

# Norman Utilities Authority 2060 Strategic Water Supply Plan



**Ad Hoc Committee Meeting #8  
June 3, 2014**

## **AGENDA**

Introductions and Goals for This Meeting

Status and Progress Update

Recent State and National  
Regulatory and Policy Developments

Path Forward for 2060 SWSP

Questions and Feedback on Preferred Portfolios

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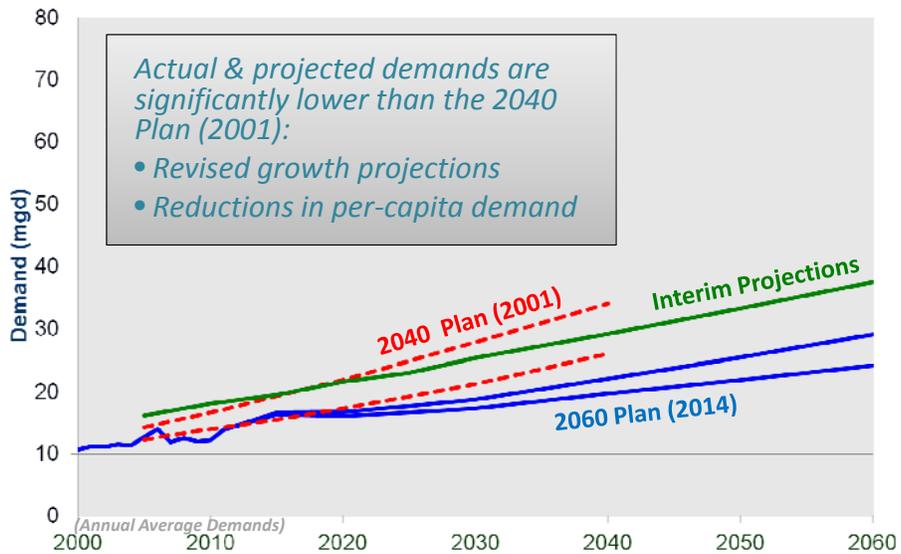
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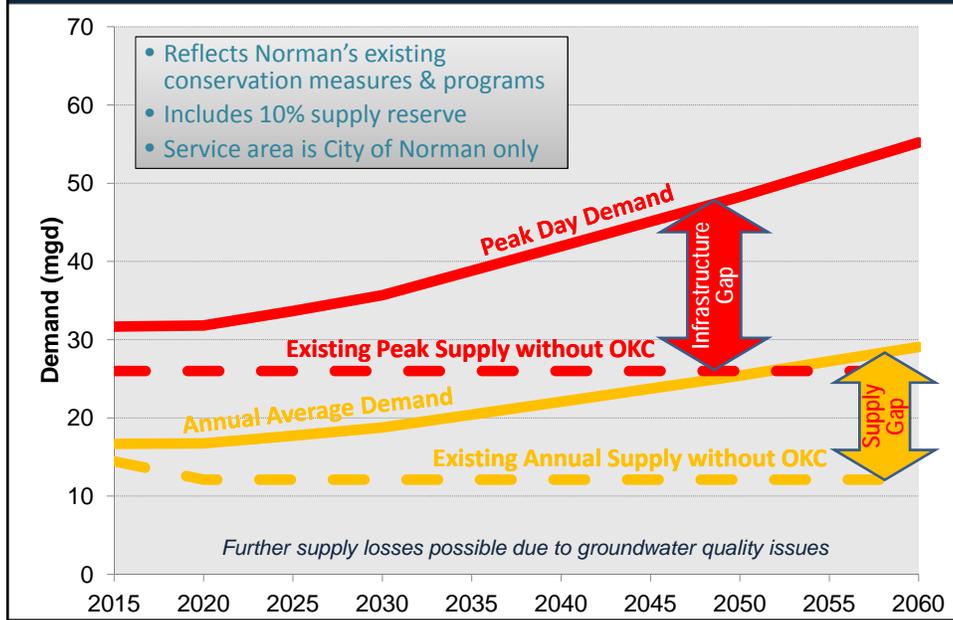
Path Forward for 2060 SWSP

Questions and Feedback on Preferred Portfolios

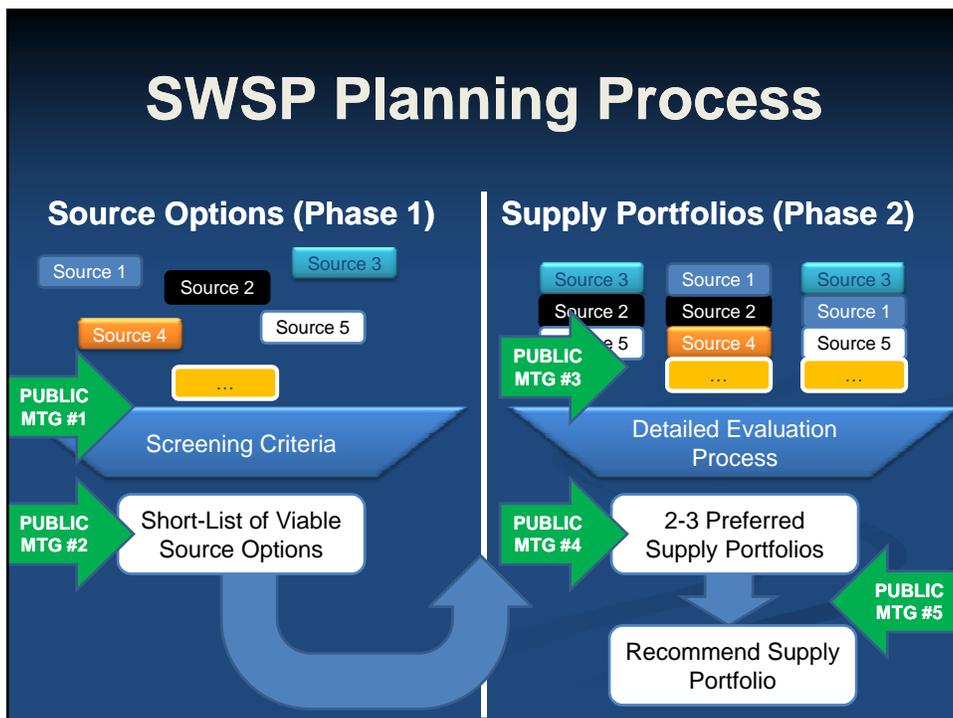
## Projected Water Use



## Use Already Exceeds Local Supply



## SWSP Planning Process



## Water Supply Options Considered

Existing Sources	New Local Sources	New Regional Sources
Lake Thunderbird (at firm yield)	Additional conservation	Co-owner with OKC for SE Oklahoma treated water
Garber Wellington Aquifer Wells (with treatment)	Direct non-potable reuse (purple pipe)	Co-owner with OKC for SE Oklahoma raw water
Intermittent purchase of treated water from OKC (wholesale)	Lake Thunderbird Augmentation (indirect potable reuse)	Scissortail Reservoir
Conservation and reuse	Groundwater recharge (indirect potable reuse)	Parker Reservoir
	Stormwater capture and reuse	Kaw Lake
	Canadian River diversion	
	Capture Lake Thunderbird spillage	
	Dredging Lake Thunderbird	

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Conservation and reuse	<del>Groundwater recharge (indirect potable reuse)</del>	Parker Reservoir
	<del>Stormwater capture and reuse</del>	Kaw Lake
<p><i>The most viable and cost-effective supply options became the “building blocks” for water supply portfolios</i></p>		
	<del>Dredging Lake Thunderbird</del>	

## Weighted Criteria Were Used to Compare 14 Different Supply Portfolios



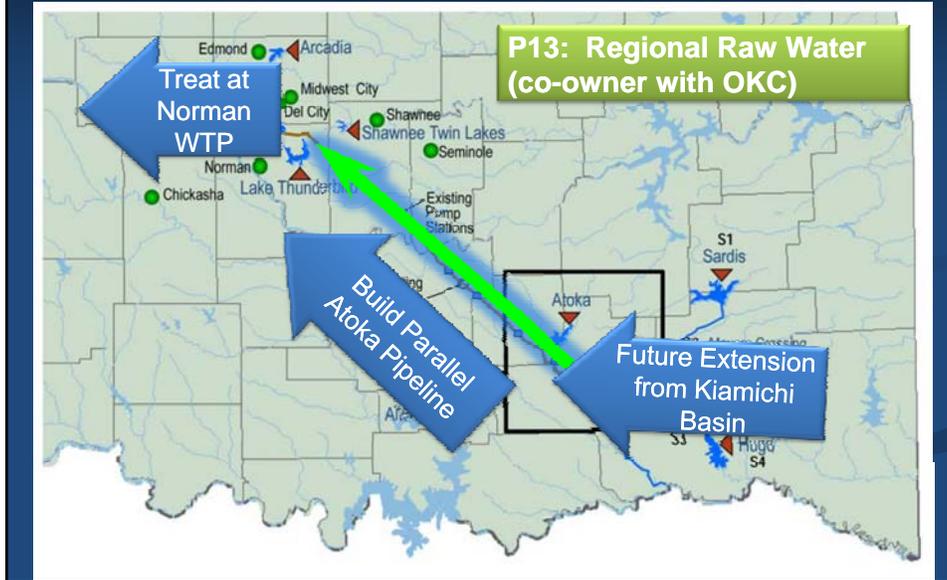
## Portfolios that Best Meet Norman's Criteria

	Lake Thunderbird Allocation	Existing Groundwater Wells	New Groundwater Wells	Conservation & Non-potable Reuse	Lake Thunderbird Augmentation	Regional Supplies via Oklahoma City	Capital and O&M Costs (2012\$)
<b>P1 Eliminated: Public / Council feedback indicates strong preference for including new wells to maintain existing groundwater supply proportions</b>							
<b>P13 Regional OKC</b>	6	8		2		13	\$340M \$23M/yr
<b>P14 Wells + TBird Aug.</b>	6	8	2	2	11		\$270M \$22M/yr

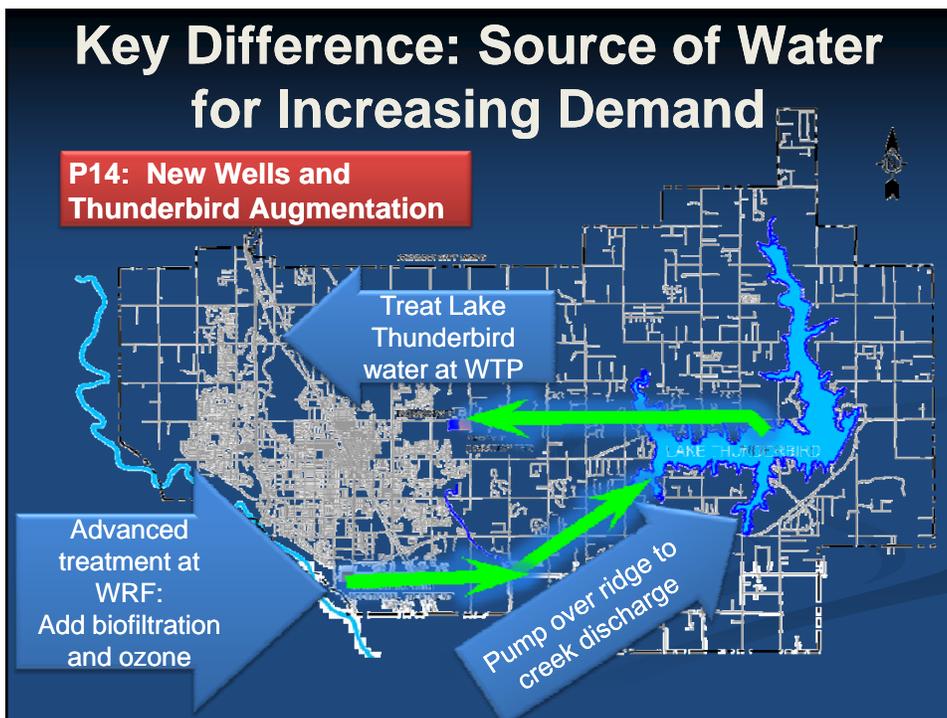
Values are 2060 Annual Avg. Use (mgd)

OKC deliveries are raw water treated by Norman

## Key Difference: Source of Water for Increasing Demand



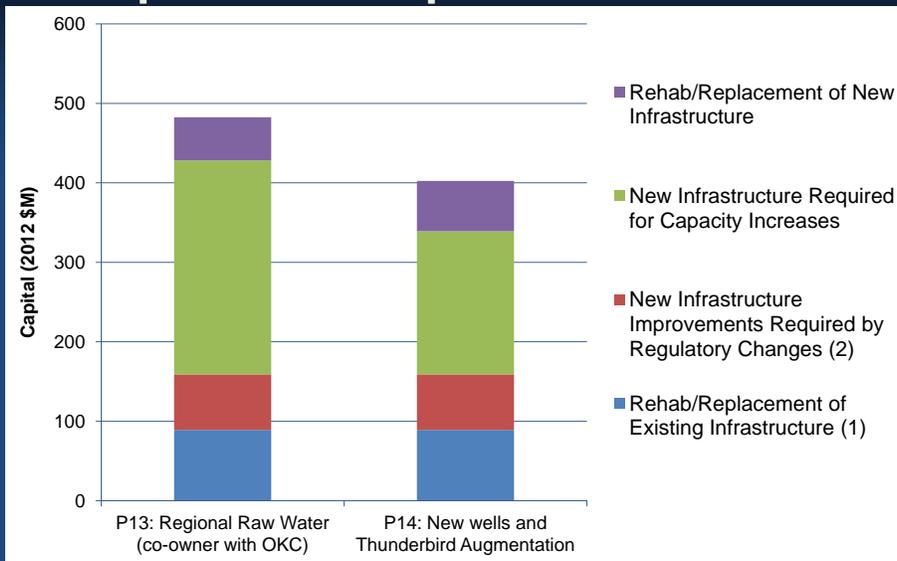
## Key Difference: Source of Water for Increasing Demand



# Key Attributes of Top Two Portfolios

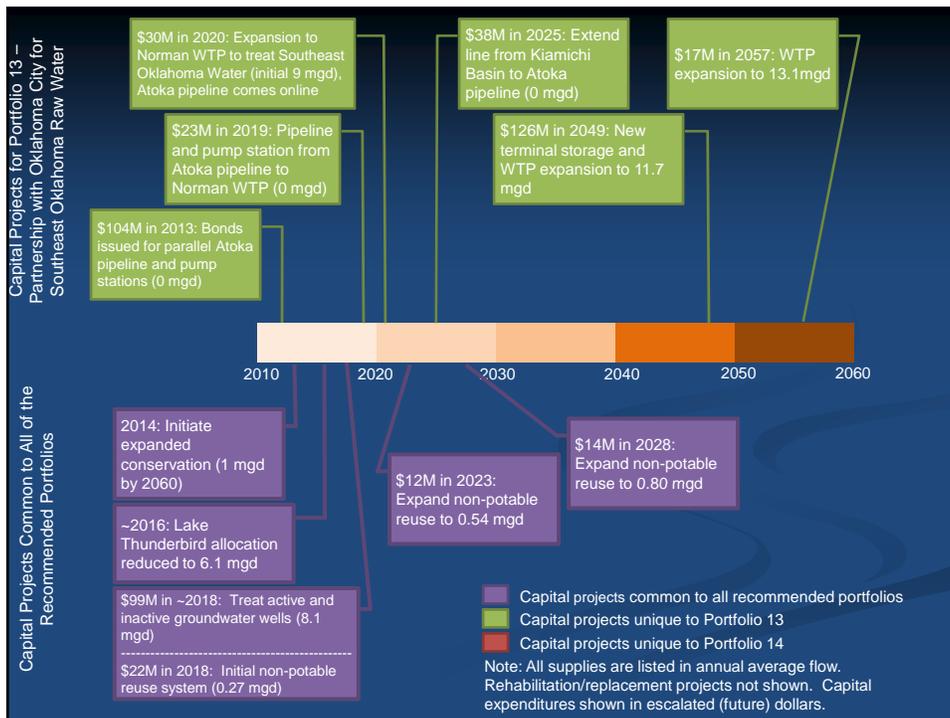
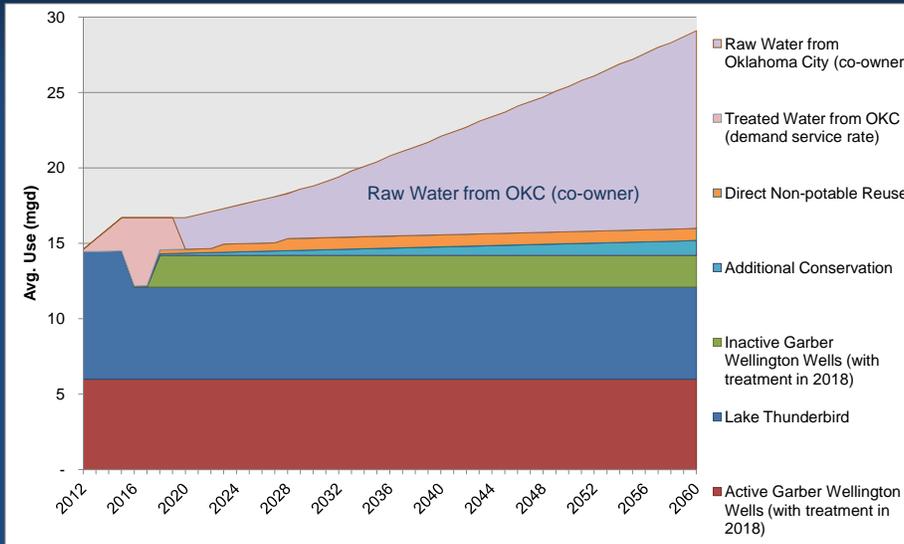
	P13: Regional Raw Water (co-owner with OKC)	P14: New Wells and Thunderbird Augmentation
Approach to meeting increasing demands	<ul style="list-style-type: none"> <li>Contingent on OKC project implementation</li> <li>Higher capital and operating costs than P14</li> <li>Provides local control over treatment</li> </ul>	<ul style="list-style-type: none"> <li>Permitting conditions and public acceptance of indirect potable reuse</li> <li>Local control over sources &amp; efficient use of resources</li> <li>Greater phasing potential than P13</li> </ul>
Source Diversity	<ul style="list-style-type: none"> <li>Lake Thunderbird at reduced (firm) lake yield</li> <li>Active &amp; inactive existing wells with treatment</li> <li>Additional conservation</li> <li>Additional non-potable water reuse</li> </ul>	

# Comparison of Capital Costs

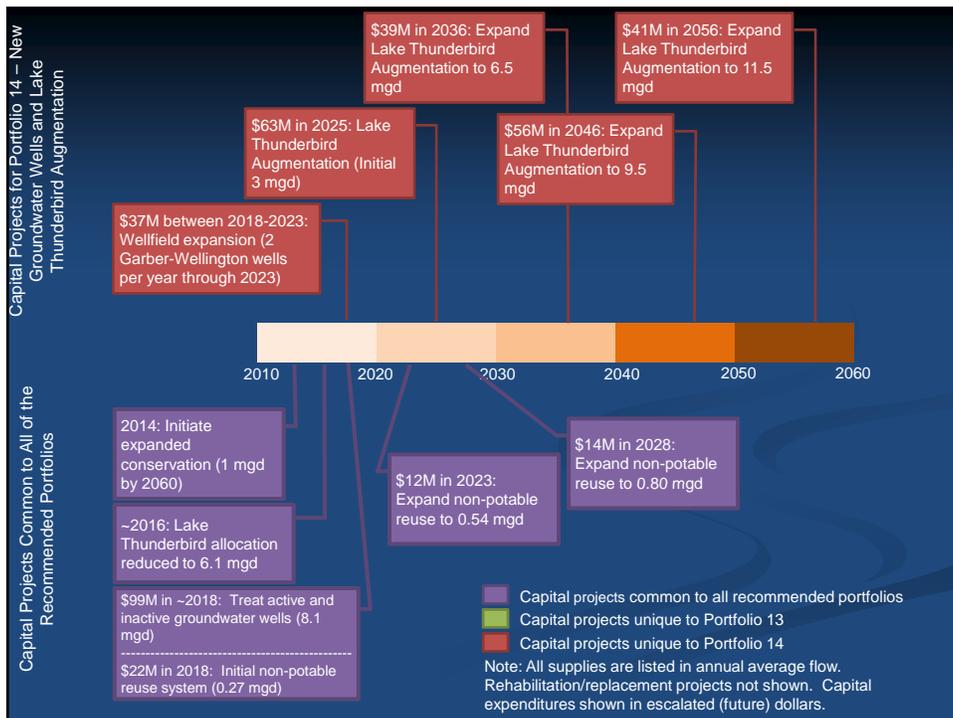
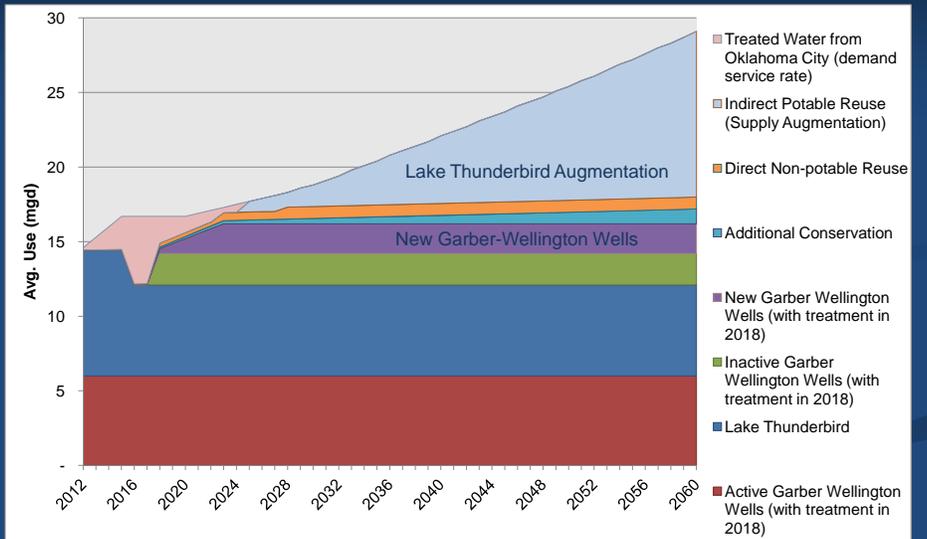


Notes:  
 1. Existing infrastructure includes Vernon Campbell WTP, raw water piping, and treated water connection to OKC.  
 2. Infrastructure required because of anticipated regulatory changes includes treatment for active Garber-Wellington Aquifer wells.

# Phased Capacity Increases to Meet Demand: Portfolio 13



# Phased Capacity Increases to Meet Demand: Portfolio 14



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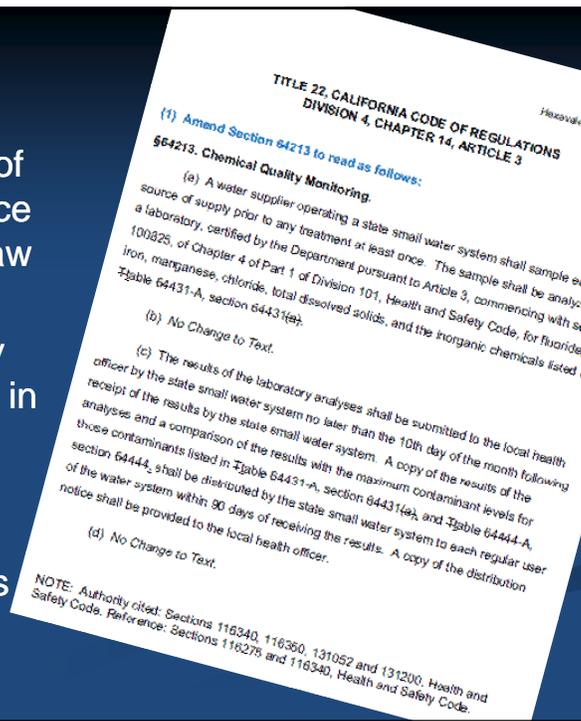
Questions and Feedback on Preferred Portfolios

## Recent State and National Regulatory & Policy Developments

- National:
  - Chromium-6 regulations
- Oklahoma:
  - Water for 2060
  - Potable reuse regulations
  - Sensitive water supply designation

## Chromium-6

- California Cr6 limit of 10 ug/L sent to Office of Administrative Law 4/2014
- EPA Cr6 limit (likely >10 ug/L) expected in 2017
- Most of Norman's wells will not meet new Cr6 regulations without treatment



Oklahoma

**2060**

WATER FOR 2060

EFFICIENCY • CONSERVATION • RECYCLING • REUSE

...a goal of consuming  
**no more**  
**fresh water**  
**in 2060**  
than is  
consumed  
statewide in  
2012...

- Water for 2060 Act passed in 2012
- Advisory Council appointed to recommend incentives and voluntary initiatives for water efficiency
- Focus: water conservation and reuse
- Local conservation and marginal quality water analyses being conducted by OWRB later in 2014



## Cultural Shifts are Happening in the Water Industry and in Our Communities

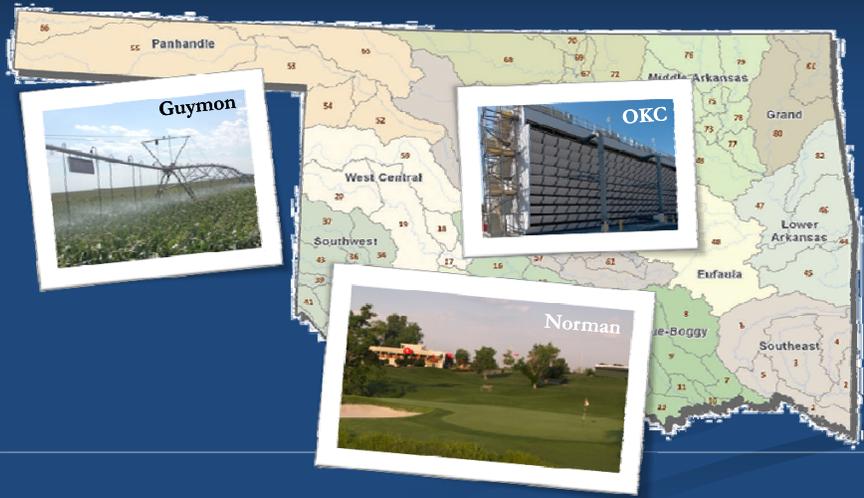


**“WASTEWATER TREATMENT”**



**“WATER RECLAMATION” AND “RESOURCE RECOVERY”**

# Nonpotable reuse is already meeting diverse needs across Oklahoma



**Indirect Potable Reuse:**  
Surface Water Augmentation

“IPR”





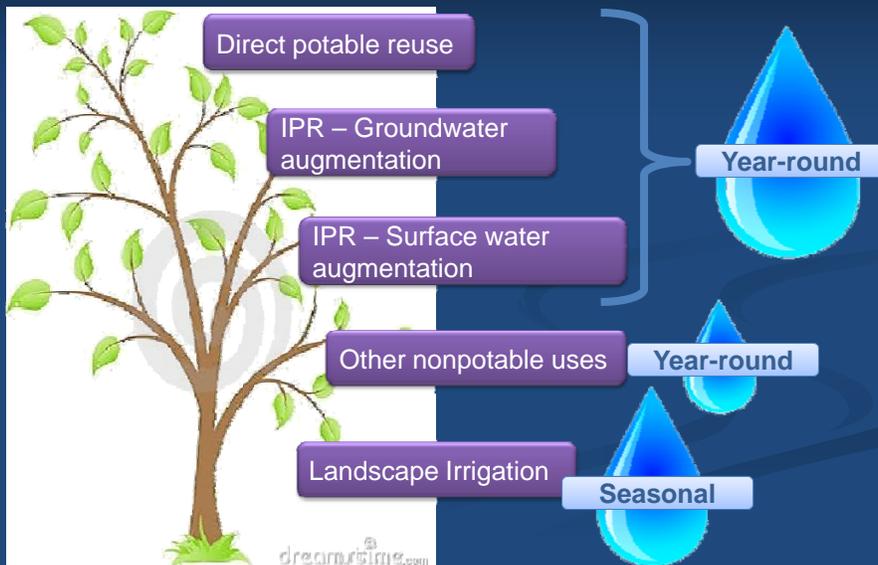
## Direct Potable Reuse

“DPR”



What's different?  
Direct potable reuse has no “environmental buffer.”

## Why is POTABLE Reuse Attractive in Oklahoma?



Two major Oklahoma communities recently included **IPR** in their supply analyses

## Indirect Potable Reuse is Becoming Commonplace

*Examples of prominent IPR projects*

**San Diego:**  
Reservoir  
Augmentation  
Demonstration

**Aurora:**  
Recapture of  
Return Flows

**Upper  
Ocoquan:**  
Surface Water  
Augmentation

**Orange County  
Water District:**  
Groundwater  
Replenishment

**Gilbert:**  
Groundwater  
Recharge  
Ponds

**NTMWD:**  
Surface Water  
Augmentation

# Direct Potable Reuse is Getting "Closer to Home"



## Applied Research is Paving the Way for Potable Reuse Outreach, Treatment, and Monitoring



*\$6 million for cutting edge DPR research*

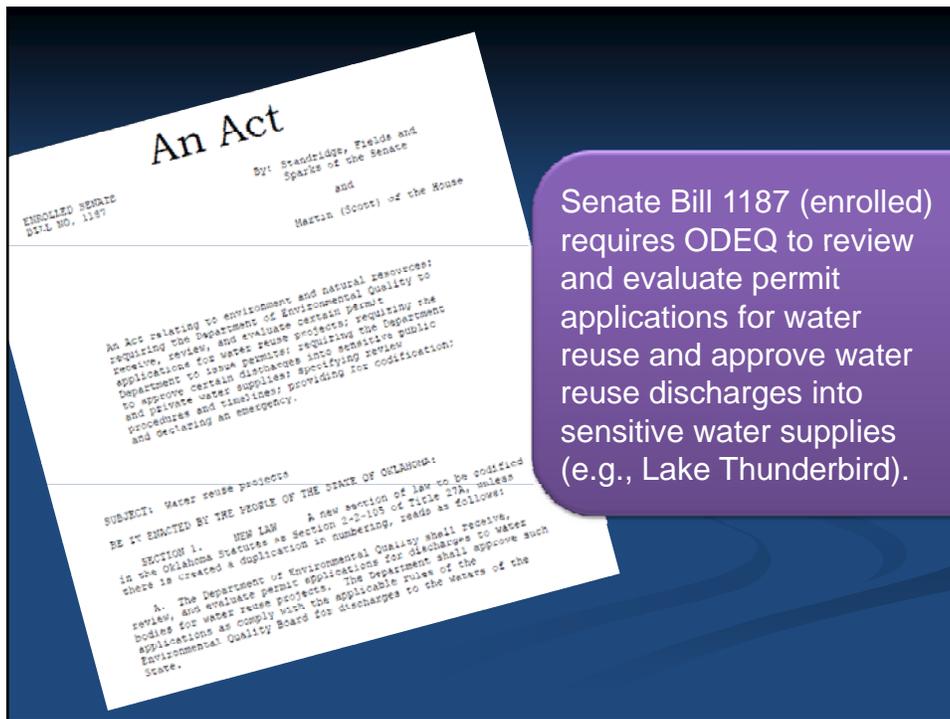
California Direct Potable Reuse Initiative  
REPORTING ON OUR PROGRESS



## Oklahoma's Reuse Regulations Are Being Expanded to Include Potable Reuse

Category	Examples of Authorized Uses
Potable	1 [RESERVED]
	2 Public access landscape irrigation, toilet flushing, fire protection, vehicle/equipment washing, range cattle watering, drip irrigation of vineyards/ orchards
Non-Potable	3 Restricted access landscape irrigation, new restricted access golf courses, cooling towers and various nonpotable commercial/industrial uses, livestock pasture, subsurface irrigation of vineyards/ orchards
	4 Soil compaction and existing restricted access golf courses
	5 Restricted access pasture irrigation and restricted access non-food crop irrigation

Treatment, Quality, BMPs



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# Path Forward

- Public meeting today
- Water supply portfolio recommendation to City Council
- Council action
- Finalize Strategic Water Supply Plan
- Implement plan

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## Discussion and Input

- Which portfolio best meets the community's priority objectives? Why?
  - Long term reliability
  - Efficient use of supplies
  - Timely implementation and certainty
- What concerns you about these portfolios?
  - How critical is local control?
  - Will the community support potable reuse?
  - Additional questions & ideas

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