

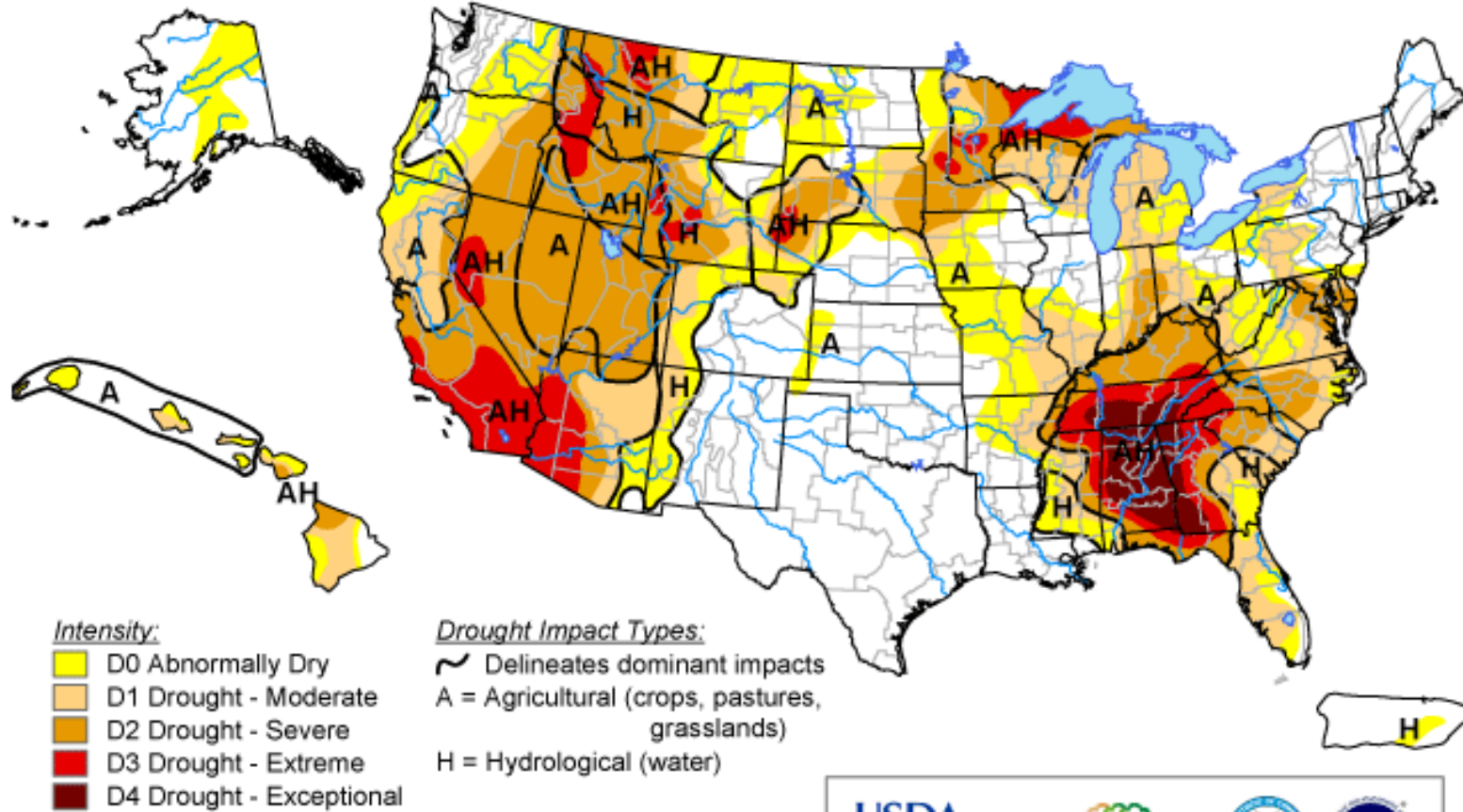
# Water Use Efficiency



# The Southeast Drought

## U.S. Drought Monitor

August 14, 2007  
Valid 8 a.m. EDT



The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

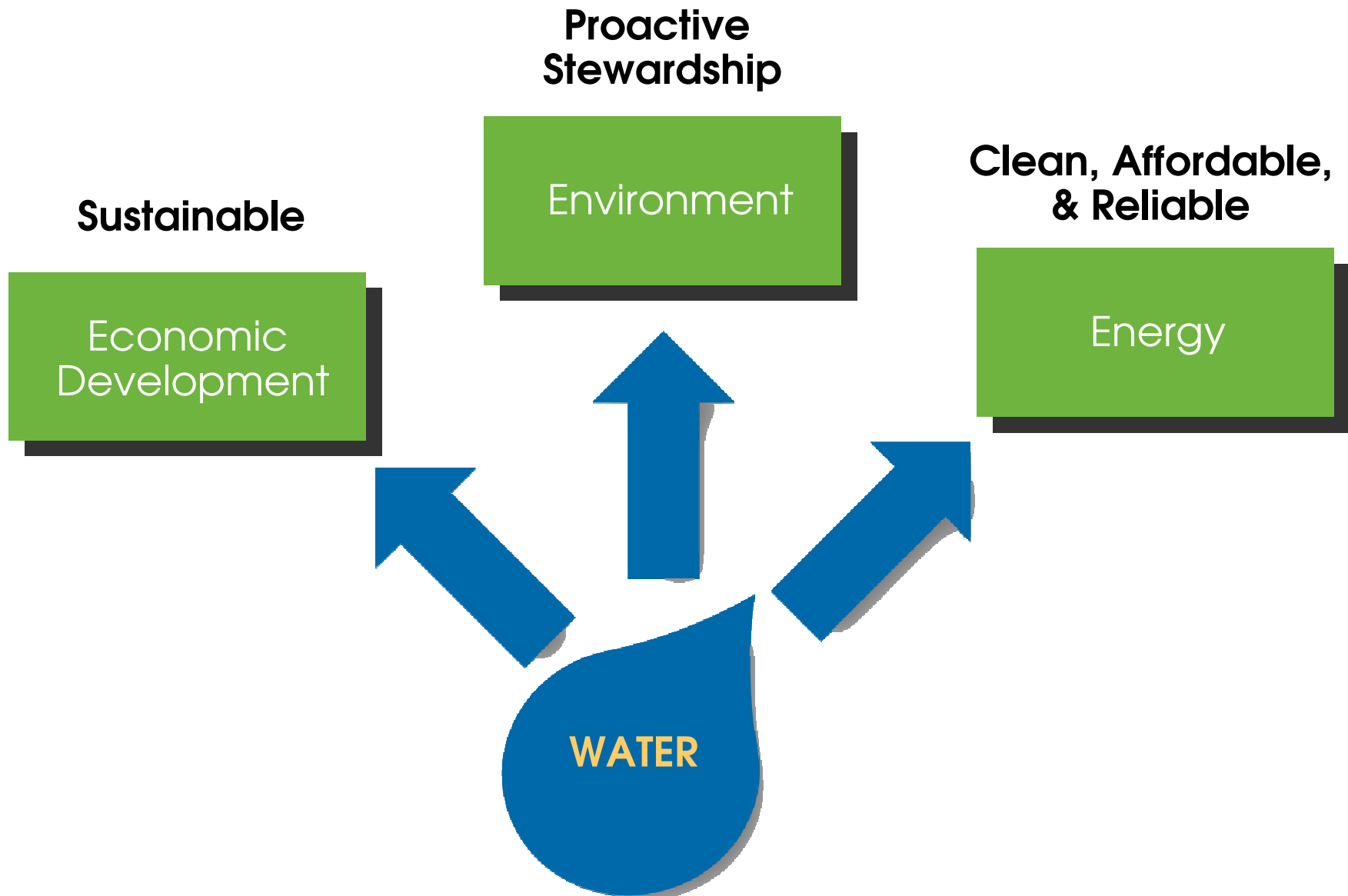
<http://drought.unl.edu/dm>



Released Thursday, August 16, 2007  
Author: Brad Rippey, U.S. Department of Agriculture



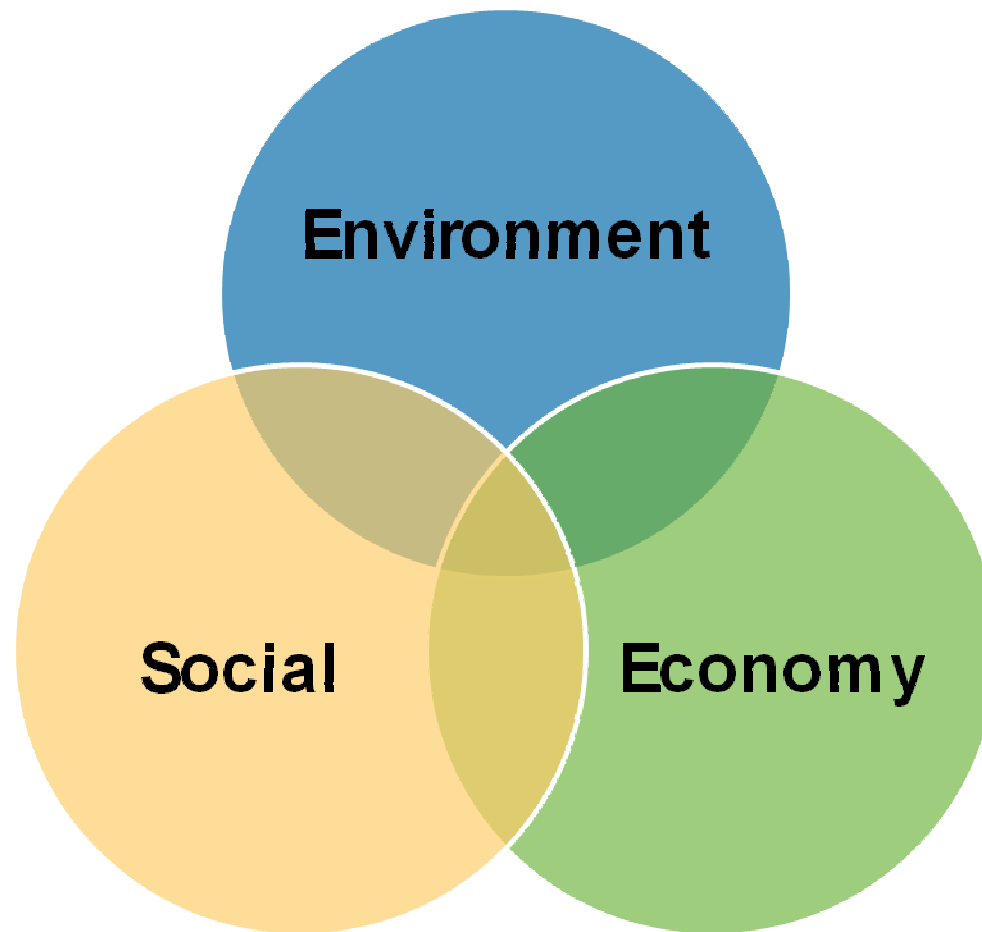
# TVA Areas of Responsibility





# What is Sustainable Economic Development?

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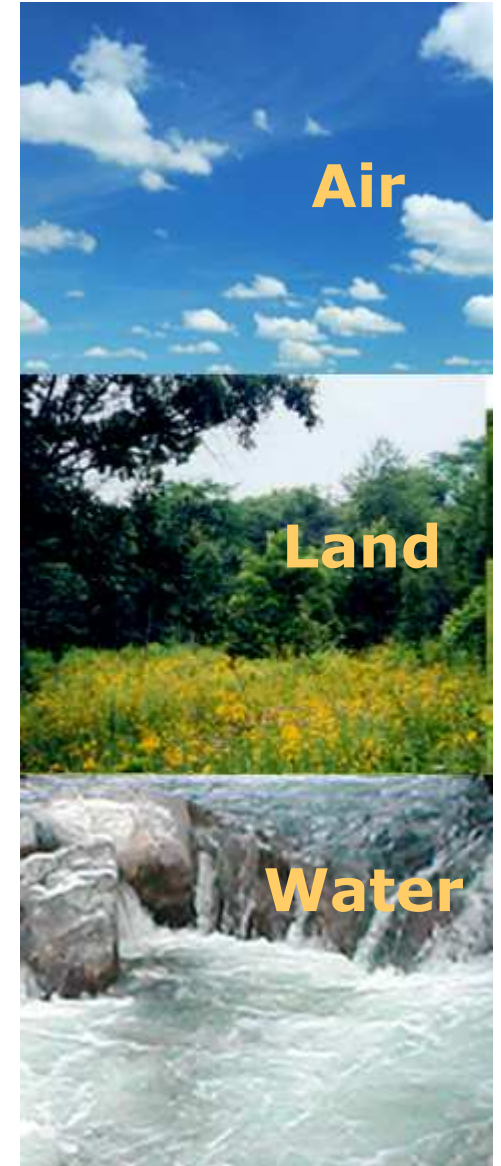
# Sustainable Economic Development

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*“Development that meets the needs of the present without compromising the ability of future generations to meet their own needs“*

*Bruntland Report*

- Adequate water supplies are critical
- Increased water supply demand
- Plan for drought management





# TVA Long Range Water Planning



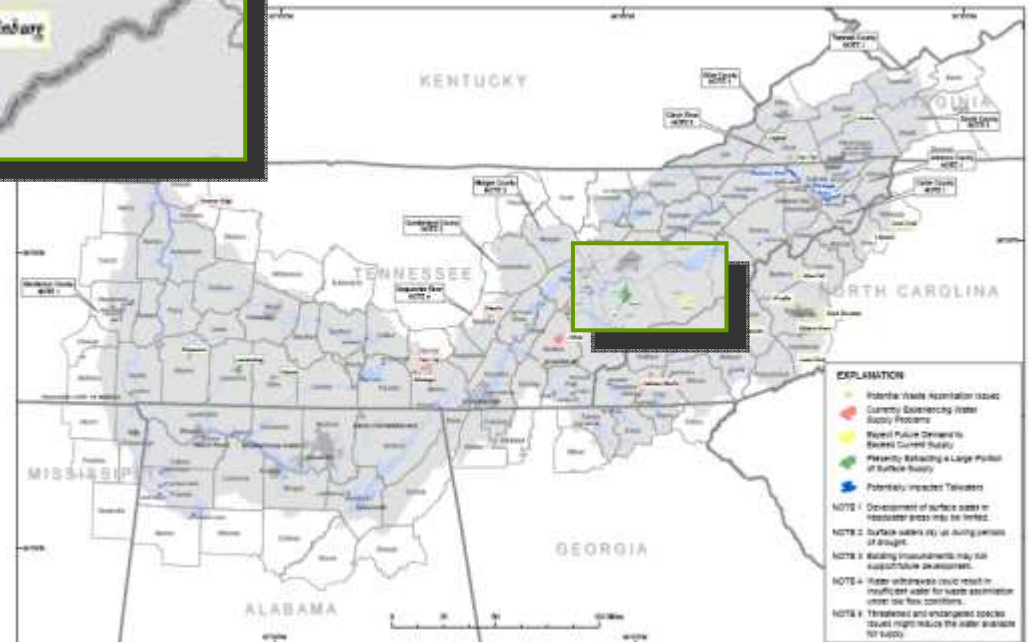
## EXPLANATION

- Potential Waste Assimilation Issues
- Currently Experiencing Water Supply Problems
- Expect Future Demand to Exceed Current Supply
- Presently Extracting a Large Portion of Surface Supply
- Potentially Impacted Tailwaters

## TVA Water Supply Inventory and Needs Analysis Report

Available at:

<http://www.tva.gov/river/watersupply/report.htm>



- ### EXPLANATION
- Potential Waste Assimilation Issues
  - Currently Experiencing Water Supply Problems
  - Expect Future Demand to Exceed Current Supply
  - Presently Extracting a Large Portion of Surface Supply
  - Potentially Impacted Tailwaters
- NOTE 1: Development of surface water in headwater areas may be limited.
- NOTE 2: Surface waters dry up during periods of drought.
- NOTE 3: Existing measurements may not support future development.
- NOTE 4: Water withdrawals could result in insufficient water for water consumption under low flow conditions.
- NOTE 5: Threatened and endangered species issues might reduce the water available for supply.



# Clean & Affordable Electricity



11 coal-fired plants



renewables



3 nuclear plants



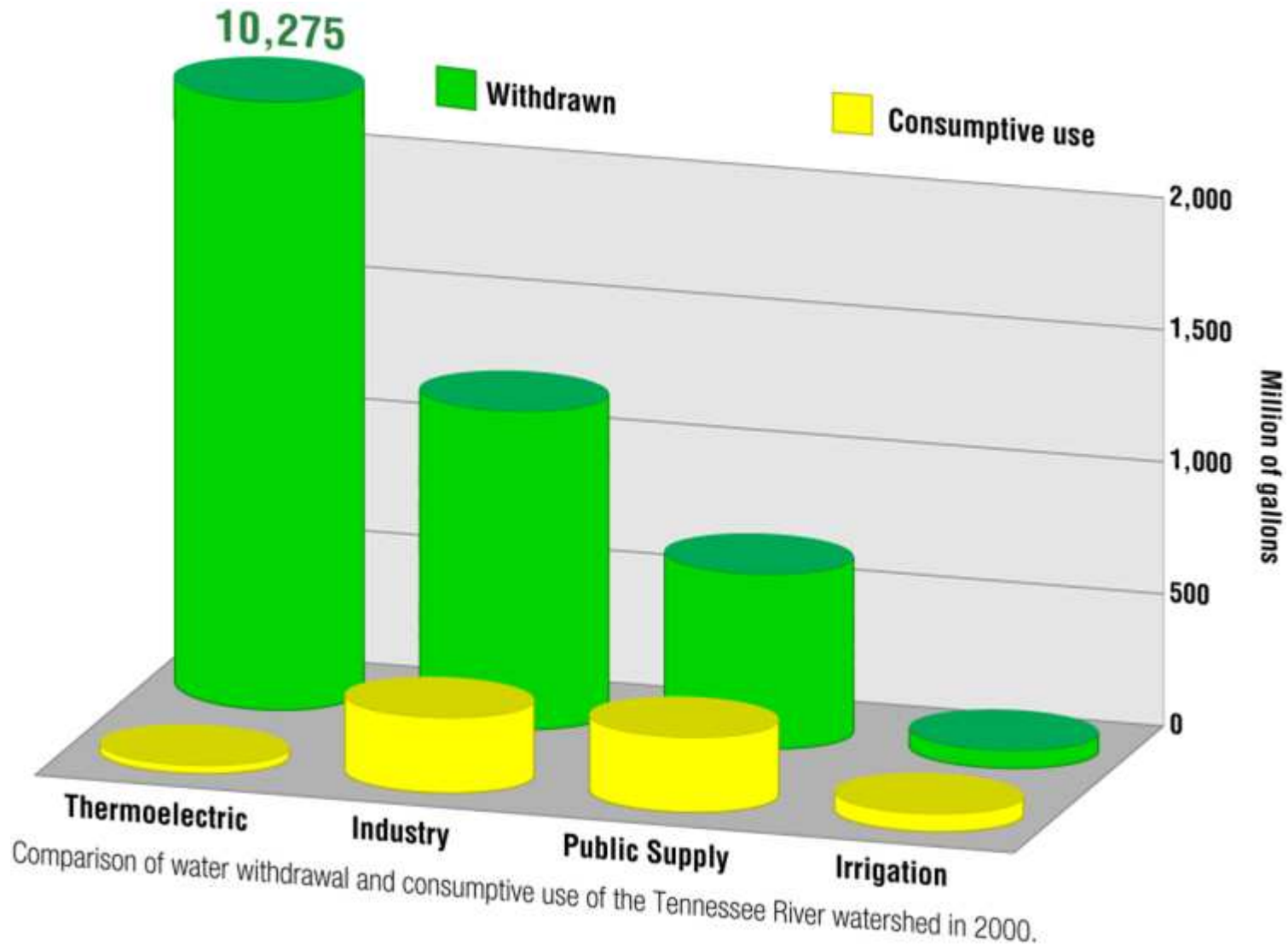
8 combustion-turbine plants



29 hydroelectric dams

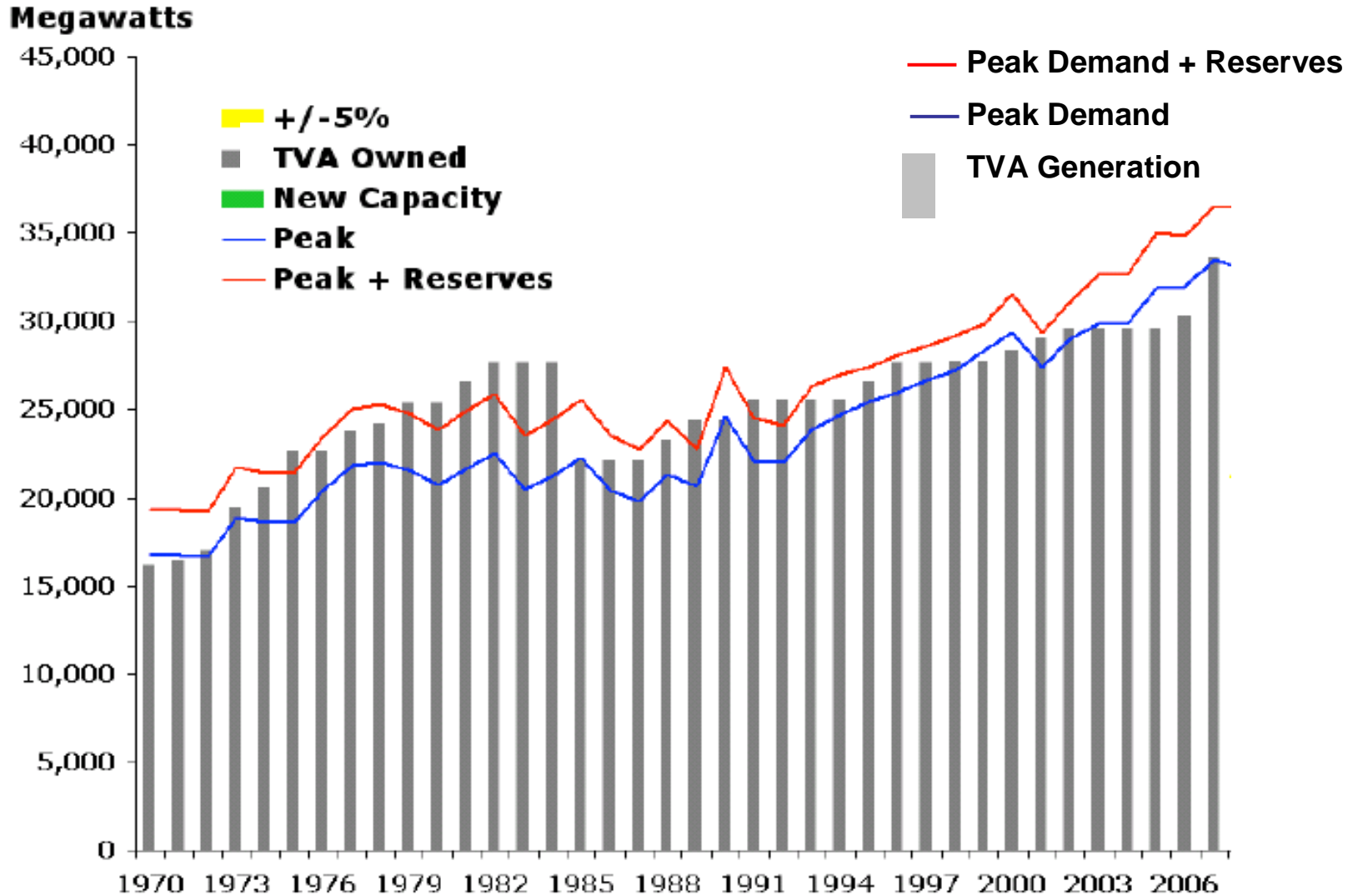


# Water Withdrawal and Consumption





# Electricity Demand Continues to Grow



***"Peak Demand Growing ~2.0%/year"***



# Proactive Environmental Stewardship

Climate change mitigation

Improvement of air quality

Protection and improvement of water resources

Waste minimization

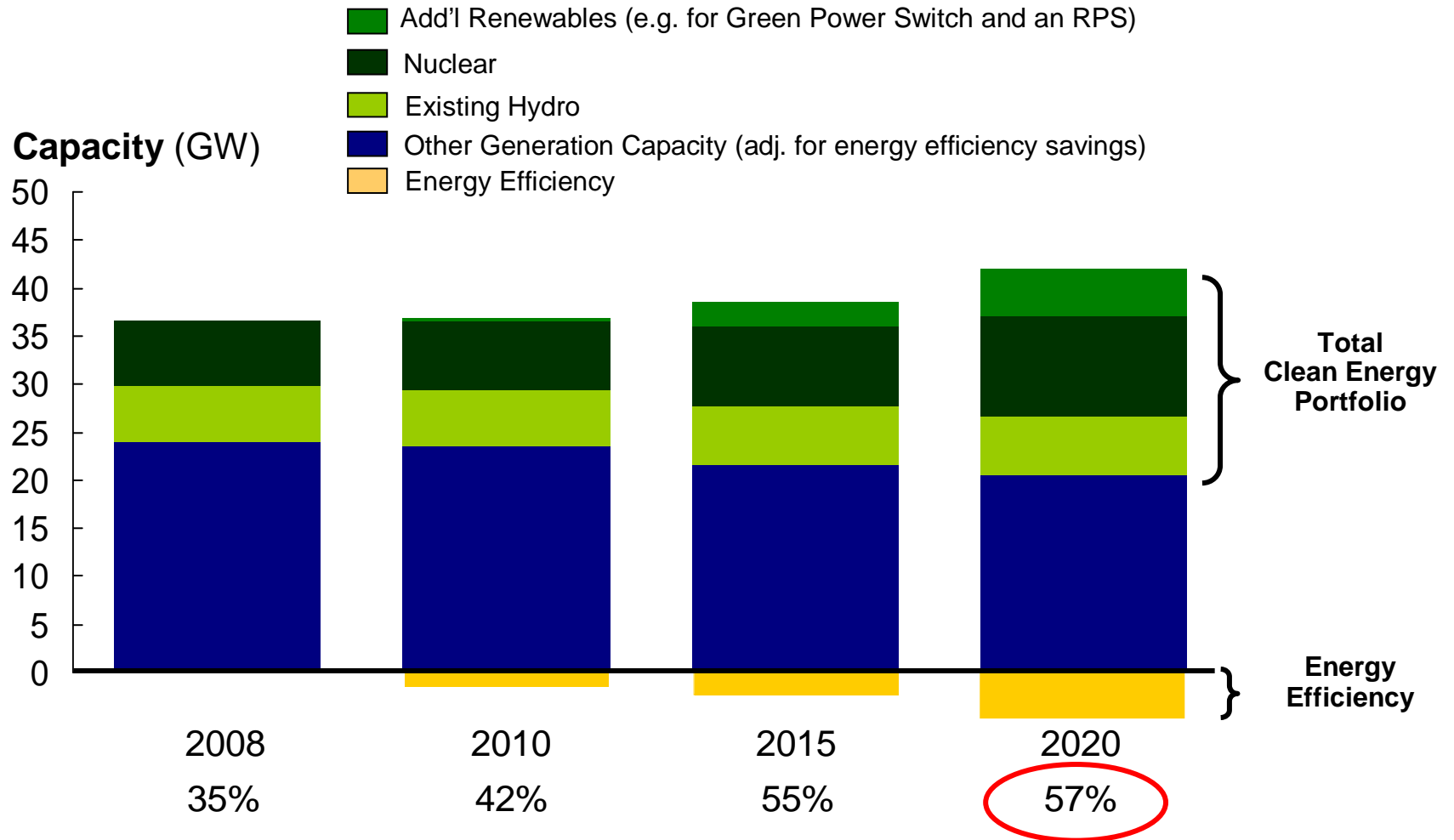
Sustainable land use

Sound natural resource management





# Renewable and Clean Energy Portfolio



***“TVA’s Portfolio >50% Renewable and Clean Energy”***



# Water and Energy Connection

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- One-third TVA power distributors are also water/sewer providers
- 3-4% total US electric load (water and wastewater services)
- \$4+ billion US electricity cost
- Use more energy than pulp/paper and petroleum sectors combined





# Water and Energy Connection

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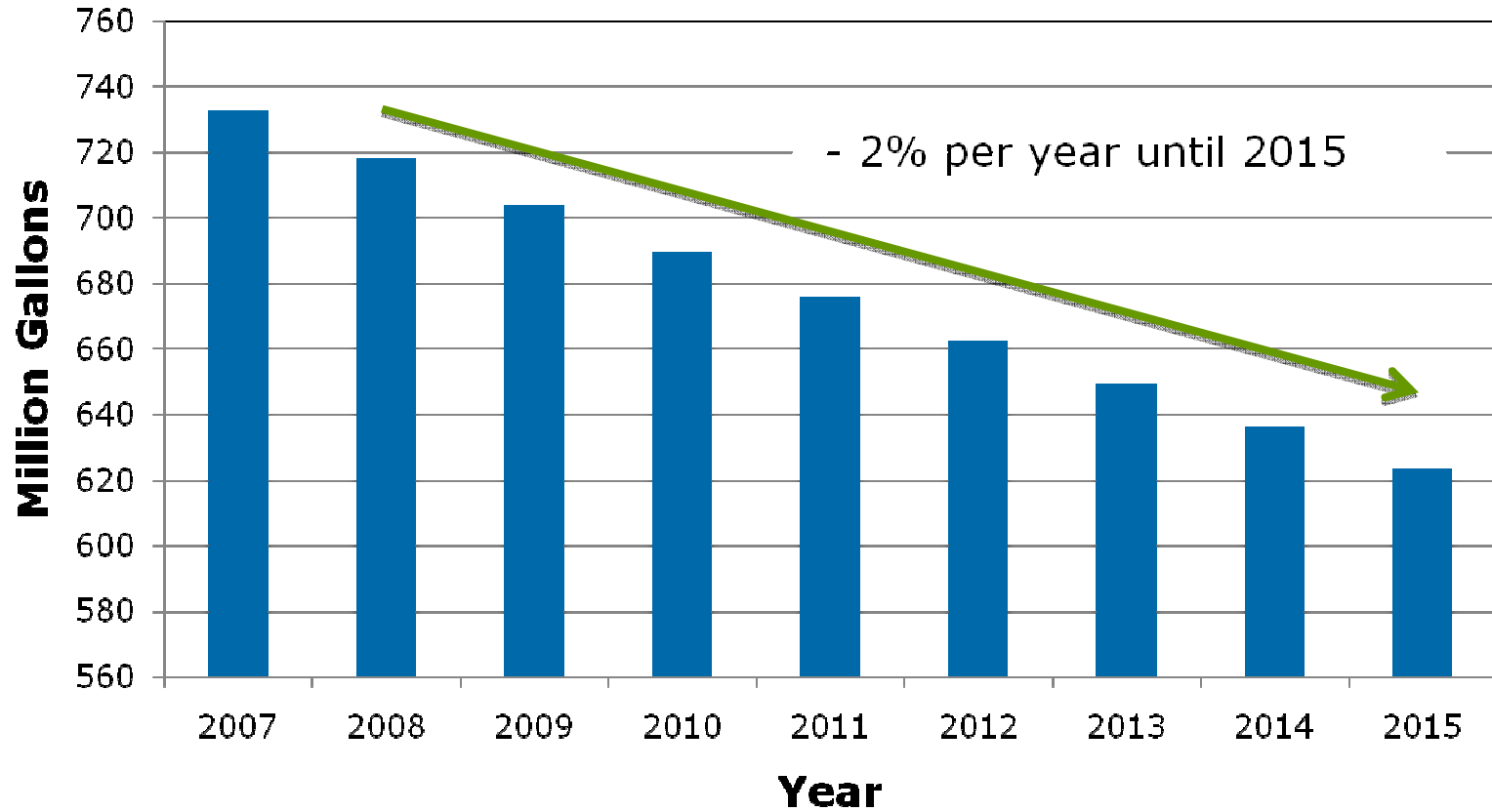
- Electricity used for 5 minutes running hot water = 14 hours burning 60-watt bulb
- 17% of energy use in homes is for heating water
- Electricity used for hot water heating > all lighting (residential)





# TVA Water Use Reduction Efforts

## TVA Facility Water Use Reduction Goals





# Recent TVA Water/Energy Efficiency Efforts

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- Process optimization studies
- Pumping system assessments
- Enhancing wastewater aeration efficiency





# Recent TVA Water/Energy Efficiency Efforts

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- Education
  - Live plays at elementary schools
  - Regional workshops for water utility professionals



**Water Conservation**

**Renewable Energy**

**Energy Efficiency**



# Water/Energy Efficiency

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