



## Designing Conservation Programs for Verifiable Savings

Maureen Erbeznik – Maureen Erbeznik & Associates and Joanne Rector – Water and Energy Use Efficiency Consultant

Is it possible you may one day turn on the faucet and no water comes out? This once far-fetched premise doesn't seem quite so absurd anymore.

Our water systems in the Southwest are under stress and may not be able to meet future water demand. Austin Water Utility posts restricted watering days for their customers. The website for the Metropolitan Water District of Southern California displays a water reserves gauge that is quickly heading toward empty. Southern Nevada Water Authority informs its customers that the Colorado River system is facing its worst drought on record. Population growth, overpumping of groundwater, drought, and deterioration of aging aqueducts and levees are impacting nearly every population center. In short, long-term water demand in the Southwest far exceeds supply.

Clearly, water customers must use less water in their households and businesses and stretch it further than ever before. Water conservation is the fastest way to effectively increase supply. But water agencies know they cannot simply ask customers to take the initiative to reduce their usage—the agencies must drive the

process, quickly and effectively. One of the most effective means to cut per-capita water usage is to install high-efficiency products that save water without compromising customers' quality of life.

### Properly Gauging EM&V

In tough economic times, a water agency must be certain its programs will deliver. This is accomplished through a sound process of evaluation, measurement, and verification (EM&V). EM&V can be costly and time-consuming but the alternative, a program with underachieving water savings, is a far worse option.

Some water agencies choose to perform highly detailed data analyses and historically have been willing to pay their associated high price. Others opt for a lighter EM&V protocol, believing that the money saved allows them to reach more customers even if results differ from original estimates. The agency must decide which approach to use well in advance of program planning in order to be satisfied with the outcome and avoid being overrun by EM&V experts creating goliath databases and analyses far beyond the agency's needs and budget.

Fortunately a healthy balance can be achieved between analyzing valuable data and spending precious budget dollars by following a few key steps during the early stages of EM&V and program design.

### Get Only the Data You Need

Many water agencies begin by hiring a technical consulting firm to lead the EM&V process. The firm starts by creating a market-assessment database of customers in order to analyze the current water supply and usage patterns and identify prime water-saving opportunities. The database should provide a reasonable approximation of the number of customers in each residential and business type and their monthly water usage.

Often the agency and consultant become caught up in creating a database that is excruciatingly precise, buying additional data from external sources or conducting an analysis of the full database. It is important to remember that the market-assessment database is simply a guide to the remaining opportunities. Analyzing a reasonable sample size—not the full database—and buying data selectively allow a representative database to be created without high cost.

Once created, the market-assessment database should be culled to identify three promising customer groups. The first contains customers with the highest water use per site or per customer type: these are obvious targets for high-volume water savings. The second group includes under-addressed markets that have never participated in past conservation programs: through creative program design, a previously untapped market may open and deliver savings. The last group contains customers who actively participated in conservation programs in the past and can be considered prospects for additional programs, such as large landscape properties that participated in a prior indoor plumbing initiative. These customers are more likely to take part in new programs.

### Know What You Want to Get

Another key step in developing a budget-friendly EM&V process is to determine the desired information outcomes before designing the actual program. EM&V should go well beyond savings and cost figures to determine the efficacy of additional program metrics such as customer enrollment and satisfaction, internal processes, marketing and outreach, and product functionality. Do you wish to track water savings separately for a certain geographic area or a particular customer segment? Decide in advance so your program systems and procedures can capture the information you require. To deliver credible data on results, the EM&V process must be designed into every stage.

### Find the Right Product

Once the strongest customer markets are identified, the water agency or consultant can research promising measures that match the prospects. The agency will need to verify the historical performance of the products or services under consideration to be confident they will operate properly, meet water-savings claims, and be well-received by customers.

To best manage the cost of product evaluation, agencies should rely on existing studies as much as possible and greatly limit costly pre- and post-metering. For most water-conserving measures, sufficient documentation already exists. Published papers, other water agencies, and industry organizations are good sources for inexpensive water-savings data.

### Pitch It Correctly

Knowing your target customers and products is not enough. The agency must give the same attention to the program-delivery mechanisms, including marketing outreach, the customer-enrollment process, and the level of onsite support. Some products are well-understood by the customer and have been on the market for years—customers are comfortable installing their own showerhead or toilet, for example. Others are complicated, such as weather-based irrigation controllers (WBICs) which have been on the market only a few years. Customers can easily negate the value of the controller through incorrect installation or by bungling the watering schedule—as demonstrated in early WBIC pilots that produced poor water-savings numbers. Direct installation by program personnel or approved contractors is more effective in such situations.

### Use Your Database

The EM&V database should be created prior to the start of the conservation program and used throughout to

manage and refine operations. Initially, the database is created to define and benchmark goals and anticipated costs, water savings, customer response, and overall costs/benefits of the program. As the program rolls out, performance data are entered and compared to the original goals. Production numbers, customer response, and cost data need to be kept current so anomalies or potentially costly design flaws can be quickly identified and program corrections can be made. Over time, the results of post-installation inspections and customer feedback will factor into the overall evaluation of program effectiveness.

As water supply continues to be a serious and permanent issue, water agencies are stepping up to secure significant water savings through highly aggressive implementation tactics for customer programs. EM&V is an important part of this process. By managing the EM&V and design process properly, water agencies are finding the right balance between insight and direction without the sting of a high price tag. ■

Contact Maureen Erbeznik at [moerbeznik@ca.rr.com](mailto:moerbeznik@ca.rr.com).



### Focused on solutions that work.

Specializing in ground engineering and environmental solutions, with local expertise in water resources, Golder gives you global reach and local presence on six continents. For 45 years, Golder has developed a rock-solid reputation built on client service, innovative thinking and cost-effective solutions.

### A World of Capabilities Delivered Locally.



**Local offices:**  
Tucson (520) 888-8818 | Phoenix (480) 966-0153  
Albuquerque (505) 821-3043 | Silver City (505) 388-0118  
[solutions@golder.com](mailto:solutions@golder.com)

[www.golder.com](http://www.golder.com)