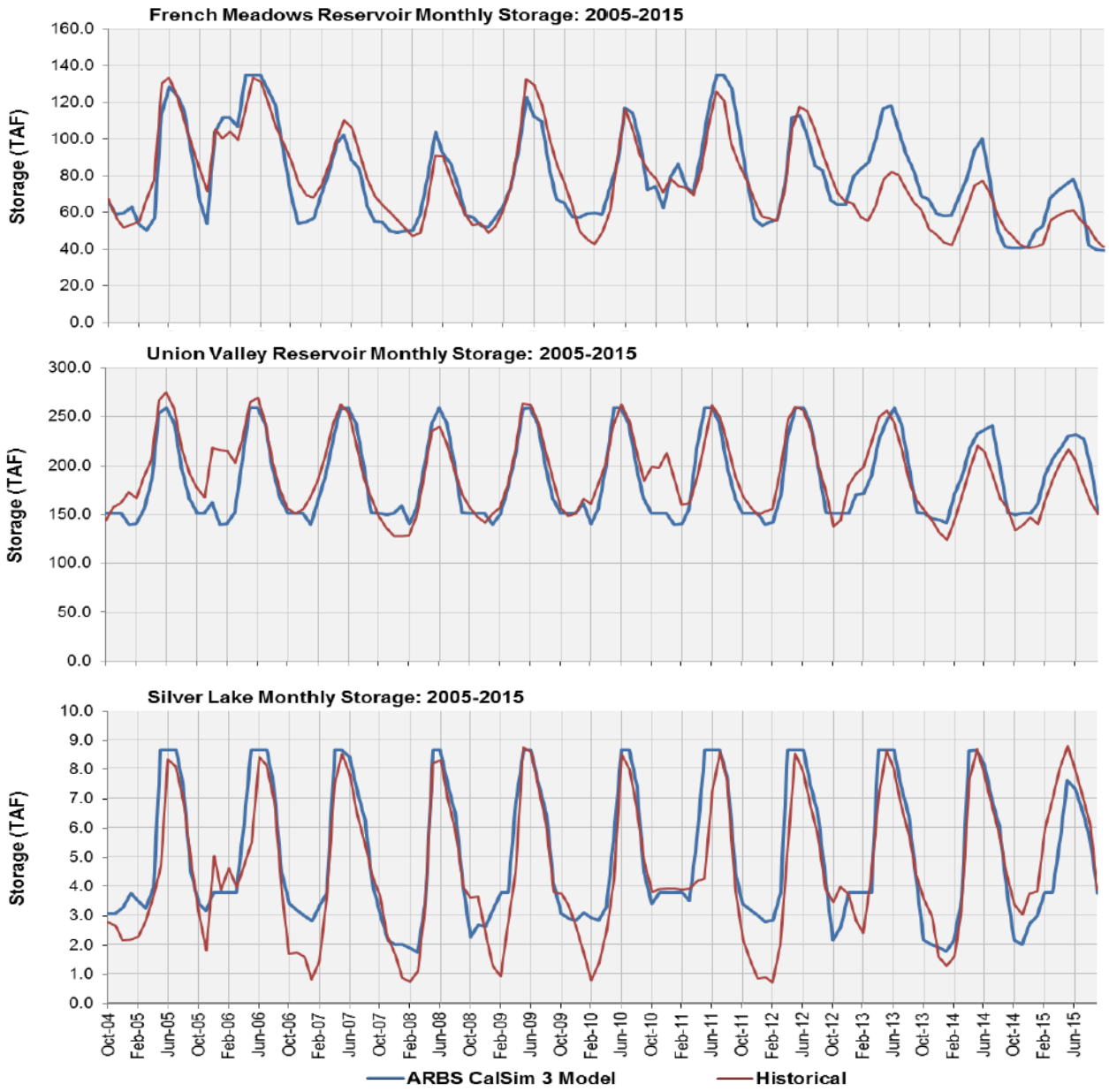
Completed intial Model Calibration

- ☑ Middle Fork Project
- ☑ Upper American River Project
- ☑ EID - Project 184



CalSim 3 Model Preparations

- Current Activities:
  - Completing detailed model documentation

- Next Steps:
  - Model validation (expected by mid-August)
  - Model integration
  - Future model developments/applications for adaptation scenario formulation, including:
    - Alder Creek Reservoir
    - RiverArc
    - Groundwater Bank
    - Others

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Temperature Models Review

- TSC in the process of reviewing Lower American River Temperature model TMs

- Reclamation has initiated temperature model update effort for the Sacramento River System:
  - Initial focus on main-stem Sacramento River
  - American River is part of the scope

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Discussion

- How to maintain consistency between future demand projections and local planning assumptions?
- What are the key regional strategies to be considered in the adaptation Portfolios?
- Is the planned public outreach adequate? Suggested additional considerations?

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Demand Analysis Approach

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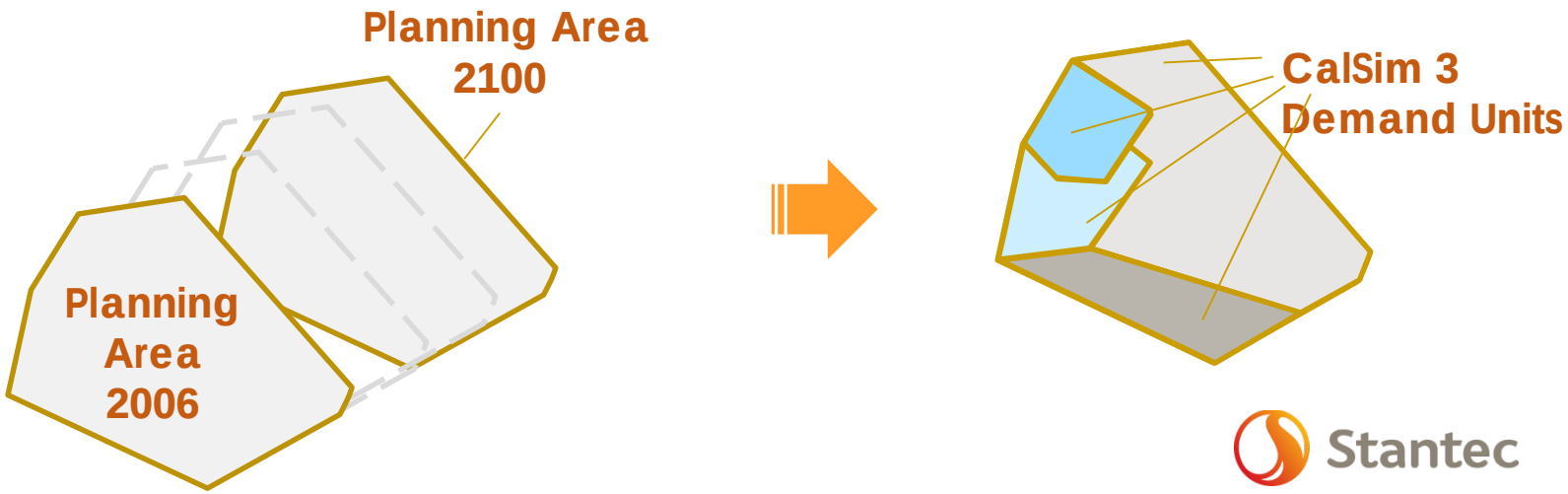
Demand Analysis Approach

- Demand data are available from the WEAP model developed for the Sacramento-San Joaquin Basin Study
  - Available for period **2006-2100**
  - Aggregated by **Planning Areas**

- Scale urban demand and irrigated acreage



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Demand Analysis Approach

	Central Valley	ARB (Valley Floor)	ARB (Foothills)
Urban	☑ Developed using SSJBS WEAP data	☑ Developed using SSJBS WEAP data 🔄 Assess consistency with local planning	🔄 Under development o EDCWA – West Slope Study (2014) o EID UWMP
Agricultural	☑ Developed using SSJBS WEAP data	☑ Developed using SSJBS WEAP data 🔄 Assess consistency with local planning	🔄 Under development o EDCWA – West Slope Study (2014)

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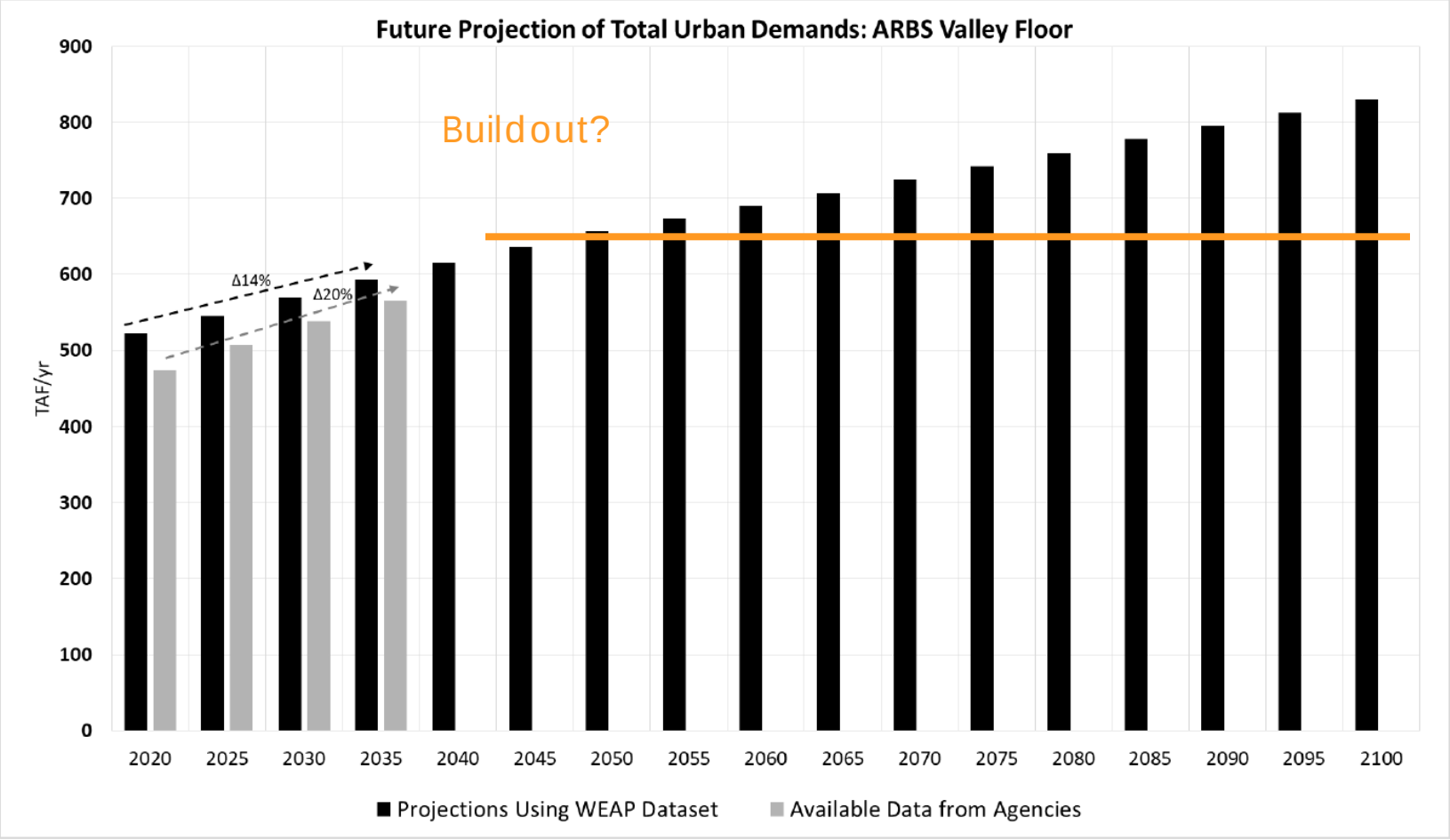
Future Urban Demand Projections

- **How to maintain consistency between future demand projections and local planning assumptions?**



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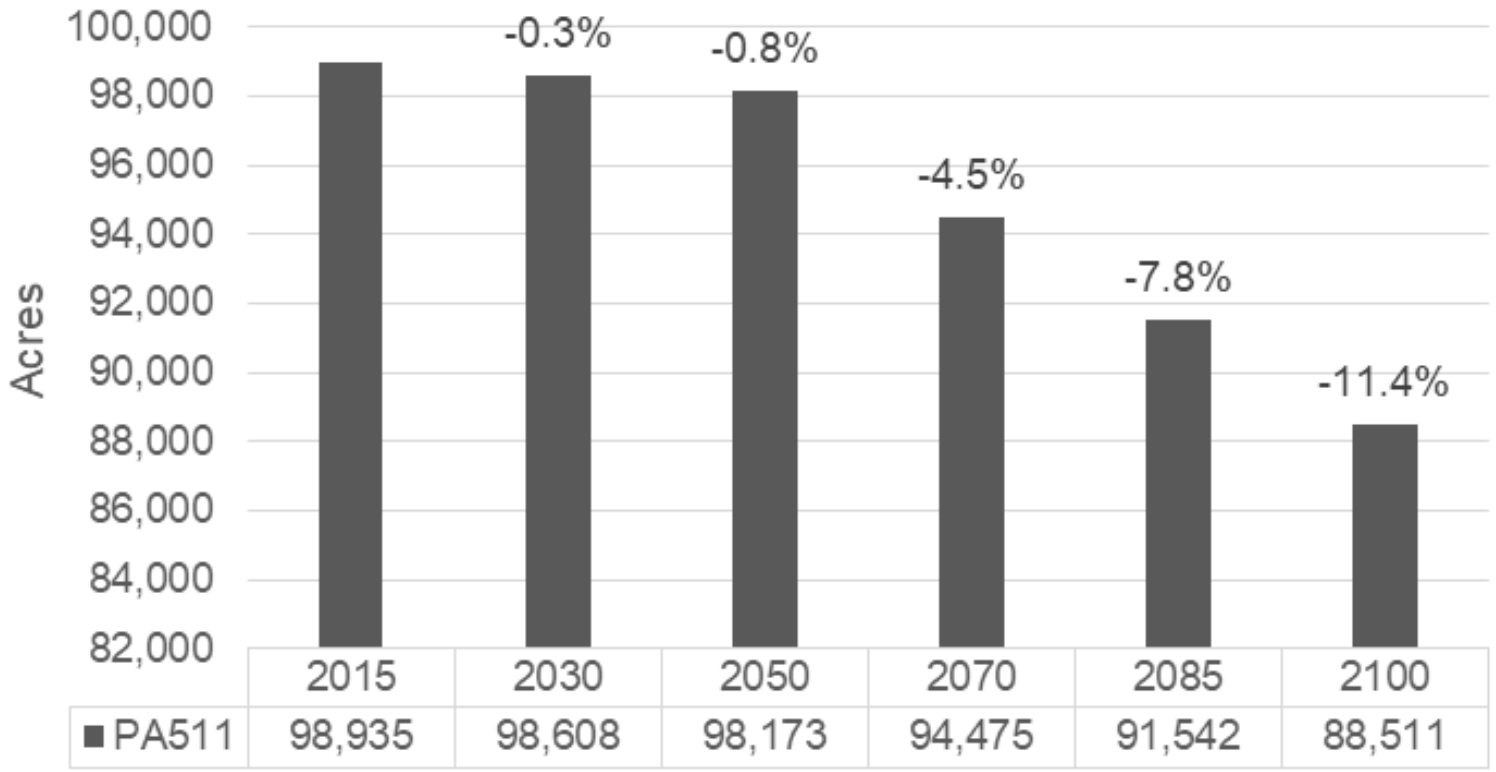
Future Agricultural Demands



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Demand Analysis

- **Next Steps**
  - Finalized demand projects for ARB valley floor and foothills
  - Conduct demand-supply imbalance assessment under climate change conditions
  - Expected completion – end of September

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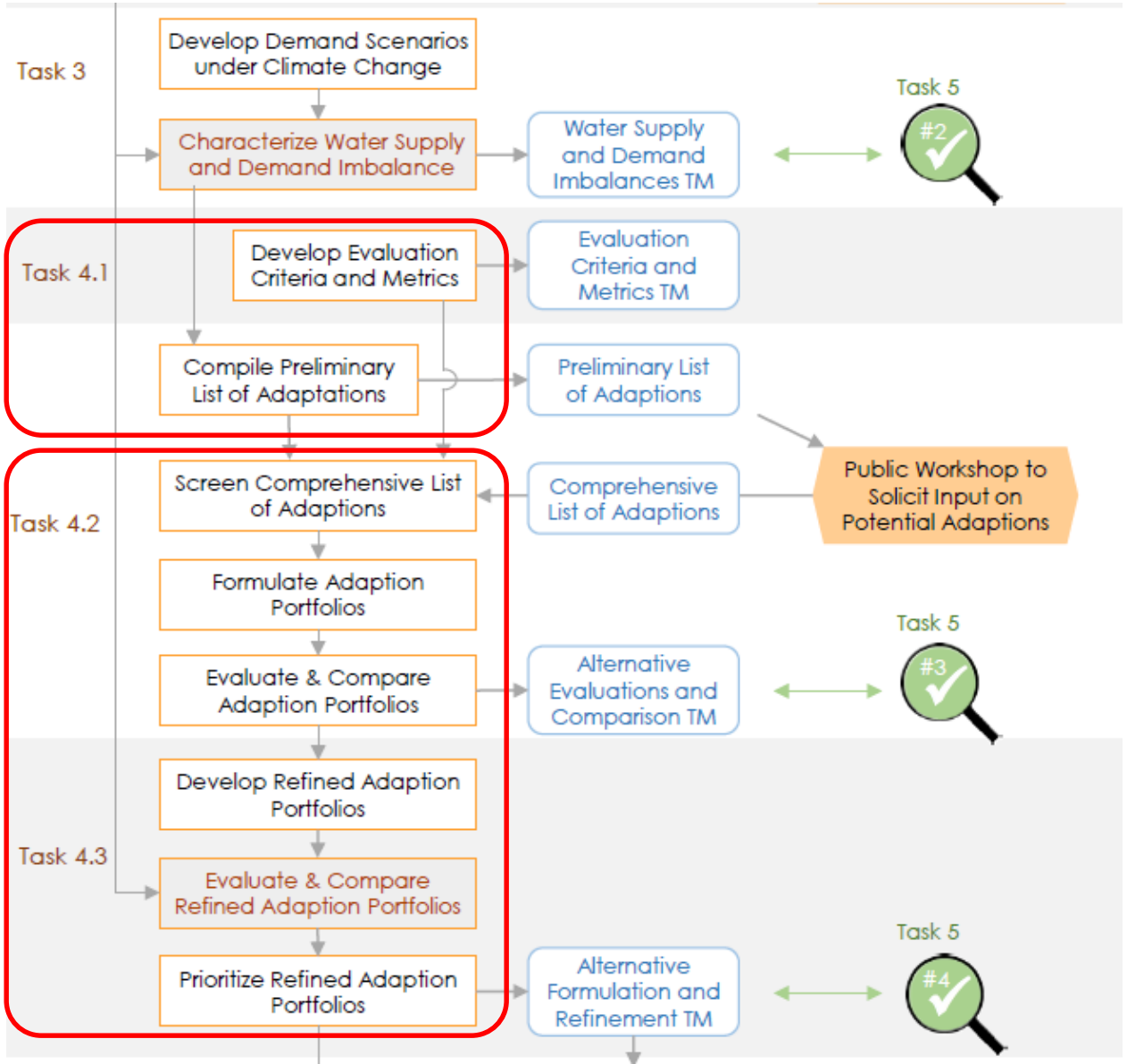
Formulation of Adaptions



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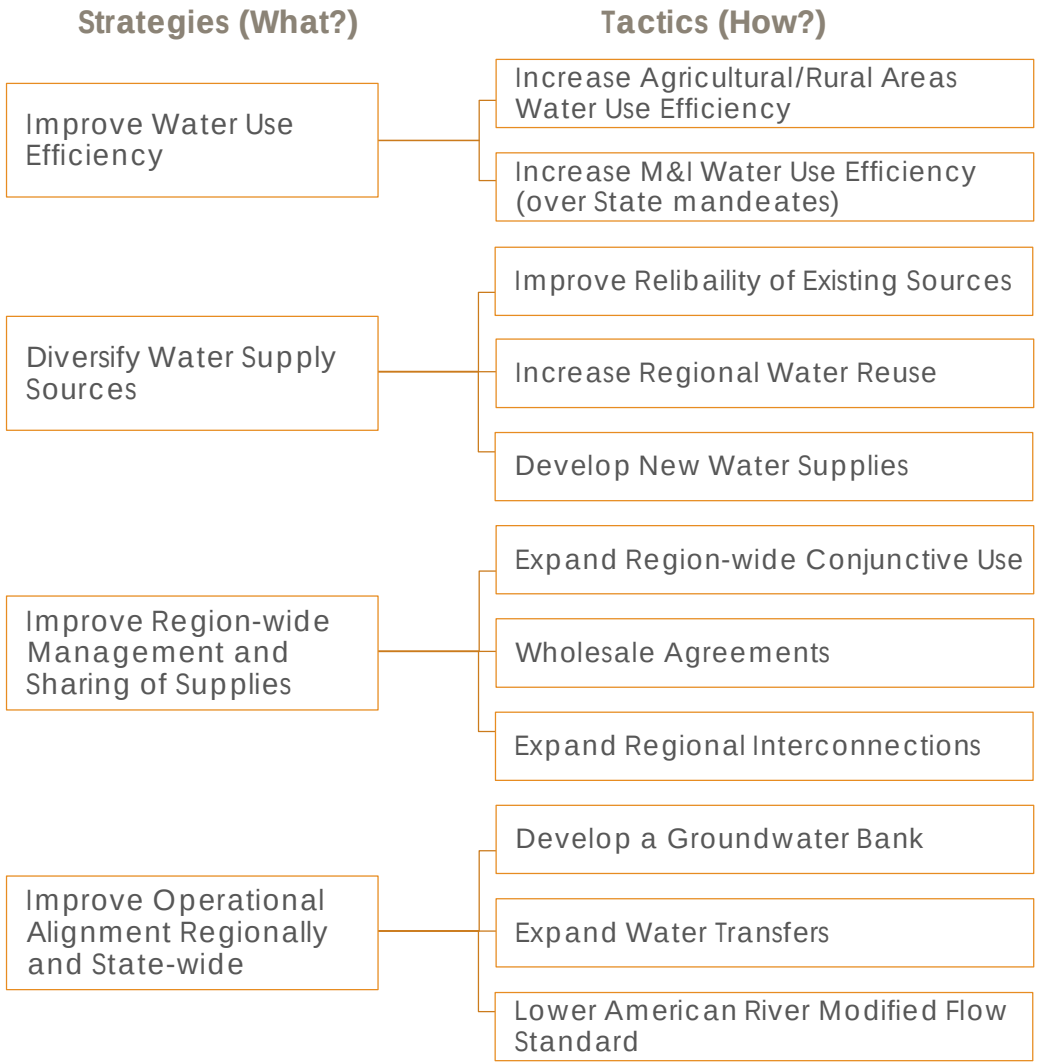
Wide Range of Adaptation Actions

- Over 400 regional actions:
  - SSJBS (2016)
  - RDCP/RWRP (2018)
  - ARB IRWMP (2018)
  - West Slope Study (2014)
  - ED Stormwater Plan (2018)
- Organized under strategies and tactics to facilitate formulation of portfolios



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Adaptation Portfolios

- **What are the key regional strategies to be considered in the adaptation Portfolios?**

Portfolio	Actions
A. Future Baseline	• With Climate Change (2050, 2070, 2085) • State-mandated Demand Reduction • Lower American River Flow Management Standard
B. Valley Floor Water Reliability	• RiverArc • Water Bank
C. Upper Watershed and Foothill Water Reliability	• Alder Creek Reservoir • Water Bank
D. South Area Water Reliability	• South Sacramento County Agricultural Project • Water Bank
E. Lower American River Modified Flow Management Standard	• Lower American River Modified Flow Management Standard • Folsom Carry-over Storage Requirement • Folsom Dam temperature control device (TCD)
F.	•
G.	•
H.	•
I.	•

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Evaluation Criteria

Criteria	Metrics
Contribution to Long-Term Regional Water Reliability	• Reduction in demand-supply imbalance • Increase of conjunctive use potential
Contribution to Watershed and Foothill Communities Water Reliability	• Reduction in demand-supply imbalance for foothill communities • Increase in upper watershed supply reliability
Contribution to Reclamation's Operations Flexibility	• Increase in Folsom Lake storage • Increase in American River outflow • Reduction in demand on CVP exports
Contribution to Lower American River Ecosystem Health and Sustainability	• Improvement of temperature on the Lower American River • Maintenance of flows on the Lower American River
Contribution to Multi-Benefits	• Benefits types addressed • Magnitude of benefits

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Communication & Outreach

- Basin Studies are required to have public outreach
- ARBS Plan of Study – Public Outreach and Communication Plan
  - Provides for public involvement at key points
  - The ESC will approve meeting type and times
  - Provides suggestion for public outreach elements like website for basin study, for news/press releases and meeting types

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Public Outreach

- **Is the planned public outreach adequate? Suggested additional considerations?**

- Suggested First Public Outreach Meeting
  - Held when Task 3.2 (Imbalance Assessment TM) is completed
  - Likely meeting timeframe is from late October to late January
  - Suggested meeting format is a web-based presentation to stakeholders and others suggested by each Partner

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Related Regional Efforts Updates

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Related Regional Efforts Updates

- ARB IRWMP Update
- Groundwater Sustainability Plans
- Regional Water Reliability Plan
- Water Marketing Strategy Project
- PCWA's RiverArc
- Stormwater Resource Plans
- EDCWA's Supplemental Water Right Project
- Long-term CVP Water Contracts Renewals
- Others

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