The Critical Role of Water and Wastewater Agencies in Meeting California's Future Energy Needs and the Goals of AB 32

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DWR/SWRCB Workshop
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Finding the Lost Energy Opportunities

- Representing 19% of state's total electricity demand, provision of water and wastewater services is energy intensive!!!

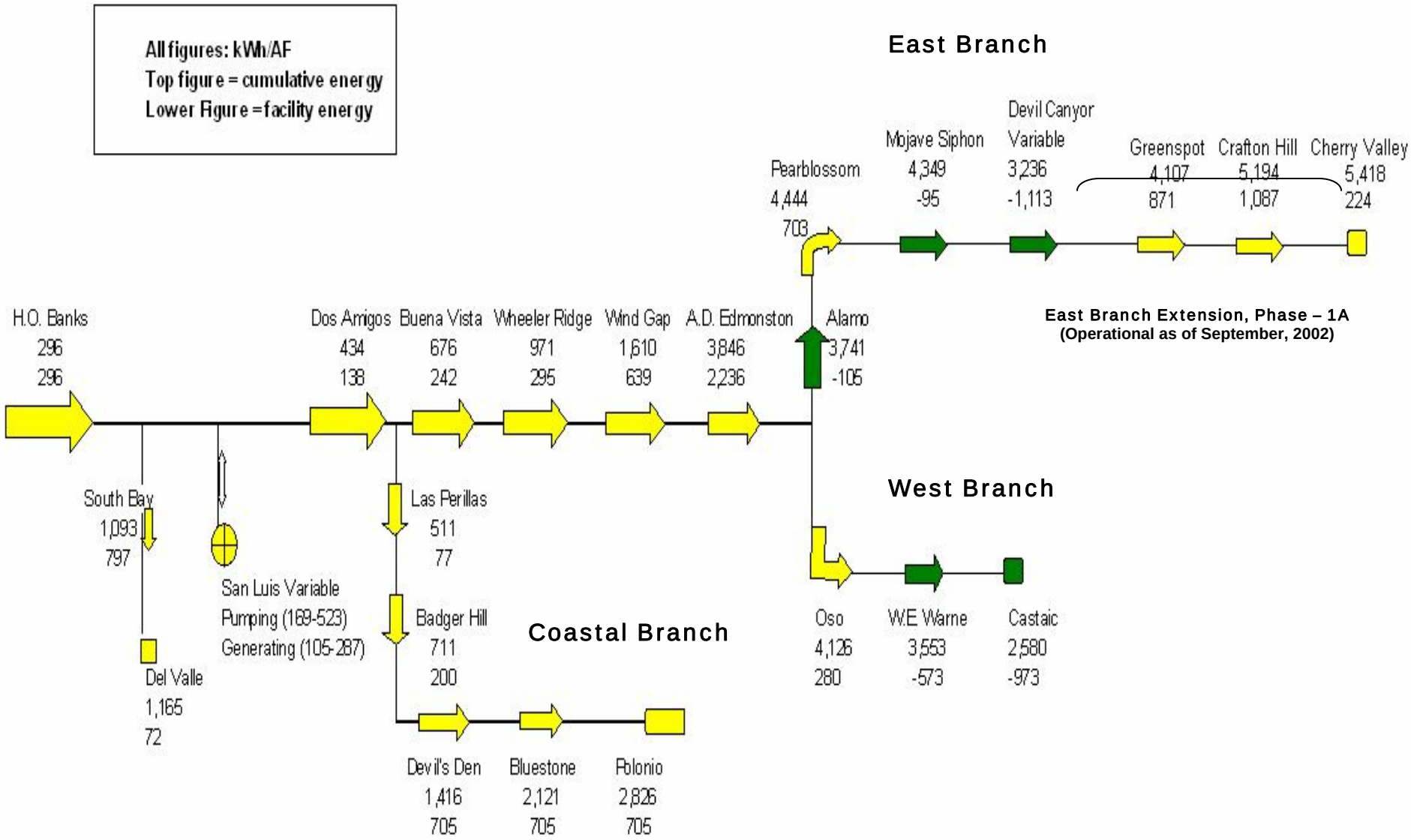
- Improving energy efficiency is the most "cost effective way to reduce the state's energy costs, bolster California's economy and lower the likelihood of future energy supply shortages" (CEC, 2005)

What can water and wastewater agencies do to improve energy efficiency and self-generation capacity and reduce CO2 emissions?

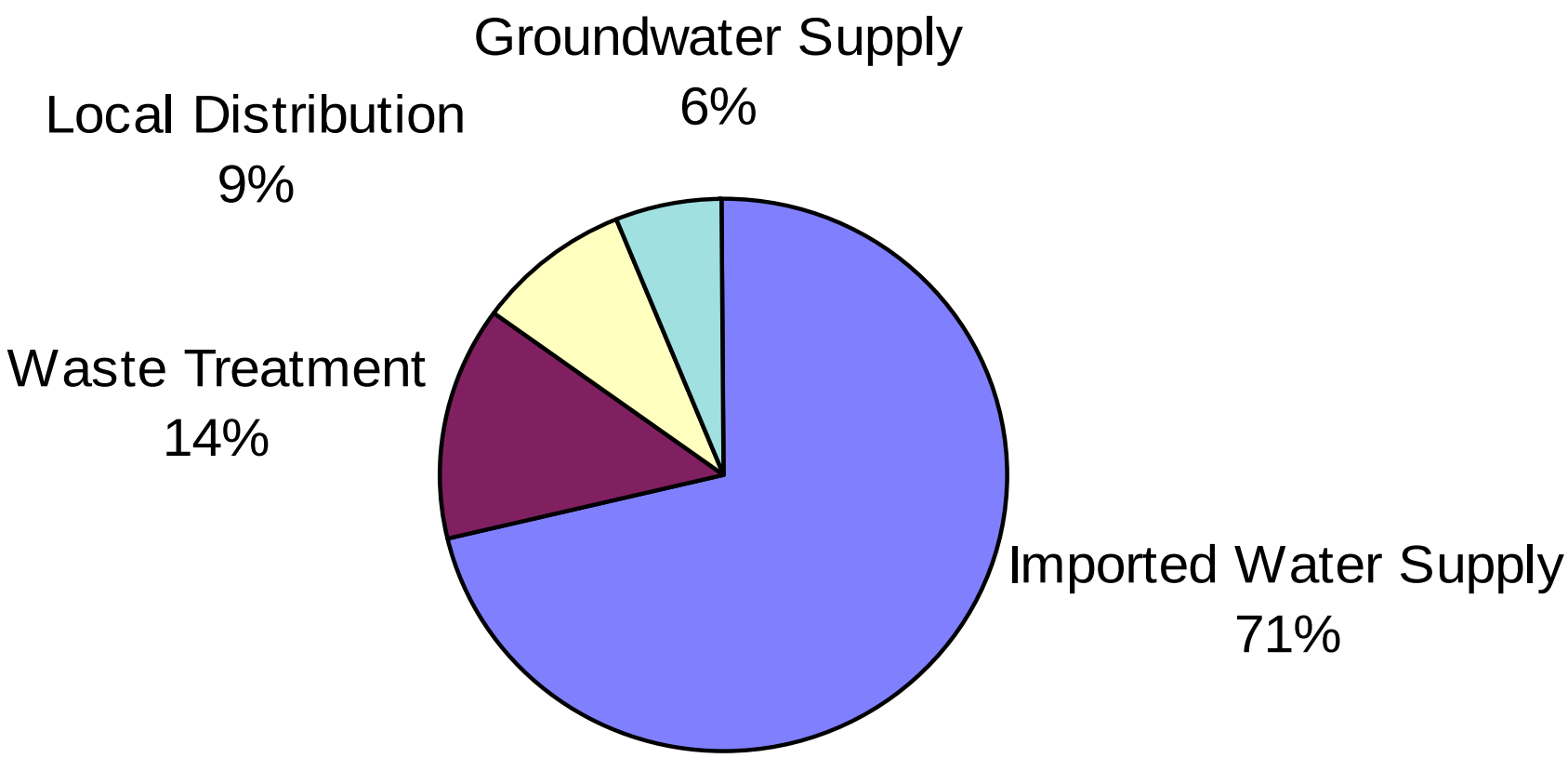
State Water Project Pumping Facilities

SWP Pumping Facilities

Incremental and Cumulative Energy Inputs and Generation



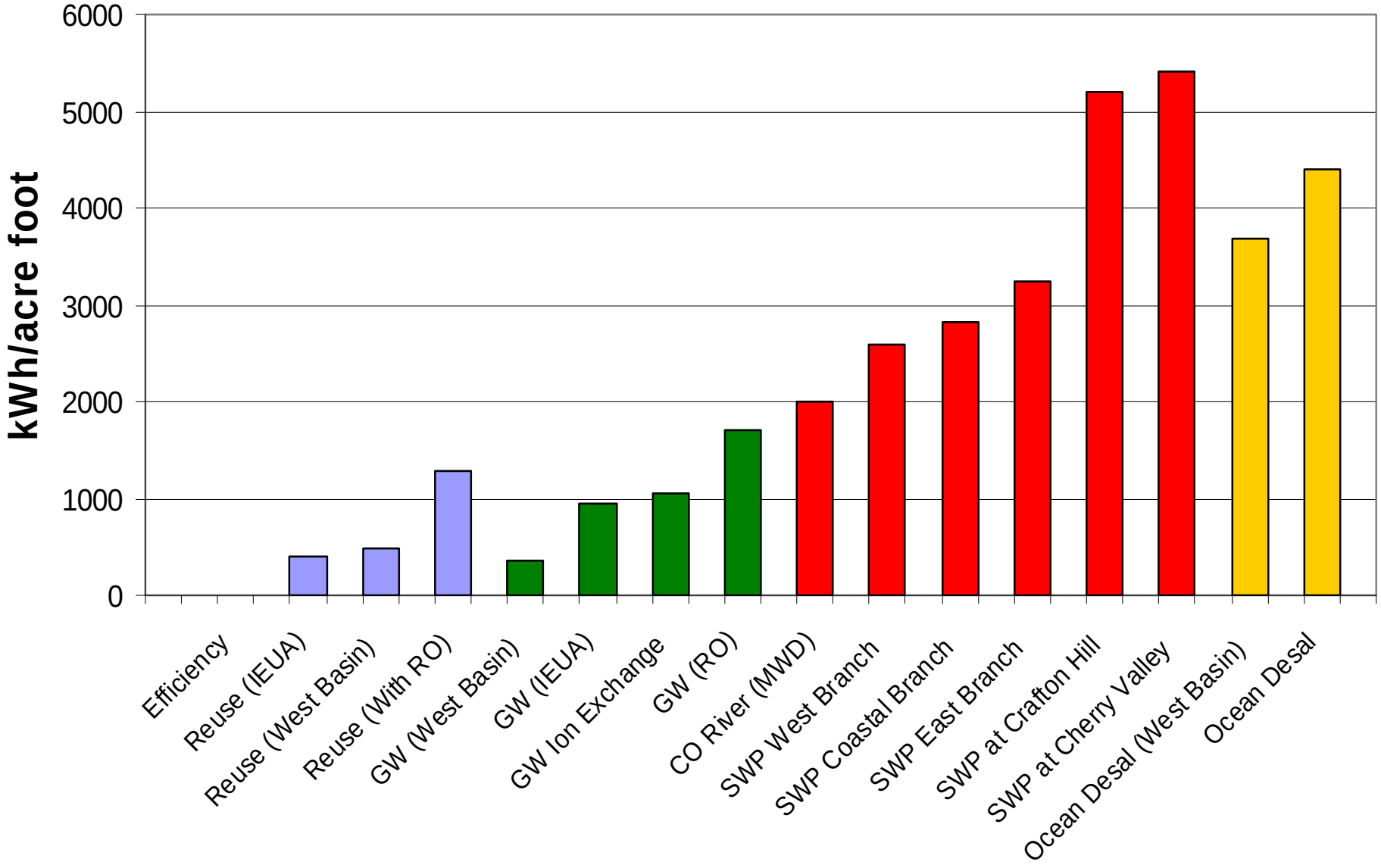
Electricity Use for Water System Components in Southern California



Energy Intensity of Water Supplies

Total energy requirements for marginal (e.g. imported) supplies of water in Southern California are 3,519 kWh/acre-foot (0.01 kWh/gallon).

Energy Intensity of Selected Water Supply Sources in Southern California



Climate Change in the Inland Empire:
How to Plan for Water Reliability Under Conditions of Uncertainty?

Overview of October/November Workshops

Held by RAND Corporation

Rand Project Overview

- Climate change may significantly impact future patterns of water demand and of water supply
- The scientific community is debating how to most usefully characterize this important yet uncertain information in a way that will be useful to decision makers like the Inland Empire Utilities Agency
- There are new state-of-the-art modeling tools that enable scientists to evaluate implications of potential climate change on regional areas, such as the Chino Basin
- RAND invited IEUA to participate in series of workshops in which RAND would use these modeling tools to evaluate the resiliency of IEUA's 2005 Regional Urban Water Management Plan
- The RAND project is part of a 5-year National Science Foundation funded study on decision making under uncertainty –

  see www.rand.org/ise/projects/improvingdecisions/

RAND Statement of Purpose

"Climate change presents public and private sector decision makers with a fundamental quandary: how to address a potentially serious, long-term, and deeply uncertain threat.

By waiting until new science and unfolding events eliminate much of the uncertainty, it may be too late for decision makers to act effectively.

If they act without understanding the extent and contours of the problem, they risk making serious miscalculations."

- *How then should scientists and analysts best provide information about climate change to decision makers?*

- *How should water managers prepare for this potential threat?*

IEUA Innovations to Address Energy Needs

Constructed the nation's first platinum LEED-rated headquarters by a public agency (2003). With installation of cogeneration in 2007, it will become a Zero Energy facility.

Constructed the nation's first and largest centralized anaerobic digester to convert dairy manure, biosolids and food waste to methane gas (2003). With planned expansions, it will generate 3 MW.

IEUA's Expanding Energy Project Portfolio

- Of current energy needs of 7 MW, IEUA is self-generating about 5 MW – recognized in July 2006 by the U.S. Environmental Protection Agency as one of the nation's top ten local government "purchasers" of renewable energy from its own facilities

- 3 Products:
  - Recycled Water and Conservation – reduced energy use (about 35 – 40 megawatts)
  - Renewable Energy – Increase from 5 to 15 megawatts (digester methane gas, solar and wind).
  - Biosolids Composting
    - Reduced diesel truck trips
    - Water Conservation project with Caltrans
    - Beneficial soil amendments (parks, schools)

Key Water/Energy Strategies

- Maximize local supply development to increase locally controlled "drought proof" supplies and balance less reliable, more costly imported supplies
- Implement "green" development standards for new housing in the most rapidly growing region in California (Awhwanee Water Principles)
- Develop Santa Ana River Watershed "comprehensive" water quality/supply management strategies
- Maximize integration of water supply investments to reduce CO2 "Footprint" under AB 32

Water/Energy Savings

- By 2025, IEUA expects that its service area will be able to meet nearly 80% of water needs through local sources

- Full service imported water supplies are expected to remain roughly at the same level as 2005 or to decline slightly
  - Conservation – 33,000 acre-feet (10% of demand)
  - Recycled water – 100,000 acre-feet
  - Groundwater production – 200,000 acre-feet
  - Desalted groundwater – 40,000 acre-feet

Replacement of imported water with local sources is projected to save over 225,000 MWh/year by 2025

Questions and Answers

Q. What steps must water, wastewater and flood control agencies take to achieve water conservation goals beyond the current BMPs and what should be the benchmark goals?

A. Support Wolk (AB 224) and RAND Report on Climate Change for Chino Basin.

Questions and Answers

Q. How can land use policies by cities and counties be used to achieve those benchmark goals?

A. Use Ahwanhee Water Principles as a Guide (Local Government Commission).

Questions and Answers

Q. What steps are necessary to reuse 25% of available recycled water by 2020; 50% by 2030; and 100% by 2050?

A. Strong leadership from DWR/SWRCB.

Clear targets and incentives are needed.

Streamline permitting like Florida.

Questions and Answers

Q. What steps are necessary to create renewable energy generation by water, wastewater, cities and counties to achieve the goal of carbon free water by 2050?

A. CEC/PUC incentives: net metering, rebates for new generation, and demand incentives.

Questions and Answers

Q. How can water and wastewater agencies, cities, counties, flood control agencies, watershed based groups cooperatively work to reduce greenhouse gas emissions?

A. Use integrated watershed management planning. In this context, can the State use the integrated regional water management planning process to accelerate achievement of this goal? YES !!

For more information …

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