Water for 2060 Advisory Council

Meeting Minutes – 1:00 P.M., November 18, 2014

OWRB Board Room, 3800 N. Classen Blvd., Oklahoma City, Oklahoma

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ATTENDEES:

***Advisory Council Members and Representation*:**

Bob Drake, Agriculture (Davis)
Russ Doughty for Charlette Hearne, Oklahomans for Responsible Water Policy (ORWP) (Broken Bow)
Mark Helm, Dolese (Oklahoma City)
Trent Smith, Small Business (Choctaw)
Kevin Smith, Ward Petroleum (Enid)
Phil Richardson, Agriculture (Minco)
J. D. Strong, Chair, Oklahoma Water Resources Board (Oklahoma City)
Joe Taron, Pottawatomie County Development Authority (Shawnee)
Jerry Wiebe, Oklahoma Panhandle Agriculture & Irrigation (OPAI) (Hooker)
Nathan Kuhnert, Devon Energy (Oklahoma City)
Roger Griffin, Weyerhaeuser (Broken Bow)

***OWRB and USACE Staff and Consultants*:**

Cole Perryman, OWRB
Jennifer Wasinger, OWRB
Owen Mills, OWRB
Julie Cunningham, OWRB
Darla Whitley, OWRB
Mary Schooley, OWRB
Lauren Sturgeon, OWRB
Terri Sparks, OWRB
Kylee Wilson, OWRB
John Rehring, Carollo Engineers
Anna Childers, CH2M Hill
Bryan Mitchell, CH2M Hill
Bryan Taylor, USACE

***Other Attendees*:**

Brandon Bowman, ODEQ
Kent Fletcher, Western Farmers Electric Coop
Mike Mathis, Continental Resources

Introductions and Goals for Today

Mr. J.D. Strong, OWRB Executive Director and Advisory Council Chairman, opened the meeting by welcoming the attendees and asking audience/observers to introduce themselves. Mr. John Rehring, meeting facilitator, noted that Council members had been sent a draft set of recommendations which were compiled based on input from previous meetings. The goal of today's meeting is to receive additional input from the Council and to refine/expand those recommendations so that a draft report can be prepared that is reflective of the Council's desires and intent.

Review of Public Water Supply Measures: Water Savings and Costs

Mr. Rehring turned the Council's attention to the PowerPoint presentation (copy attached), which was sent out in advance of the meeting in PDF format. He noted that in response to requests by several Council members, Carollo Engineers had conducted an analysis of savings/costs of public water supply conservation measures and programs (refer to pages 2-5 of the attached). The analysis was primarily based on conservation scenarios and information provided as part of the *2012 OCWP Update* process. There was some discussion on what scenarios—or mix of scenarios—could best achieve the goal of using no more water in 2060 than is used in 2012. The group also discussed that it might be informative to

include a summary of the potential water savings from various water conservation measures and the respective costs of implementation in the Council's 2015 report to the Governor and Legislature.

Review and Discuss Preliminary Draft Recommendations

The discussion then turned to further consideration and refinement of the recommendations that were drafted for public water supply, crop irrigation, and other water use sectors.

Public Water Supply (PWS) (refer to pages 6-7 of the attached) – based on discussions from the May 20, 2014 workshop, the priorities for "Desired Results" were split into 2 primary categories: 1) reduce distribution system losses, and 2) best practices/information sharing. Several Council members recommended putting regionalization (interconnecting neighboring public water supply systems and/or sharing resources) back on the table as part of the group's recommendations. While interconnections may not help provide new/additional sources of water, regionalization may conserve water through economies of scale and more efficient systems. Highlights of discussion concerning the redrafted recommendations include:

Reduce Distribution System Losses

- Encourage systems to meter 100% of their customer accounts
    - Some smaller systems cannot afford to purchase and/or read meters
    - Number of non-metered systems are declining, but meters may not be accurate
- Need clearinghouse of information on meters/technology/etc.
- Can we redirect some Community Development Block Grant (CDBG) or other existing funds toward non-revenue water reduction? Coordinate through the state/federal Funding Agencies Coordinating Team
- Best practices for PWS could include rewards for fixing leaks

Best Practices & Information Sharing

- Public outreach—do not need to develop entirely new materials, but could pull together existing "best of the best" and present that information in a central place
- PWS Best Practices 2(a) should reflect that systems need an overall coordinator for public education and outreach; do not need to form a new state office—establish Portal to get all information together, maybe at an existing agency
- "Best Practices Manual" and other tools would need to be periodically updated
- Need to provide people to conduct conservation education at schools--not just training guides or brochures; many schools may not have the resources/expertise/manpower to incorporate independently
- Vo-techs and cooperative extension services could assist with public outreach and/or distribution of information on a regional scale
- PWS Best Practices 3(c)--strike out legislative requirement for high-efficiency WaterSense products, but use participation as WaterSense partner or adoption of local high-efficiency ordnances as criteria for financing and/or recognition
- Identify other/additional mechanisms to encourage PWS to implement conservation rates
- Need to consider impacts of long-term asset management/replacement (meters, etc.)
- Best practice manual should include methodology to show the "true cost of water"
- Support regionalization/interconnections
    - Could drive economies of scale
    - Establish and share existing efficiency practices

- Distinguish between mutual aid (sharing supplies intermittently between separate water providers and/or providing central water supply sources or treatment facilities for water providers) vs. consolidation (merging water providers)

Crop Irrigation (refer to pages 7-8 of attached) – input from the May 20, 2014 workshop supported several priorities for "Desired Results" in this water use sector. Recommendations for conservation initiatives were drafted based on that discussion. Additional input by Council members included:

- Identify water use "bench marks" for crop irrigation
- Identify ways to better leverage Mesonet data (similar to lawn irrigation Simple Irrigation Plan "SIP" program-- http://sip.mesonet.org/) via portal; develop stronger links to on-farm irrigation technology?
- Add recognition for hitting a threshold that reduces water use while maintaining crop yield and profit, e.g., Texas demonstration project that gained recognition for implementing water conservation technologies and practices with the goal to grow 200 bushels of corn on 12 inches of irrigation per crop acres ("200-12 Project"-- http://www.northplainsgcd.org/education/200-12-project.html); could recognize successful projects at venues such as the Governor's Water Conference
- State financing programs could include support for meter implementation programs to enhance water efficiency
    - Linked Deposit Program could be mechanism, as individuals do not qualify for state funding programs
- Consider combining PWS and Agriculture Portals

Industrial/Power/Oil and Gas (refer to pages 8-9 of the attached) – based on input received from the August 19, 2014 Council meeting, draft recommendations were developed and distributed for review and consideration. Council member suggestions included:

- Establish benchmarks and share data on the amount of water used for power generation, e.g., gallons per megawatt of power produced and/or percent of water consumptively used
- Establish a Portal to disseminate output from the Oklahoma Secretary of Energy and Environment 's collaborative meetings and other industry information – possibly via trade groups (OIPA, OERB, etc.)
- Establish recognition based on shifts from percent of fresh water use to percent of marginal quality water use
- Marginal quality water use items 2(a) and 2(c) (developing alternatives to water for fracking and technologies for treatment of flowback) are already underway via industry; instead use Oklahoma Secretary of Energy and Environment collaboration efforts and Portal development to share information on progress
- Streamlining the site specific stream standards approval process; move to "parking lot"
- Add recommendation to "remove regulatory impediments to reuse"
- Broaden Best Practices 3(a) and (d) to include other industries; not just aggregate

Next Steps and Group Resources

Mr. Rehring noted that a draft report should be ready for consideration by the Advisory Council in the 1st Quarter of 2015. The next quarterly meeting was tentatively scheduled for February 17, 2015, at 1:00 pm. at the OWRB's offices. The Advisory Council's report will be developed as follows:

- OWRB and the consultant team will develop draft text for each of the recommendations discussed at today's workshop by mid- to late January
- Advisory Council members will be assigned one of three subgroups to review the draft text (one subgroup will review, comment, and build on draft text for PWS recommendations, a second subgroup for Crop Irrigation, and the third subgroup for Industry/Other)
- Subgroups may be convened via teleconference to discuss the preliminary draft text
- OWRB and the consultant team will revise the text based on the subgroups' input and submit a full draft report to the full Advisory Council prior to the February 2015 Advisory Council meeting
- Steps for finalizing the report will be discussed at the February 2015 Advisory Council meeting

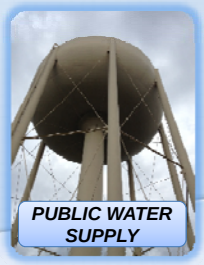
Water for 2060 Advisory Council

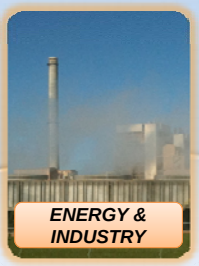
DRAFT

Conservation Savings Analyses

Draft Recommendations for the Governor and Legislature

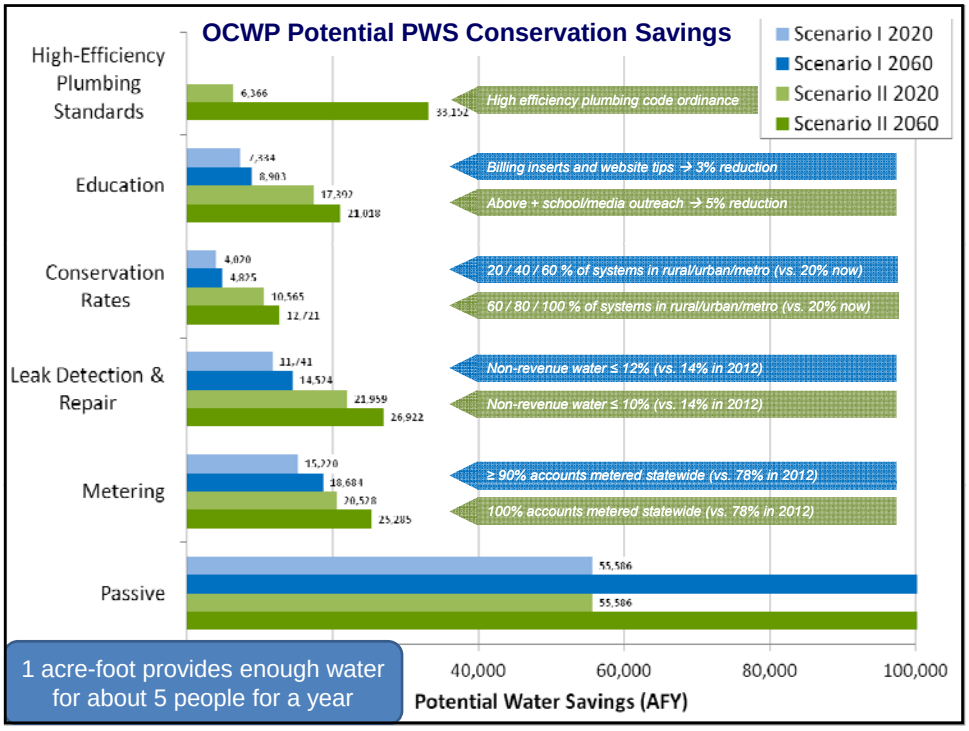
November 2014

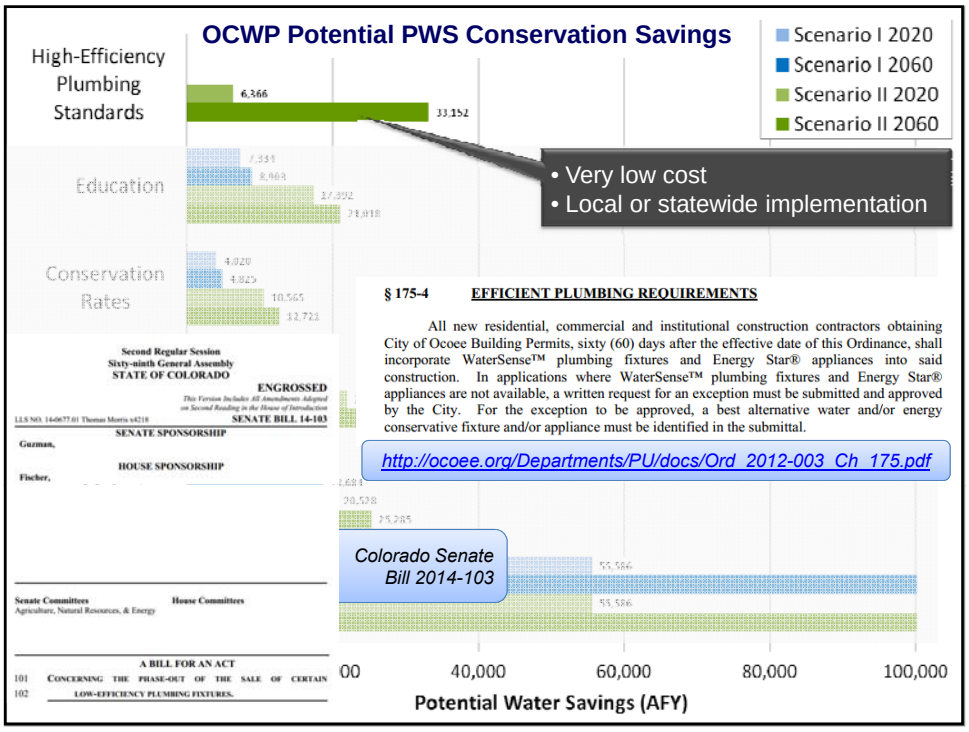


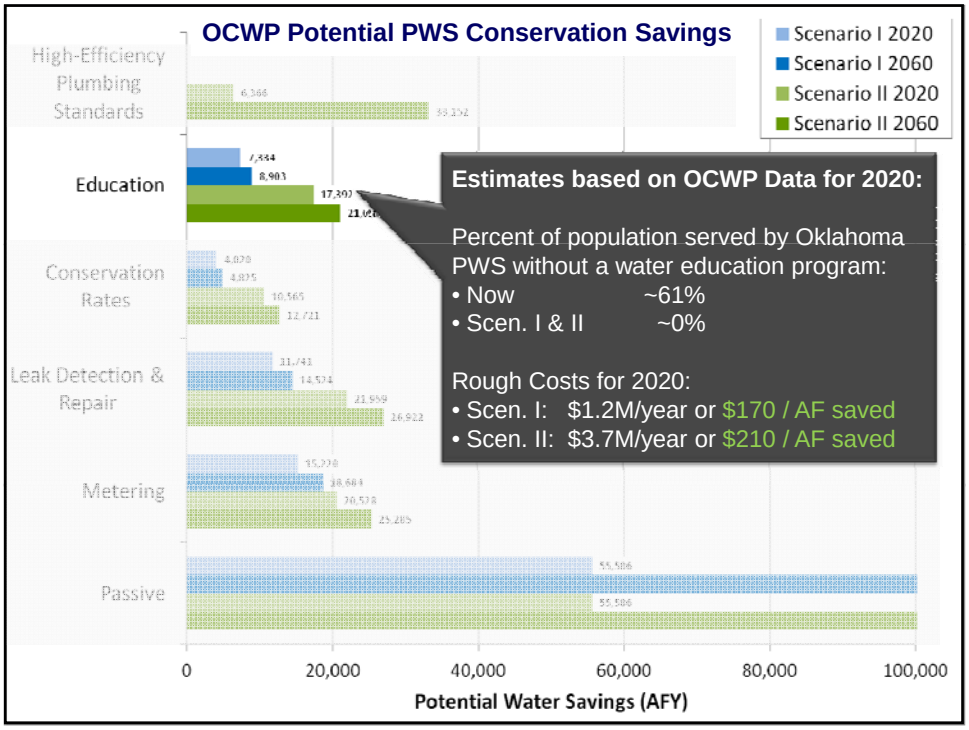


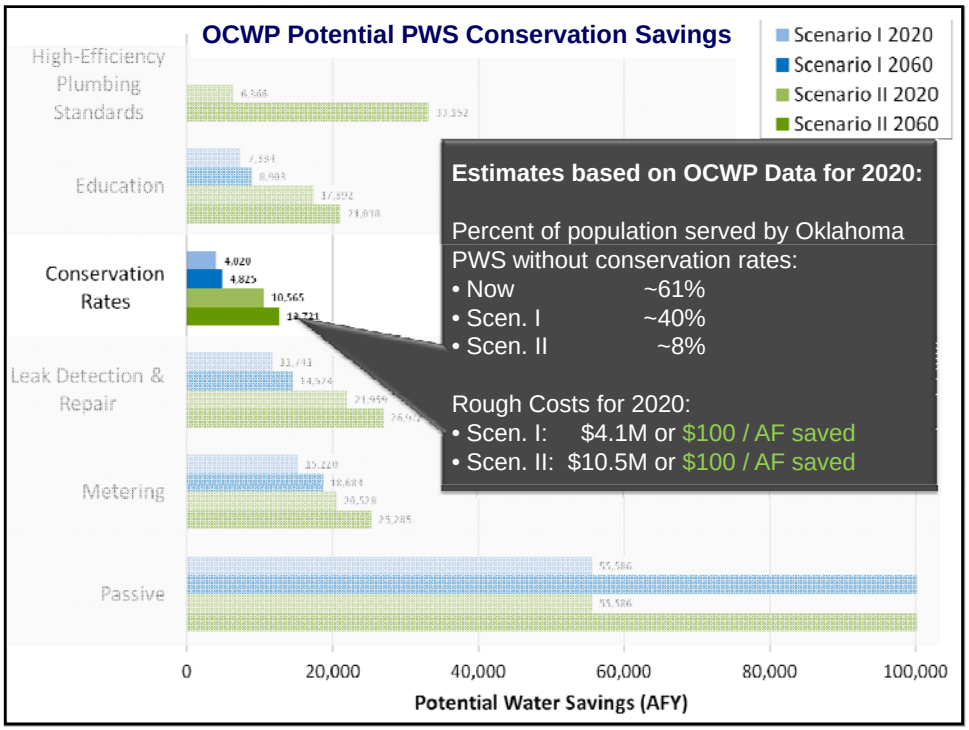
Topics

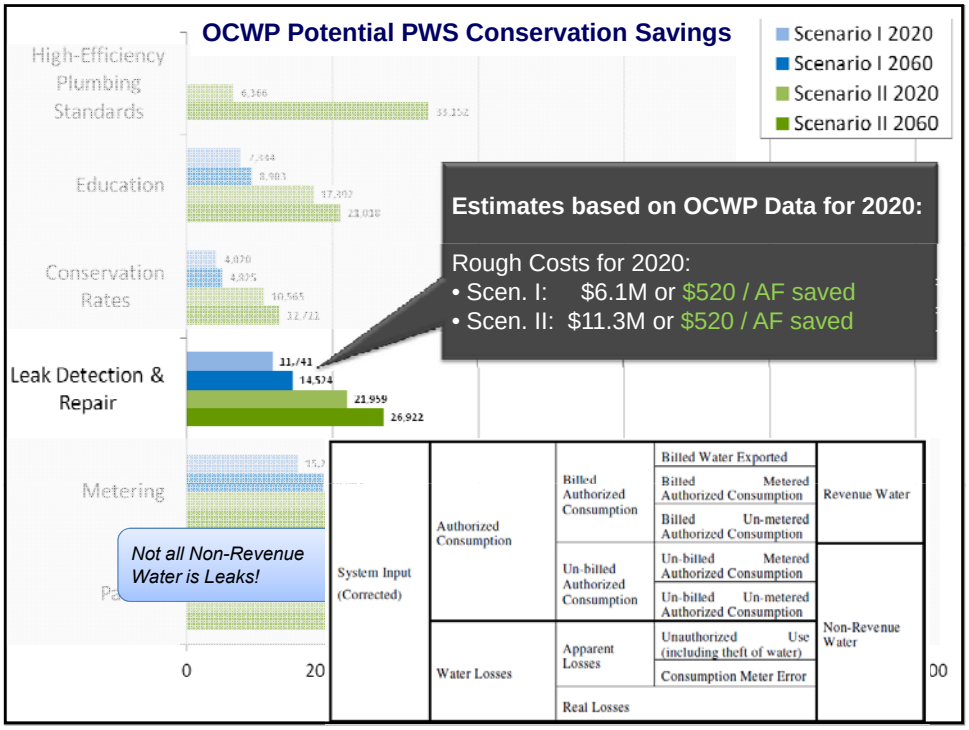
- **Analysis of Public Water Supply Conservation Measures and Programs**
  - Potential water savings
  - Order-of-magnitude costs to implement
- **Working Draft of Advisory Council Recommendations**
  - Public Water Supply
  - Crop Irrigation
  - Industrial, Power, Oil and Gas and Other Use Sectors

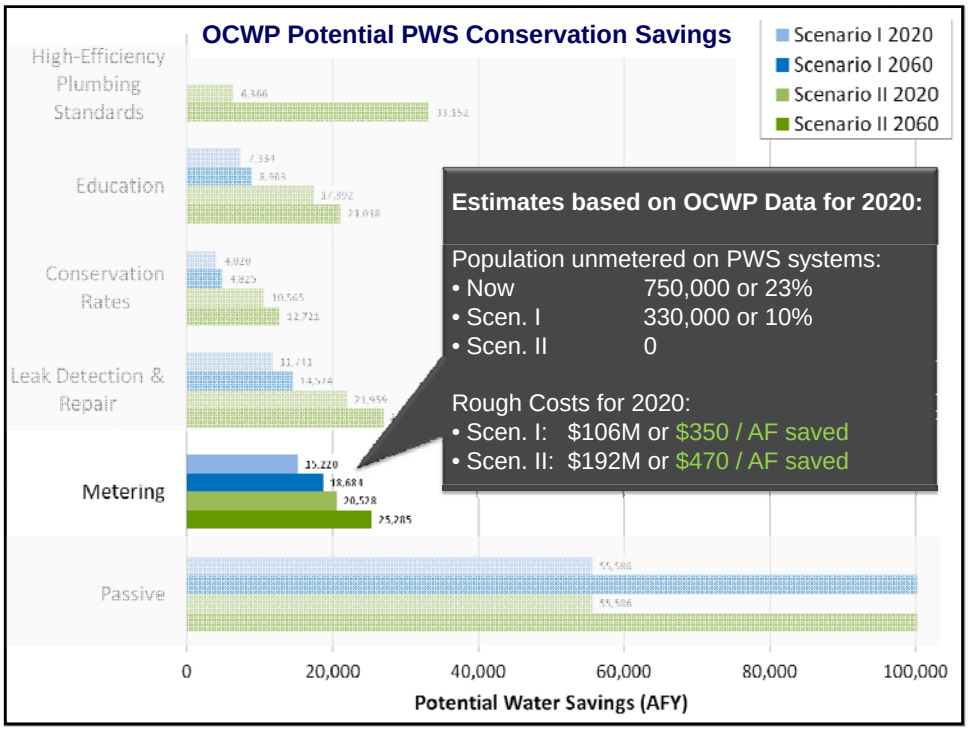

OCWP Potential PWS Conservation Savings
Scenario I 2020
Scenario I 2060
Scenario II 2020
Scenario II 2060
High-Efficiency Plumbing Standards
6,366
33,152
High efficiency plumbing code ordinance
Education
8,903
17,392
21,018
Billing inserts and website tips → 3% reduction
Above + school/media outreach → 5% reduction
Conservation Rates
4,020
4,825
10,565
12,721
20 / 40 / 60 % of systems in rural/urban/metro (vs. 20% now)
60 / 80 / 100 % of systems in rural/urban/metro (vs. 20% now)
Leak Detection & Repair
11,741
14,574
21,959
26,922
Non-revenue water ≤ 12% (vs. 14% in 2012)
Non-revenue water ≤ 10% (vs. 14% in 2012)
Metering
15,220
18,684
20,528
25,285
≥ 90% accounts metered statewide (vs. 78% in 2012)
100% accounts metered statewide (vs. 78% in 2012)
Passive
55,586
55,586
1 acre-foot provides enough water for about 5 people for a year
40,000
60,000
80,000
100,000
Potential Water Savings (AFY)

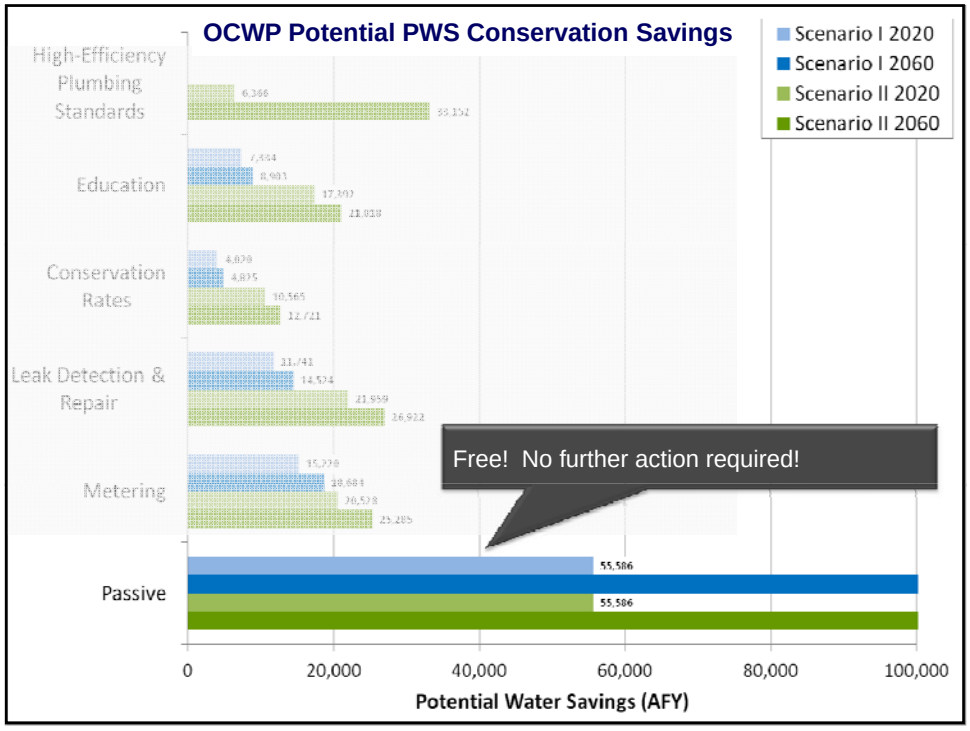

OCWP Potential PWS Conservation Savings
Scenario I 2020
Scenario I 2060
Scenario II 2020
Scenario II 2060
High-Efficiency Plumbing Standards
6,366
33,152
Education
Conservation Rates
• Very low cost
• Local or statewide implementation
§ 175-4 EFFICIENT PLUMBING REQUIREMENTS
All new residential, commercial and institutional construction contractors obtaining City of Ocoee Building Permits, sixty (60) days after the effective date of this Ordinance, shall incorporate WaterSense™ plumbing fixtures and Energy Star® appliances into said construction. In applications where WaterSense™ plumbing fixtures and Energy Star® appliances are not available, a written request for an exception must be submitted and approved by the City. For the exception to be approved, a best alternative water and/or energy conservative fixture and/or appliance must be identified in the submittal.
http://ocoee.org/Departments/PU/docs/Ord_2012-003_Ch_175.pdf
Second Regular Session
Sixty-ninth General Assembly
STATE OF COLORADO
ENGROSSED
SENATE BILL 14-103
SENATE SPONSORSHIP
Guzman,
HOUSE SPONSORSHIP
Fischer,
Senate Committees
Agriculture, Natural Resources, & Energy
House Committees
A BILL FOR AN ACT
CONCERNING THE PHASE-OUT OF THE SALE OF CERTAIN LOW-EFFICIENCY PLUMBING FIXTURES.
Colorado Senate Bill 2014-103
40,000
60,000
80,000
100,000
Potential Water Savings (AFY)

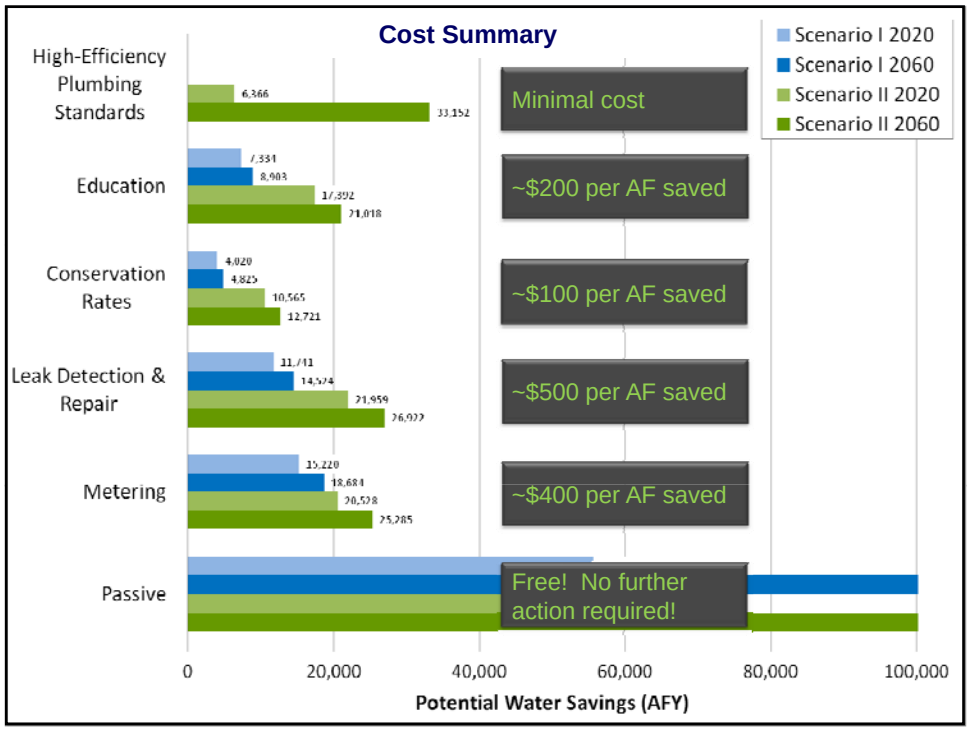

OCWP Potential PWS Conservation Savings
Scenario I 2020
Scenario I 2060
Scenario II 2020
Scenario II 2060
High-Efficiency Plumbing Standards
Education
Conservation Rates
Leak Detection & Repair
Metering
Passive
Estimates based on OCWP Data for 2020:
Percent of population served by Oklahoma PWS without a water education program:
• Now ~61%
• Scen. I & II ~0%
Rough Costs for 2020:
• Scen. I: $1.2M/year or $170 / AF saved
• Scen. II: $3.7M/year or $210 / AF saved
0
20,000
40,000
60,000
80,000
100,000
Potential Water Savings (AFY)


OCWP Potential PWS Conservation Savings
Scenario I 2020
Scenario I 2060
Scenario II 2020
Scenario II 2060
High-Efficiency Plumbing Standards
Education
Conservation Rates
Leak Detection & Repair
Metering
Passive
Estimates based on OCWP Data for 2020:
Percent of population served by Oklahoma PWS without conservation rates:
• Now ~61%
• Scen. I ~40%
• Scen. II ~8%
Rough Costs for 2020:
• Scen. I: $4.1M or $100 / AF saved
• Scen. II: $10.5M or $100 / AF saved
0
20,000
40,000
60,000
80,000
100,000
Potential Water Savings (AFY)


OCWP Potential PWS Conservation Savings
Scenario I 2020
Scenario I 2060
Scenario II 2020
Scenario II 2060
High-Efficiency Plumbing Standards
Education
Conservation Rates
Leak Detection & Repair
Metering
Passive
Estimates based on OCWP Data for 2020:
Rough Costs for 2020:
• Scen. I: $6.1M or $520 / AF saved
• Scen. II: $11.3M or $520 / AF saved
Not all Non-Revenue Water is Leaks!
System Input (Corrected)
Authorized Consumption
Billed Authorized Consumption
Billed Water Exported
Billed Metered Authorized Consumption
Billed Un-metered Authorized Consumption
Revenue Water
Un-billed Authorized Consumption
Un-billed Metered Authorized Consumption
Un-billed Un-metered Authorized Consumption
Non-Revenue Water
Water Losses
Apparent Losses
Unauthorized Use (including theft of water)
Consumption Meter Error
Real Losses
0
20


OCWP Potential PWS Conservation Savings
Scenario I 2020
Scenario I 2060
Scenario II 2020
Scenario II 2060
High-Efficiency Plumbing Standards
Education
Conservation Rates
Leak Detection & Repair
Metering
Passive
Estimates based on OCWP Data for 2020:
Population unmetered on PWS systems:
• Now 750,000 or 23%
• Scen. I 330,000 or 10%
• Scen. II 0
Rough Costs for 2020:
• Scen. I: $106M or $350 / AF saved
• Scen. II: $192M or $470 / AF saved
0
20,000
40,000
60,000
80,000
100,000
Potential Water Savings (AFY)


OCWP Potential PWS Conservation Savings
Scenario I 2020
Scenario I 2060
Scenario II 2020
Scenario II 2060
High-Efficiency Plumbing Standards
Education
Conservation Rates
Leak Detection & Repair
Metering
Passive
55,586
55,586
Free! No further action required!
0
20,000
40,000
60,000
80,000
100,000
Potential Water Savings (AFY)


Cost Summary
Scenario I 2020
Scenario I 2060
Scenario II 2020
Scenario II 2060
High-Efficiency Plumbing Standards
6,366
33,352
Minimal cost
Education
8,903
~$200 per AF saved
Conservation Rates
4,825
10,565
12,721
~$100 per AF saved
Leak Detection & Repair
14,574
21,959
~$500 per AF saved
Metering
18,684
20,528
25,285
~$400 per AF saved
Passive
Free! No further action required!
0
20,000
40,000
60,000
80,000
100,000
Potential Water Savings (AFY)

Public Water Supply

Priorities for "Desired Results" (5/20/2014 Workshop)

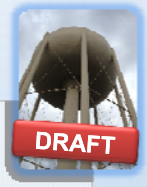
- **Reduce distribution system losses (system leaks, metering, etc.)**
- **Public awareness and action (conservation, value of water)**
- **Conservation pricing**
- ~~Regionalization/ interconnecting systems~~
- **Local water conservation plans**
- **High-efficiency fixtures**
- **Increased nonpotable reuse**
- **Increased potable reuse**
- ~~Increased gray water use (household level)~~

"Best Practices"

11

Public Water Supply Recommendations

Reduce Distribution System Losses

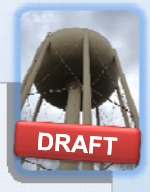


1. Develop & distribute the Oklahoma Water System Loss Reduction Best Practices Manual
   a. Reference available water system audit tools
   b. Include system inspection and repair methods
   c. Include case studies of return on investment
   d. Coordinate with ODEQ and Bureau of Reclamation efforts
2. Provide state funding and financing for Water System Loss Reduction
   a. Commit legislative funds for new System Loss Reduction matching-fund grant program
   b. Add new OWRB/ODEQ water project financing criteria to encourage System Loss Reduction projects
   c. Add new OWRB/ODEQ water project financing criteria to reward utilities with low Non-Revenue Water or designated Oklahoma Water-Wise Communities

12

Public Water Supply Recommendations

Best Practices & Information Sharing



1. Develop & distribute the Oklahoma Public Water Supply System Water Efficiency Best Practices Manual
   a. Group by system size
   b. Revenue-neutral conservation rate structures
   c. Sample high-efficiency plumbing ordinance
   d. Water reuse opportunities and planning guidance
   e. Reference System Loss Best Practices Manual
   f. Other best practices for consideration (e.g., metering, penalties for wasting water, awards for identifying leaks)
2. Develop Public Education and Outreach Materials
   a. Establish the Oklahoma Water Efficiency Office as a resource to PWS systems
   b. Downloadable public education and outreach materials (school program materials, brochures, public service announcements, etc.)
   c. Reference available materials from national organizations (AWWA)
   d. Develop model website for conservation tips, supply data, etc.
3. Develop a State reward/recognition program
   a. Set criteria for designation as an Oklahoma Water-Wise Community (low Non-Revenue Water, implementation of reuse, state-approved water conservation plan, etc.)
   b. Design signage for posting in community
   c. Statewide legislation requiring high-efficiency WaterSense products?

Crop Irrigation

Priorities for "Desired Results" (5/20/14 workshop)

- Supported:
  - Adoption of efficient irrigation technologies
  - Reduction in fresh water use
  - Low water-use and drought-tolerant crops
  - Avoid wasting water to prove out crop insurance
  - Increased unit water efficiency (e.g., gallons used per bushel of crop)
  - Manage supplies for long-term viability
- Not supported, not necessary, or not effective
  - Recognition programs
  - Best practices for operations (soil management, etc.)
  - Funding/grants for equipment upgrades
  - Drought-tolerant crop research

Crop Irrigation Recommendations

1. Actively support federal crop insurance reform
2. Develop and distribute Oklahoma Crop Irrigation Best Practices Guide and Information-Sharing Portal
   a. Best practices guide for irrigation technologies and practices
   b. Demonstrate return on investment potential
   c. Encourage focus on profit, not just yield;
      Also assess efficiency in terms of gallons of water per bushel of yield
   d. Reporting for recent acre-feet/bushel data to demonstrate potential for high yields with low water use
   e. Information sharing on water levels in aquifers and OCWP demand/shortage projections
   f. Targeted outreach to areas of state with lower-efficiency equipment and practices
   g. Information sharing on local/state/federal programs and opportunities that support best irrigation practices
3. Apply State financing programs for water-efficient crop irrigation equipment conversion and practices

Industrial, Power, Oil and Gas and Other Use Sectors: Key Takeaways

- No “one size fits all” approach to different industrial water use categories; site-specific requirements require flexible and adaptable approaches
- More opportunity to reduce consumptive uses vs. “divert & discharge” pass-through users
- Technologies, economics, and non-water-related regs already drive significant reductions over historical use
  - Gas-fired vs. coal-fired power plants → 1/3 the kgal/mw
  - Reuse of flowback and produced water for oil and gas drilling/fracking

Draft Recommendations for Industrial, Power, and Oil & Gas Users (1 of 2)

1. Facilitate Increased Sharing of Information and Supplies Between Users
   a. Inventory and map sources of municipal effluent in relation to large industry demand
   b. Actively promote/facilitate shared use of water resources between O&G operators per recent rule change avoiding classification as "commercial" operation; regulatory reform to address disincentives for O&G water sharing
   c. Continue facilitating collaboration between water users via Oklahoma Secretary of Energy and Environment
   d. Use public/private partnerships to improve municipal effluent water quality and treatment reliability to increase value of municipal effluent, and/or use OWRB Financial Assistance Programs to facilitate improvements
   e. Create intra-state and inter-state forums for water efficiency best practices info-sharing

Draft Recommendations for Industrial, Power, and Oil & Gas Users (2 of 2)

2. Promote Marginal Quality Water Use
   a. Support initiatives to develop alternatives to water for fracking or lower-water fluids
   b. Support additional brackish water mapping and research on its use
   c. Support development of evolving treatment technology for flowback
   d. Model the economics of alternative water sources for power generation; would also apply to large industrial users
   e. Streamline the process for approving site-specific stream standards
   f. Identify true water quality requirements for concrete (not just "potable") and get engineering industry to change specifications
3. Develop Best Practices Guidance and Recognition
   a. Identify and document best practices for onsite water management at concrete and aggregate facilities to employ elsewhere
   b. Award LEED-type points for sustainable site development
   c. Develop recognition programs for water-efficient industries
   d. Identify opportunities for aggregate sites to be used for recharge purposes as plants are in place long-term

Next Steps

- Individually: Review and mark up prior to November 18 Advisory Council Meeting
  - What's missing?
  - What's on the list that shouldn't be?
  - How can we make the recommendations more specific and actionable?
  - Did we cover all the types of recommendations specified in the legislation? What wasn't addressed and how can we address it?
- As a Group: Discuss draft recommendations and provide feedback at November 18 Advisory Council Meeting
  - Edits, Deletions, Additions, and Clarifications
  - Verify vs. Legislative requirements: Are we covering all the bases?
  - Define process for detailing and finalizing recommendations
- Draft Report and Advisory Council Meeting in 1Q2015

Water for 2060 Advisory Council

DRAFT

Conservation Savings Analyses

Draft Recommendations for the Governor and Legislature

November 2014