Water-Energy Nexus Draft Calculator 2.0 Stakeholder Webinar

October 8, 2021, 2 – 3 p.m. PDT

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California Public Utilities Commission

Webex Participant Guide

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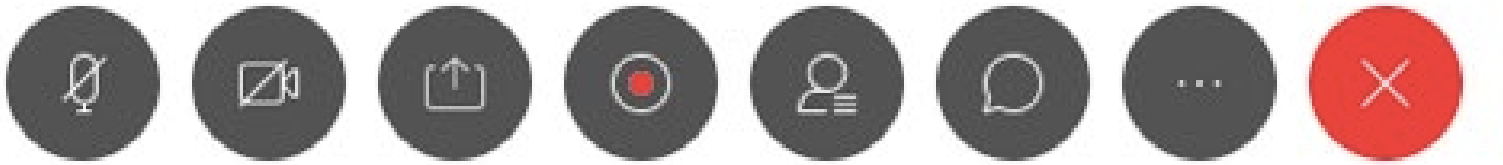

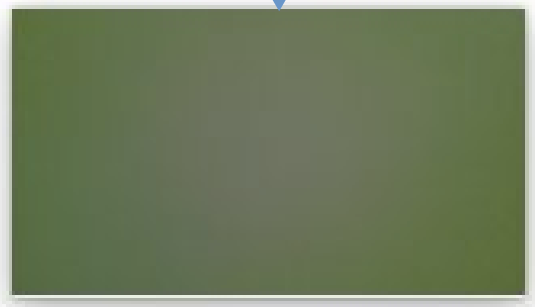

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Link to: Cisco Webex Participant Guide

Project Team

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Project Goals and Objectives

- The goal of the project is to develop a new, simpler Water-Energy Calculator (W-E Calculator 2.0).

- In support of this goal, there are three primary objectives:
  1. Engage stakeholders to identify key issues and concerns to inform changes to the W-E Calculator;
  2. Revise the W-E Calculator, in accordance with Decision 17-12-010, the Water Energy Joint Utility Plan of Action, and input received from stakeholders; and
  3. Provide readable and accessible documentation for the W-E Calculator 2.0, along with a help desk and recorded training session.

Project Deliverables

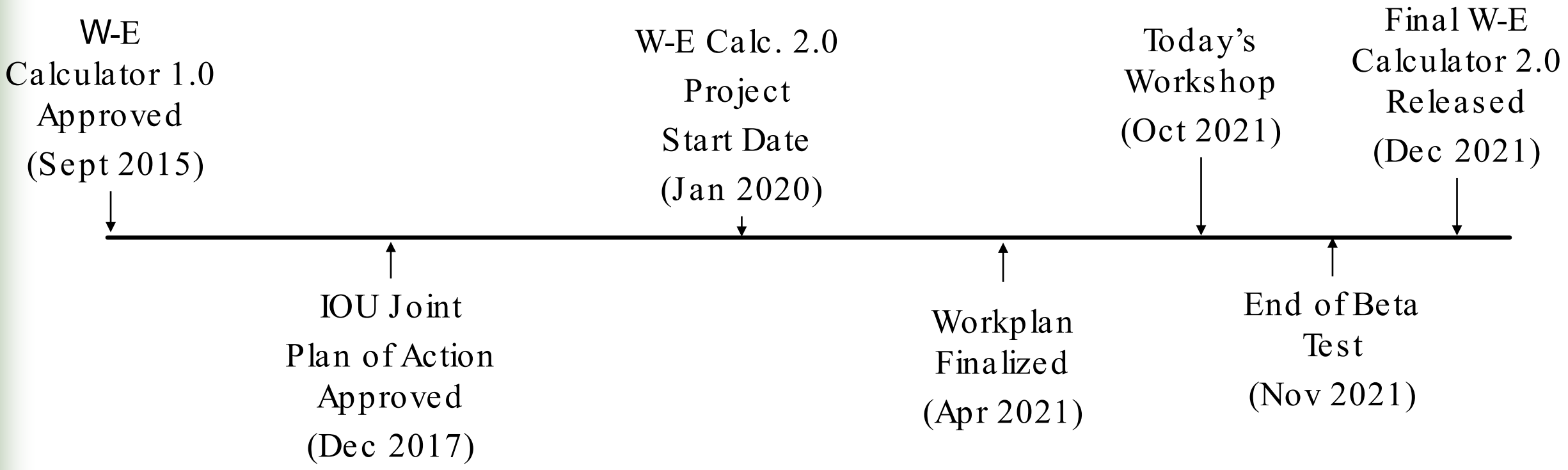
1. W-E Calculator 2.0 Workplan: The workplan was presented in March 2021 and finalized in April 2021.

2. W-E Calculator 2.0: A new, improved, and simpler W-E Calculator to estimate the embedded-energy savings of water conservation activities.

3. Guidance manual for W-E Calculator 2.0: The guidance manual for using the W-E Calculator 2.0 and recorded training sessions.

4. Project report: The final report documenting the process for developing the revised W-E Calculator.

Project Timeline



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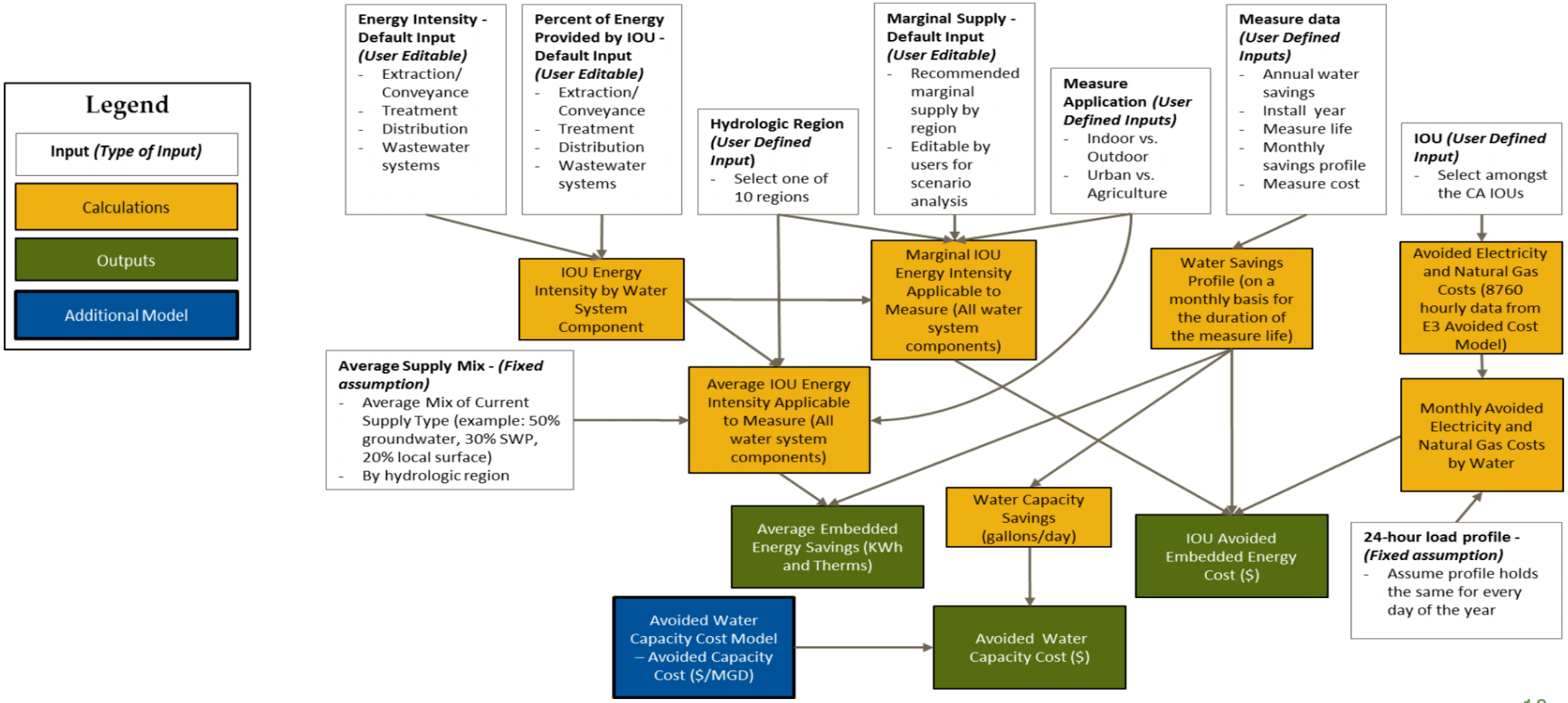
Water-Energy (W-E) Calculator Background

- In 2015, the CPUC adopted two water-energy tools:

- **Avoided Water Capacity Cost Model (Water Tool)**
  - avoided capacity cost of water (in $/MGD).
- **Water-Energy Calculator (W-E Calculator)**
  - average embedded energy savings of water-efficiency programs (in kWh and therms),
  - IOU avoided embedded-energy cost (in $); and
  - avoided water capacity cost (in $).

W-E Calculator 1.0 Schematic



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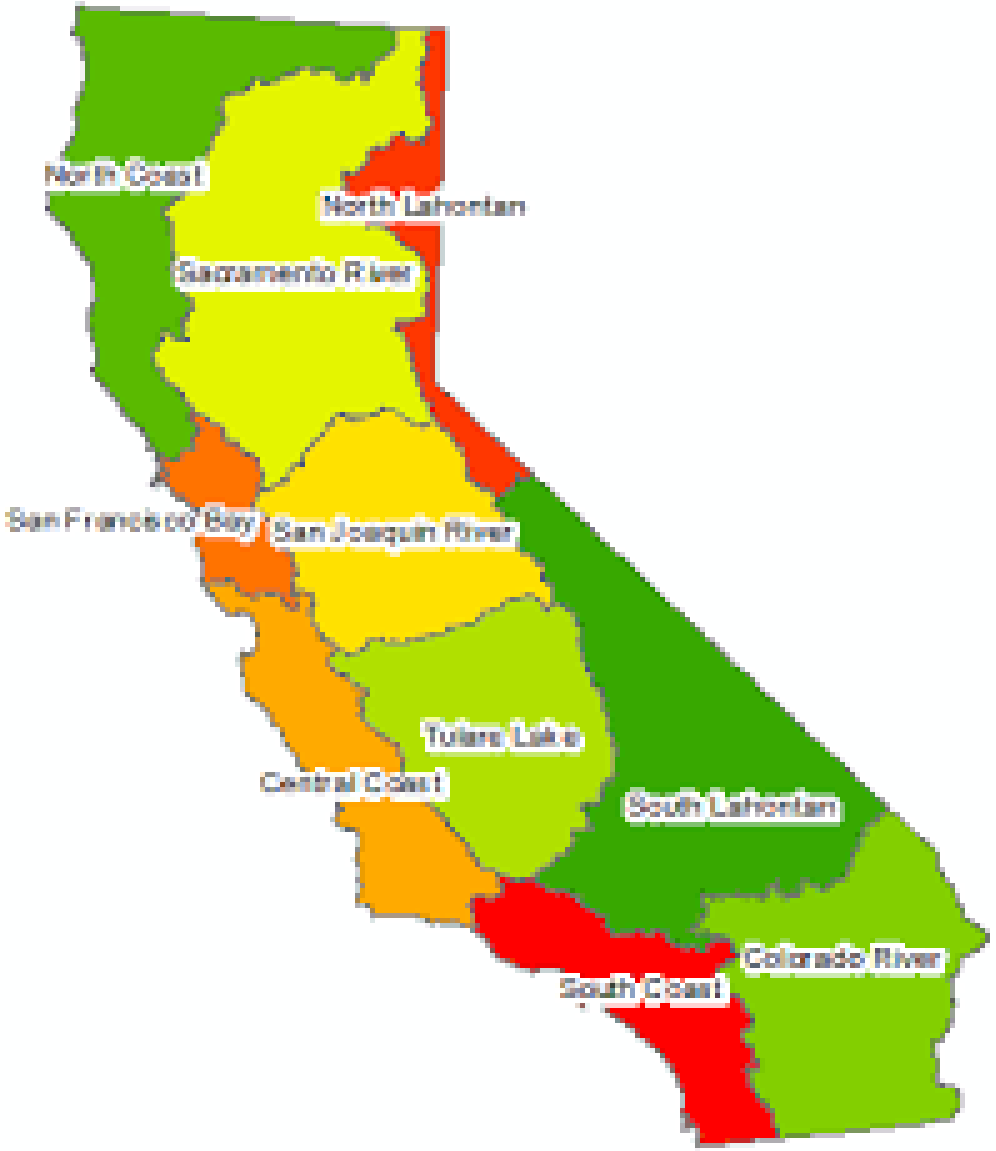
Key Enhancements of the W-E Calculator 2.0

- Removed the cost-effectiveness analyses (focused on embedded energy estimate, in kWh)
- Added simple menu to select water system components and energy intensity values
- Updated the model default energy intensity values
- Added a look-up table to select the appropriate hydrologic region for the project using installation zip code
- Provided an easier way to adjust the resource balance year

Regional Analysis

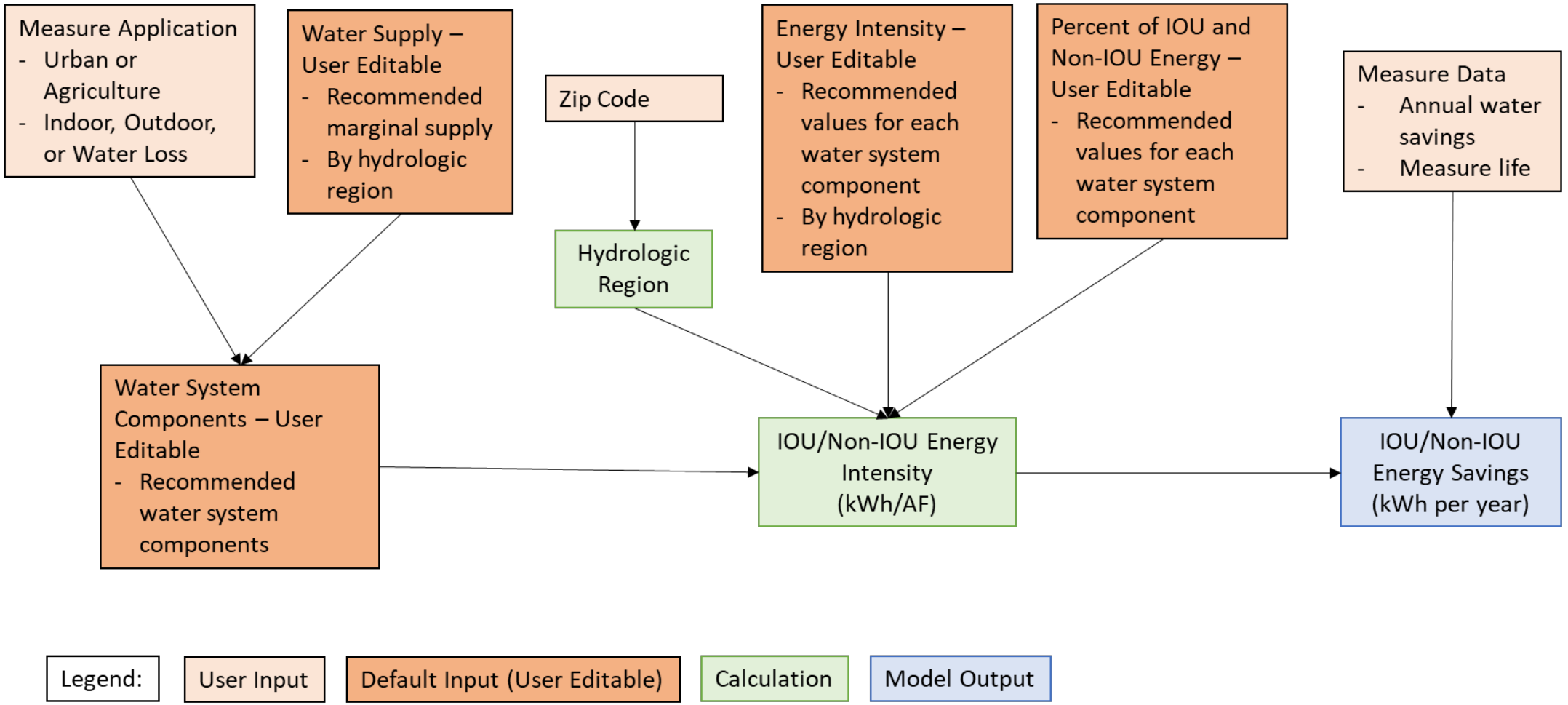
- The regional unit of interest is the hydrologic region.
- W-E Calculator 2.0 uses zip code to assign the measure to a hydrologic region.
- The zip code is assigned to the hydrologic region representing the largest areal extent (i.e., majority rules).



Resource Balance Year

- Default for Resource Balance Year (RBY) is 2016, consistent with CPUC directive D. 15-09-023, but the default can be overridden by the user.
- Prior to the RBY, the calculator uses the historical water-supply mix to calculate an “historical” embedded-energy savings.
- In the RBY and beyond, the calculator uses the marginal water supply to calculate a “marginal” embedded-energy savings.
- If some water savings occur prior to the RBY and some after the RBY, then the model estimates the annualized embedded-energy savings.

W-E Calculator 2.0 Schematic



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Water-Energy Calculator 2.0: Demonstration

Example Measures

- Low-flow showerheads installed in a hotel in San Francisco
  - Marginal supply: non-potable recycled water
  - Two scenarios for Resource Balance Year
    - Default of 2016
    - User override of 2026
- Drip irrigation system installed outside of Fresno
  - Marginal supply: non-potable recycled water
- Repair of distribution system leaks in San Diego
  - Marginal supply: desalinated seawater

Embedded Energy Savings: New Model vs Old Model

- Comparison of Examples

Example	RBY	Hydrologic Region	Sector	Measure Type	Annual Water Savings (gallons)	Annual IOU Embedded Energy Savings (kWh)		% Difference
						WE Calc 1.0	WE Calc 2.0	
Showerheads	2016	San Francisco Bay	Urban	Indoor	2,979	8.1	16.2	101%
Showerheads	2026	San Francisco Bay	Urban	Indoor	2,979	8.1	14.0	73%
Drip Irrigation	2016	San Joaquin	Ag	Outdoor	10,000	5.4	21.3	295%
Repair System Leaks	2016	South Coast	Urban	System Leaks	80,000	108.0	1098.9	918%

- Average difference across all hydrologic regions and measures

Sector	Measure Type	Average Difference
Urban	Indoor	142%
Urban	Outdoor	226%
Ag	Indoor/Outdoor	245%
Overall Difference		183%

Note: after the 10/8 webinar, these values were updated using a more accurate calculation. The underlying data has not changed.

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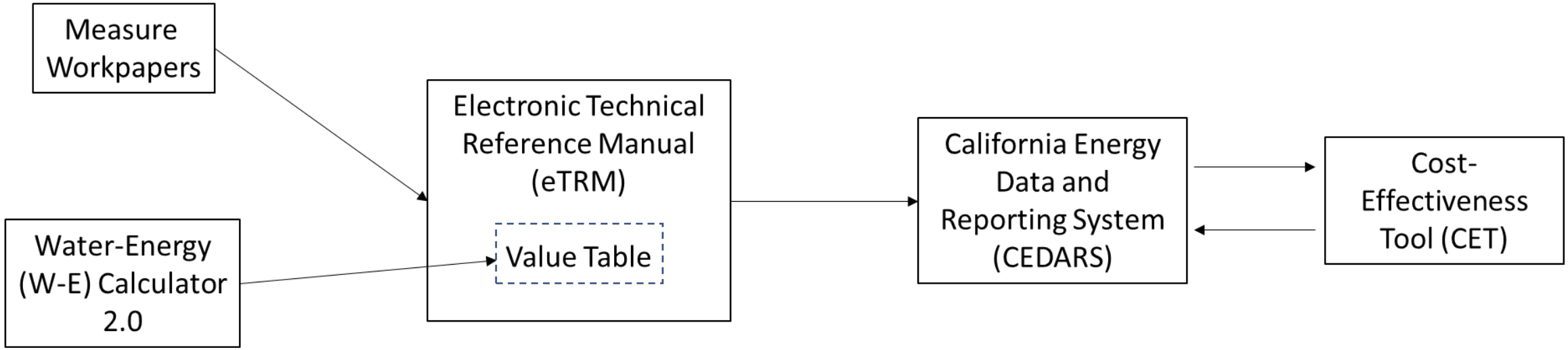
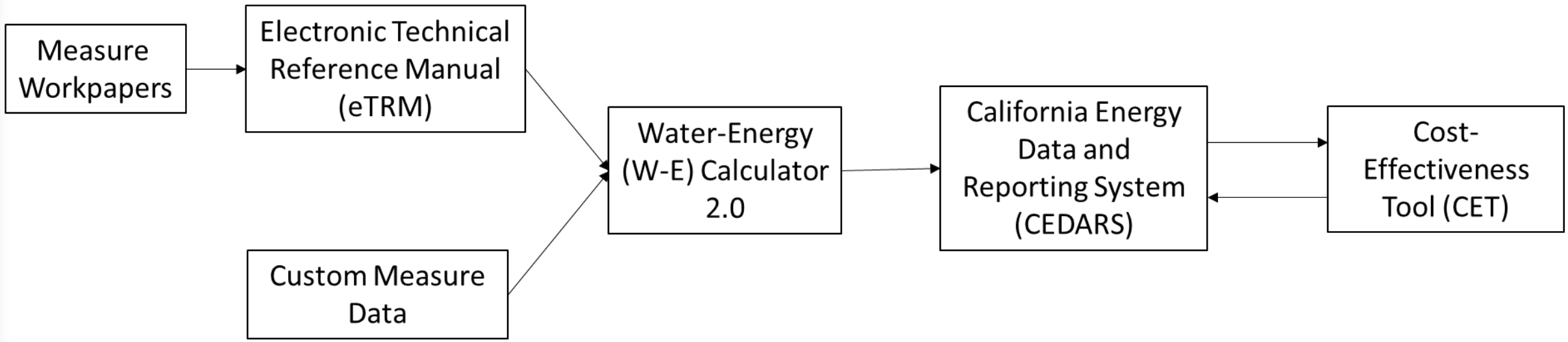
Integration with Other CPUC Tools: Near Term



Integration with Other CPUC Tools: Long Term



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Next Steps: Beta Test the W-E Calculator 2.0 and Guidance Manual

The draft calculator is available for review and comment through November 5th. Please emails all comments to Travis, Heather, and Jeff.

The draft calculator and guide (and soon a recording of the demo) are available at the CPUC's website:

https://www.cpuc.ca.gov/nexus_calculator/

We will also offer a Help Desk during the comment period. For assistance, please e-mail Jeff Sage-Lauck (jsagelauck@sbwconsulting.com) and Heather Cooley (hcooley@pacinst.org).

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Questions?

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