**THE DEVELOPMENT OF A SUSTAINABLE WATER MASTER PLAN FOR BURBANK WATER AND POWER**

Daniel Gold | Christopher Heckman | Christopher Hewes | Alyssa Krag-Arnold | Lila Spring

Contact: burbank@lists.bren.ucsb.edu | www.bren.ucsb.edu/~burbankwater
Faculty Advisor: Robert Wilkinson | Client: Kapil Kulkarni, Burbank Water and Power

---

**BURBANK SUPPLY & DEMAND**

- Burbank, CA
- Population: 105,000
- Water Service Accounts: 26,607

**California’s Water Issues**

- Price volatility and significant reductions in the reliability of imported water pose a challenge to BWP’s ability to provide sustainable water service.
- The Sacramento-San Joaquin Delta is threatened by:
  - Decreased snowpack
  - Saline risk
  - Sea level rise
  - Rapid ecosystem decline

**Colorado River Aqueduct**

- The Colorado River Basin faces:
  - 15 years of drought in the Southwest
  - Lake Mead, the largest reservoir in the country, is at less than 50% capacity
  - Conveyance costs are increasing

**Drought**

"Today we are standing on dry grass where there should be five feet of snow. This historic drought demands unprecedented action. As Californians, we must pull together and save water in every way possible." — California Governor Jerry Brown, 4/1/2015

**Key Opportunities for Increased Water Sustainability**

- **Regulations**
  - Implement efficiency-oriented rate structures.
- **Incentivizing Demand Reductions**
  - Prioritize water efficiency programs with lowest cost and highest water savings.
  - Strengthen irrigation requirements to maximize water savings from lawn conversion.
  - Make current City drought restrictions permanent.
  - Expand funding and outreach of Green Home House Call program to increase customer engagement.
- **Increasing Use of Local Water Supplies**
  - Increase recycled water use to satisfy local potable and regional non-potable demand.
  - Engage in stormwater infiltration or indirect potable reuse to replenish San Fernando Basin groundwater levels.
  - Provide financial support and educational outreach to develop a residential greywater program.

---

**ANALYSES AND RESULTS**

**Customer Demand Assessment**

Different water efficiency opportunities exist because homes have large variations in water use. These opportunities can be maximized in an equitable way by using a portfolio of information, incentives, rates, and regulations.

**Statistical Analysis of Outdoor Water Efficiency**

BWP currently estimates 43.8 gallons per square foot (gpf) of water savings annually for lawn conversion. A more accurate estimate is 35.0 gpf.

**Cost-Benefit Analysis**

Cost-benefit analysis of water efficiency devices and programs showed that almost all are cost-effective compared to the increasingly expensive price of imported water.

**Water Supply Analysis**

Significant quantities of local water supplies are currently unutilized.

---

**TARGET**

Mastertrack: One Family, Single Family, 49%; Multi Family, 23%; Commercial, Industrial, Institutional, 28%; Other, 2%

**Colorado River Aqueduct**

- Increased water use from 2004 to 2014:
  - 26%
  - Industrial, and Commercial
  - 250 square feet
  - 2014 Demand, by sector:
    - Family, Single
    - 1,600
    - Israel
    - 8,000
    - CA Dep’t Water Resources
    - 4,200

**Water Use**

- Maximized in an equitable way by using a portfolio of information, incentives, rates, and regulations.

**Change in average monthly water use between 2011 and 2013 for lawn conversion. A more accurate estimate is 35.0 gpf.**

---

**Acknowledgements**


---

**Cumulative Water Savings (AF)**

- Cumulative water savings over time.
- Programs with unit costs below the dashed red line are more cost-effective than purchasing imported water.