# OCWP Panel #3:
# OCWP Water Conservation Assessment


## *Jessica Fritsche – CDM*


*Governor's Water Conference*
*Norman, Oklahoma*
*October 18, 2011*

Oklahoma Comprehensive Water Plan

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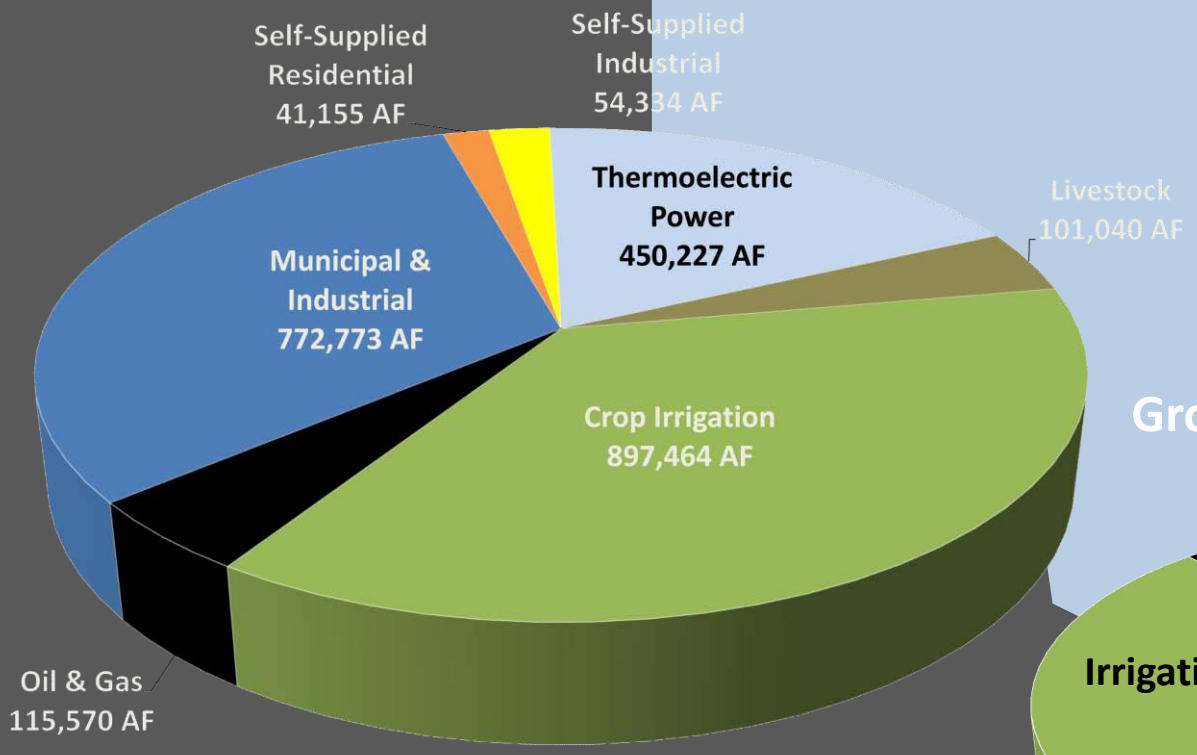
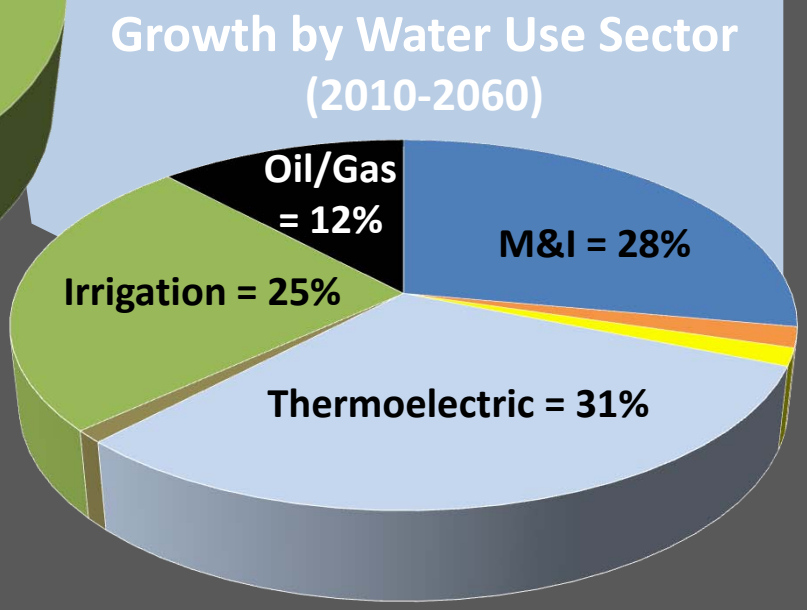
# Presentation Overview

- **Potential for Conservation**
- **Overview of Conservation**
- **Potential Water Savings/Impacts**

# Water Efficiency & Reuse
# The Opportunity




**2060 Demand**



# Water Efficiency & Reuse
# The Opportunity

- Assessed Conservation Reduction where Greatest Potential Exists
  - *Municipal and Industrial*
  - *Self-supplied Residential*
  - *Agriculture Irrigation*
- Scenarios Developed Based on Patterns of Current Conservation Trends in the State
- Factors Considered
  - *Cost-Effectiveness,*
  - *Ease of Implementation,*
  - *Acceptance by OK Residents and Water Providers*

# Current Conservation in Oklahoma

- Municipal and Industrial
  - *Edmond and Norman are most progressive*
  - *20% of water providers implement conservation pricing*
  - *Conservation education programs implemented by 34% of water providers*
  - *Losses due to leaky pipes varies but can be high*
- Irrigated Agriculture
  - *Majority irrigating with low pressure center pivot*
  - *Nearly 20% irrigate with surface water canal systems*

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# Presentation Overview

- Potential for Conservation
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# What Do We Mean?

- Water use efficiency
  - *Consumer behaviors, decisions, and activities*
  - *Efficient fixtures, equipment, and technology*
  - *Adoption of voluntary programs and policies*

http://www.greendiary.com/entry/tips-tricks-10-coolest-ways-to-conserve-water/

# OCWP Municipal & Industrial Conservation Analysis

- Scenario I: Moderately Expanded Conservation
  - *Passive Conservation: water savings from plumbing codes of the Federal Energy Policy Act of 1992*
  - *Metering: installing meters to monitor water loss*
  - *Tiered Rate Structure: increasing tiers of cost with increased water use*
  - *Community Education and Information: changing fundamental habits*

# OCWP Municipal/Industrial Conservation Analysis

- Scenario II Substantially Expanded Conservation
  - *More aggressive implementation of Scenario I*
  - *Impact of high efficiency indoor water use regulations beyond that of passive conservation*

| Fixture | Passive Mandates | High Efficiency Examples |
|---|---|---|
| Toilet | 1.6 gpf | 1.0 gpf |
| Urinal | 1.0 gpf | 0.5 gpf |
| Faucet | 2.5 gpm | 1.0 gpm |
| Showerhead | 2.5 gpm | 2.0 gpm |

# OCWP Irrigation Conservation Analysis

- Scenario I Moderately Expanded Conservation
  - *Conversion to higher efficiency irrigation methods in the following categories:*
    - Sprinkler (low pressure systems)
    - Surface/Flood (improvements in the infrastructure of the conveyance system)
    - Micro (at or near the surface or root zone)
- Scenario II Substantially Expanded Conservation
  - *Includes Scenario I assumptions*
  - *Impact of shifting to less water-intensive crops (e.g., grain sorghum instead of corn, forage crops like alfalfa and pasture grass instead of grain, etc.)*

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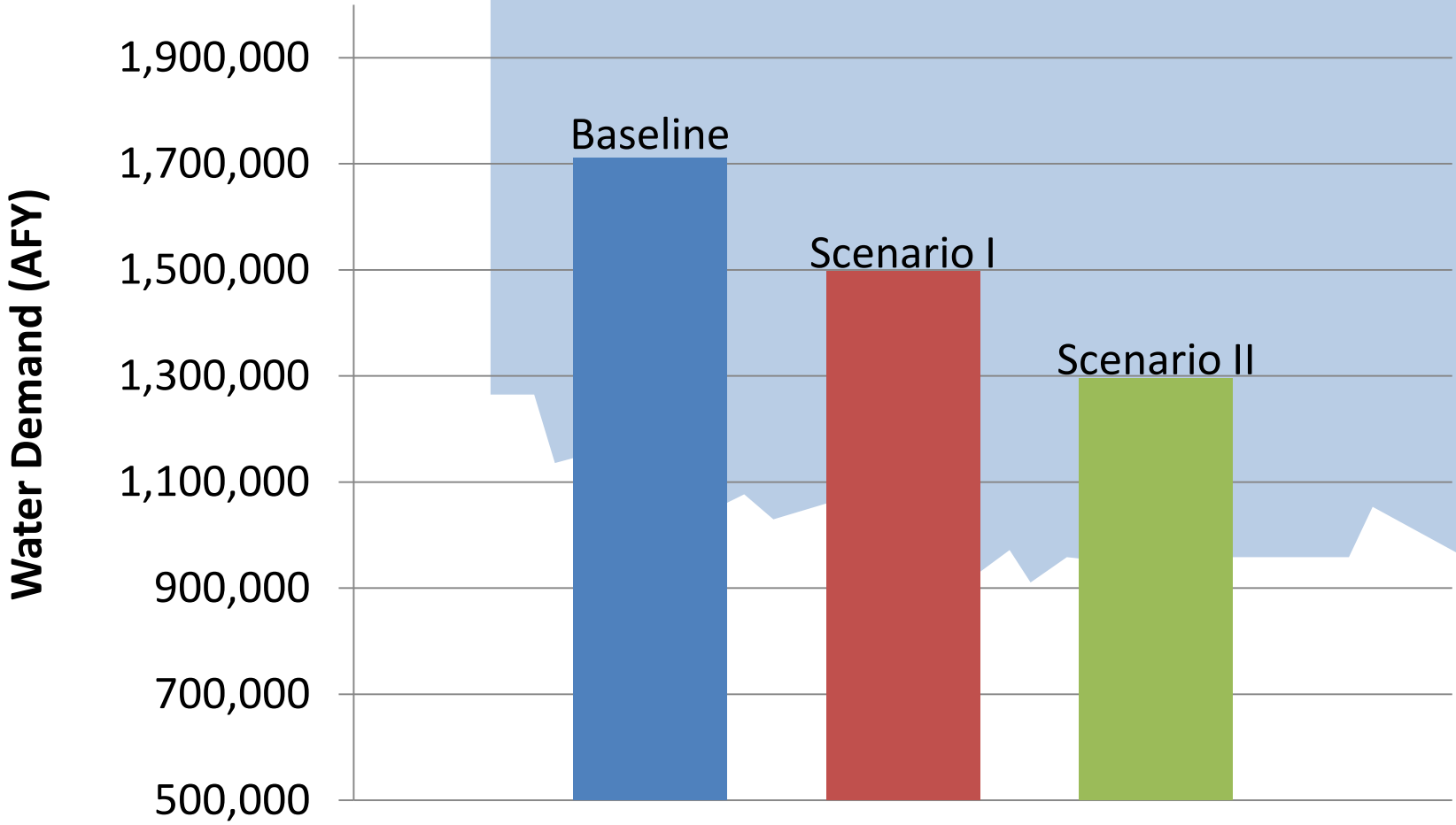
# 2060 M&I, Self-supplied Residential, and Irrigated Agriculture Statewide Demand Projections with Conservation



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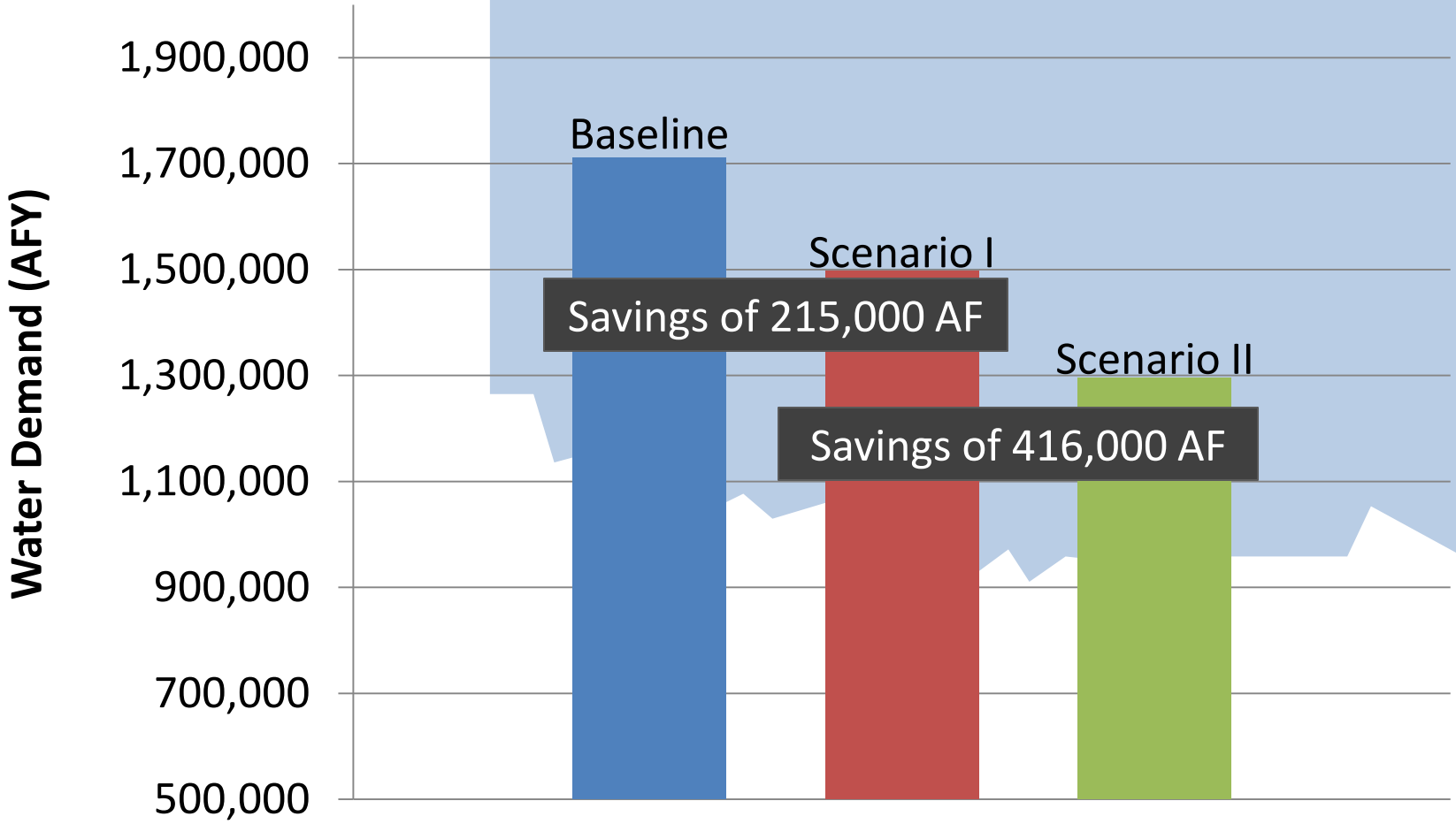


# OCWP Conservation Analysis
# Further Benefits of Conservation

- Reduce/Delay Capital Investments for New Infrastructure by Stretching Supplies
- Reduce Energy Demand
- Money Savings
- Drought Mitigation
  - *Reduces demand and stretches supplies*
  - *Delays or avoids acute drought restrictions*
- More Water for Non-Consumptive Uses
  - *Protect Oklahoma's 3rd largest industry – tourism & rec*
  - *Equally important to fish & wildlife, both sport industry and ecological protections*
  - *Can reduce impacts of drought on non-consumptive needs*

# OCWP Conservation Analysis
# What is the Impact?

| Gaps/Depletions Mitigation Statewide (2060) | | | | | |
|---|---|---|---|---|---|
| Source | Baseline Shortage Amount AFY | Total (in AFY) & Percent Reduction from Baseline Shortage Amount | | | |
| | | Moderate Conservation | | Substantial Conservation | |
| SW | 75,240 | 18,810 | 25% | 23,980 | 32% |
| AGW | 38,980 | 12,474 | 32% | 22,554 | 59% |
| BGW | 92,710 | 13,906 | 15% | 73,784 | 78% |

# OCWP Conservation Analysis
# Improving the Water Future of Basins

| Reduction in the Number of Basins with Gaps and/or Storage Depletions from Conservation | | | |
|---|---|---|---|
| Scenario | Surface Water | Alluvial Groundwater | Bedrock Groundwater |
| Baseline | 55 | 63 | 34 |
| Scenario I | 42 | 51 | 26 |
| Scenario II | 33 | 41 | 23 |

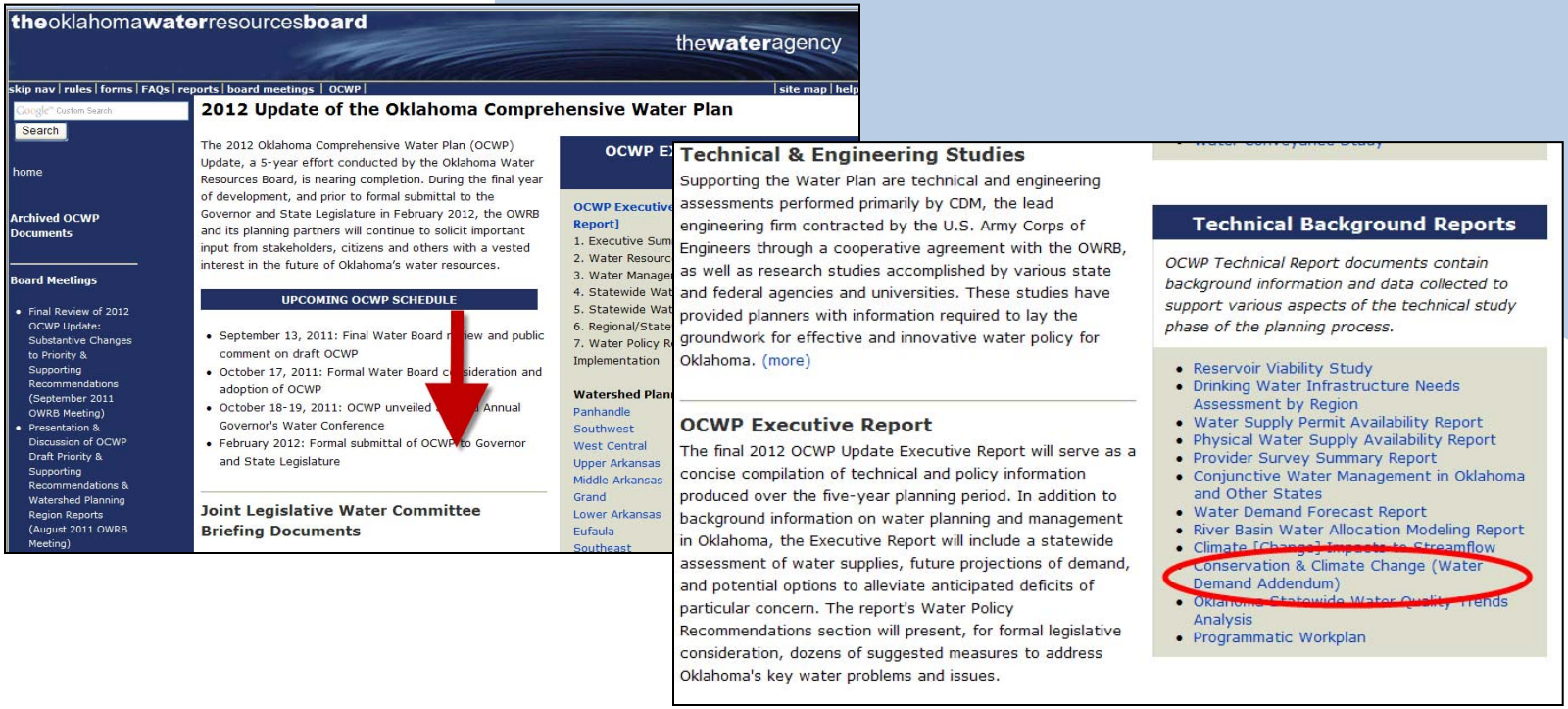
# Conservation-Associated Cost Savings in Municipal and Industrial Sector

- Evaluated reduction in direct operational costs for water and wastewater treatment and delivery due to conservation
- Accounted for electricity, labor, chemical costs, water analysis, regulatory compliance

| Cost Savings from Reduced Water Production and Wastewater Treatment in 2060 (Millions) | | | | |
|---|---|---|---|---|
| | Surface Water | Groundwater | Wastewater | Total |
| Scenario I | $26.0 | $2.9 | $18.5 | $47.5 |
| Scenario II | $39.0 | $4.3 | $23.9 | $67.2 |

# OCWP Conservation Analysis

http://www.owrb.ok.gov/supply/ocwp/ocwp.php



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