



AWBD New
Director Workshop:
DIRECTORS - 101

ASSOCIATION OF WATER BOARD DIRECTORS - TX:

WATER DISTRICT INNOVATION 101



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INNOVATION OVERVIEW

- MEANING
- EXAMPLES

HEADWORKS, DISINFECTION,
ENERGY, IT, MONITORING,
BIOREFINERIES

- CONSIDERATIONS

Innovation: Directors–101

Water District Innovation Means:

- Improving Operation & Maintenance
- Reducing Costs & Waste
- Meeting Compliance Challenges

Headworks: Traditional Approach Problems

- Maintenance headache
- Reduced energy efficiency
- Poor treatment performance



Headworks Technology: Innovation Example

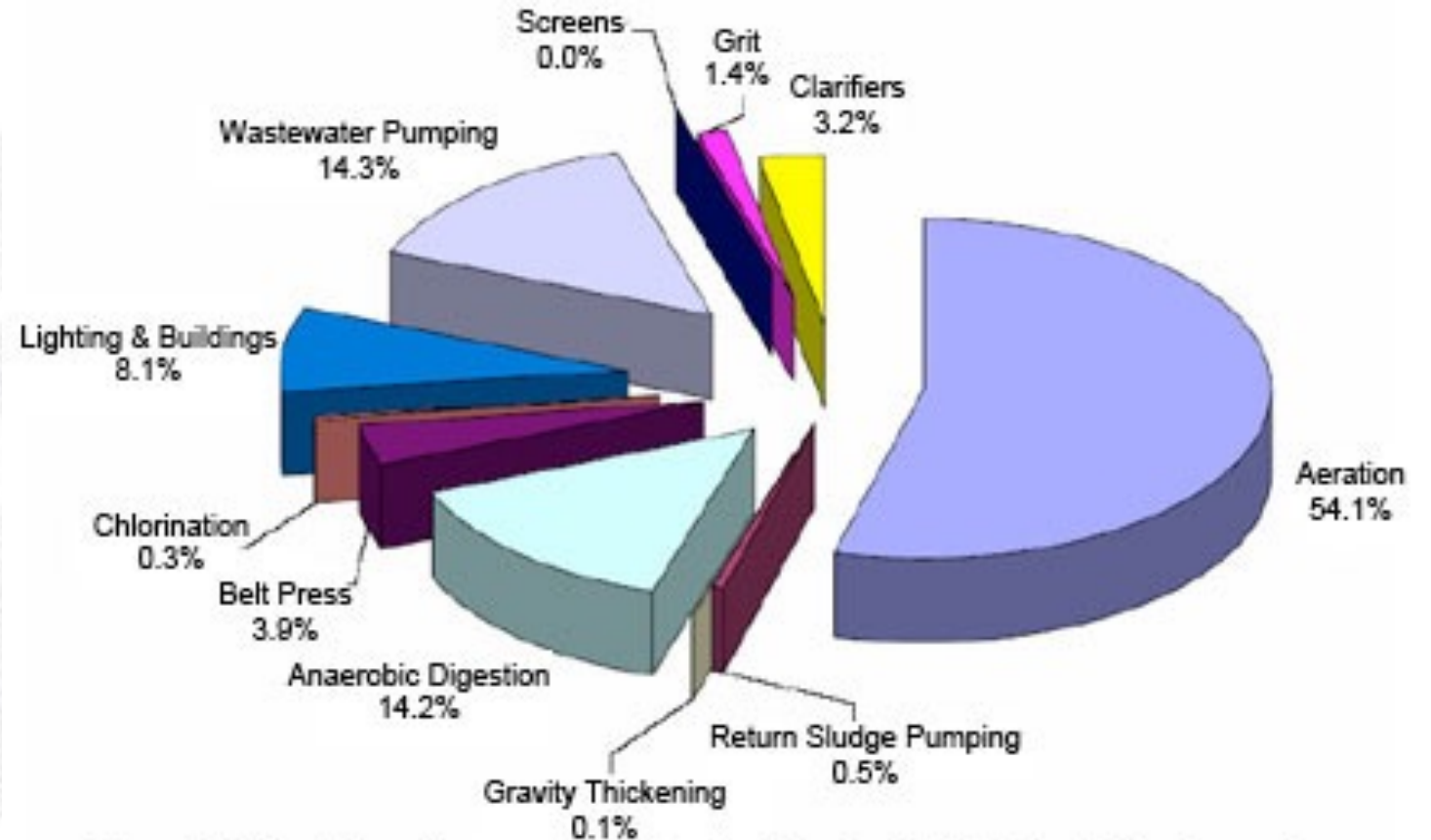
Package WWTP Bar Screen



Fine Drum Screen



Wastewater Energy: Innovation Example



Electricity Requirements for Activated Sludge Wastewater

Derived from data from the Water Environment Energy Conservation Task Force Energy Conservation in Wastewater Treatment

UV Disinfection: Innovation Example



Traditional Quartz Sleeve UV



Non-Contact UV

- Easier maintenance – no sleeve fouling
- Easier access
- Improved hydraulics
- Bulb technology improvements
 - Low pressure, high output
 - LED reduced heat output

Pumping Improvements: Considerations

Pump
Sizing/
Headloss

Pump
Monitoring
Programs

Variable
Frequency
Drives

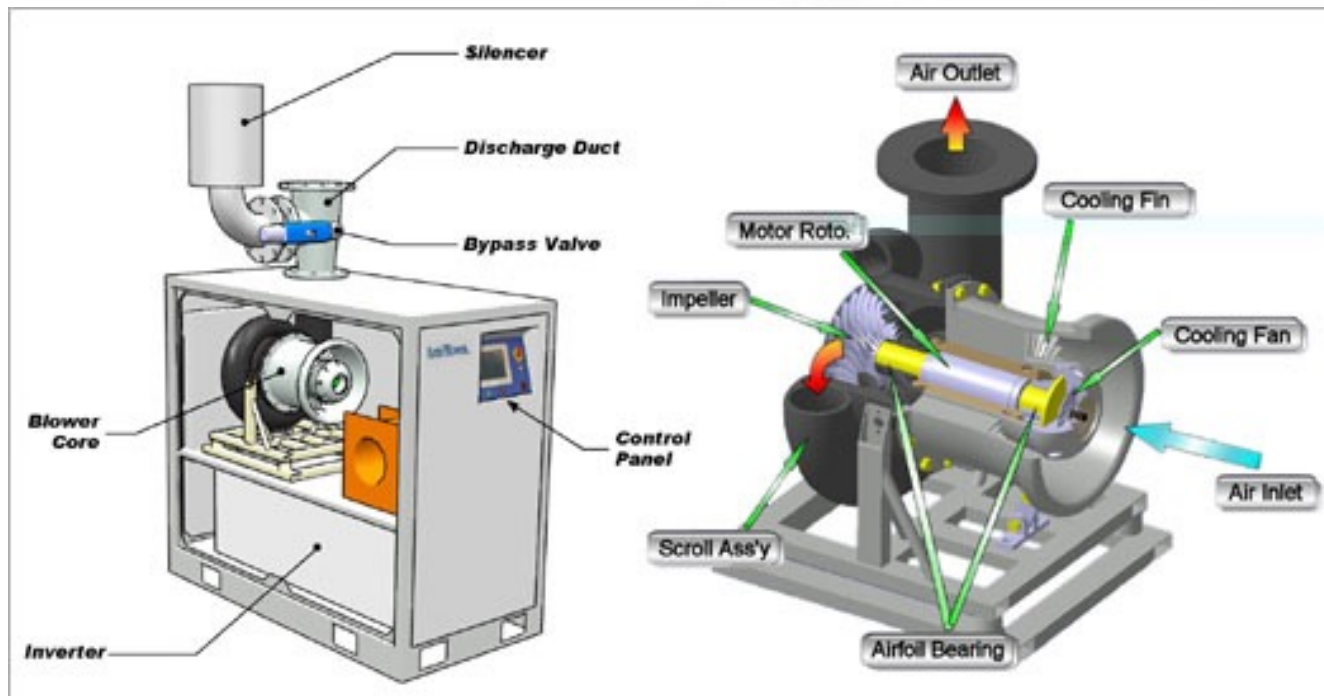


Blower and Diffuser Improvements: Considerations

Blower Technologies

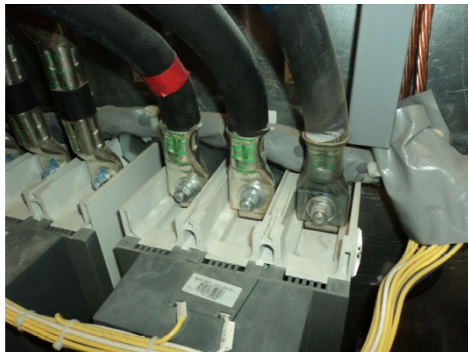
Variable Frequency Drives

Fine Bubble Diffusers

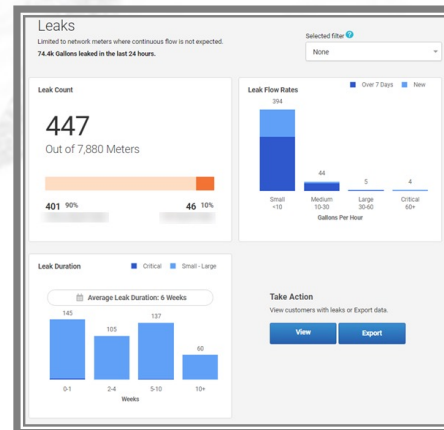


Monitoring: Innovation Examples

- Thermography



Flow/Leak Detection

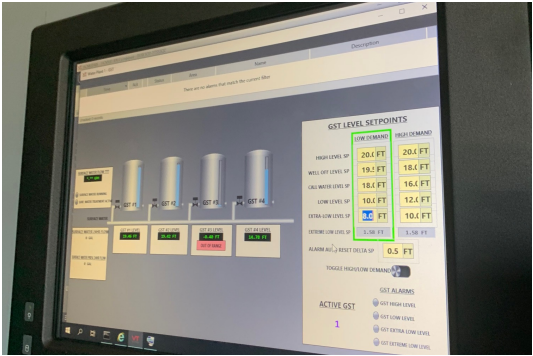


Equipment Sensors

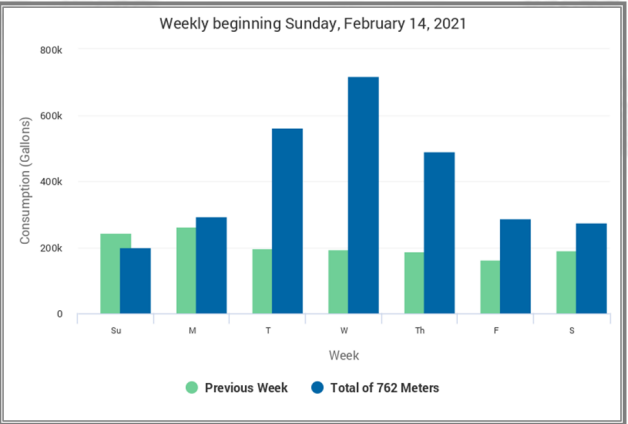


Water District IT: Innovation Examples

- SCADA Systems



- SMART Meters



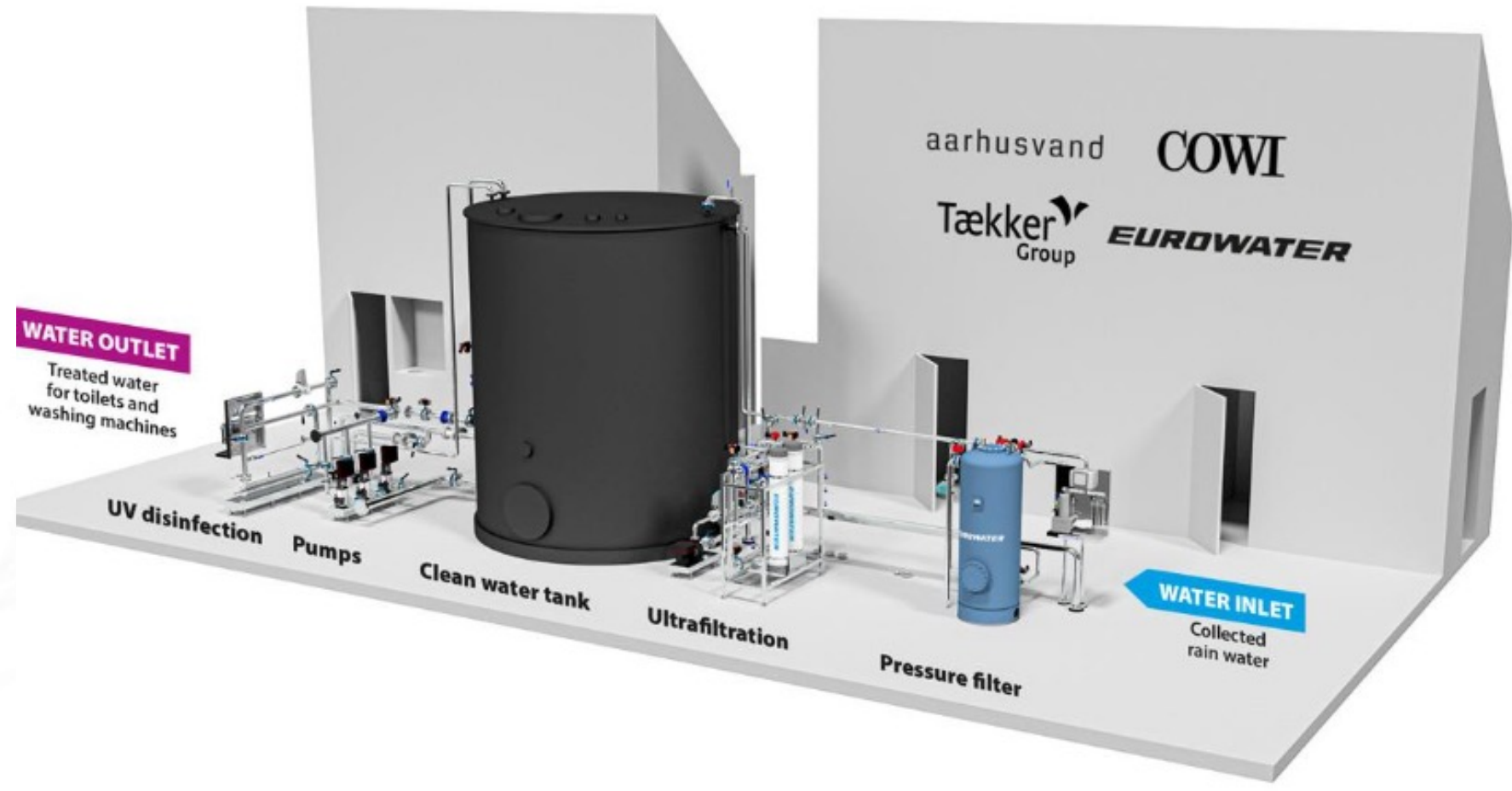
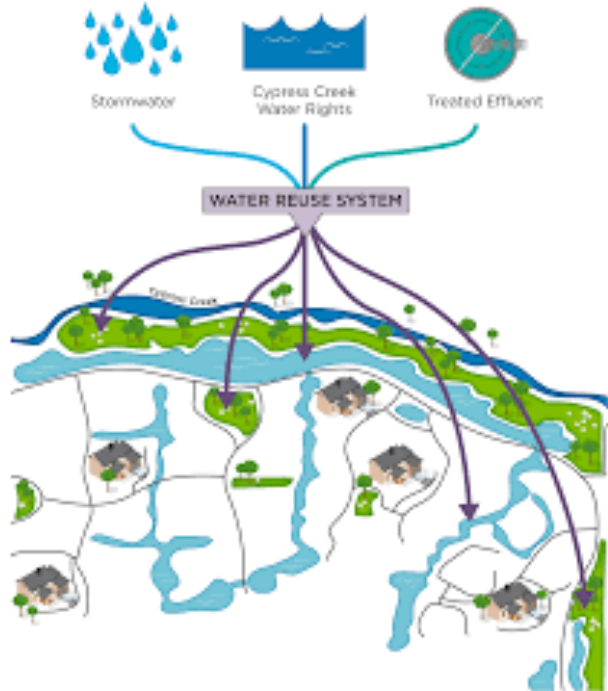
- GIS/Mapping Software



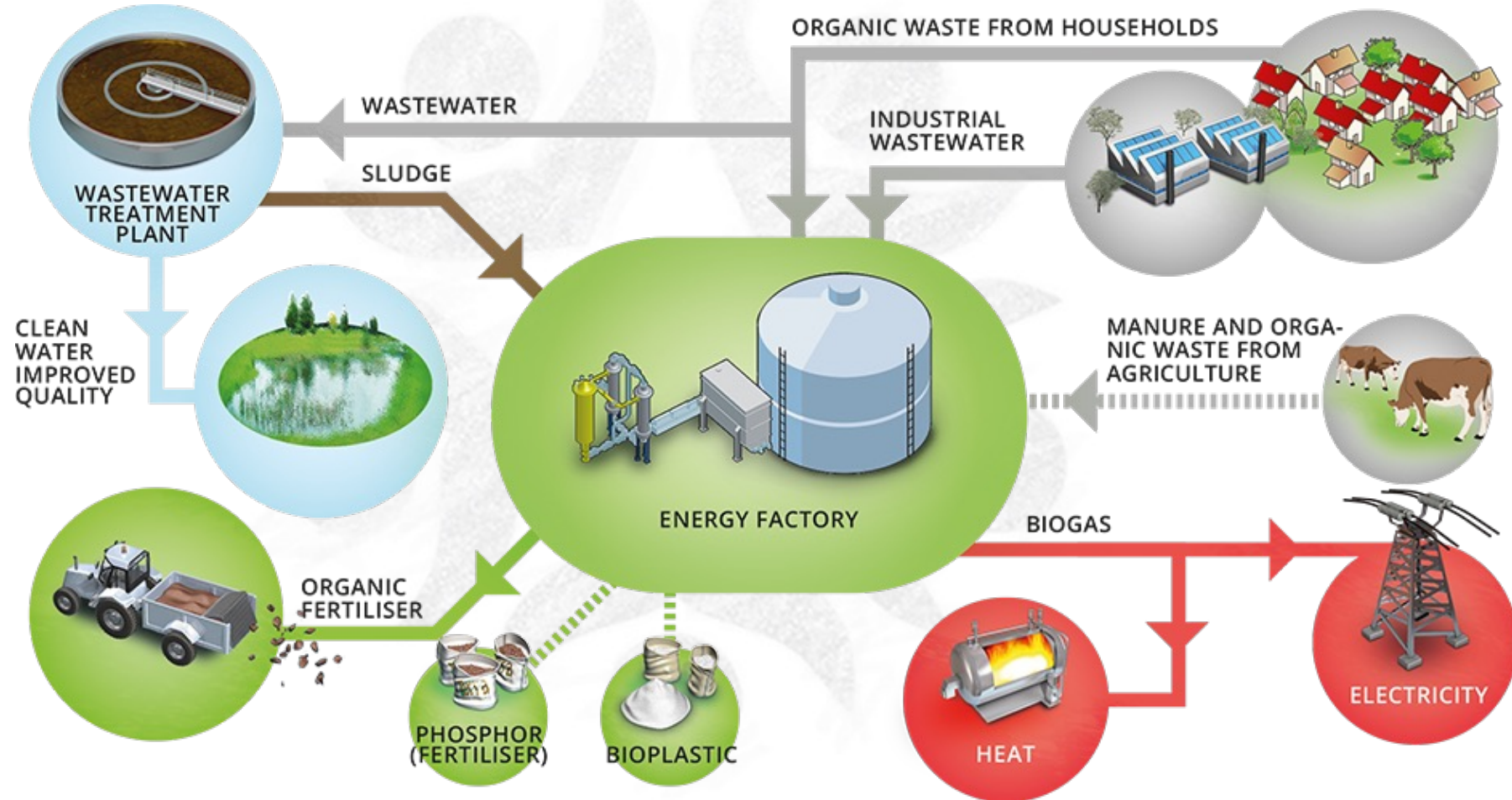
A screenshot of a GIS software interface. On the left is a sidebar with a search bar and a list of 'Repair Type' options. The main area shows a map with red and green markers. On the right is a summary dashboard with the following information:

- Average Repair Estimate: **\$365.58**
- Total Repair Estimate: **\$217,155** (Out of \$217,155)
- Inspection Status: A pie chart showing 20.8% (green) and 79.2% (red).
- Value Count: **865**

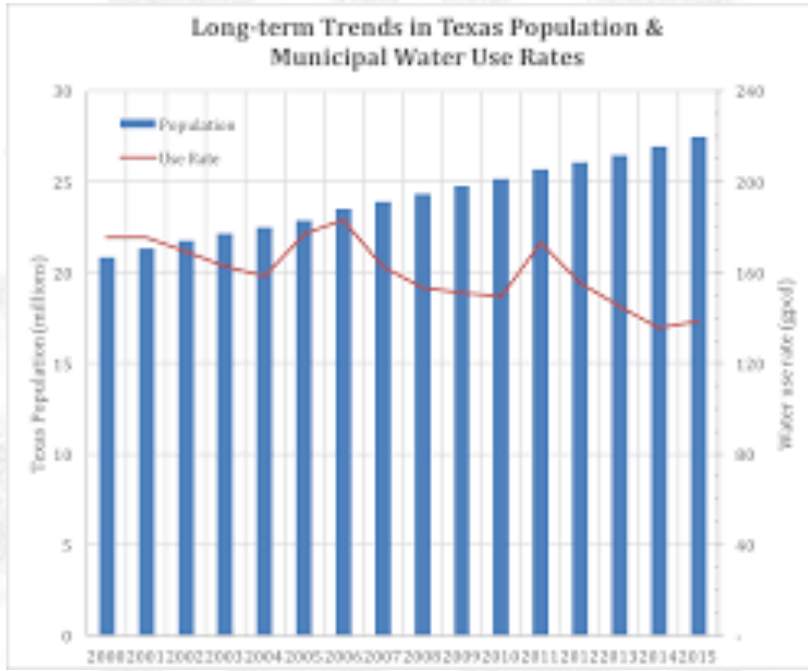
Purple Pipe: Innovation Examples



Biorefineries: Innovation Examples



Conservation: Innovation Examples



Innovation Drivers: Considerations

Water Districts Must Decide:

- What residents/ratepayers want and are willing to pay for
- What innovation (or doing nothing) will mean to future costs
- What regulatory challenges will mean to costs, operations, and maintenance