Water Resources Task Force Data Request

June 5, 2014

Quantified Strategies of remaining measures from 2007 and 2010 water conservation measures

This section includes the reference numbers, descriptions and potential savings of quantified measures not embedded in current future demand forecasts. Some individual measures have been grouped together into categories, both here and on the drought response decision matrix, to which they have been added. The source of each measure, which task force or staff, is in parenthesis, as follows.

- 2007 Water Conservation Task Force (07WCTF)
- Citizens Water Conservation Implementation Task Force (CWCITF/140 Plan)

Mandatory Toilet Retrofit on Resale

IN-1 Current plumbing code requirement for fixtures (07 WCTF)

Assumptions:

- Estimated 64,770 toilets remaining (20% of 1992 toilets), average 17 gpd savings per fixture
- Approximately 1400 properties sold/month, 20% or 3360 properties/yr would be older fixtures, 2 toilets each, 128 AF/yr potential savings
- One FTE + education expense at $75,000/yr
- Total cost - $780/AF or $2.39/thousand gallons over 10 years

Limit irrigated area in new residential development

O-NC-5 Landscape irrigation limitation ordinance (CWCITF/140 Plan),
O-NC-14 Commercial design standards for limiting irrigated areas in new construction (CWCITF/140 Plan)

Assumptions:

- Assumes median lot 8526 sf, house footprint 1885sf, add'l 471 sf in impervious cover. Allows 4711sf irrigated area for reduction in irrigated area of 1459 sf
- 2,000 irrigation permits/yr, water requirements of 20 gall/sf/yr = 30,000 gallons/yr/home
- 178 AF/yr, 2 FTEs required at $75,000 each = $840/AF or $2.57/thousand gallons
- 1,246 AF over 10 years (with 3 yr implementation/stakeholder period)

Require new facilities to capture A/C condensate for reuse

ICI-13 A/C collection and reuse for large systems (CWCITF/140 Plan);
O-NC-1 Amend plumbing code to allow beneficial condensate collection/reuse (CWCITF/140 Plan),
O-EC-11, Provide incentives for customers to use condensate (CWCITF/140 Plan)

Assumptions:

- 400-ton serves 20,000 sf building; avg commercial bldg is 4400 sf, MF is 135,000 sf
- Assumes applicable to 50% of new MF buildings and full 1:1 potable offset, yields 31 AF/year
- Assuming 1 FTE at $75,000, costs $2400/AF or $7.50/thousand gallons

Require retrofit of existing cooling towers to meet efficiency standards

IN-4 Cooling tower efficiency (07 WCTF)

Assumptions:

- Original measure included both code changes for new construction (implemented) and mandatory retrofits (not yet implemented); no split available for estimated 0.835 MGD
- Assuming 75% of savings remaining, effective over summer period results in 95.1 MGY or 292 AF.
- 1 FTE for compliance and outreach, 4-yr implementation, $1027/AF or $3.15/thousand gallons

Require home audits at time of sale

IR-2 Interior home water audits (CWCITF/140 Plan)

IR-8 Home audits at time of sale or account change coupled with incentives (CWCITF)

Assumptions:

- CUWCC reports 16% savings, assumes 500 properties/month subject to ECAD
- Average use of 6700/month and 25% annual savings depreciation = 0.21 MGD/yr
- Savings of 192 MGY or 589 AF/yr after 10 years; 1 FTE for tracking and management ($75,000)
- Cost $1270/AF or $3.91/thousand gallons

Mandatory irrigation audits for high users

OU-7 Free irrigation audit program expansion (07 WCTF)

Assumptions:

- Evaluation triggered at > 40,000 gallons/month for 2 months
- 1,746 customers met threshhold in 2013, average water use of 368,059 gallons/customer
- Assumes reduction to 229,500 annual average, total savings of 241.9MGY or 742 AF
- Assuming 4 inspections per day with 2 FTEs, program takes 1.5-2 years and costs $150,000/yr
- Costs: $404/AF or $1.24/thousand gallons

Implement smart meters for residential customers

IR-13 Behavioral modification through smart meters (CWCITF/140 Plan)

IFM-4 Implement a multiyear smart meter changeout program (CWCITF/140 Plan)

F-3 Smart meters (CWCITF/140 Plan)

Assumptions: (assumptions are preliminary since Austin Water has not done a feasibility study on smart meters)

- California studies show 10% savings in residential, not significant in commercial, MF or irrigation

- FY13 residential water use was 16 billion gallons in Austin – 10% = 4,928 AF
- Implementation cost assumes $500/meter for 190,000 meters, 4 new FTEs and additional $500,000 billing system integration
- Assuming 5-year implementation, total cost of $97M = $19,683/AF or $6.04/thousand gallons

Additional staff for marketing reclaimed water program

RU-3 Reclaimed marketing (CWCITF/140 Plan)
O-EC-6 Encourage use of reclaimed water for irrigation where reasonably accessible (CWCITF/140 Plan)
Assumptions:

- Assuming 1 FTE for 5 years at $75,000, additional 127 MG/year additional use and 1:1 potable offset
- Potential savings of 390 AF after 5 years at a cost of $961/AF or $2.95/thousand gallons

Water budget rates (applied to irrigation-only meters)

F-1 Water rate structures that foster behavioral modification (CWCITF/140 Plan),
F-2 Design future rate structures for conservation and affordability (CWCITF),
F-4 Rate structure for irrigation-only and second meters (CWCITF)**,**
O-EC-8 Evaluate water rates that drive conservation (CWCITF/140 Plan),
O-NC-16 Water budget-based billing (CWCITF/140 Plan),
IMP-12 Develop and pilot test impediments to conservation in allocated billing (CWCITF),
IR-14 Target high users with allocated billing using a developed base line (CWCITF/140 Plan)
Assumptions:

- Joint subcommittee has done significant work with rate structures and drought rates
- If irrigation-only meters (mostly commercial and MF) were charged for all use over 20,000 gal/month at the Tier 4 rate instead of the peak/off-peak rate, approximate savings based on a conservative -0.17 elasticity factor would be approximately 651 MGY or 2000 AF/yr

Hot water on demand incentives

IR-10 Hot water on demand incentives (CWCITF)
Assumptions:

- 50 rebates/yr based on similar programs, 7,000gallon/unit/yr savings
- $200 per rebate and 0.25 FTE = average annual cost of $55,000 over 10 years
- Savings of 350,000 gall/yr or 19.25 MGY after 10 years (59 AF)
- Cost $9,322/AF or $29/thousand gallons

Provide Rebates for 0.8 gpf Toilets

(Staff)

Assumptions:

- Saves 950 gallons per toilet annually
- Assume 10,000 rebates/yr at $50, no new FTEs – annual cost $500,000
- 29 AF/yr savings at cost of $17,000/AF or $52/thousand gallons
- 145 AF possible gain over 5 years, 290 AF over 10 years

Non-quantified Strategies

These are the reference numbers and descriptions of strategies that have not been quantified. Strategies marked with an asterisk are potentially quantifiable but additional specifics are needed to establish quantification parameters.

OU-5* Require homebuilders to offer a WaterWise landscape option (07 WCTF).

CI-4* Require conservation by wholesale customers (07 WCTF).

CI-5* Explore alternative water sources (07 WCTF).

CI-9 Expand public education program (07 WCTF).

CI-10 Create Citizens' Advisory Group on Water Conservation (07 WCTF).

O-EC-7* Provide incentives for use of gray water and sub-surface irrigation methods (CWCITF).

O-EC-10 Use organizations to assist with irrigation audits, landscaping workshops, and other informational/educational programs (CWCITF/140 plan).

O-NC-2 Utility service extension requests should trigger assessment of opportunities for potential on-site water reuse and other methods to reduce water demand (CWCITF).

O-NC-6 Develop Planned Unit Development ordinance measures that provide incentives for efficient overall water use. Investigate tying incentives to achieving efficient water systems for proposed use (CWCITF).

O-NC-10 Partner with a developer to design and construct a "model" water-efficient subdivision (CWCITF).

O-NC-11 Sponsor landscape design contests, develop demonstration projects, and encourage "parade of homes" and other showcases to promote state-of-the-art water conservation features (CWCITF).

O-NC-12*Amend Land Development Code to encourage "land sponge" concept, whereby site planning and grading are designed to allow infiltration of storm water that would otherwise run off a site (CWCITF/140 plan).

O-NC-15* Consider amending development codes and utility infrastructure expansion to require decentralized infrastructure where appropriate (CWCITF).

O-NC-18* Consider requiring use of Low Impact Development techniques in use of storm water and rainwater for irrigation (CWCITF/140 plan).

ICI-8 Provide industry-specific training workshops for "big ticket" water savings opportunities (CWCITF/140 plan).

ICI-9 Develop and/or more broadly distribute a manual for ICI customers on structural changes and water management practices that can be implemented. Work with industry groups to provide information to ICI customers on water saving technologies, practices, and incentive programs (CWCITF/140 plan).

ICI-10 Fund staff involvement with trade groups to provide a venue for outreach to ICI customers (CWCITF/140 plan) .

ICI-11 Consider businesses as partners in achieving water savings (CWCITF/140 plan).

ICI-12 Promote an ordinance that would require new facilities larger than 10,000 square feet of gross space to have water efficiency features (CWCITF/140 plan).

IR-4 Support measurable water conservation programs with strong customer information and education. Enable customers to easily access data about their water use in their bills and online (CWCITF).

IR-5 Develop and provide conservation information "welcome" packets for all new utility customers (CWCITF/140 plan).

IR-9 Develop an operational plan (including specifications and design standards) to consider how citizens and builders might safely utilize gray water or rainwater for non-potable applications including toilet flushing and irrigation (CWCITF/140 plan).

IR-12 Continue to examine water uses inside the home and adjust retrofit and rebate programs over time (CWCITF/140 plan).

IFM-3* The Parks and Recreation Department should implement a robust conservation program for all its water use, including raw water use. Replacement or upgrades of irrigation systems, adherence to city-wide watering schedules, and repair of swimming pool leaks should be a priority. Place conservation-minded signage in all city facilities (CWCITF).

IFM-4 Implement multi-year "smart meter" change-out program to replace conventional meters with those that provide real-time water use data. A pilot project could be implemented to provide data for cost-benefit evaluation prior to system-wide installation (CWCITF/140 plan).

IFM-7 A raw water rate structure that encourages conservation should be implemented (e.g. for the Parks and Recreation Department) (CWCITF).

IFM-9 Install flow meters and measure pressure at interim locations where appropriate throughout the water distribution system to assist with finding leaks (CWCITF).

IFM-10 Revisit design specifications for water-loss savings opportunities. Consider mechanically restrained pipe joints on new transmission and distribution mains (CWCITF).

IFM-11 Conduct a long-term study to look at how we treat and distribute water to neighborhoods (CWCITF).

RU-1 Require reuse and reclaimed water users to follow efficiency and conservation standards to avoid waste of this resource. The Water Conservation Ordinance should include benefits for non-potable water users during drought (CWCITF).

RU-2 Incorporate reclaimed water service into service delivery plans and projects to extend the City's water and wastewater system for new development (CWCITF).

RU-5 Investigate the feasibility of satellite treatment plants for reuse water to serve areas for which construction of reuse transmission mains is not cost-efficient (CWCITF).

POE-1 Implement a strategic marketing program designed to reach all water users (CWCITF).

POE-2 Support water conservation programs with compelling customer information and education. Enable customers to easily access data about their water use in their bills and online (CWCITF).

POE-3 Train 3-1-1 staff, any customer service staff, and all city employees having public contact about conservation programs, drought management stages, triggers, and curtailment measures; and reuse projects. Further, provide timely and frequent information about water management and water conservation strategies available within the City of Austin to city employees for dissemination (CWCITF).

POE-4 Develop sample water budgets for residential users and establish goals for conservation and drought reductions for individual customers (CWCITF/140 plan).

POE-5 Leverage technology to provide information on water management and conservation (CWCITF/140 plan).

POE-6 Increase public awareness of drought triggers and implications of lake levels through partnering with the Austin American Statesman and other media (CWCITF/140 plan).

POE-7 Partner with other city departments that focus on sustainability issues to create a cohesive information and outreach program that provides factual information and a call to action. Leverage various funding sources for a stronger, more effective information campaign (CWCITF/140 plan).

POE-8 Work with nurseries, landscape managers, plumbers, and other vendors to distribute information regarding conservation programs (CWCITF).

POE-9 Strengthen partnerships and collaboration with other water providers sharing the media market regarding conservation programs as well as drought stages and curtailment measures(CWCITF).

POE-10 Partner with local universities to gather and analyze data to advance education and communication efforts (CWCITF).

POE-11 Leverage national and statewide information campaigns when the messaging is consistent with Austin's program and local audiences (CWCITF).

POE-12 Hold media education and/or individual sessions with local newscasters, meteorologists, and others so that they can assist with providing information about watering schedules, irrigation strategies, drought triggers, and similar issues (CWCITF).

POE-13 Partner with educational and resource management institutions to develop a comprehensive education program. Comprehensive education programs should leverage funding from other departments and funds and could address the water-energy-greenhouse gas nexus (CWCITF).

POE-14 Work with the Texas Education Agency and local school districts to incorporate conservation education into the class room (CWCITF/140 plan).

POE-15 Continue current program of having booths at festivals, events, malls, etc. Ensure that customer contacts are tracked so that effectiveness can be evaluated in future budgeting decisions (CWCITF).

POE-16 Partner with children's museums, youth organizations, and schools to expand the youth education program from pre-K through college (CWCITF/140 plan).

F-2 Design future rate structures to ensure that conservation and affordability considerations are incorporated (CWCITF).

F-5 Set aside an established percentage of highest residential rate tier revenues, and consider assessing a modest monthly fee based on meter-size for non-residential customers, to fund conservation programs (CWCITF).

F-6 Rather than assessing impact fees for second "irrigation only" meters to recover costs of off-site system capacity, develop capital recovery fees for recouping the costs of meter and installation(CWCITF).

F-7 Develop an internal accounting protocol to allow conservation revenues to be available across fiscal years to match variations in program participation rates (CWCITF).

F-8 Explore funding some permanent structure conservation measures, where the savings accrue over time, with capital funds to minimize rate implications of paying for conservation investments (CWCITF).

F-9 Explore feasibility of assessing a one-time conservation fee for new development to fund conservation programs and/or provide impact fee credits for developers investing in non-required conservation practices where permanent savings can be demonstrated (CWCITF).

F-12 Develop a formula for investment levels for conservation programs and use this as a criterion for assessing cost-effectiveness of conservation rebates and incentives (CWCITF).

F-14 Require water conservation practices to be in place to qualify for code variances, city grants, etc (CWCITF).

IMP-2 The current review process for large rebates over $52,000 involves presentation and consideration by the CWCITF, Resource Management Commission, and Water and Wastewater Commission, as well as City Council consideration and action, prior to issuance of the rebate. We recommend streamlining the process so that general program criteria are reviewed and endorsed by the appropriate bodies and then detailed monthly reports provided, rather than individual items for consideration (CWCITF).

IMP-3 If City Council desires to establish a new body to provide it direct feedback regarding the success of water conservation programs and impediments to achieving goals, attention should be given to eliminate overlapping charges among various boards and commissions. Further, the Citizens Task Force recommends that if such a body is created that it report directly to City Council (CWCITF).

IMP-8 Support state legislation that would require TCEQ to simplify rules regarding homeowner use of gray water (CWCITF).

IMP-9 Explore legislation that would require gray water connections for new single-family and duplex construction (CWCITF).

IMP-11 Work with TX Chapter of the American Water Works Association, Texas Association of Clean Water Agencies, Texas Municipal League, and others to address streamlining and consolidation of the 30 Texas Administrative Code Chapters 210 and 285 relating to reclaimed water use and on-site sewage facilities, as well as Chapter 317 related to gray water reuse (CWCITF).

IMP-12 Develop and pilot test incentives or other methods to overcome impediments to water conservation in shared billing arrangements (CWCITF).