

## **CVP Cost Allocation Study**

### **Description of Analytical Tools**

#### **Name**

Other Municipal Water Economics Model (OMWEM)

#### **Author**

California Department of Water Resources and U.S. Bureau of Reclamation

#### **Categories**

Statistical demand function

#### **Main Features and Capabilities**

- The model includes CVP M&I supplies north of Delta, SWP and CVP supplies to the Central Valley and the Central Coast, and SWP supplies or supply exchanges to the desert regions east of LCPSIM's South Coast region.
- The model estimates the economic value of M&I supply changes in these areas as the change in cost of shortages and alternative supplies (such as groundwater pumping or transfers).
- Data from the available 2005 Urban Water Management Plans were used to estimate 2025 water demand and supplies for an average condition and a dry condition, and to identify additional water supply options and their costs.
- For a water supply scenario, OMWEM uses water deliveries, defined as the percent of SWP Table A or percent of CVP municipal contract by year.
- SWP and CVP water deliveries are provided by CALSIM II.
- If supply is insufficient to meet demand in years categorized as having below normal, above normal or wet water supply, the model calculates the cost of additional water supplies.
- If the water supply year is categorized as dry or critical, the model allows for shortfalls to be managed with dry/critical supply sources and with end-



user shortage. The shortage costs are estimated using a constant of elasticity demand function.

## **Applications**

The model has undergone several recent updates. OMWEM now includes 2009 and 2025 development conditions. This work, reflected in the discussion above, improves the demand/supply input. The model does not include the full level of detail that may exist in local water providers' plans. Results are useful for comparing alternatives and to provide an approximate estimate of avoided cost. They should not be viewed as precise representations of individual water providers' costs or options.

## **Calibration/Validation/Sensitivity Analysis**

The model has been updated to include the effect of real energy cost increases on water prices. The rate of increase in real water costs is assumed to be the same as the rate of increase in electricity prices. The annual rate of increase is approximately 1.3 percent. Generally, OMWEM has the same limitations as LCPSIM. In addition, decision rules about water supply costs and shortage are relatively simplistic. The areas included in OMWEM could be modeled in a LCPSIM framework. A variety of updates are being considered, primarily involving demands and water supply costs under recent conditions. A number of relatively small M&I water providers receive SWP or CVP water but are not covered by LCPSIM.

## **Software**

The Other Municipal Water Economics model (OMWEM) is a set of compiled (individual) Excel-based spreadsheet application.