

# Water Valuation and its Impact on Decision Making

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“When the well is dry, we know the worth of water.”

-Benjamin Franklin

“Only what is rare is valuable, and water, which is the best of all things . . . is also the cheapest.

- Plato



# The Paradox of Value

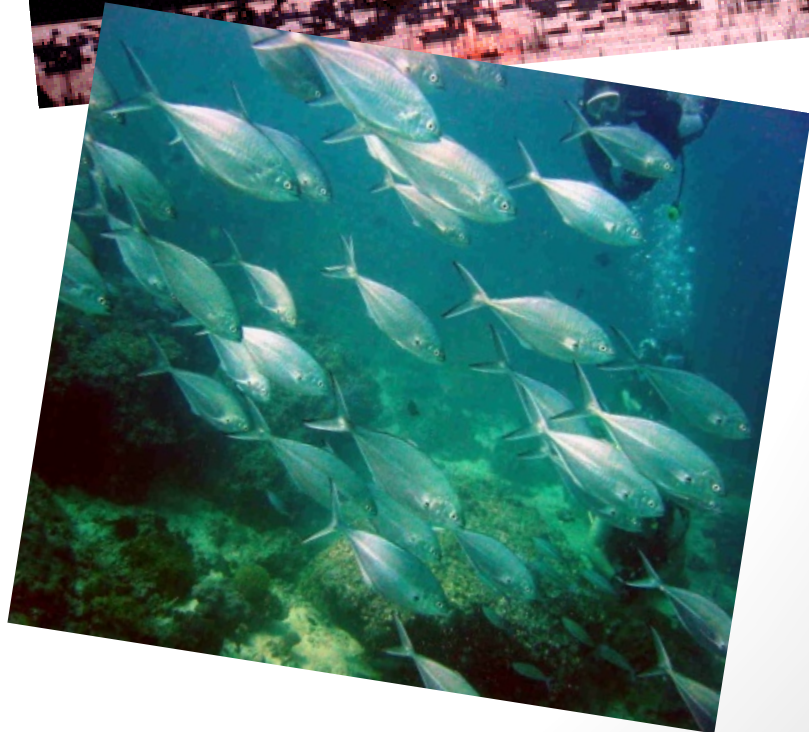
Adam Smith's diamond–water paradox

- Value in use
- Value in exchange





# Water = Life




# What is the goal?


- Source protection and Resilience?
- Property rights?
- Highest value use?
- Efficiency?

# Intrinsic Valuation in Water Law

- Public trust doctrine
- Prior appropriation
  - First in Time
- Beneficial use
  - Based on changing societal values (e.g., recreation, e-flows)
  - Standards of Use
    - Efficient, Reasonable & Non-wasteful
- Prioritization of Use Types
- Rule of Capture

# Extrinsic Valuation: Putting a Price on Water

 **San Antonio Water System**  
P.O. Box 2990  
San Antonio, Texas 78299-2990  
(210) 794-SAWS (7297)



**CURRENT BILL SUMMARY**

ACCOUNT HOLDER  
3456 SERVICE ADDRESS  
ACCOUNT # 12 3456 789012 3

DOMESTIC WATER SERVICE CHARGE 0.00  
WATER SUPPLY FEE 1.20  
EDWARDS AQUIFER AUTHORITY FEE 1.18  
FEDERAL STORMWATER FEE 2.50  
SEWER SERVICE CHARGE 5.70

**1**

AMOUNT DUE NOW 16.33  
5% LATE FEE AFTER JAN 26 2004 .22  
TOTAL WITH LATE FEE 17.15

(Detailed bill calculation on back)

**EDWARDS AQUIFER WATER LEVEL**

Record High June 1961: 702.0 ft.

Record Low Aug 1961: 672.0 ft.

Stage 1 Begins 680.0 ft.  
Stage 2 Begins 685.0 ft.  
Stage 3 Begins 690.0 ft.

Current Level 675.0 ft.

**2**

Measured in feet above sea level

**YOUR WATER USE IN GALLONS**

YOUR WATER USE WAS 1,400 GALLONS.  
YOUR AVERAGE WATER USE WAS 1,200 GALLONS.  
YOUR RESIDENTIAL AVERAGE WATER USE WAS 1,200 GALLONS.  
YOUR NEXT SCHEDULED WATER-READING DATE: JAN 31 2004

**3**

**IMPORTANT NOTICE**

PAY TOTAL AMOUNT PRIOR TO DUE DATE TO AVOID NOTICE OF PRETERMINATION HEARING, SERVICE CHARGES, AND ADDITIONAL DEPOSIT.

THIS BILLING SUMMARY INDICATES A PREVIOUS BALANCE. IF SPECIAL CIRCUMSTANCES EXIST THAT WOULD PRECLUDE PAYMENT OF THIS BILL, PLEASE CONTACT US AT (210) 794-SAWS (7297).

**4**

DETACH HERE PLEASE PRESENT BOTH PORTIONS IF PAYING IN PERSON DETACH HERE

RETURN BOTTOM PORTION WITH PAYMENT


ACCOUNT 12 3456 789012 3  
00101

FOR PAYMENTS BY CHECK, SEE BACK OF BILL

**5**

AMOUNT DUE NOW \$16.33  
AMOUNT DUE AFTER JAN 26 2004 \$17.15  
(INCLUDES 5% LATE CHARGE)

230712344015100005405080051371

 If you have any question about your bill, please call (210) 794-SAWS or write to: SAWS Customer Service, P.O. Box 2443, San Antonio Texas 78201-2443. SAWS appreciates the opportunity to serve you.



# The Potential Power of Markets



# Physical Market Challenges

- Marketplace
- Transportability
- Substitutability
  - For itself
  - For something else
- Regulatory limitations
- Reactivity
- Scientific reality

# Other “Values” in the Mix

## Environment

- Endangered Species
- Environmental Flows

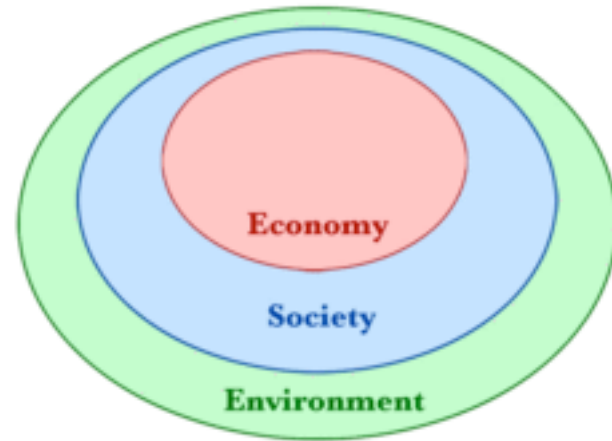
## Aesthetic

## Recreation

## Cultural/Religious

## Scarcity

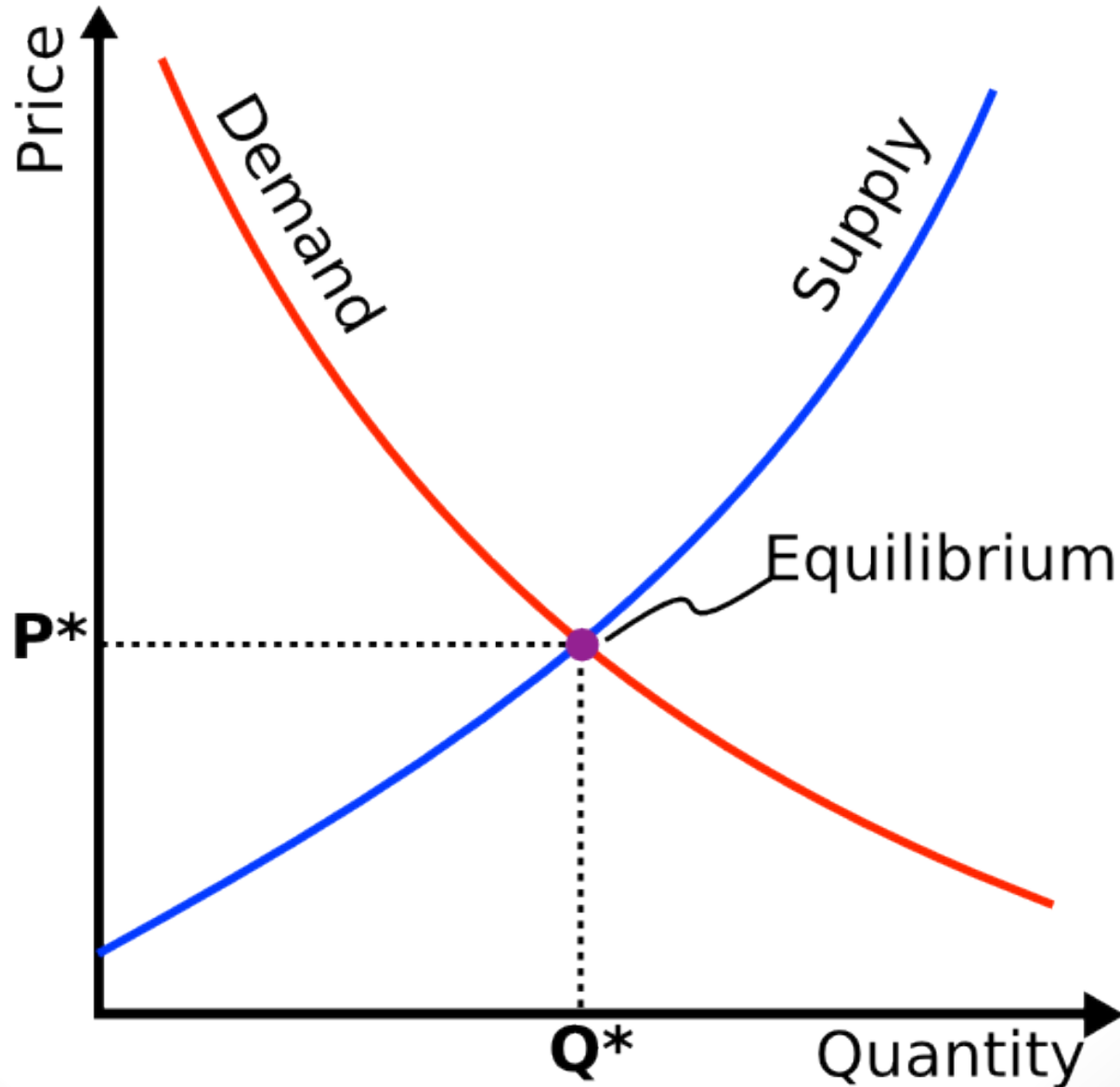
Climate change/drought



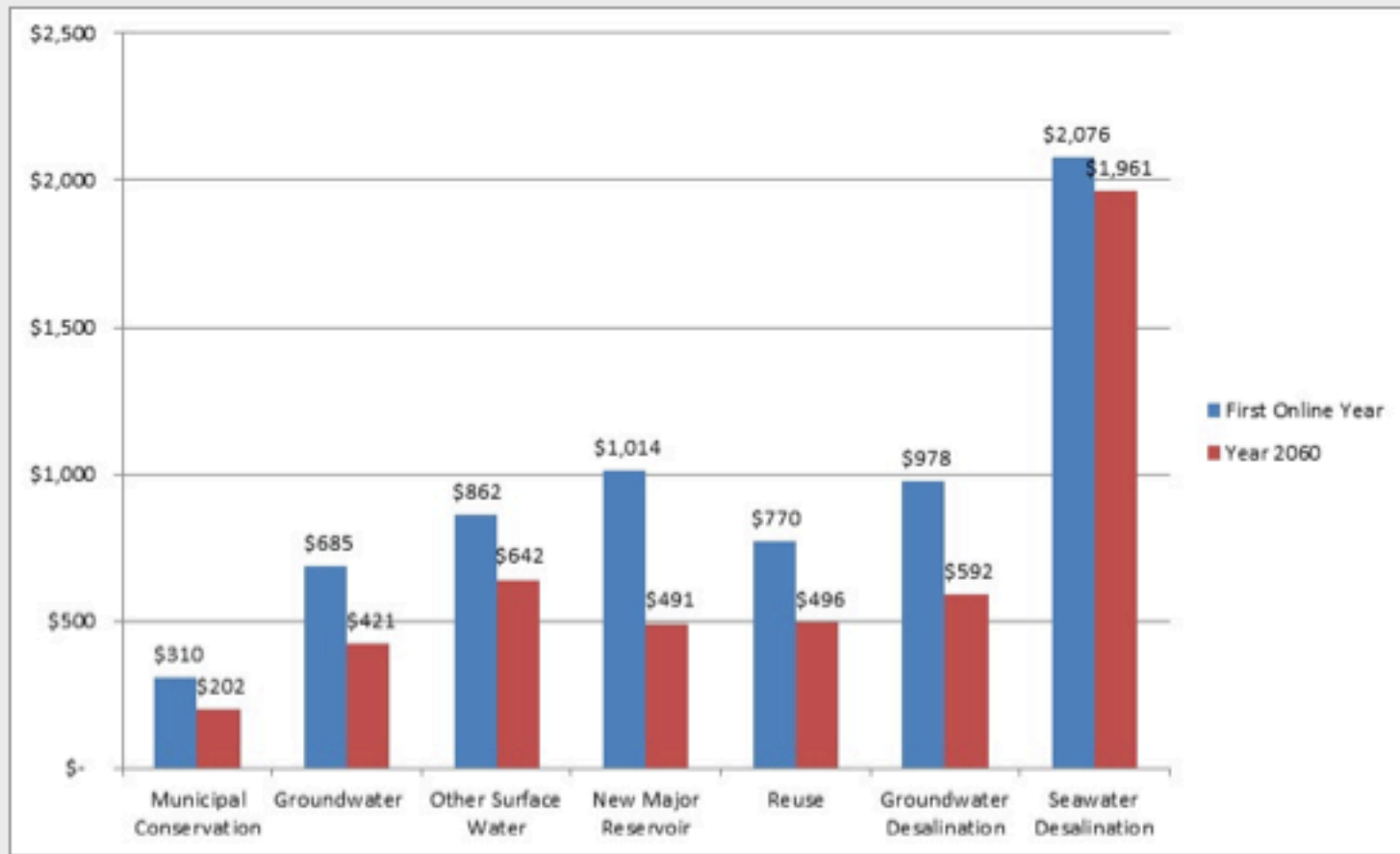
The waters in the sky, the waters of rivers, and water in the well whose source is the ocean, may all these sacred waters protect me.

- water prayer from the Hindu Rigveda

# The (Current) Power of Price



# Flipping the Economic Model



-source 2012 Texas Water Development Board State Water Plan

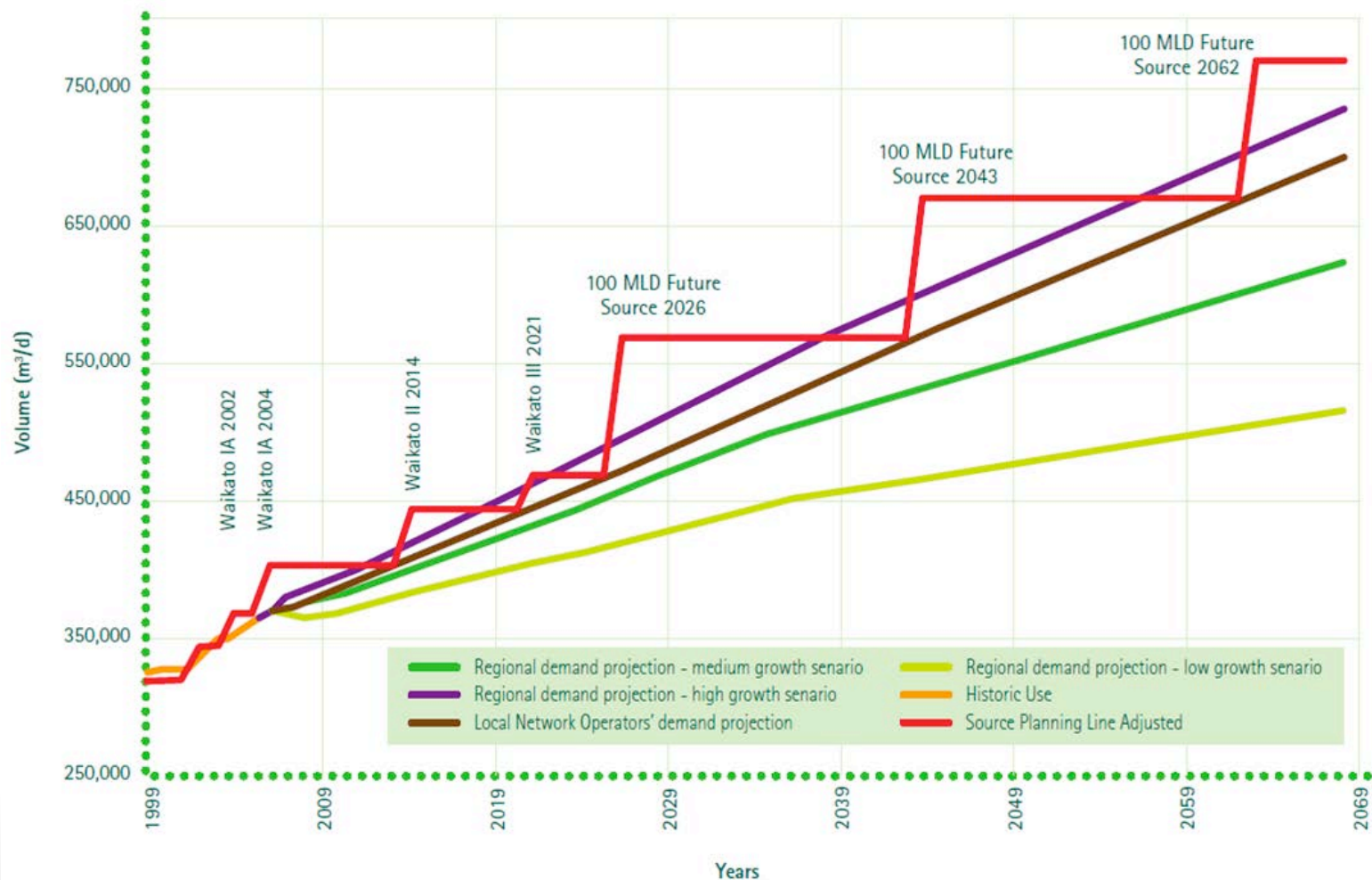


# Alternatives

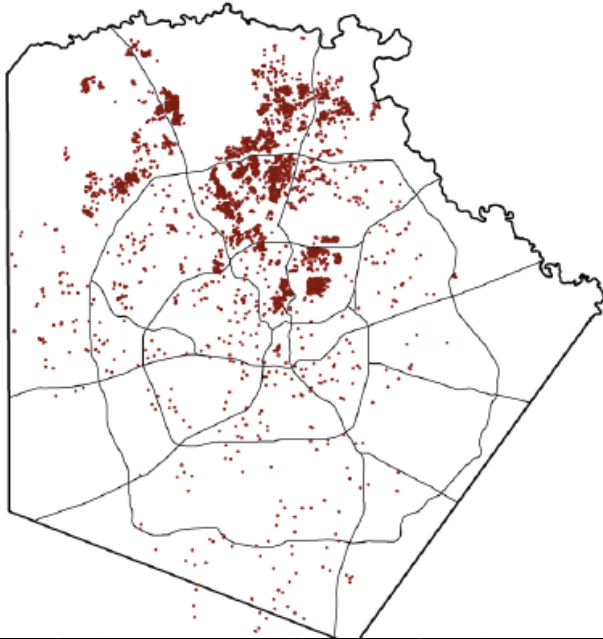


# Understanding Demand

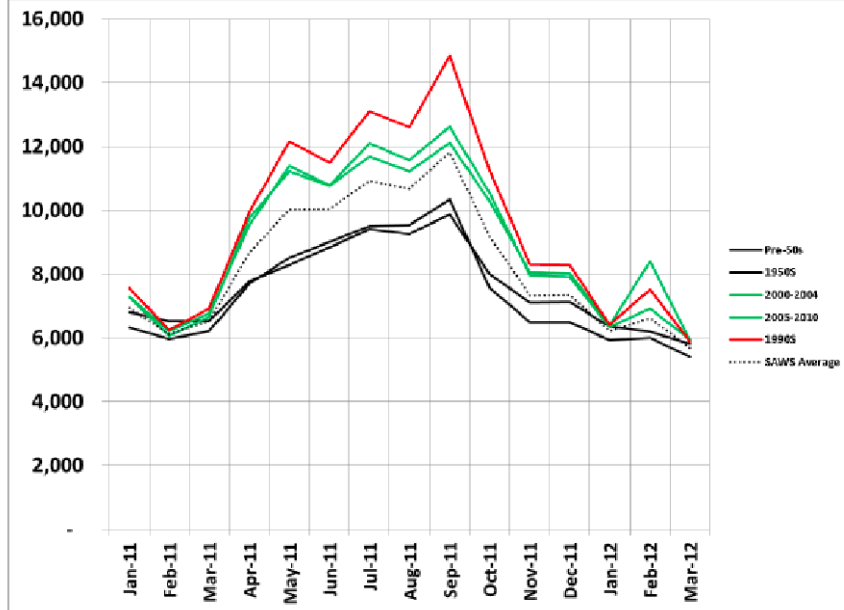
## Water Demand Projection



# Land Use and Elasticity of Demand

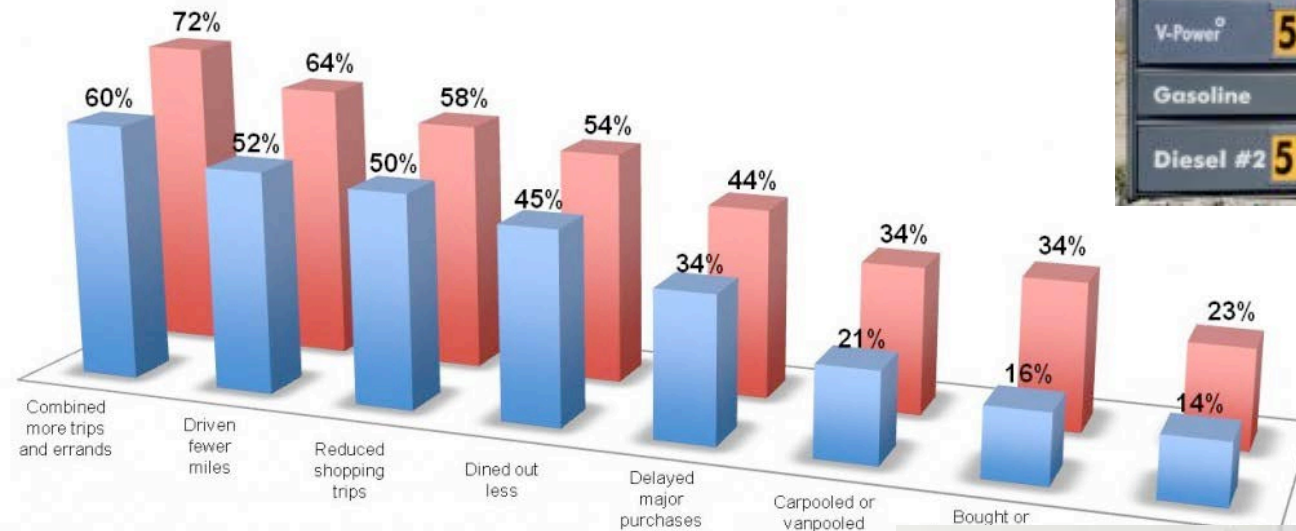


(Numbers represent average gallons per bill per month)



# Price as a Behavior Trigger

## How Do Rising Gas Prices Impact Driving Habits and Lifestyle?



■ Changes made because of recent price increases

■ Future changes if prices remain at current levels for a sustained period

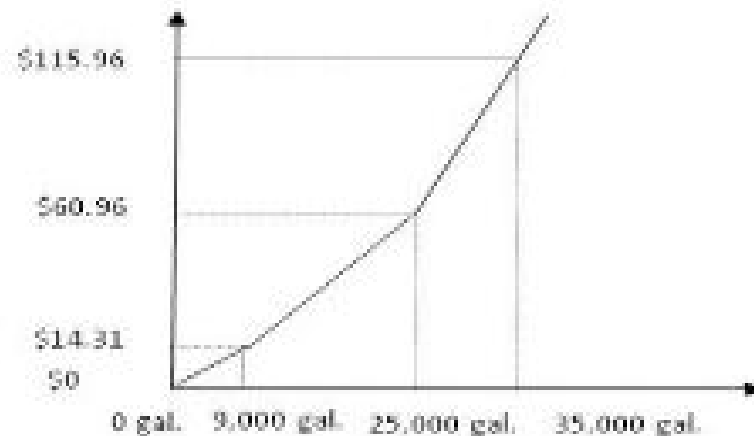
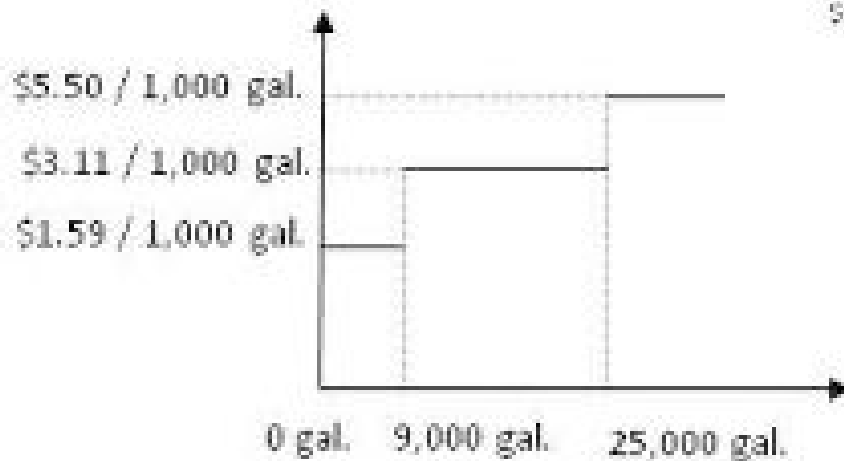
Source: AAA





# “Conservation Oriented” Pricing

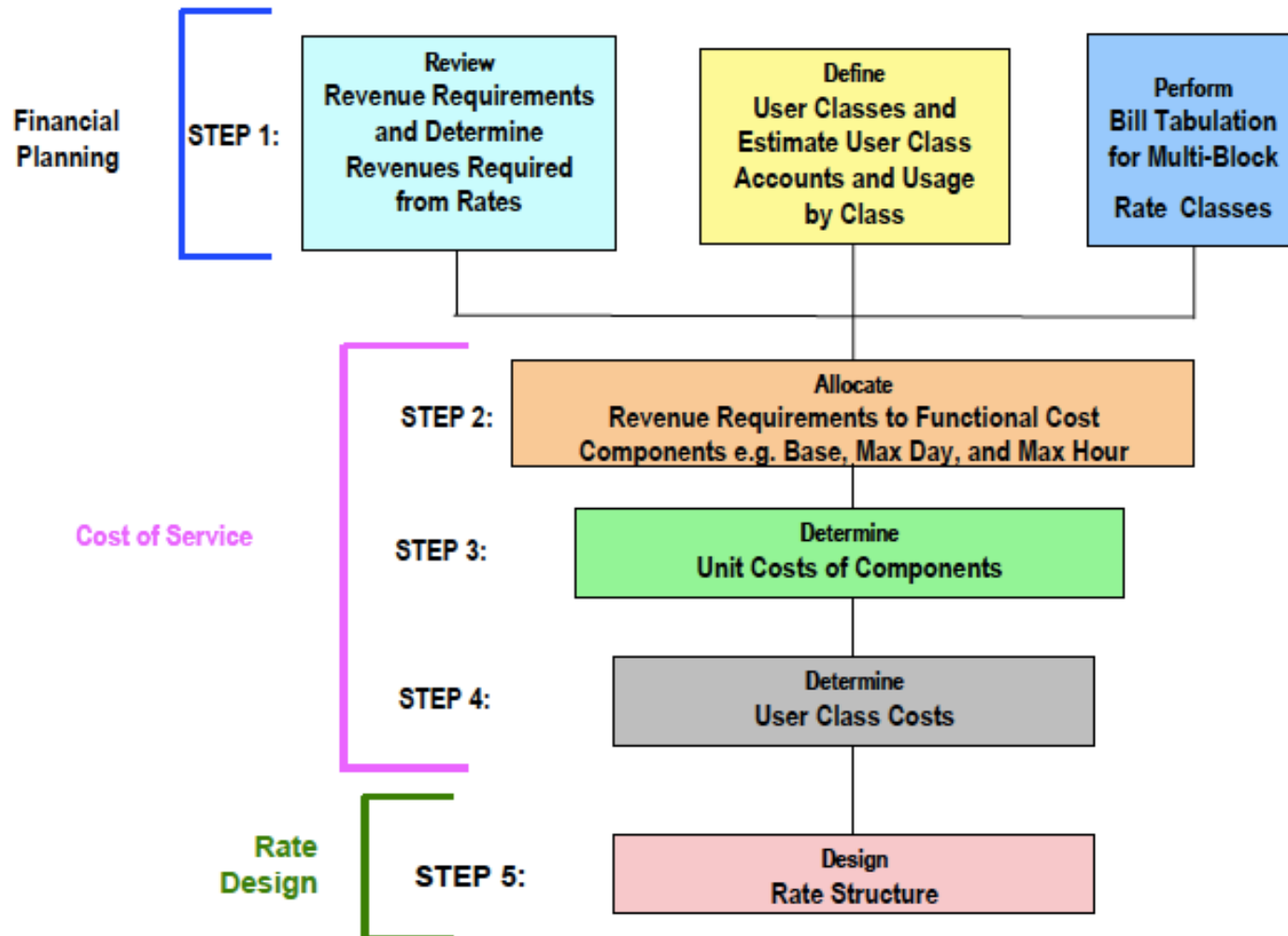
- Double Supply Curve
  - Infrastructure
  - Supply





# Cost of Service

## WATER COST OF SERVICE / RATE DESIGN PROCESS



Questions?  
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ST. MARY'S UNIVERSITY



School of Law