

Conservation, Efficiency & Reuse Panel

Stakeholder Update

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Alabama Water Agencies Working Group
Auburn, AL
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The
Alabama 
State Climatologist

Review AWAAG report

1990 Report Implementing Recommendations: The *Water for a Quality of Life* report contained the following regarding water conservation:

- Enact legislation to require local water conservation when water supply disruption or loss would jeopardize either the health of citizens or economic well-being of an area
- Empower the Alabama Water Resources Agency to:
 - develop model water conservation programs
 - provide technical assistance to local public entities
 - review local water conservation plans
- Support water conservation education programs.



Review AWAAG report

AWAAG recommended the creation of a Water Conservation, Efficiency, and Reuse Focus Panel. The panel should recommend components of a statewide water management plan to include the following:

- **Evaluate the state's role in establishing water efficiency standards and methods to measure conservation and efficiency.**
- Evaluate potential water conservation and efficiency incentives that can be implemented by public utilities with consideration for the quality of service and the cost of water delivery.
- Evaluate the role of water reuse, if any, in water conservation efforts.
- Ensure that adequate local voluntary and mandatory water conservation measures are established during a drought.
- Support development of water reuse regulations to conserve water and promote water reuse as a practical conservation measure.
- Develop a public education program for water conservation and reuse.



Definitions

Water Conservation

Any improved water management practice that reduces or enhances the beneficial use of water.

A water conservation measure is an action, behavioral change, device, technology, or improved design or process implemented to reduce water loss or waste.



Definitions

Water efficiency

A tool of water conservation. Efficiency is a device, technology, design or process that results in more efficient water use and thus **reduces water demand**.

The value and cost-effectiveness of a water efficient measure should be evaluated in relation to its effects on use and cost of other natural resources(i.e. energy and chemicals).



Definitions

Water Reuse

A tool of water conservation that results in more efficient water use by recycling water back to the same or other uses as **an alternative to withdrawing additional water from a source.**

The value and cost-effectiveness of a water reuse should be evaluated in relation to its effects on use and cost of other natural resources (i.e. energy and chemicals).



Definitions

Conservation Plan:

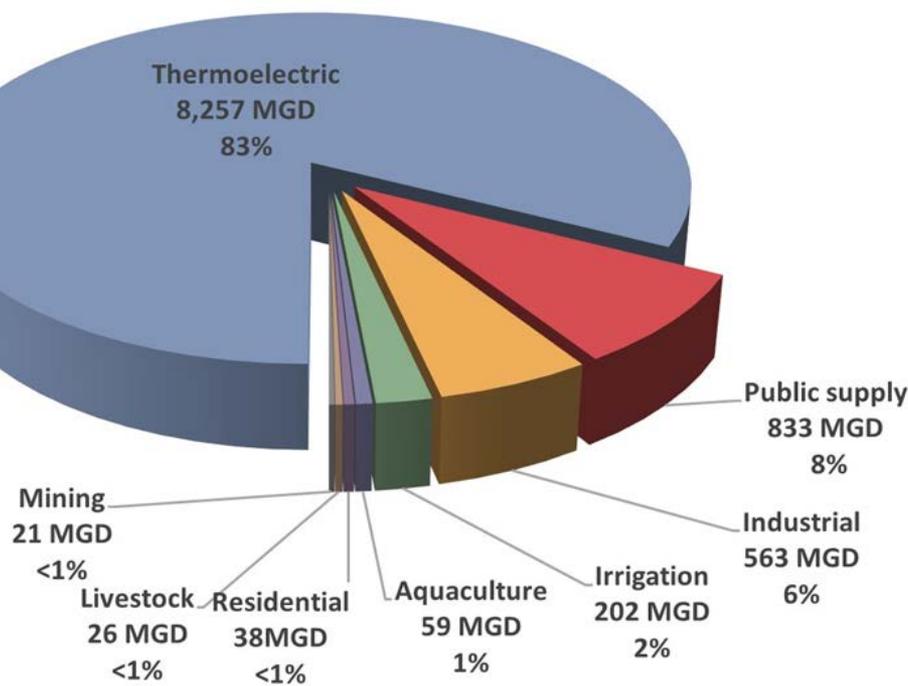
Ongoing effort to reduce water waste. May be explicit or implicit.

Drought Plan:

Response to local water scarcity and/or official declaration by the state.



Subpanels



We created sector-specific subpanels to focus efforts:

- **Public Water Supply** (Utilities “before the meter”)
- **Domestic** (Customers of PWS “After the meter”)
- **Self-supplied Irrigation** (row crop, sod farms, nurseries, golf courses)
- **Thermolectric Power**
- **Industrial**
- **Livestock/Aquaculture**

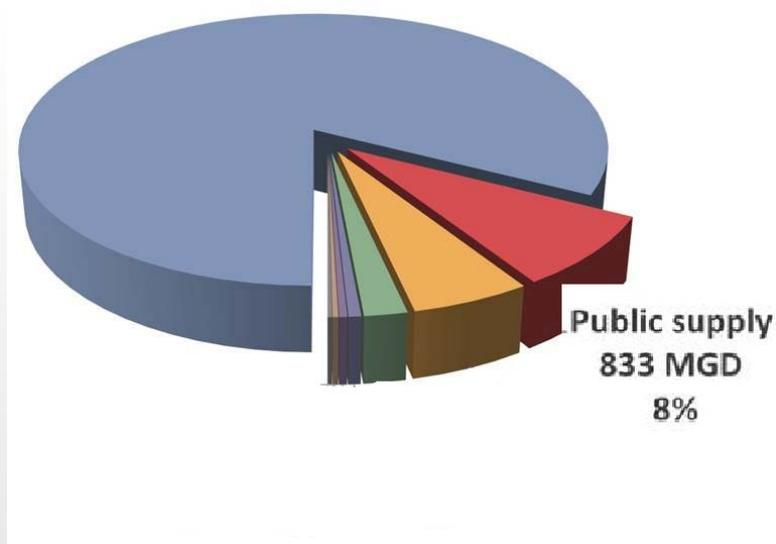


Subpanel Questions

- Should all large water users (over 100,000 gallons/day) have a conservation plan? A drought plan?
- Should all large water users submit plans to the state?
- Is there funding available to improve efficiency?
 - Is there someone at the state level focused on available funding?
 - Helping small PWS with leaking pipes?
 - Helping farmers w/ improved efficiency and/or conservation?
- Should all large water users have to measure and report water use and consumption?
- Should this should be available for public education?



Public Water Supply



Conservation & Drought Plans

- Most utilities already have both a conservation and drought plan on file.
- Most drought plans are part of an overall operational plan.
- Should the state require a drought plan filed, utilities would request a template from the state (currently ongoing)
- “Do Nothing” should always be an option in response to a drought declaration.
- Droughts are local and designations need to reflect that.



Public Water Supply

Efficiency

- Sector already regulated
 - Certificate of Use report to OWR
 - ADEM permit for discharge
- PWS should provide to the public an “Efficiency” rating
 - ID Utilities that need help and prioritize resources
 - Public could use this to compare the efficiency of their water supplier with other PWS.
 - OWR/ADEM could play role in standardizing report
- Utilities concerned that measuring efficiency would lead to required capital improvements that may be financially burdensome
- Utilities would need a standard reporting method.
- The American Water Works Association (AWWA) has developed a standard for reporting that is already in widespread use.
- Smaller utilities would need additional resources (staff and/or funding) for detailed reporting.
- Make sure public is educated about what they are reviewing



Domestic (After the Meter)

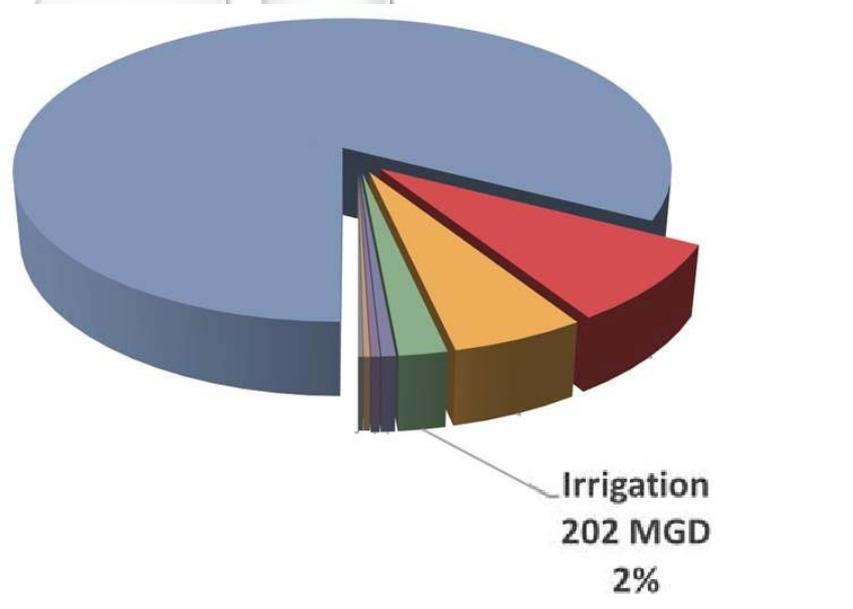
- In the state drought management plan, all recommended PWS actions are “after the meter”
- Conservation Rates
 - Conservation rates could be part of both conservation and drought plans to promote reduced water use.
 - Used during the 2007 drought
 - Used seasonally to lower summertime peak demand.
- Proposal is to encourage/require PWS to provide conservation educational material to every customer.
 - Challenging for PWS to both promote water conservation while in the business of “selling water”.
 - But PWS can use domestic conservation to forego expensive capital investments in new water supply.



Domestic (After the Meter)

- Proposal to require/promote “Water Sense” rated fixtures on all new construction.
 - Stricter than current building code
 - Aggressive programs to replace older appliances could be used in specific PWS that are currently at capacity and as an alternative to expanding water supply.
- Even current building codes improve efficiency .
 - Water use in new construction is already lower due to current building code.
 - As Older fixtures/appliances fail in existing buildings, they are replaced with water efficient versions.
- Proposal to require irrigation installers to be certified and licensed in the state.
 - Licensing similar to plumbers or electricians
 - Require Continuing Education credits to keep designers/installers up-to-date on latest technology.
 - Supported by nursery association





Self-Supplied Irrigation

- Sector already regulated
 - Certificate of Use report to OWR for users over 100,000 gal/day
 - 2015 Water Report will contain irrigation water consumption estimates
- The state drought management plan includes: **“Recommending irrigation system efficiency audits every five to seven years”**
 - What do the audits measure? Who would perform the audits? How would they be used? Reported to the state?
 - If implemented through a regulatory agency, could be seen as a first step to permitting.
- **Auditing is needed to document some definition of Efficiency and is important to any water policy plan.**



Self-Supplied Irrigation

- The Extension and NRCS both promote and provide information about irrigation efficiency
- The Soil & Water Conservation Districts also provide both information and help through the state. Also not seen as regulatory in nature and foster trust with users.
- Education & training is critical to encouraging SSI users to adopt BMP's.
- The state could/should promote/require Certified Irrigation Designers (CID) be part of the design/implementation of Self-Supplied Irrigation systems.

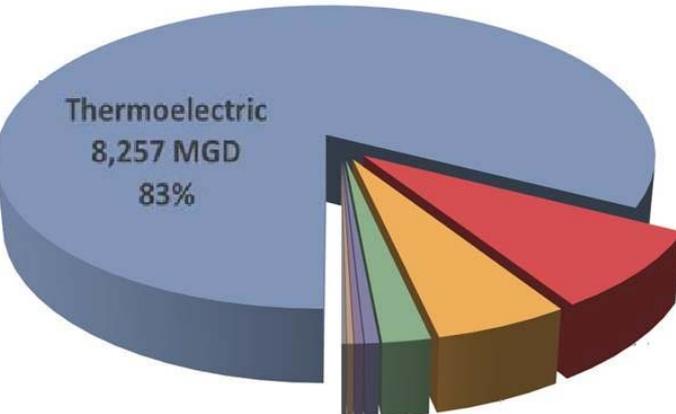


Self-Supplied Irrigation

- WATER LAW SHOULD NOT IMPEDE THE RIGHT TO USE AND/OR DEVELOP WATER RESOURCES FOR IRRIGATION
- WATER LAW SHOULD ENCOURAGE SOUND IRRIGATION DESIGN PRACTICES AS RECOMMENDED BY THE IRRIGATION INDUSTRY (IA), MANUFACTURERS, AND TRAINED IRRIGATION PROFESSIONALS
- WATER LAW SHOULD ENCOURAGE SOUND IRRIGATION SYSTEM MANAGEMENT PRACTICES TO MINIMIZE WATER USE WHILE OPTIMIZING CROP YIELDS AND MAINTAINING TURF AND ORNAMENTAL PLANT QUALITY
- WATER LAW SHOULD ENCOURAGE THE USE OF IRRIGATION SYSTEM MANAGEMENT PRACTICES AND DEFICIT IRRIGATION SCHEDULING APPROACHES THAT REDUCE WATER USE BUT PRODUCE REASONABLE CROP YIELDS AND PLANT QUALITY IN YEARS OF EXTREME DROUGHT
- WATER LAW SHOULD ENCOURAGE INNOVATIVE WATER RESOURCE DEVELOPMENT FOR IRRIGATION THAT TAKES ADVANTAGE OF OFFSEASON RAINFALL RUNOFF
- WATER LAW SHOULD NOT IMPACT OWNER IRRIGATION DECISION MAKING DURING EXTREME DROUGHTS WHEN THE WATER RESOURCE IS ON PRIVATE PROPERTY AND ITS USE DOES NOT IMPACT OTHERS
- WATER LAW SHOULD ESTABLISH A MECHANISM FOR ESTABLISHING AND MANAGING WATER MANAGEMENT DISTRICTS FOR IRRIGATION. THESE DISTRICTS COULD BE PUBLIC, PRIVATE OR A COMBINATION AND SHOULD PROVIDE MECHANISMS FOR BUILDING WATER DISTRIBUTION SYSTEMS THAT ALLOW TRANSFER OF WATER TO FARMS FROM LARGE WATER BODIES AND STREAMS TO SURROUNDING FARMS.



Thermoelectric Power



A 3D pie chart with a large blue slice representing 83% of the total. The text 'Thermoelectric 8,257 MGD 83%' is overlaid on this slice. The remaining 17% is divided into several smaller slices of various colors (red, orange, green, purple, brown).

Thermoelectric
8,257 MGD
83%

- Facilities already have both a conservation and drought plan on file.
- The public should be able to access and understand the water requirements of cooling and coal ash storage at power plants.
- Define a common efficiency standard across the industry.
- Sector already regulated
 - Certificate of Use report to OWR
 - ADEM permit for discharge
 - 2015 Water Report will contain Thermoelectric water consumption estimates



Thermoelectric Power

- Sector is in transition:
 - Moves from coal to natural gas
 - Move from once-through to recirculating cooling
- Where the state could/should play a role:
 - Provide a clearing house for standard thermoelectric plant efficiency ratings
 - Should the state plan include alternatives to current BMP's for producing electricity?
 - Are Alternative energy sources more efficient water users?



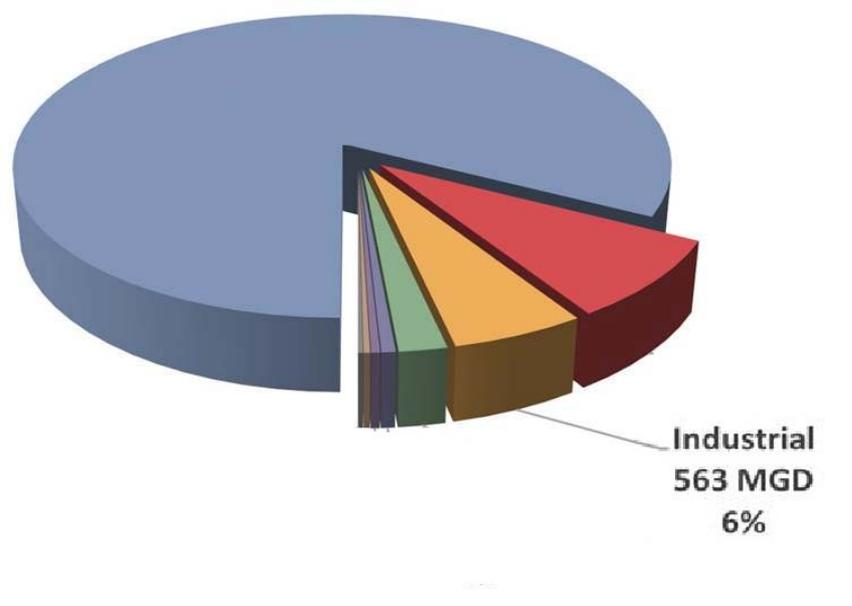
Thermoelectric Power

Is there a standard to measure thermoelectric power generation efficiency?

- Industry concerned about retaining proprietary operating data; would be opposed to reporting more information than already required.
- Measuring efficiency can be a mixed bag, since one plant could use more water to reduce air pollution (scrubbers).
- Environmental groups would like to see a comparison of economic efficiency but also include alternative energy solutions as part of the mix.



Industrial



- Every plant has a drought and/or conservation plan but not necessarily explicitly written.
- They have operational procedures during low summertime flows and drought conditions. Internally they meter water use.
- Sector regulated through:
 - Certificate of Use report to OWR
 - ADEM permit for discharge
- Pulp & Paper is the largest industrial water user in the state (Consumes 34 MGD)
- Industry consumes about 10% of total withdrawals



Industrial

- Industry efficiency has increased and water use has declined over time.
- However, this decline has flattened as the industry has reached diminishing returns. They have found an economic “sweet spot”.
- Where the state could/should play a role:
 - Provide a clearing house for industrial efficiency ratings
 - Provide auditing services for smaller industrial water users to identify waste and make recommendations for improvement



Looking Forward

- Continue work to detail proposed actions
 - Examples of Conservation Plans for each sector
 - Examples of Drought Plans for each sector
- Water Reuse
 - Review ADEM's regulatory updates on the use of treated wastewater
 - Research potential for gray water use in Alabama
- Begin final report for AWAAG

