

# Water Planning and New Power Generation in Texas

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Texas Water Development Board



# Texas Water Development Board

## Agency Vision

*Sustainable, affordable, quality water for Texans, our economy, and our environment*

## Agency Mission

*To provide leadership, **planning**, financial assistance, information, and education for the conservation and responsible development of water for Texas*



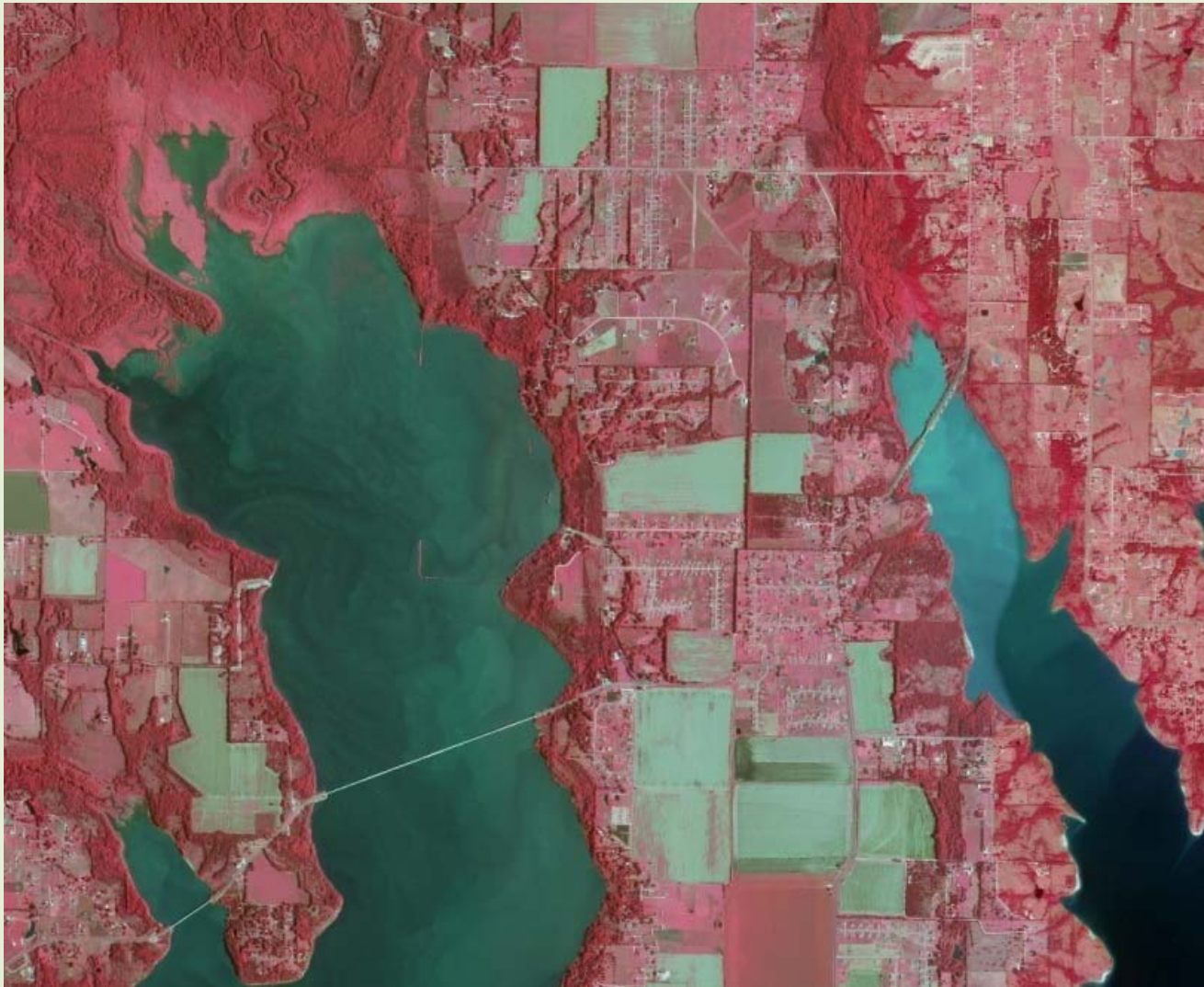
# *Why do we plan...?*



Central Texas  
2009



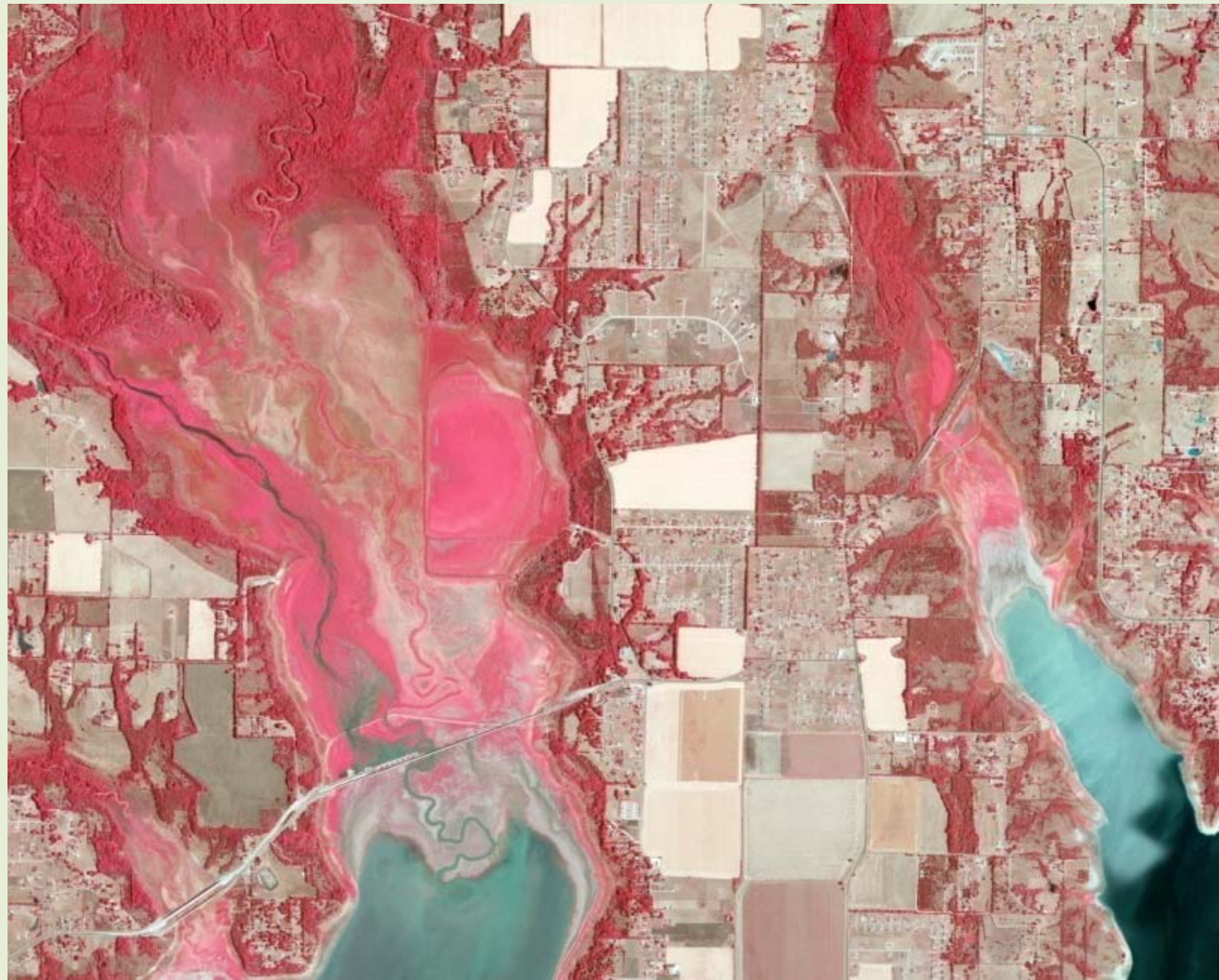
# Why do we plan...?



Lake Lavon  
2004



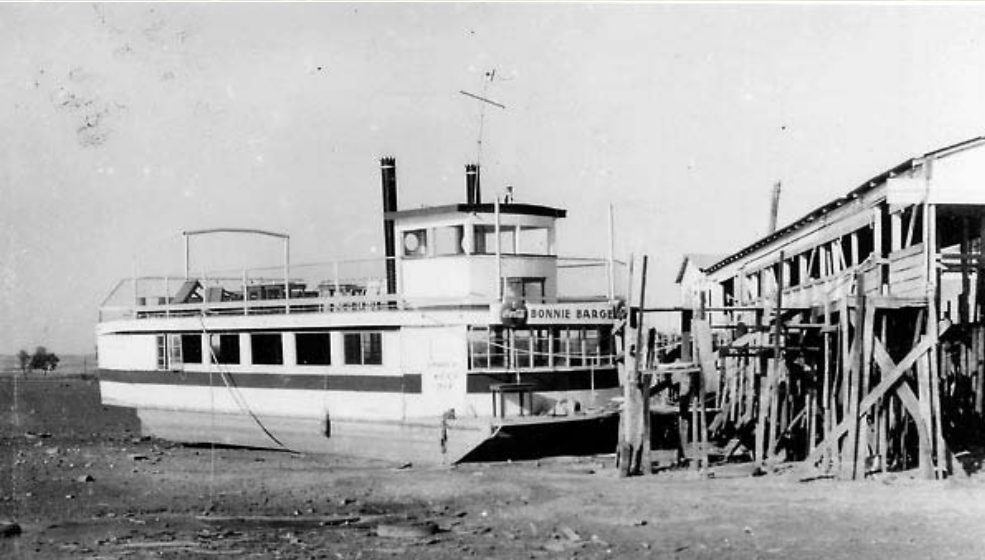
# Why do we plan...?



Lake Lavon  
2006



# Why do we plan...?

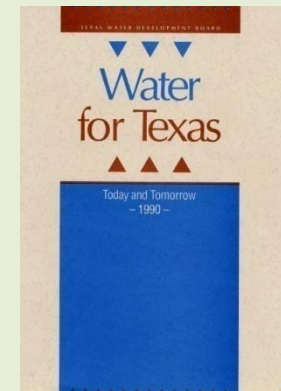
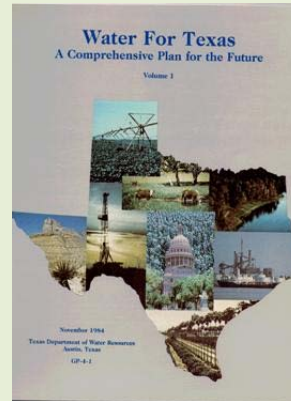
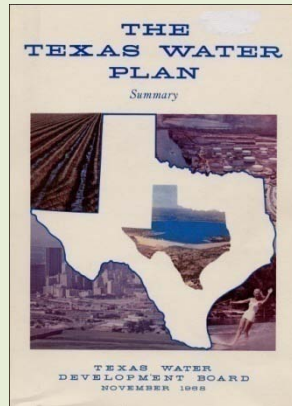


*“We are finding out that water is about as valuable as oil, only we can drink water.”*

-Kinney County Extension Agent, 1956



# Evolution of Texas Water Planning



1961

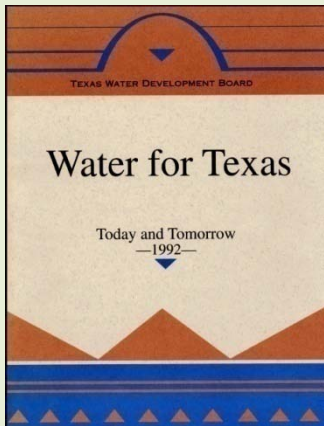
1968

1984

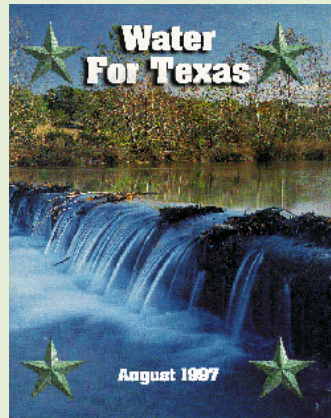
1990



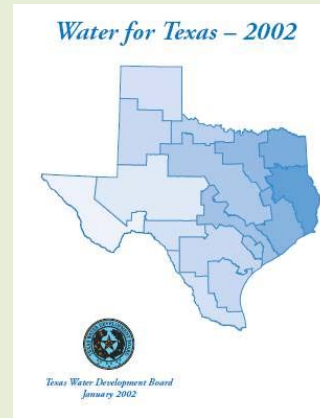
# Evolution of Texas Water Planning



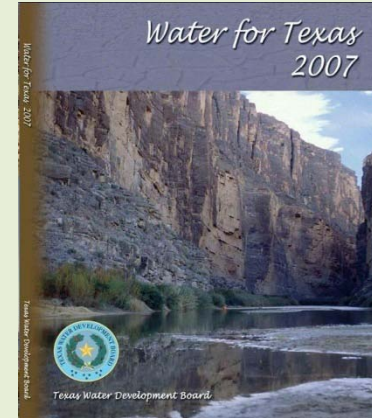
1992



1997



2002



2007



# Senate Bill (1997)

## The Birth of Regional Water Planning

### TWDB responsibilities:

- Designate regional water planning areas
- Provide technical and financial assistance to the regional water planning groups
- Approve regional water plans and facilitate resolution of interregional conflicts
- Develop State Water Plan every five years

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**CHAPTER 357**  
**REGIONAL WATER PLANNING GUIDELINES**  
Readopted March 22, 2006 pursuant to Government Code §2001.039  
Amended Effective February 18, 2008

§357.1.	General
§357.2.	Definitions
§357.3.	Designation of Regional Water Planning Areas
§357.4.	Designation of Regional Water Planning Groups
§357.5.	Guidelines for Development of Regional Water Plans
§357.6.	Preplanning
§357.7.	Regional Water Plan Development
§357.8.	Ecologically Unique River and Stream Segments
§357.9.	Unique Sites for Reservoir Construction
§357.10.	Format of Information to be Presented in Regional Water Plans
§357.11.	Adoption of Regional Water Plans by Regional Water Planning Groups
§357.12.	Notice and Public Participation
§357.13.	Consistency with Regional Water Plan
§357.14.	Approval of Regional Water Plans by the Board
§357.15.	Interaction with Groundwater Conservation District Management Plans
§357.16.	Minor Amendments and Clean Coal Project Amendments to Regional Water Plans and State Water Plan

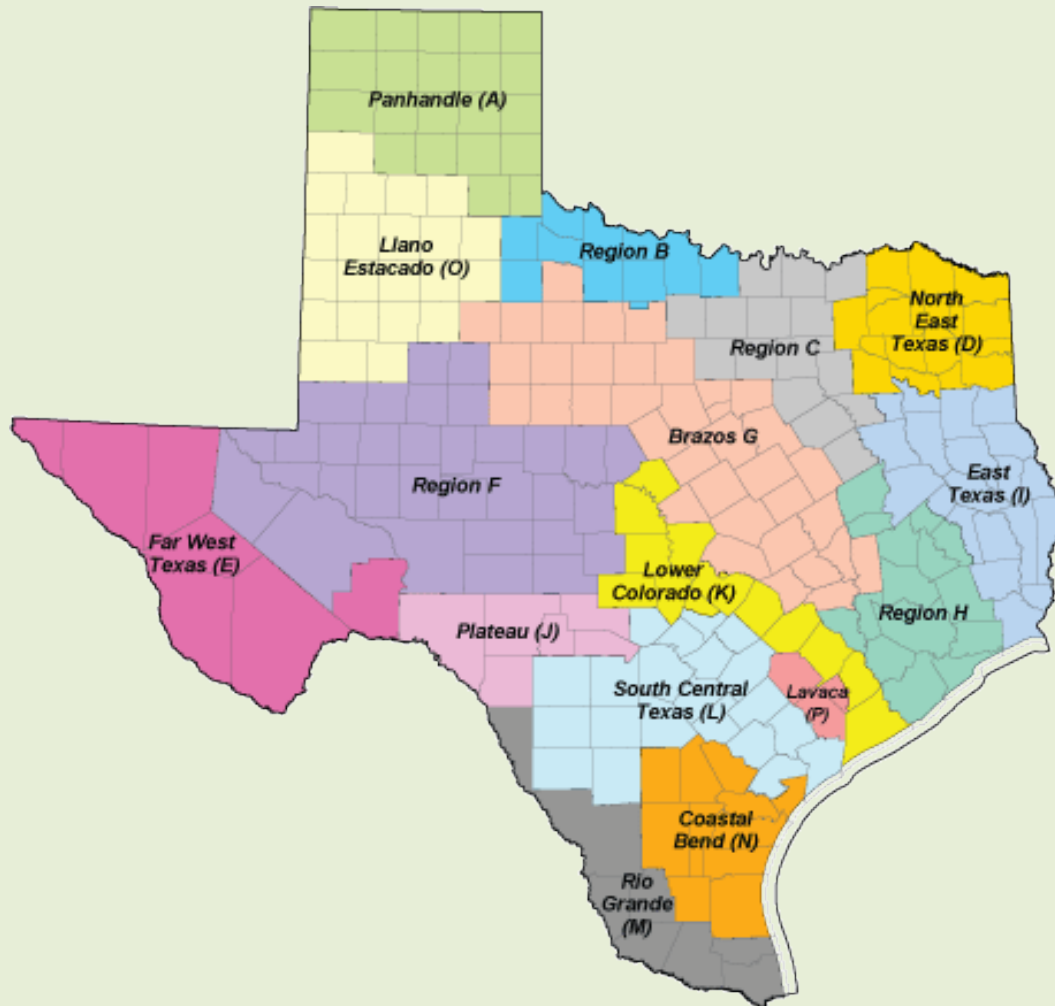
**REGIONAL WATER PLANNING GUIDELINES**  
Texas Administrative Code Sections 357.1 - 357.16

These rules are adopted under the authority granted in Texas Water Code, §6.101, which provides the board with the authority to adopt rules necessary to carry out its powers and duties under the Texas Water Code and laws of Texas, and under the authority of Texas Water Code, §16.053, which requires the board to develop rules and guidelines: to provide procedures for adoption of regional water plans by regional water planning groups and approval of regional water plans by the board; to govern procedures to be followed in carrying out the responsibilities in Texas Water Code, §16.053; for the consideration of existing regional water planning efforts by regional water planning groups; and for the format in which information is to be presented in the regional water plans. The provisions of §16.053 also require regional water plans to be consistent with guidance principles for the state plan, require regional water plans to provide information based on data provided or approved by the board, and provide certain statutory requirements for the regional water plans.

§357.1. **General.** This chapter will govern designation of regional water planning areas, designation of regional water planning groups, consideration of existing planning efforts by regional water planning groups, the format of information to be presented in regional water plans, development of regional water plans, adoption of regional water plans by regional water planning groups, and approval of regional water plans by the board.



# Regional Water Planning: 11 Interest Groups



- Public
- Counties
- Municipalities
- Industries
- Agriculture
- Environment
- Small businesses
- **Electric-generating utilities**
- River authorities
- Water districts
- Water utilities



# Planning Group Responsibilities



- Approve bylaws
- Designate political subdivision to administer planning process and manage contracts to develop regional water plans
- Conduct all functions at open meetings
- Build consensus within the group
- Send nonvoting representation to adjacent planning groups
- Develop and adopt the regional water plan



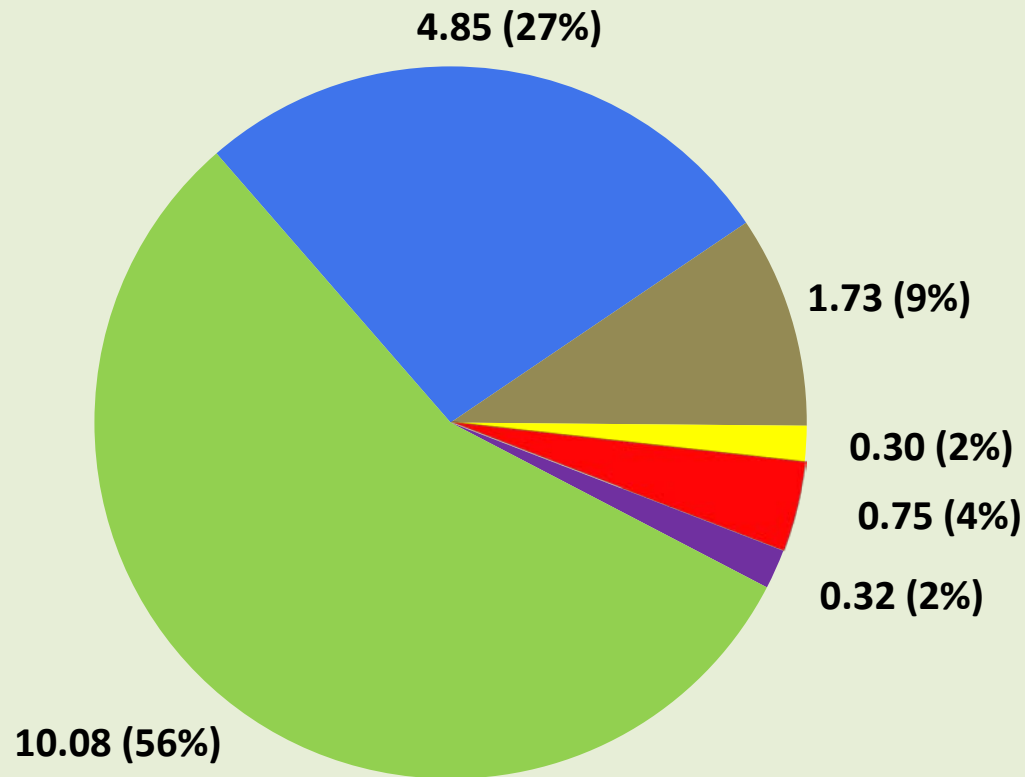
# Basic steps in Regional Water Planning

1. Describe the regional water planning area
2. Quantify current population and water demand
3. Quantify projected population and water demand
4. Evaluate and quantifying current water supplies
5. Identifying water surpluses and needs
6. Evaluate water management strategies and recommend specific strategies to meet needs
7. Recommend regulatory, administrative, and legislative changes
8. Adopt plans including the required level of public participation



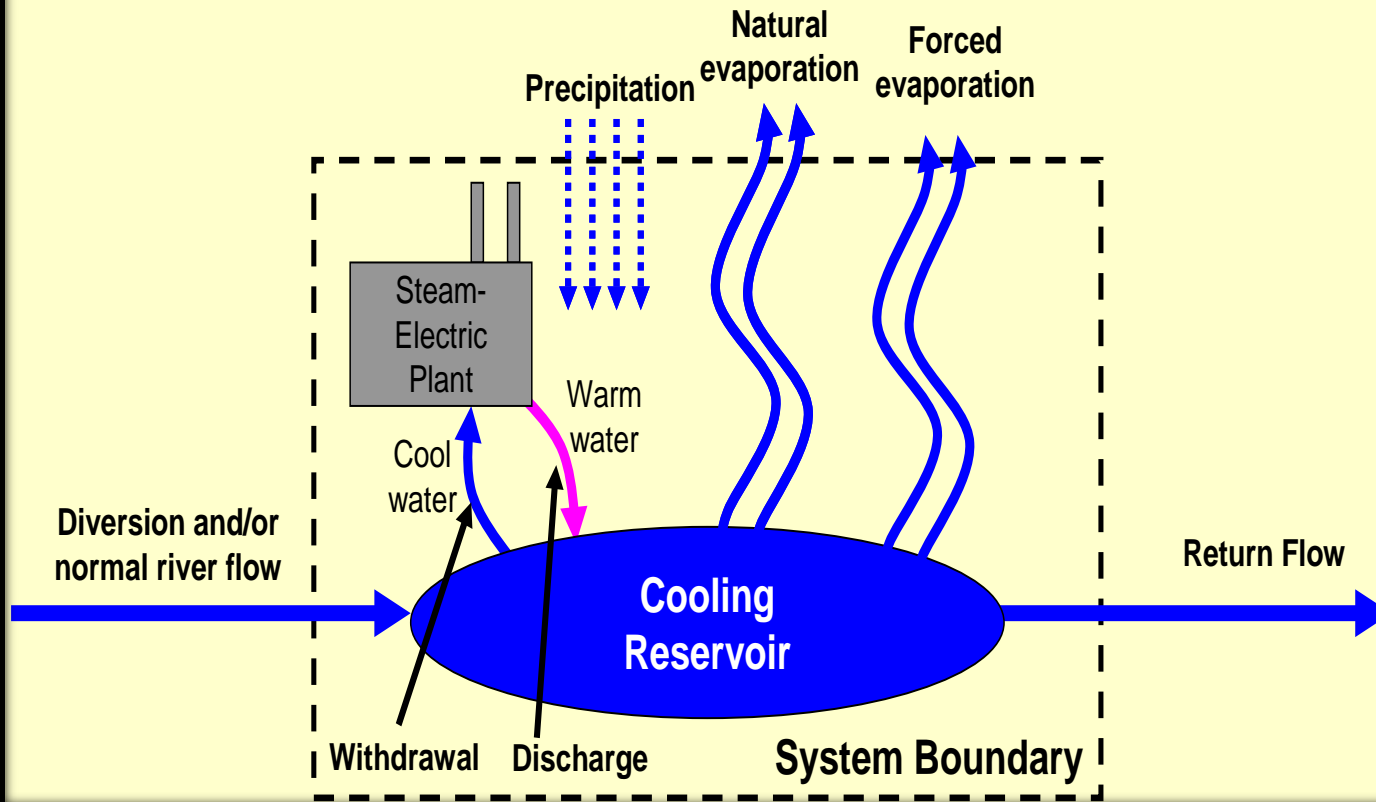
# Current Water Use in Texas (millions of acre-feet)

■ Municipal ■ Manufacturing ■ Mining ■ Steam-electric ■ Livestock ■ Irrigation



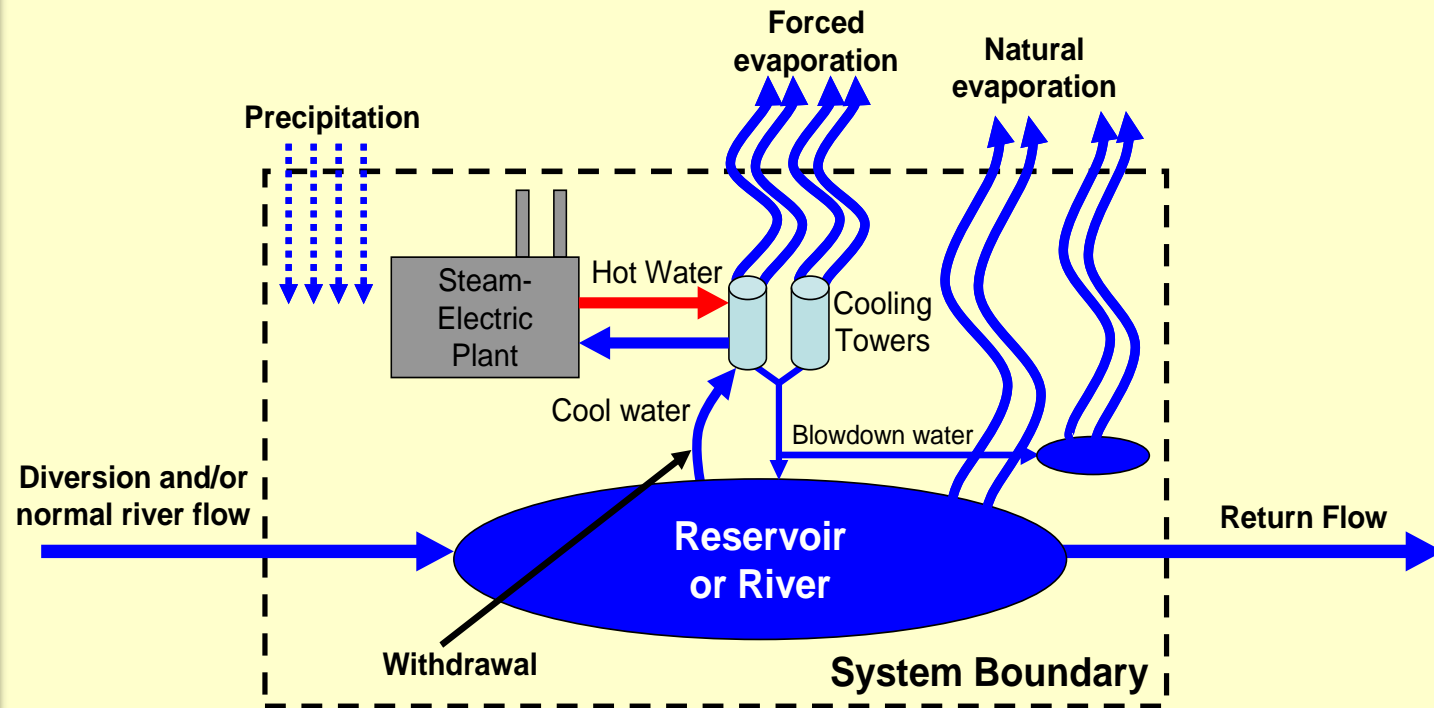
# Type A: Once-through with Reservoir

(Reservoir can serve many purposes: recreation, municipal supply, wildlife habitat, etc.)



# Type D: Cooling Tower with surface water

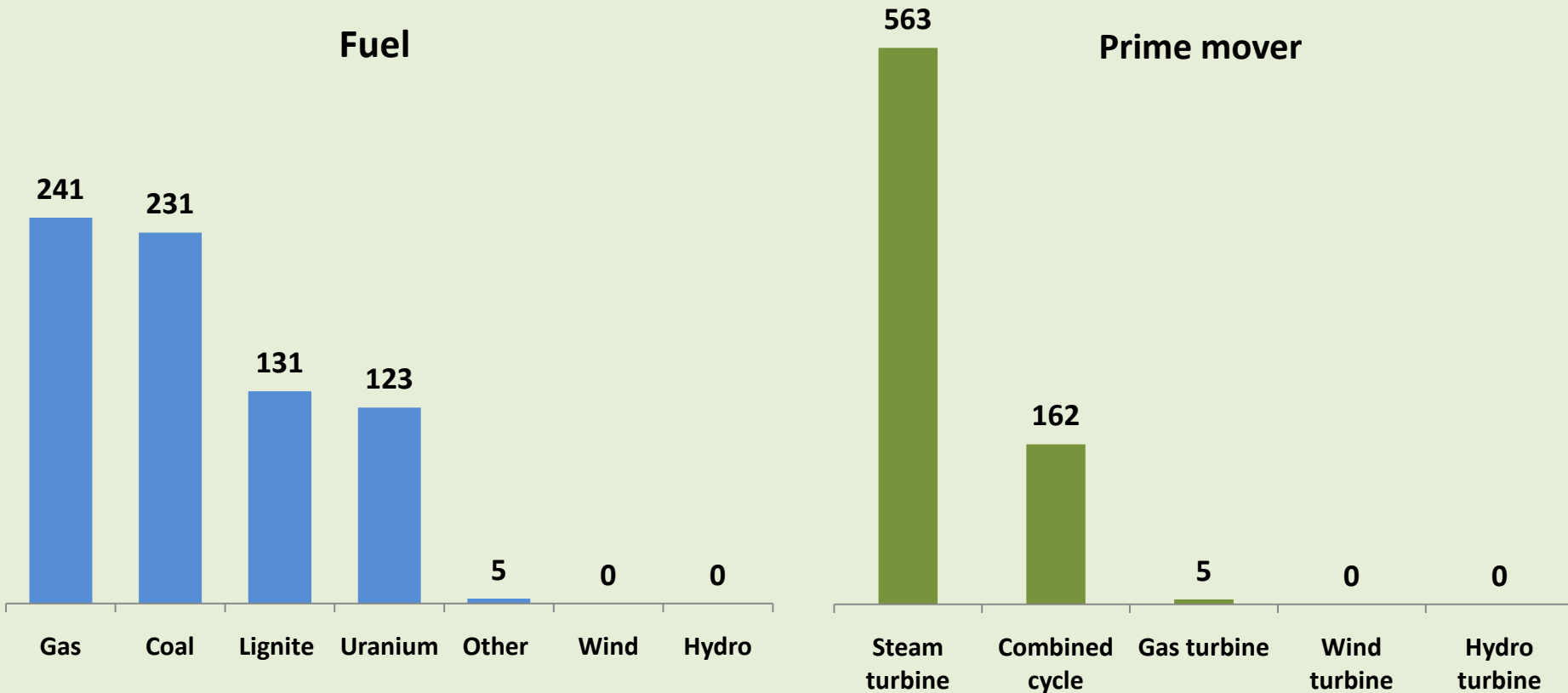
(Surface water can serve many purposes: recreation, municipal supply, wildlife habitat, etc.)



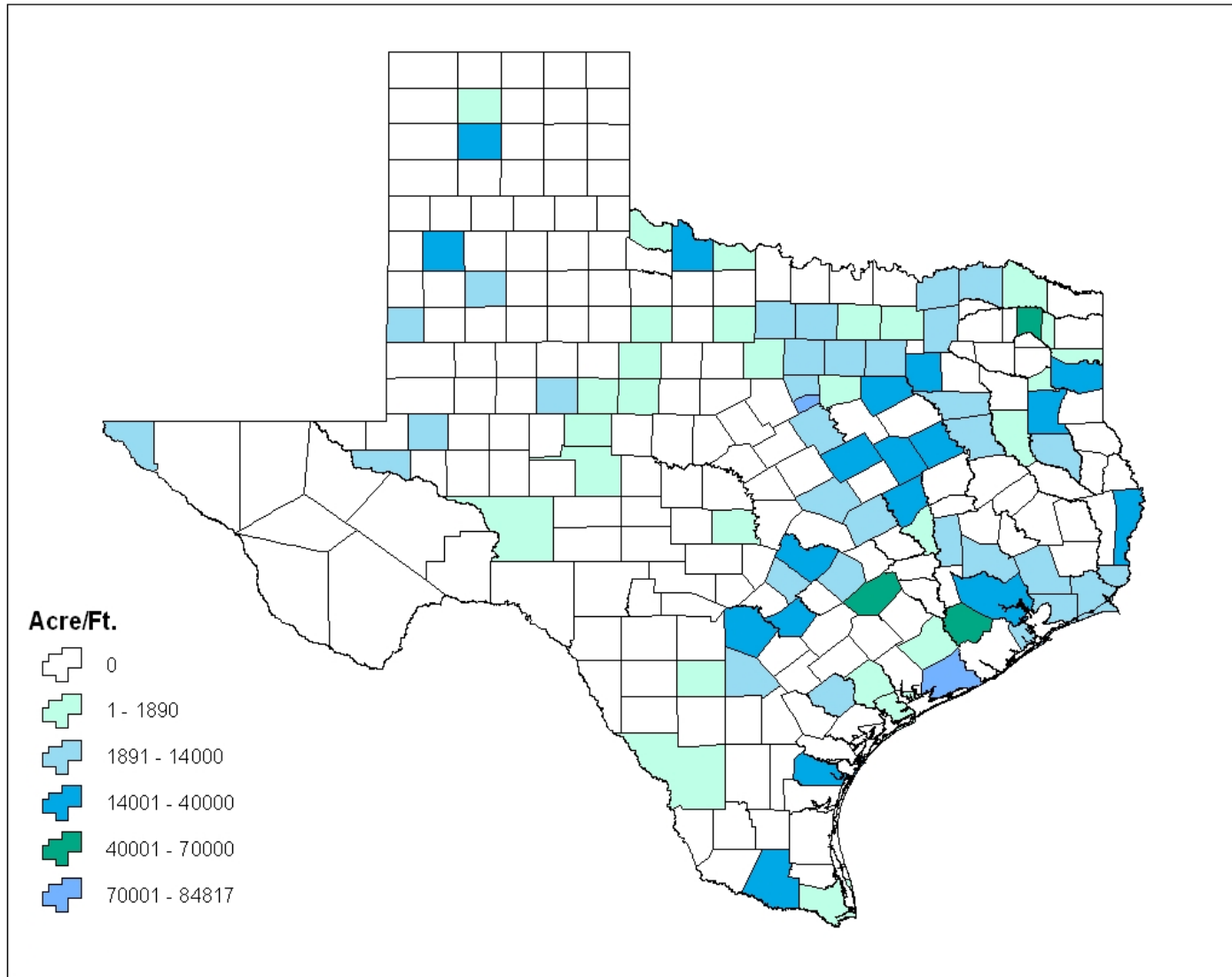
Consumption = forced evaporation  
Withdrawal ~ Consumption



# Current Steam-electric Water Use in Texas (1000s of acre-feet)



# Regional Distribution of Steam-electric Water Demands



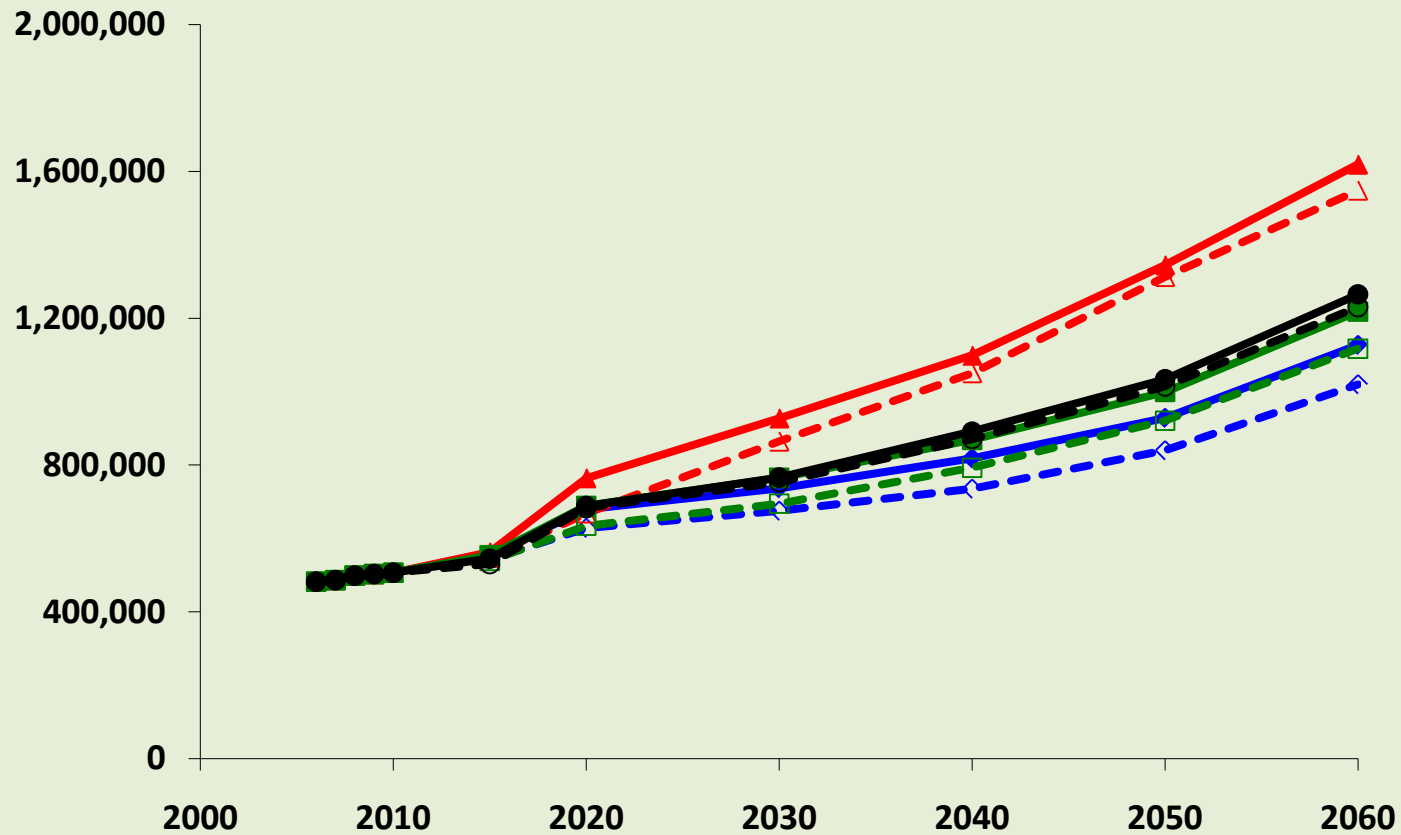
# Steam-electric Water Demand Projections

- Long-term forecasts (2010-2060)
  
- Two components
  - Future electricity demand
  - Resultant forecasts of water requirements for the industry
  
- Key drivers
  - Economic and demographic growth
  - Fuel costs
  - Future generating technology
  - Policy factors
  - Changes in energy efficiency (supply and demand)



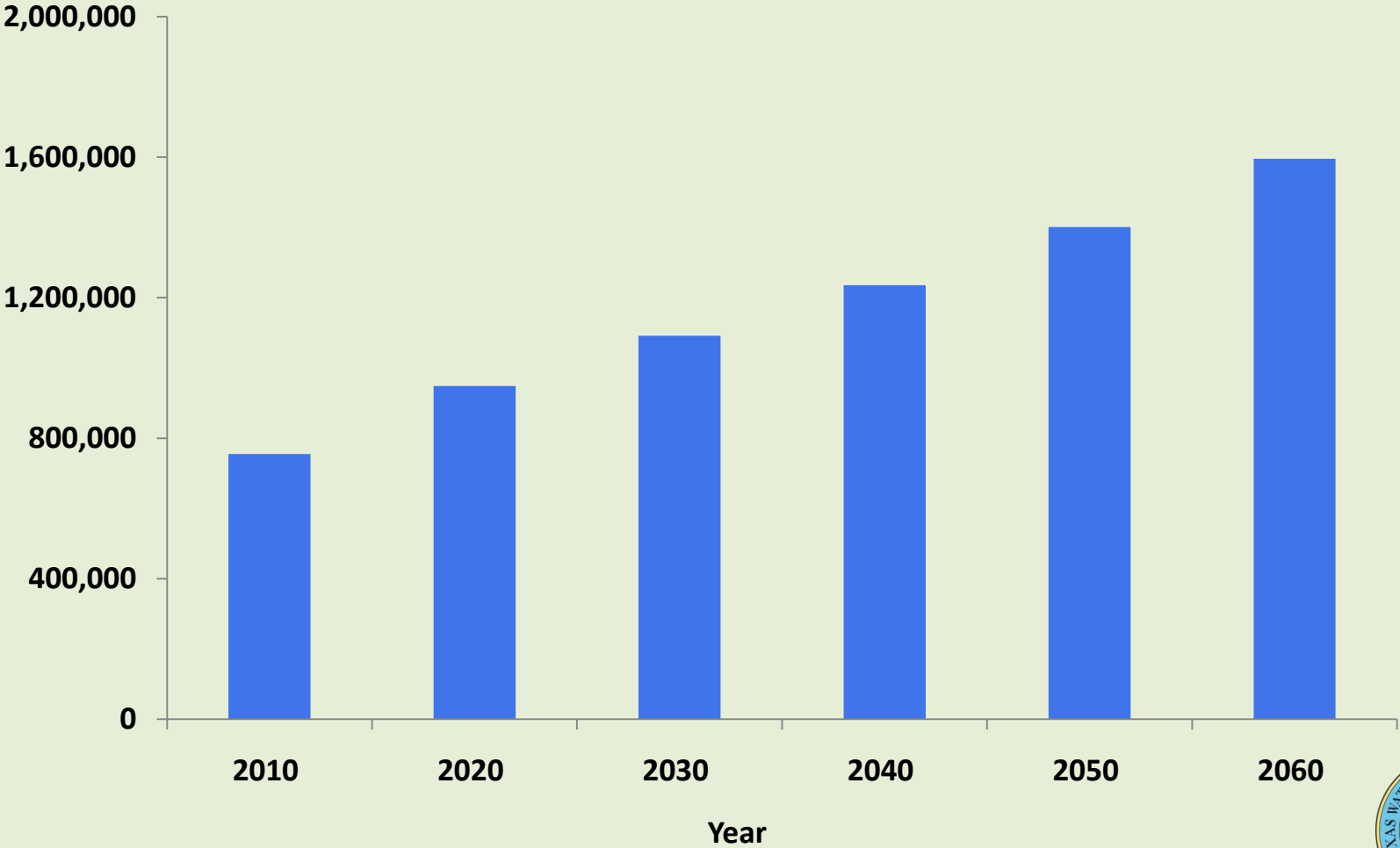
# Steam-electric Water Demand Projections

(acre-feet of water per year)



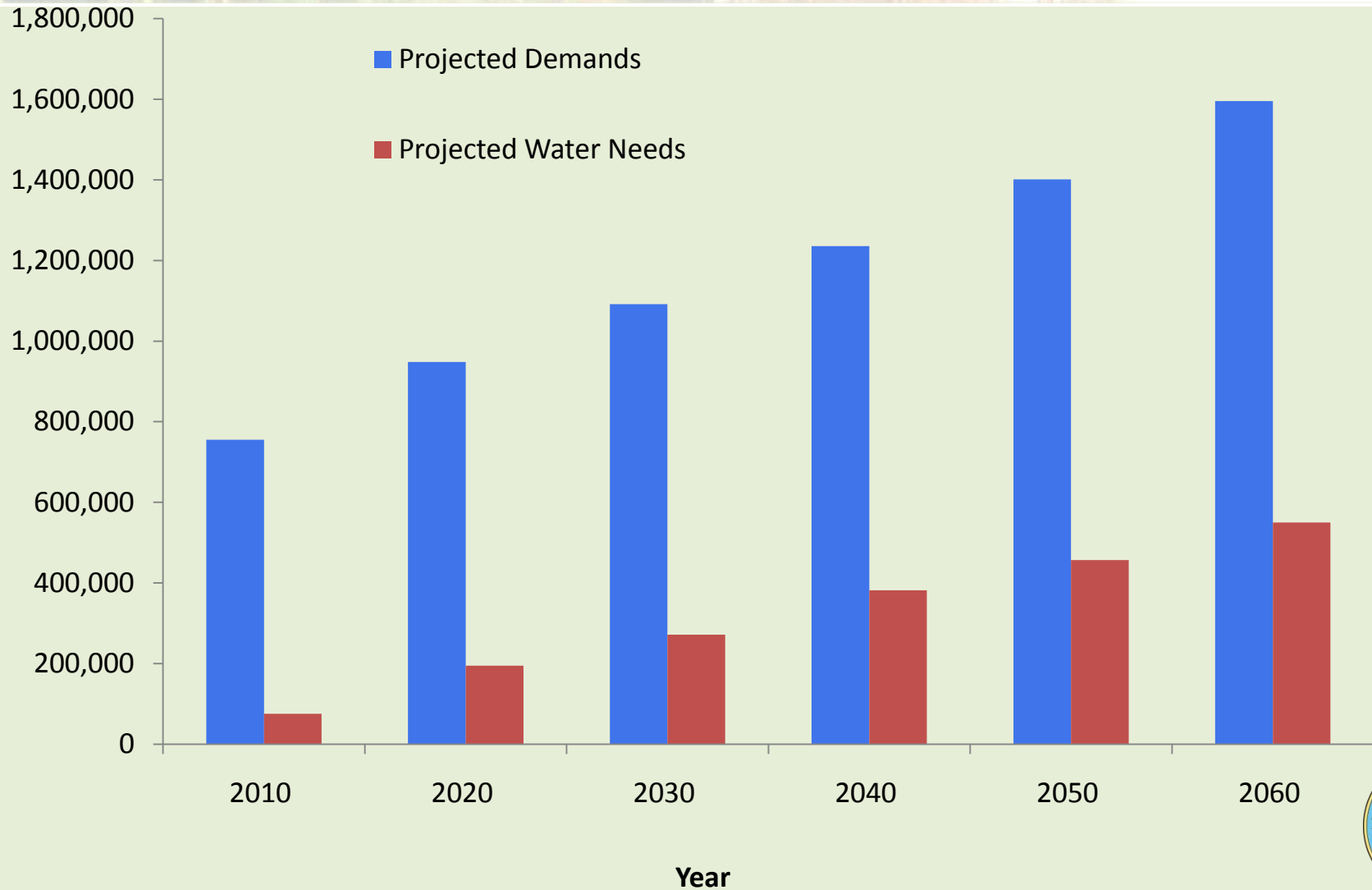
# Steam-electric Water Demand Projections

(acre-feet of water per year)

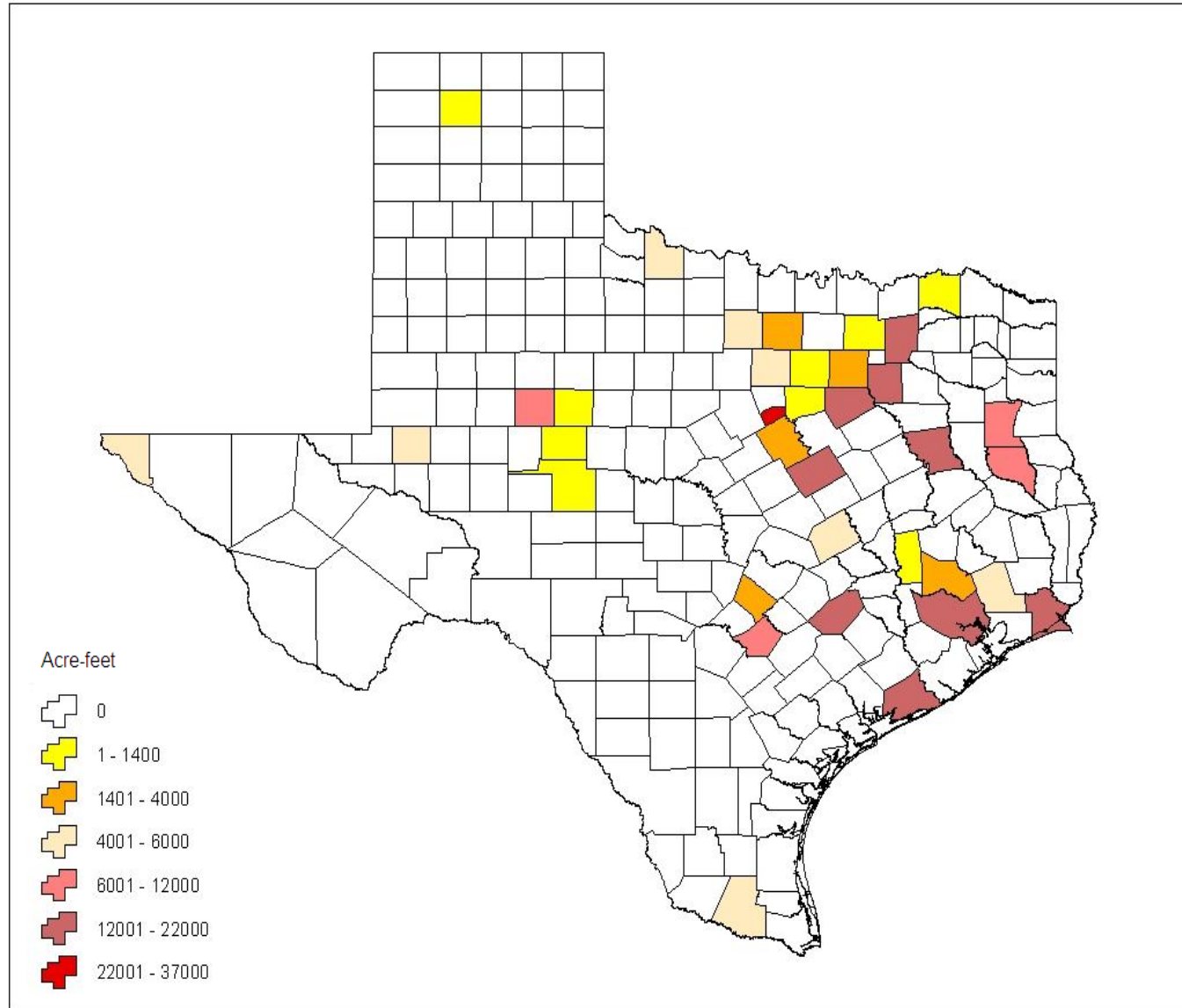


# Projected Steam-electric Water Needs

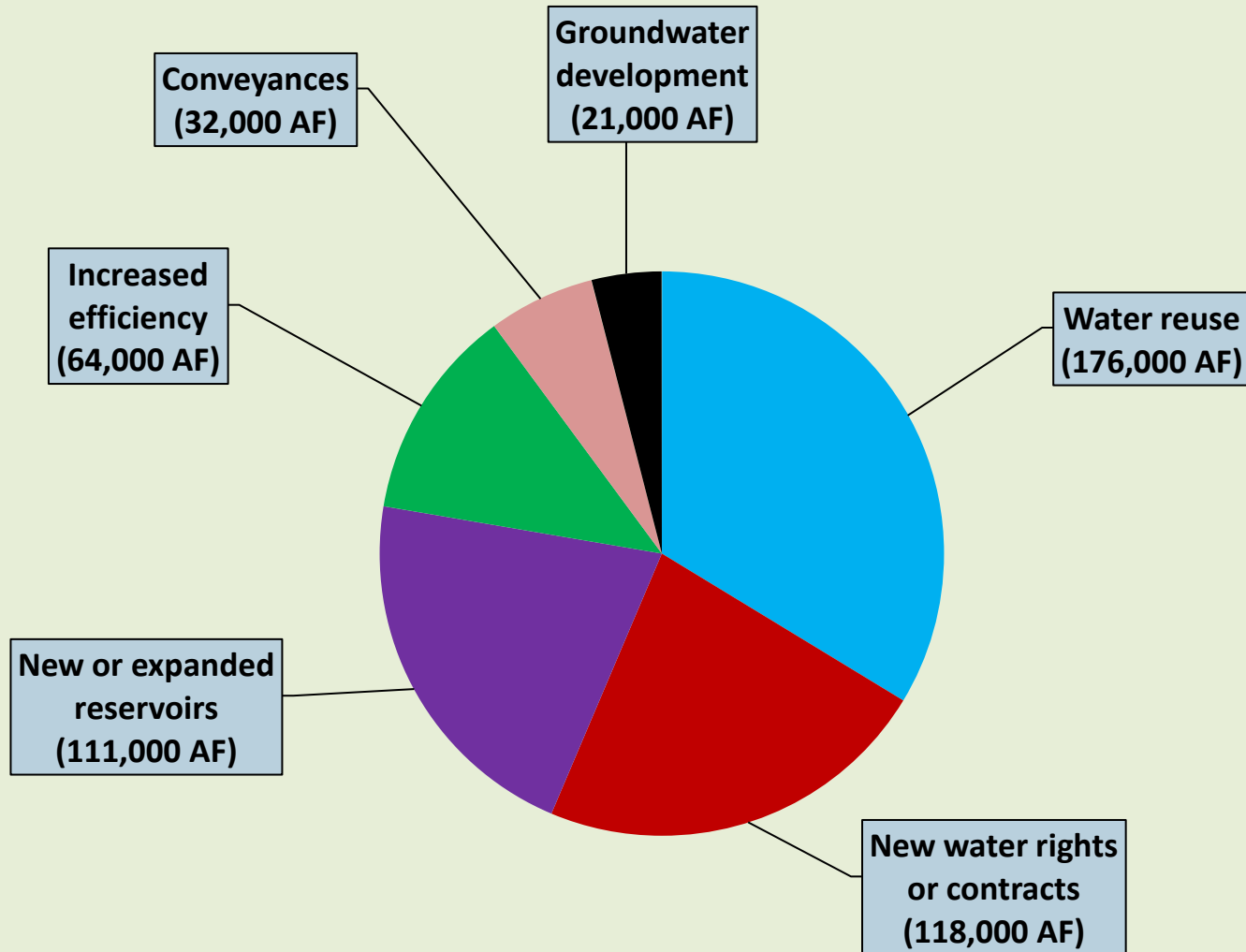
(acre-feet of water per year)



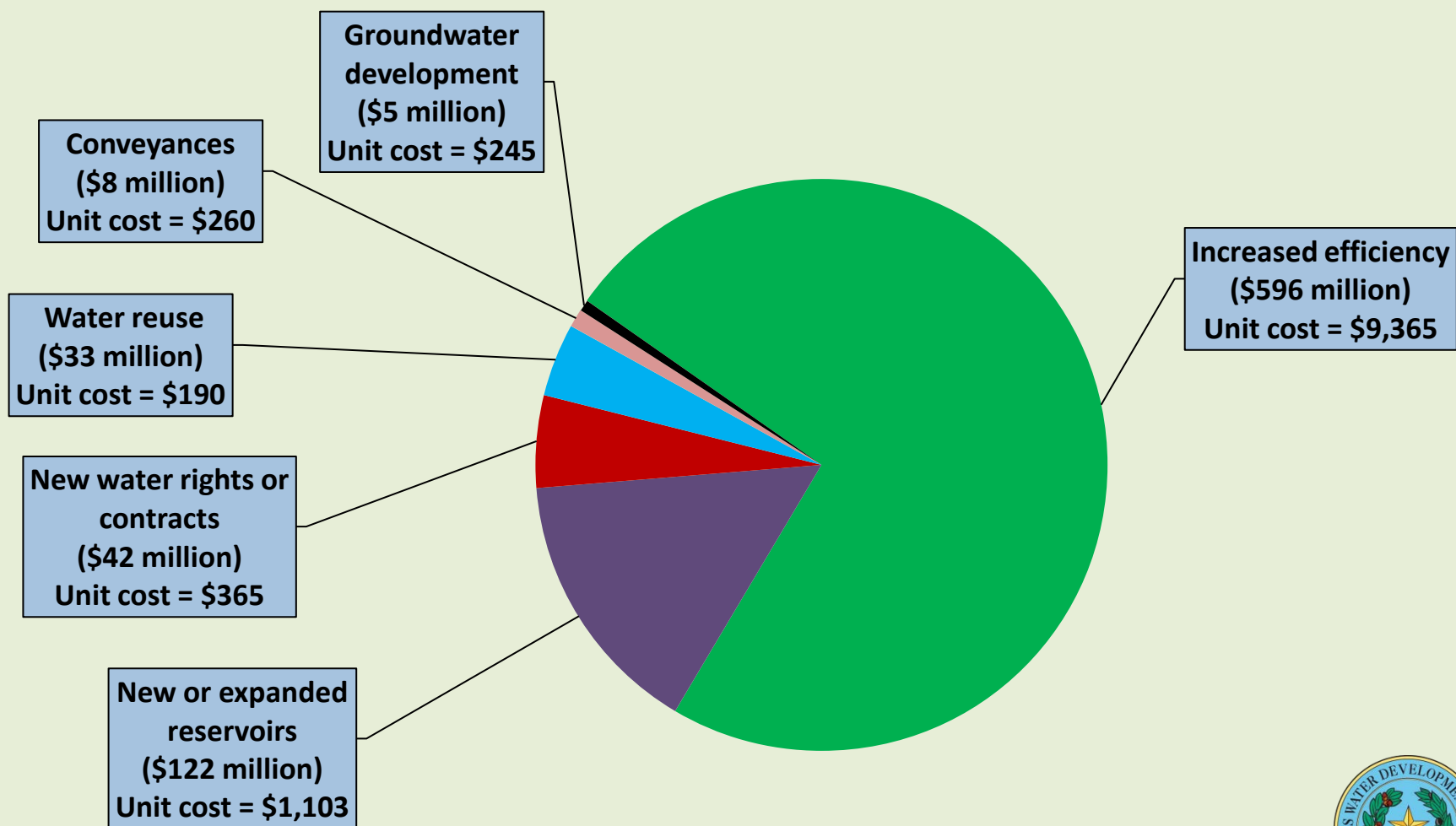
# Regional Distribution of Steam-electric Water Needs



# Strategies to Meet Steam-electric Water Needs (annual water supplies generated)



# Strategies to Meet Steam-electric Water Needs (capital costs)



# Questions or Comments?

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