
# Water for 2060 Advisory Council

## Kickoff Meeting

## Oklahoma City

## August 20, 2013

# Agenda for today's meeting


- Introduction of Advisory Council
- Review of OCWP conservation findings
- Examples of water efficiency and incentive programs in Oklahoma and the U.S.
- Concepts for incentives & education programs
- Future Advisory Council meetings
- Next steps and group resources

# Agenda for today's meeting

- **Introduction of Advisory Council**
- Review of OCWP conservation findings
- Examples of water efficiency and incentive programs in Oklahoma and the U.S.
- Concepts for incentives & education programs
- Future Advisory Council meetings
- Next steps and group resources

# Introductions

- ***Your role in the water community***
- ***Your goals for this Advisory Committee's work***

- Chair: JD Strong (OWRB)
- Jim Bachmann (Tulsa)
- Lauren Brookey (Tulsa)
- Tom Buchanan (Altus)
- Bob Drake (Davis)
- Danny Galloway (Stillwater)
- Roger Griffin (Broken Bow)
- Charlette Hearne (Broken Bow)
- Mark Helm (Oklahoma City)
- Nathan Kuhnert (Oklahoma City)
- Phil Richardson (Minco)
- Kevin Smith (Enid)
- Trent Smith (Choctaw)
- Joe Taron (Shawnee)
- Jerry Wiebe (Hooker)

- ***OWRB staff and consultants***
- ***Others joining us today***

# Advisory Council responsibilities per HB3055

- Select officers (“if deemed necessary”)
- Recommend incentives for efficient use/reuse
- Recommendations regarding expansion of consumer water-use education programs
- Enhance existing or develop new financial assistance programs
- Submit Final Report by November 1, 2015

# Incentive targets mentioned in HB3055

- Improved irrigation & farming techniques
- More efficient infrastructure
- Use of water recycling/reuse systems
- Promotion of “smart” irrigation techniques
- Control of invasive species
- Artificial recharge of aquifers
- Increased use of marginal quality and brackish waters

# Potential goals for financial assistance mentioned in legislation

- Encourage water systems to implement leak detection and repair programs for reduced loss and waste of water
- Encourage consolidation and regionalization of smaller systems to use limited resources most efficiently

# Roadmap for Advisory Council activities

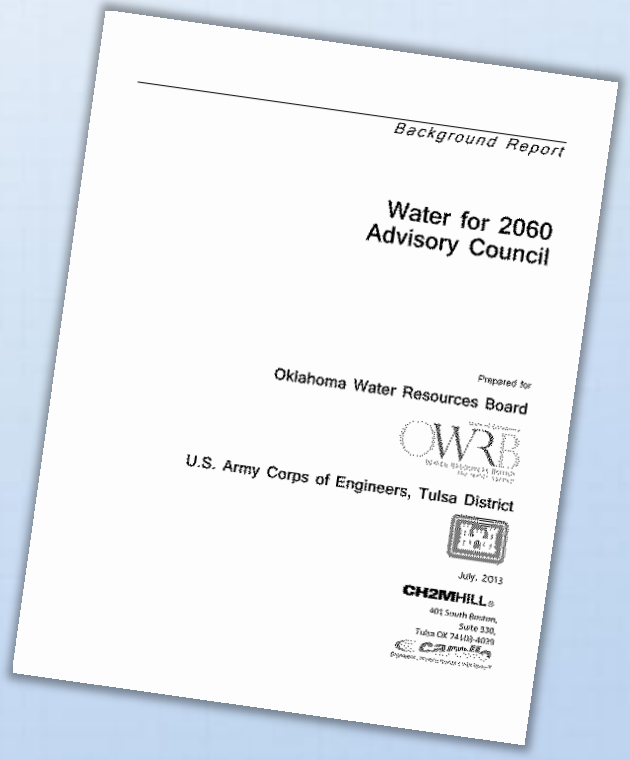
- Review OCWP conservation findings
  - Summary of examples of conservation in Oklahoma
  - Documented in background report
- Review other states' programs
  - Documented in background report
- Workshops focused on efficiency methods
  - Crop irrigation
  - Public water supply & other sectors
  - Examine existing incentives & disincentives and role of alternate supplies
- Regional workshops
  - Focus, timing, location – all guided by the Advisory Council
- Recommendations & report

# Agenda for today's meeting

- Introduction of Advisory Council
- **Review of OCWP conservation findings**
- Examples of water efficiency and incentive programs in Oklahoma and the U.S.
- Concepts for incentives & education programs
- Future Advisory Council meetings
- Next steps and group resources

# Review of OCWP conservation findings

- Supply and demand review
  - Rainfall diversity
  - Use profile diversity
- Targeted water use sectors
  - Municipal & industrial (publically supplied water)
  - Crop irrigation
- Conservation scenarios
  - Moderately expanded conservation
  - Substantially expanded conservation
- Findings
- Potential impacts


Background Report

Water for 2060
Advisory Council

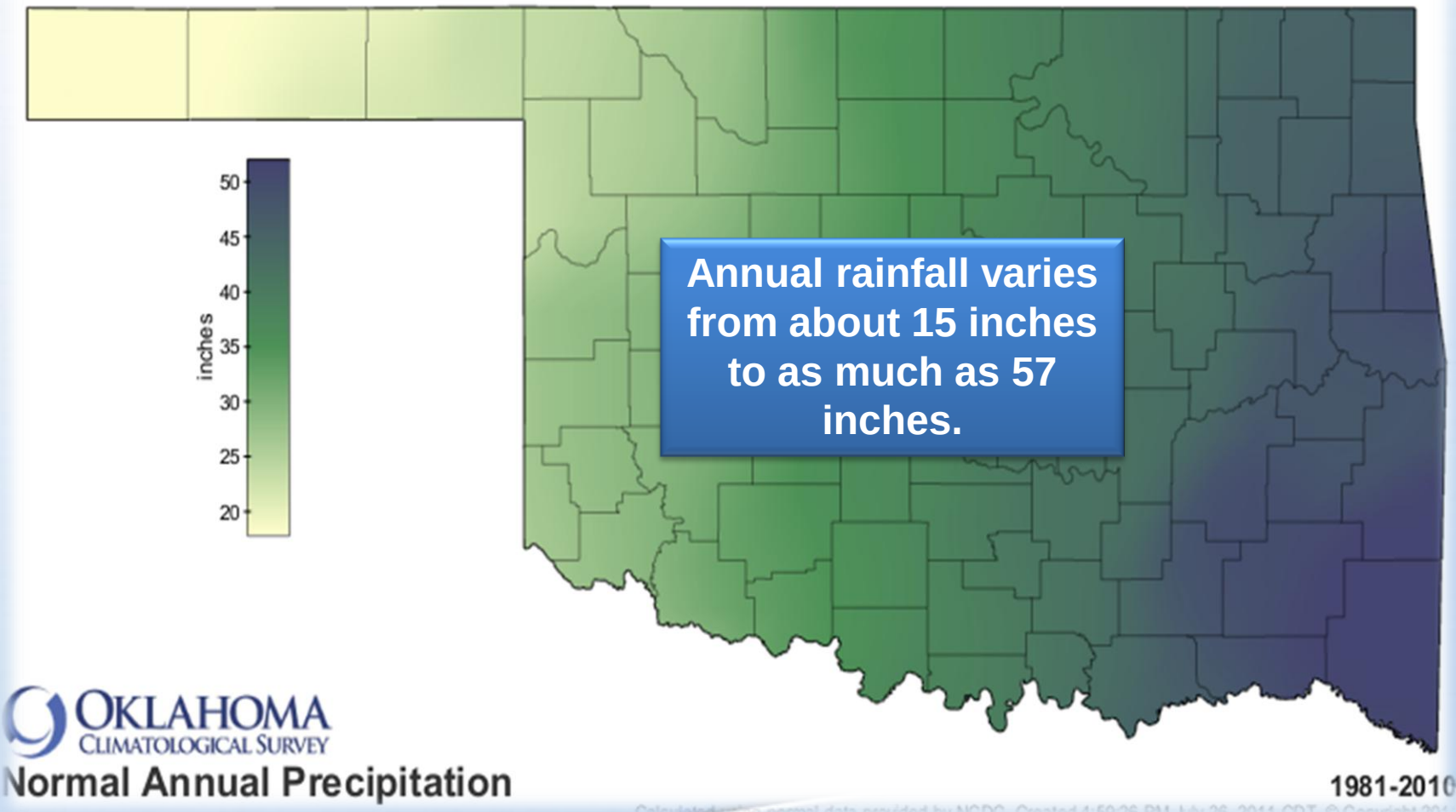
Prepared for
Oklahoma Water Resources Board

U.S. Army Corps of Engineers, Tulsa District

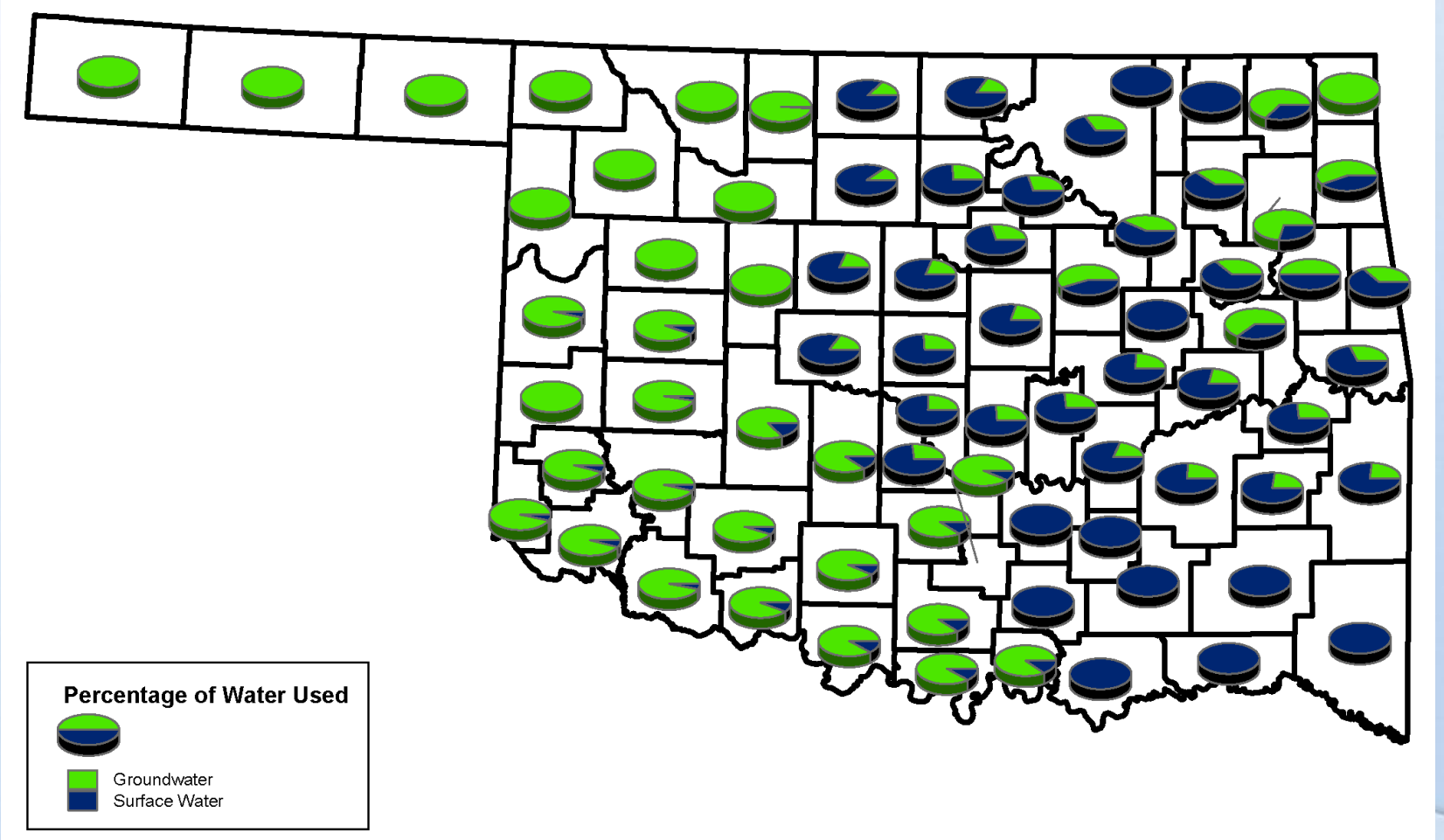
July, 2013

CH2MHILL

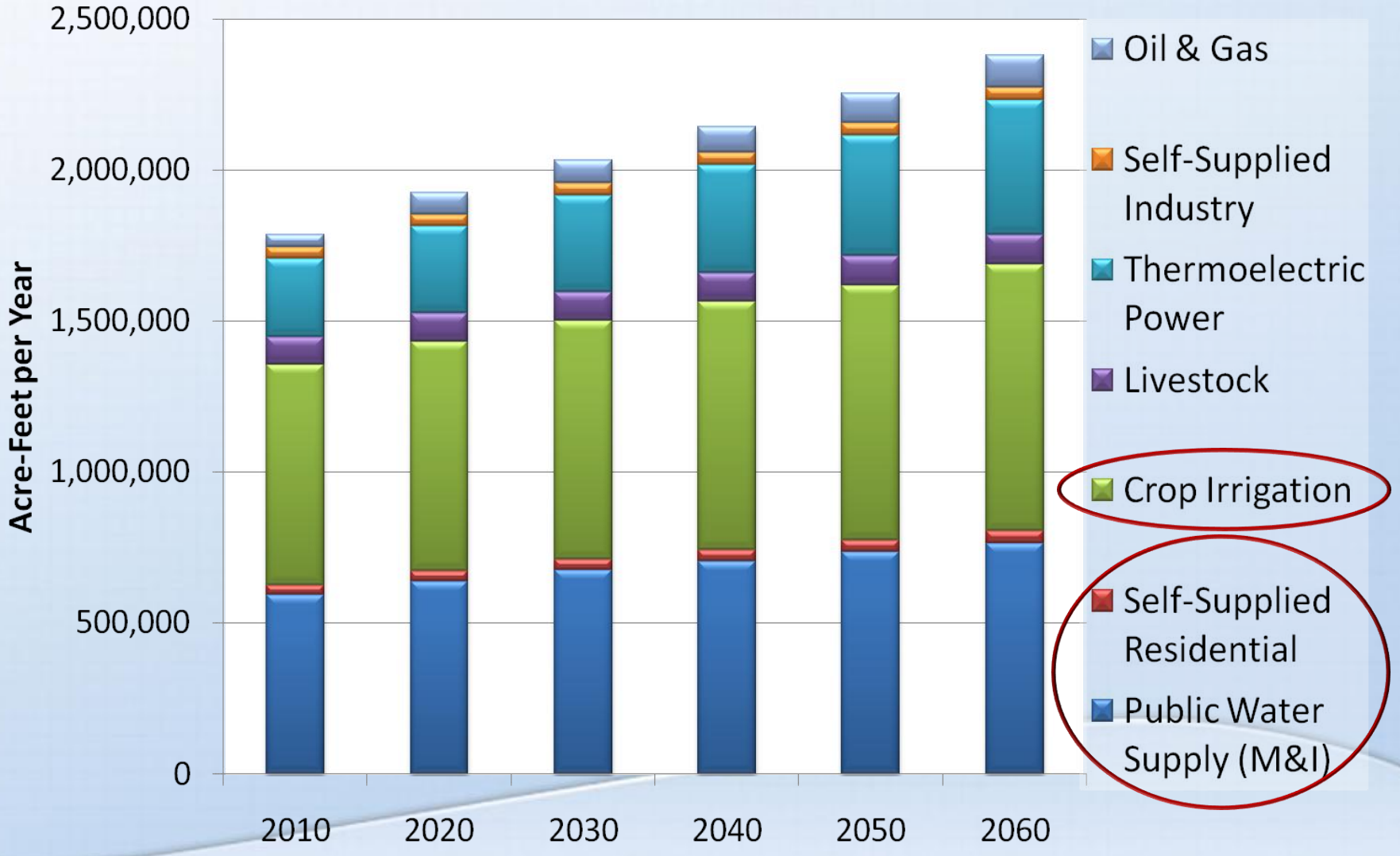
# Rainfall diversity



# Use profile diversity



# Consumption diversity and growth



# OCWP conservation scenarios for M&I / SSR

| Scenario I (Moderate) | Scenario II (Substantial) |
|---|---|
| ≥90% of providers will meter customers | 100% |
| Implementation of plumbing code retrofits by 2030 | (Same) |
| Non-revenue water ≤12% for each public system | ≤10% |
| Conservation pricing will be implemented by 20% of rural, 40% of urban, and 60% of metropolitan providers | 60% rural, 80% urban, 100% metropolitan |
| All providers will implement water conservation education programs to reduce demand by 3% | 5% |
| – | High efficiency plumbing code ordinances will be implemented |

# OCWP conservation scenarios for Crop Irrigation

| Scenario I (Moderate) | Scenario II (Substantial) |
|---|---|
| Field application efficiency of surface irrigation systems for Harmon, Jackson, Tillman, and Kiowa counties will increase to 80% in 2015 | (Same) |
| In Harmon, Jackson, Tillman, and Kiowa counties, 10% of surface land irrigation will shift to micro-irrigation beginning in 2015 | (Same) |
| All sprinkler systems will have field application efficiency of 90% beginning in 2015 (LEPA nozzle retrofits) | (Same) |
| Water saved through conservation activities is not applied to a water scheme elsewhere | (Same) |
| – | All acres of corn for grain and forage crops including alfalfa and pasture grass shift to grain for sorghum beginning in 2015 |

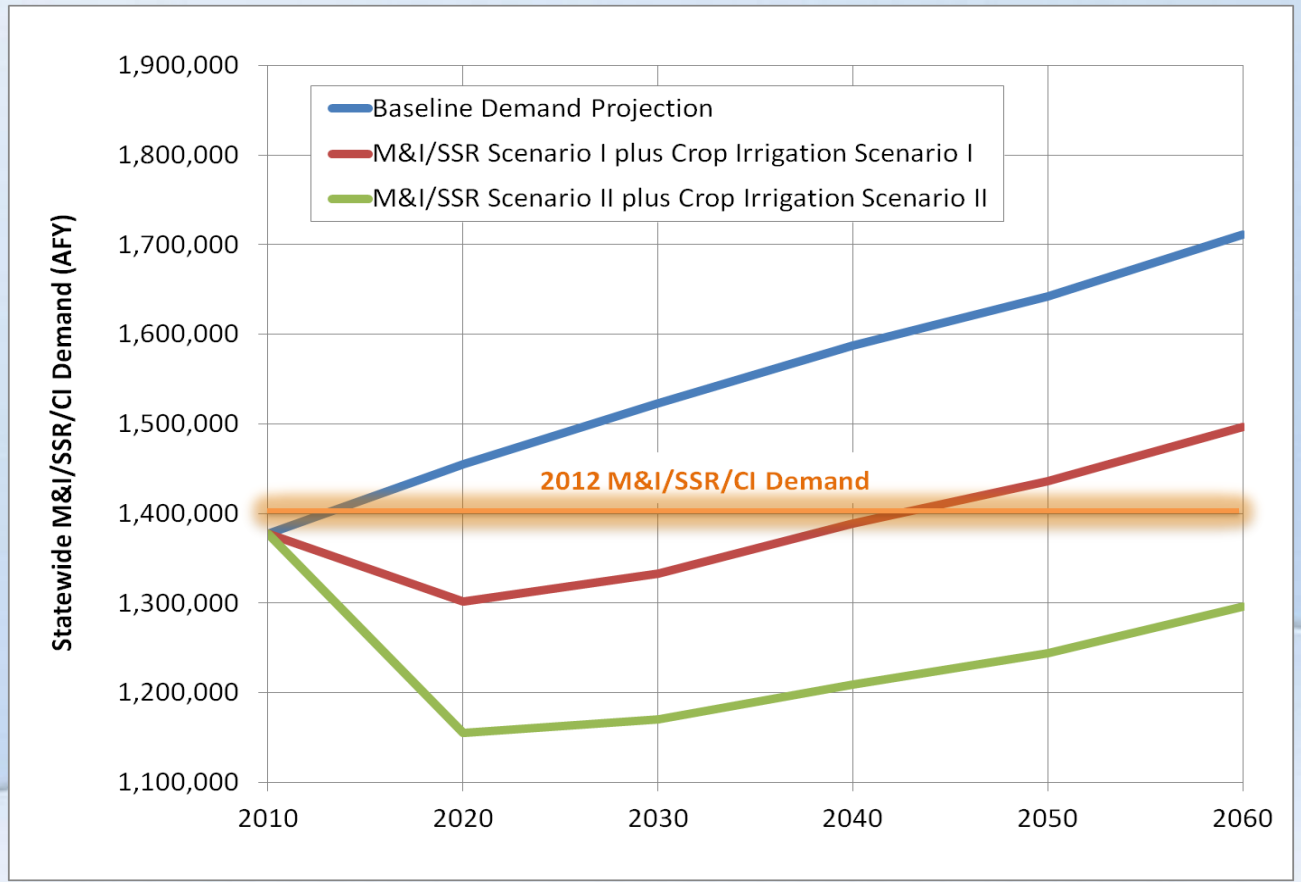
# Potential conservation savings (AFY)

| | 2020 | 2030 | 2040 | 2050 | 2060 |
|---|---|---|---|---|---|
| M&I/SSR Scenario I | 93,902 | 128,891 | 135,194 | 141,111 | 147,122 |
| M&I/SSR Scenario II | 132,397 | 178,253 | 196,007 | 210,348 | 219,283 |
| Crop Irrigation Scenario I | 59,591 | 61,600 | 63,609 | 65,151 | 67,628 |
| Crop Irrigation Scenario II | 167,514 | 174,771 | 182,028 | 187,597 | 196,541 |

*Source*: OCWP Water Demand Forecast Report Addendum Tables 2 and 6.

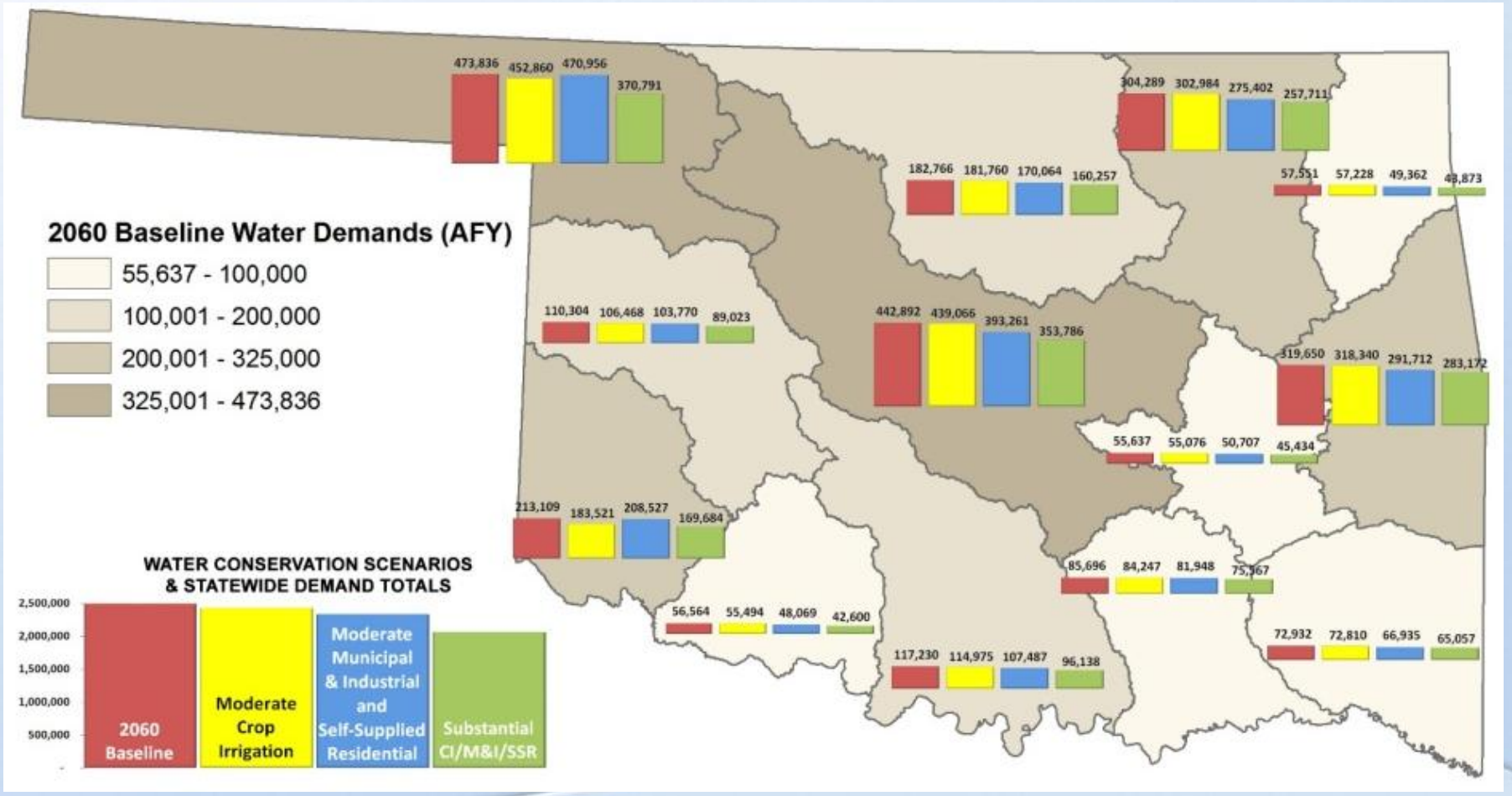
# Findings

1. Baseline demand projections were compared for the two conservation scenarios using tools developed during OCWP evaluations
2. Projections show the goal of the Water for 2060 Act achievable with substantial conservation measures



# OCWP Conservation Analysis: What is the Impact on Demands (AFY)?

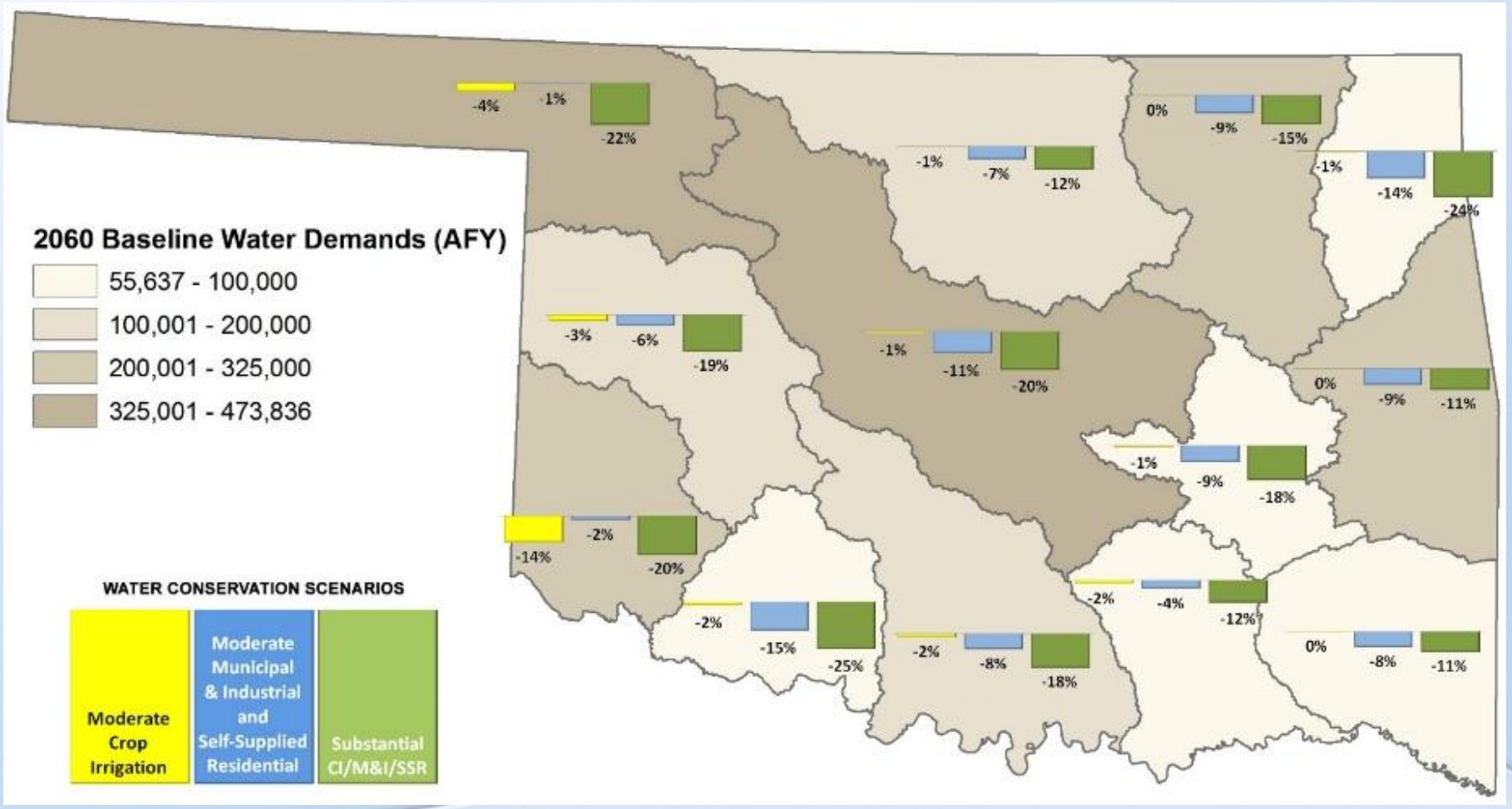
**2060 Water Demands under OCWP Baseline and Conservation Scenarios (AFY)**




*Source:* Prepared by the OWRB using OCWP data analyzed and synthesized by Carollo Engineers.

# OCWP Conservation Analysis: What is the Impact on Demands (%)?

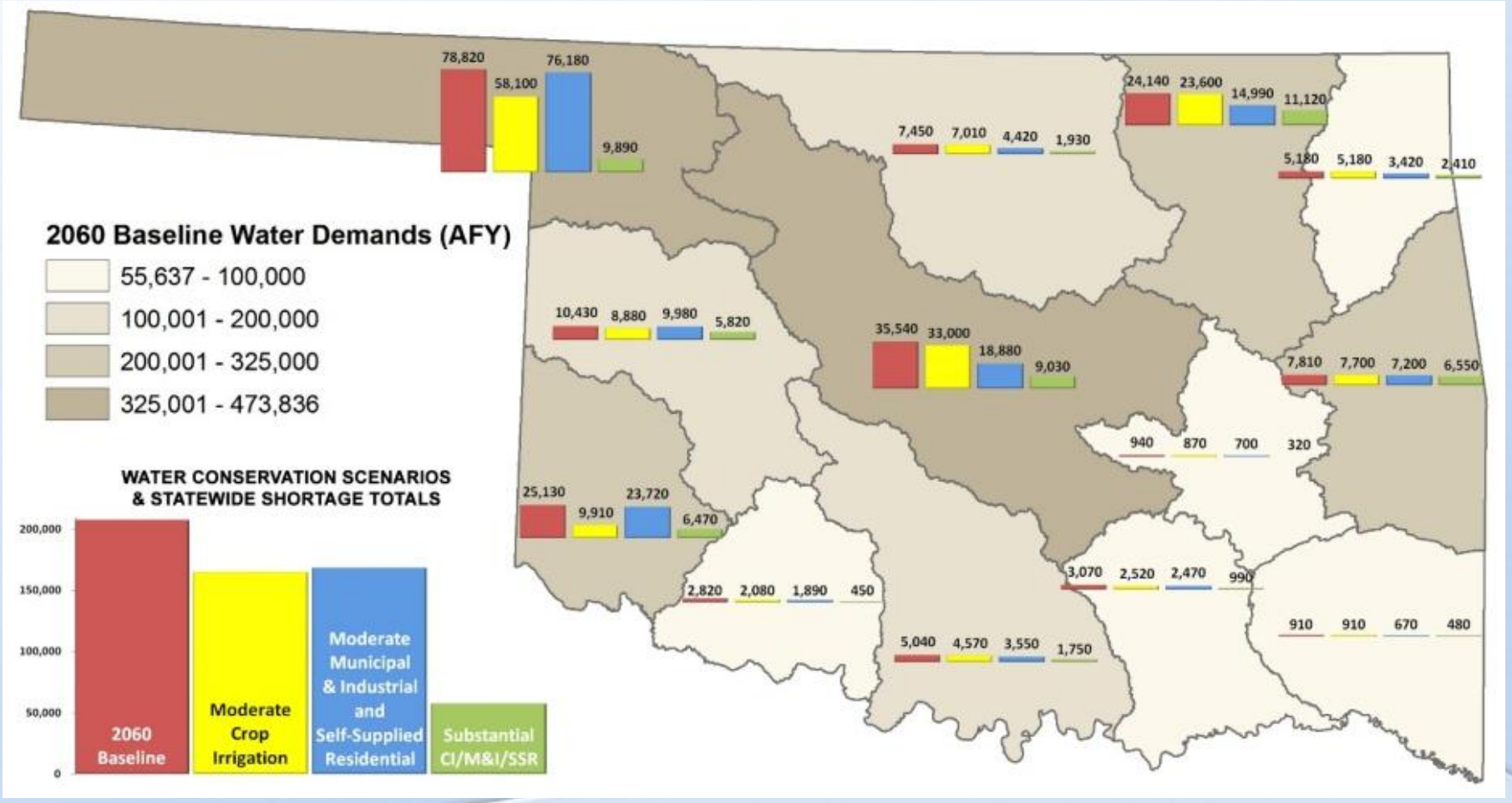
**Percent Reduction of 2060 Demand under OCWP Water Conservation Scenarios**




*Source:* Prepared by the OWRB using OCWP data analyzed and synthesized by Carollo Engineers.

# Supply shortages are less severe under Scenarios I & II

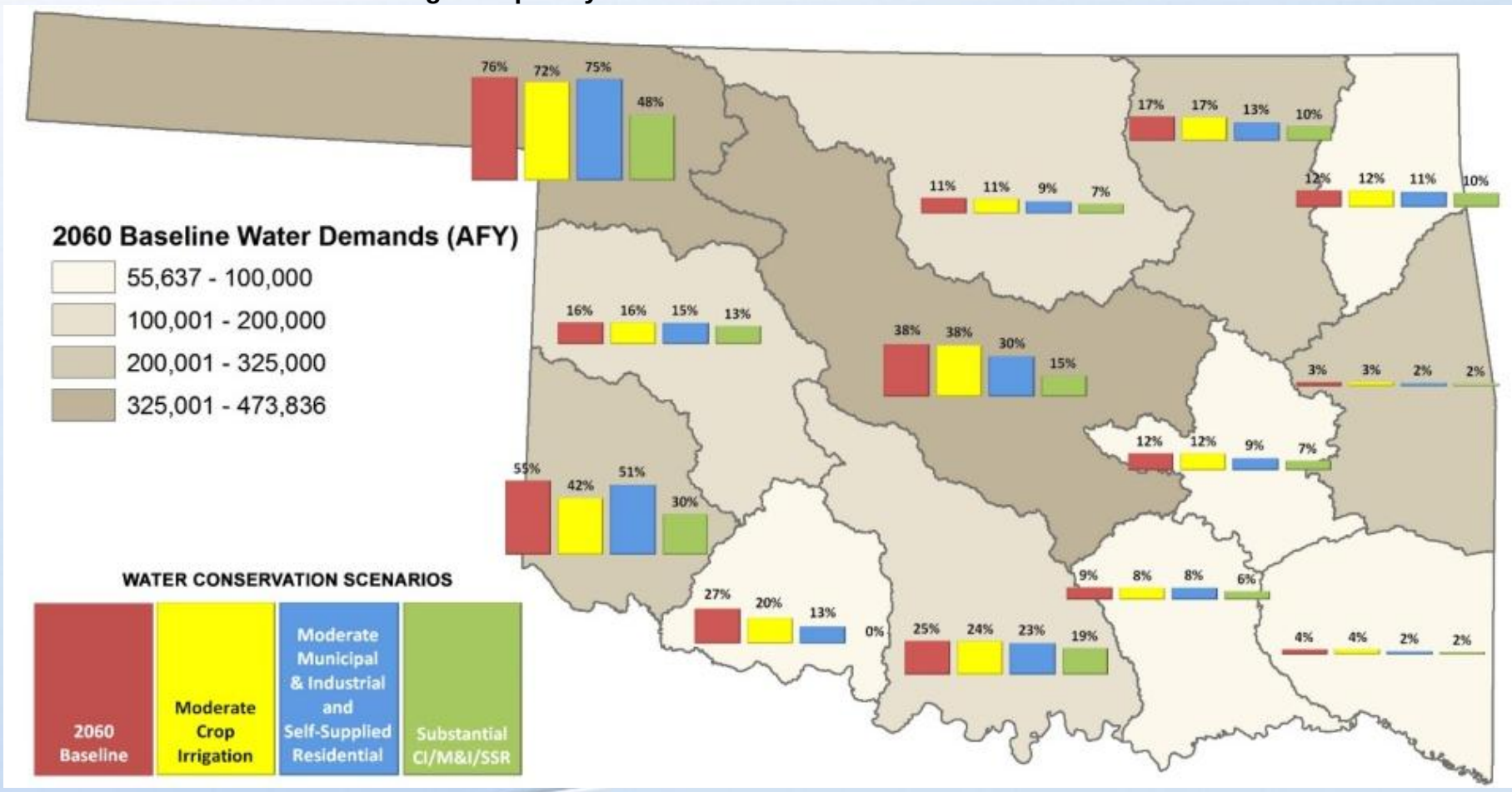
**Projected 2060 Water Shortages under OCWP Baseline and Conservation Scenarios (AFY)**




*Source:* Prepared by the OWRB using OCWP data analyzed and synthesized by Carollo Engineers.

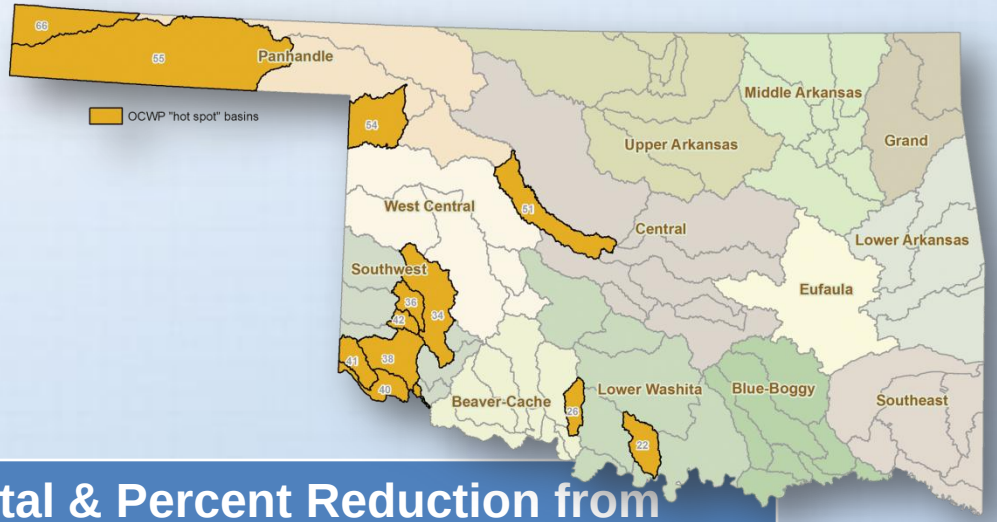
# Supply shortages are less likely under Scenarios I and II

**2060 Water Shortage Frequency under OCWP Baseline and Conservation Scenarios**




*Source:* Prepared by the OWRB using OCWP data analyzed and synthesized by Carollo Engineers.

# OCWP Conservation Analysis: What is the Impact on Hot Spots?



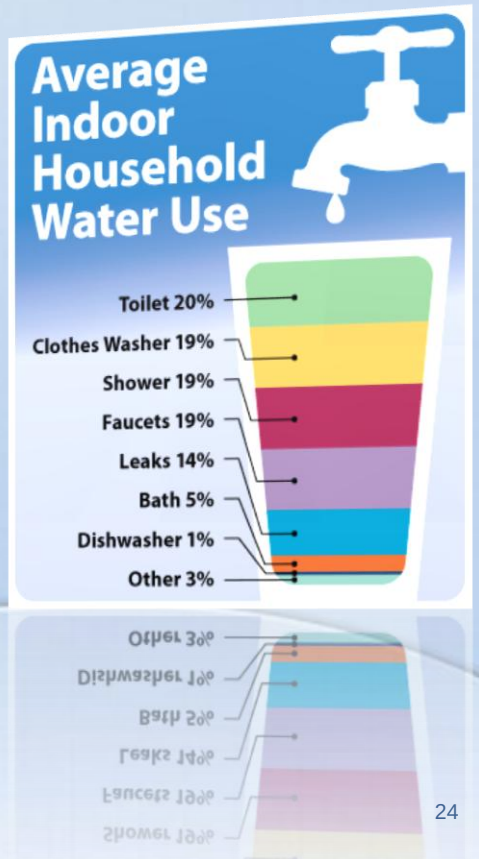

| Source | Baseline Shortage Amount | Total & Percent Reduction from Baseline Shortage Amount | | | |
|---|---|---|---|---|---|
| | | Moderate Level | | Substantial Level | |
| SW | 14,590 AFY | 7,440 AFY | 51% | 8,676 AFY | 60% |
| AGW | 12,070 AFY | 6,036 AFY | 50% | 9,036 AFY | 75% |
| BGW | 69,000 AFY | 24,080 AFY | 35% | 61,320 AFY | 89% |

# Agenda for today's meeting


- Introduction of Advisory Council
- Review of OCWP conservation findings
- **Examples of water efficiency and incentive programs in Oklahoma and the U.S.**
- Concepts for incentives & education programs
- Future Advisory Council meetings
- Next steps and group resources

# Water efficiency and incentive programs

- Existing Oklahoma practices
  - Crop irrigation – based on review of Oklahoma Panhandle Agriculture and Irrigation (OPAI) and Lugert-Altus Irrigation District
  - Public Water Supply – based on review of Cities of Norman and Shawnee
- Existing Oklahoma programs
  - Water Infrastructure – Oklahoma SRF Programs provide below market financing and financial incentives (as available) for public water and wastewater systems, including water and energy efficiency improvements
  - Oklahoma Water Conservation Grant Program – provides grants for innovative pilot water conservation projects
- Programs in other states
  - State of Colorado
  - State of California



# Existing crop irrigation conservation practices in Oklahoma

- Sprinkler irrigation (modern crop-height sprinklers, low energy precision application [LEPA] technologies)
- Use of cell phone–based instantaneous feedback information systems
- Subsurface (drip) irrigation, instead of flood irrigation
- Leaving residue after harvest
- Strip till and no-till methods of growing corn
- Optimum irrigation timing
- Drought resistant crop seed research
- Reuse of treated wastewater effluent
- Education and outreach
- Identification of water losses through accounting and metering of water delivery within a system
- Monitoring of water use trends
- Use of tailwater pits to collect and reuse irrigation water

# Existing public water supply conservation practices in Oklahoma



- Inclining block rate structure
- Drip irrigation on medians
- Commercial meter testing/replacement program
- Leak detection training for staff
- Adoption of design standards
- Community-involved water supply planning
- Evaluation of wastewater reuse and stormwater runoff for potable and nonpotable supply augmentation
- Adoption of automatic irrigation system ordinance
- Use of nonpotable water for irrigation
- Allowance for free water available for flushing new lines
- Public education and outreach
- Development of Drought Management Plan

# State of Colorado water efficiency programs

1. Focus on *incentives*, not mandates, to promote water efficiency
2. Annual reporting of water use and conservation savings required for medium/large providers
3. No state funds (loans, grants) for medium/large providers unless provider has a state-approved conservation plan
4. Three key state agencies involved with water use and conservation:
   a) Colorado Water Conservation Board (CWCB)
      – Responsible for statewide water supply planning and approval of municipal water conservation plans
   b) State Water Court
      – Issues surface water and groundwater rights (first in time, first in right)
   c) Colorado Water Resources and Power Development Authority (CWRPDA)
      – Finances water and wastewater infrastructure projects

# State of Colorado water efficiency programs


## Technical Guidance

- Review and approval of Water Conservation Plans, with minimum required water conservation plan elements
- Facilitates Basin Roundtable dialogue
- Analysis of alternatives to transfers of water rights from agriculture to municipal use
- Guidance on water leakage tracking
- Guidance on rate program evaluation

## Financial Assistance Programs*

- **Water Conservation Planning Grants –** for developing/updating water conservation plans
- **Water Conservation Implementation Grants –** for water conservation goals (e.g., public education and outreach)
- **Water Supply Reserve Account Grants –** for local implementation projects that improve water quality and the environment; PWS and CI generally receive most funding
- **Water Project Loan Program** – low interest loans for design and construction of raw water efficiency projects (e.g., lining agricultural ditches)
- *Financial assistance requires development and approval of a Water Conservation Plan*

# State of California water efficiency programs


1. Focus on *regulation* to promote water efficiency
2. Financial assistance available to meet regulations
3. Three key state agencies involved with water use and conservation:
   a) California Department of Water Resources (DWR)
      – Provides technical and financial assistance for water conservation
   b) State Water Resources Control Board
      – Allocates surface water rights and administers grant funding programs for water resources
   c) California Public Utilities Commission (CPUC)
      – regulates certain water utilities

# State of California water efficiency programs


- **Water Conservation Act of 2009** – requires all water suppliers to reduce urban per capita consumption; requires Urban and Agricultural Water Management Plan
- **The Agricultural Efficient Water Management Act of 1990** – agricultural water suppliers required to post water management plans online
- **Agricultural Water Measurement Regulation** – agricultural water suppliers required to report volume of water delivered
- **Executive Order S-06-08** – requirements addressing water shortages

Financial Assistance Programs for Implementation of Water Efficiency Regulations*

* administered by State Water Board and DWR

# Agenda for today's meeting


- Introduction of Advisory Council
- Review of OCWP conservation findings
- Examples of water efficiency and incentive programs in Oklahoma and the U.S.
- **Concepts for incentives & education programs**
- Future Advisory Council meetings
- Next steps and group resources

# Agenda for today's meeting


- Introduction of Advisory Council
- Review of OCWP conservation findings
- Examples of water efficiency and incentive programs in Oklahoma and the U.S.
- Concepts for incentives & education programs
- **Future Advisory Council meetings**
- **Next steps and group resources**

# Roadmap for Advisory Council activities

- Review OCWP conservation findings
  - Summary of examples of conservation in Oklahoma
  - Documented in background report
- Review other states' programs
  - Documented in background report
- Workshops focused on efficiency methods:
  - Crop irrigation
  - Public water supply & other sectors
  - Examine existing incentives & disincentives and role of alternate supplies
- Regional workshops
  - Focus, timing, location – *all guided by the Advisory Council*
- Recommendations & report

# Next steps and group resources

- Schedule, location, and goals for upcoming meetings
  - Crop efficiency workshop
  - Public water supply & other sectors efficiency workshop
  - Regional workshops
- Activity/actions between now and next meeting
- Resources:
  - http://www.owrb.ok.gov/supply/conservation.php


# Water for 2060 Advisory Council

## Kickoff Meeting

## Oklahoma City

## August 20, 2013