

7-15-15

To: WSAC
From: WSAC Conservation Working Group
Re: WSAC CWG Report

We began this working group to further examine potential demand reduction strategies for use in CA-1: Peak Season Demand Reduction. The Conservation Working Group (CWG) set forth a goal to identify 150-200 MG of savings during the peak season, in addition to the savings estimated to result from the adoption of Program CRec. We defined this as a 6-month period (24 weeks) with an average incremental demand of 700MGS (million gallon per season) above base demand (non-peak season demand). The group worked to identify realistic programmatic elements that would effectively target reductions during peak demand. Some of those elements provide year-round savings, but our primary focus was on reducing the peak-season increment. We started by examining measures to fast track from Program C, CRec and D, to this we added new suggestions, provided some alternative financing possibilities and included thoughts on next steps.

At a policy level, the CWG posits that the goal of reducing peak-season demand by 150MGS by 2035 is reasonably attainable and should be adopted by the WSAC as part of its policy-level findings. The CWG would propose that the Department would take on the responsibility to design, develop, and manage the program, including selecting, deploying, optimizing, and managing the individual elements. Operating within the existing City governance structure, the Department would be accountable to the Water Commission and, ultimately, the City Council. Those institutions would need to establish appropriate reporting, measuring, and monitoring guidelines to ensure transparency and ongoing effectiveness (both cost and demand) of the program over time.

Attached you will find a document that outlines suggested elements that the working group created as examples for the development of a peak season targeted strategy for demand management. We created a table of water savings calculations that are based on estimates of water use from the sources indicated as well as national statistics. The formulas are included for your reference and all values are calculated as MGS=million gallons per season (savings during the peak season, some elements may have year round savings that are not captured here). Some of the "next step" elements will need to be evaluated further before calculating water savings. As you can see, there is ample opportunity just among these potential elements to comfortably achieve our goal of a 150 MGS reduction in peak-season demand. This gives us confidence that our proposed policy-level goal is viable and has merit.

Here is a link to the short overview that Sarah presented at the June Meeting: http://prezi.com/9cftbunfqc4e/?utm_campaign=share&utm_medium=copy&rc=ex0share

Key Thoughts on CWG Findings:

Communication: This is a key component in implementing any water conservation strategy. Home Water Use Reports, Waterfluence (Large landscapes water budget tool), and the Green Business program can all be utilized as a gateway to the successful roll out of the program.

Fast Track Some Indoor Measures: The following elements should be earmarked for earlier implementation to maximize the savings potential.

Residential: High-efficiency Clothes Washers (big savings year round, increase participation rapidly) Hot Water on Demand, High-efficiency Dishwashers
Commercial: Spray Nozzle replacement (already fast tracked and implemented-see below), on-site hotel laundry water recycling and other hospitality industry targeted measures to capitalize on the increase in visitors during the summer.

Other strategies to increase participation could include increasing rebates, targeted marketing and alternative financing strategies that might provide additional funds to strengthen the programs.

Costs: Create a portfolio with an overall cost less than \$7500/MG. This assumes that administrative costs are provided programmatically rather than for each individual element.

Governance: Assess the portfolio routinely to ensure that elements are achieving goals, adjust when necessary, and eliminate elements that do not meet intended targets. This analysis would be done with the understanding that the benefit of specific elements may not be purely based on element-specific financial/water returns, but may provide a key role in communication, education, and engagement. Develop an implementation schedule to achieve peak season targeted savings of 75 MG by 2020, 100MG by 2025, 125 MG by 2030 and 150 MG by 2035. Some key strategies could include combining elements that are easily rolled out together, staggering implementation of customer category elements to better target relevant programs, implementing programs early on that have high consumer buy-in and so forth.

Partnerships: Utilize local resources to help with education, social norm influence, CII program adoption, etc. Identify and collaborate with those who can act as ambassadors or marketers of the programs -- such as the local appliance distributors as ambassadors of the rebate programs. Expand marketing and target appropriate audiences -- clothes washer rebates for families with young kids. Public / private partnerships (with local contractors, for example), and public / public partnerships (with educational institutions, perhaps) should both be part of the mix and feed Santa Cruz's continuing leadership in conservation.

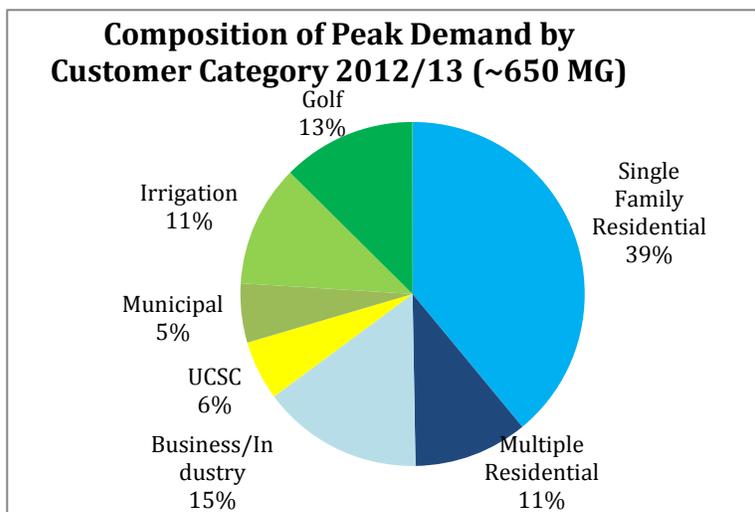
Verification of Conservation Measure Success: The effectiveness of some conservation measures may be difficult to evaluate. For example, how much conservation results from smart-metering of customers, apart from prior or simultaneous effects of other elements such as water use reports, rebates, etc? Nationwide, uncertainties exist in effectiveness assessment, but these can be substantially reduced or removed by proper design of a pilot program. For example, Soquel Creek Water District conducted a natural experiment for single-family residences with WaterSmart home reports during 2014 comparing “treatment groups” that received the reports against a “control group” that did not receive any documentation. Due to this information they were able to identify a 5% conservation effect due to home reports, above and beyond existing conservation elements. Resulting differences in water use, and synergies with other conservation elements, can then reasonably be attributed to smart meters. Water districts are more likely to conduct these “natural experiments” now, and the City may consider doing so itself.

Innovation Incubator: Continue with Santa Cruz’s leadership in conservation practices. Maximize water efficiency as per UWMP Chapter 10-3, including taking advantage of proximity to Silicon Valley for technological innovations, supporting the implementation of pilot projects and providing an arena where water demand reduction strategies can thrive.

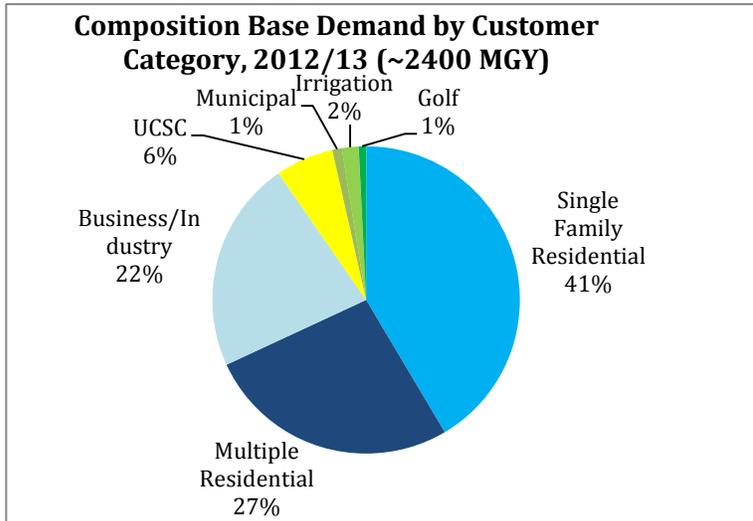
Additional Background Information:

Who Uses Water (2012/2013 data) or where can water savings be realized:

a) % of use by category peak demand water



b) % of use by category of base demand water



Program CRec Water Savings Adjustment Explained:

An additional question that came up in our deliberations related to the change in the yield of Program CRec from 490MGY to 178 MGY. Since some of the demand management water savings have been incorporated into the new baseline projections provided to us by David Mitchell the water savings provided by the plumbing code changes and water conservation elements Program A have been realized in those number adjustments. Those savings (around 300MGY) include demand reduction from normal plumbing changes and savings under the current conservation measures (Program A).

Lessons from Recently Implemented Water Conservation Measures:

Here are two examples of measures that have rolled out recently and some thoughts on how we incorporated that information into our suggested elements.

1) Large Landscape Water Budgets

The communication tool (Waterfluence) determines budgets based on existing landscaping needs and assigns a water budget for each month determined by ET and seasonal data. The data is shared with the landowner, landscapers and homeowners (if appropriate).

The CRec documentation projected a savings for this measure of 8 MGY. Upon implementation the project identified 45 MGY in overwatering across 250 of its landscape budget accounts. In the first 2 years of the program 15MGY of water savings was realized, leaving an additional 30 MGY of overwatering that could be reduced.

What this tells us:

- a) People overwater-especially HOAs and Commercial users
- b) Communication helps-especially when all parties are involved
- c) The tool can be adjusted to implement curtailment goals
- d) Adjusting the tool to point toward climate-optimized goals could provide further opportunities to reduce landscape demand.

Future Strategies:

- a) Use the Waterfluence tool to drive the implementation of resilient landscaping by communicating what a water wise landscape water budget would require.
- b) Set a goal to reduce turf in large landscapes by 10% overall by 2030
- c) Transfer some of these lessons to the residential sector.
- c) Efficiency-based targets, along the lines of the work done at Irvine Ranch Water District, could provide “templated” yet reasonably individualized targets for (say) the top 20% of customers.
- d) Homes are more likely to implement appropriate watering with personalized communication. The department could provide watering consultants who visit residences and generate a site-specific assessment of irrigation needs and excesses, and identify fixes to the irrigation system and operating program.

2) Restaurant Spray Nozzles:

In this program pre-rinse spray nozzles in restaurants were replaced with updated water efficient replacements. This program included a second round of replacements to provide more effective tools to the customer. The first distribution of low flow nozzles did not realize the goals for the measure due to a design that restricted workflow in restaurants (the nozzle took longer to rinse the dishes). The new design provides a concentrated line of water that is used to swipe the dishes clean.

This measure did not reach its intended water savings goal and was adjusted to reap larger savings on the second pass. This measure also highlights an investment in a measure that provides year round savings but realizes the most savings during peak demand (when restaurants see an increase in customers).

What this tells us:

- a) Not every measure will work the first time
- e) Examining the needs of the customer leads to a better program
- f) It is worth adjusting measures before throwing them out

Future Strategies:

- a) Evaluate measures throughout their implementation and make adjustments to fix underperformance.
- b) Prioritize measures for business that target peak season demand reduction-like hotel laundry recycling
- c) Reward Best Management Practices-so businesses continue to use conservation tools.