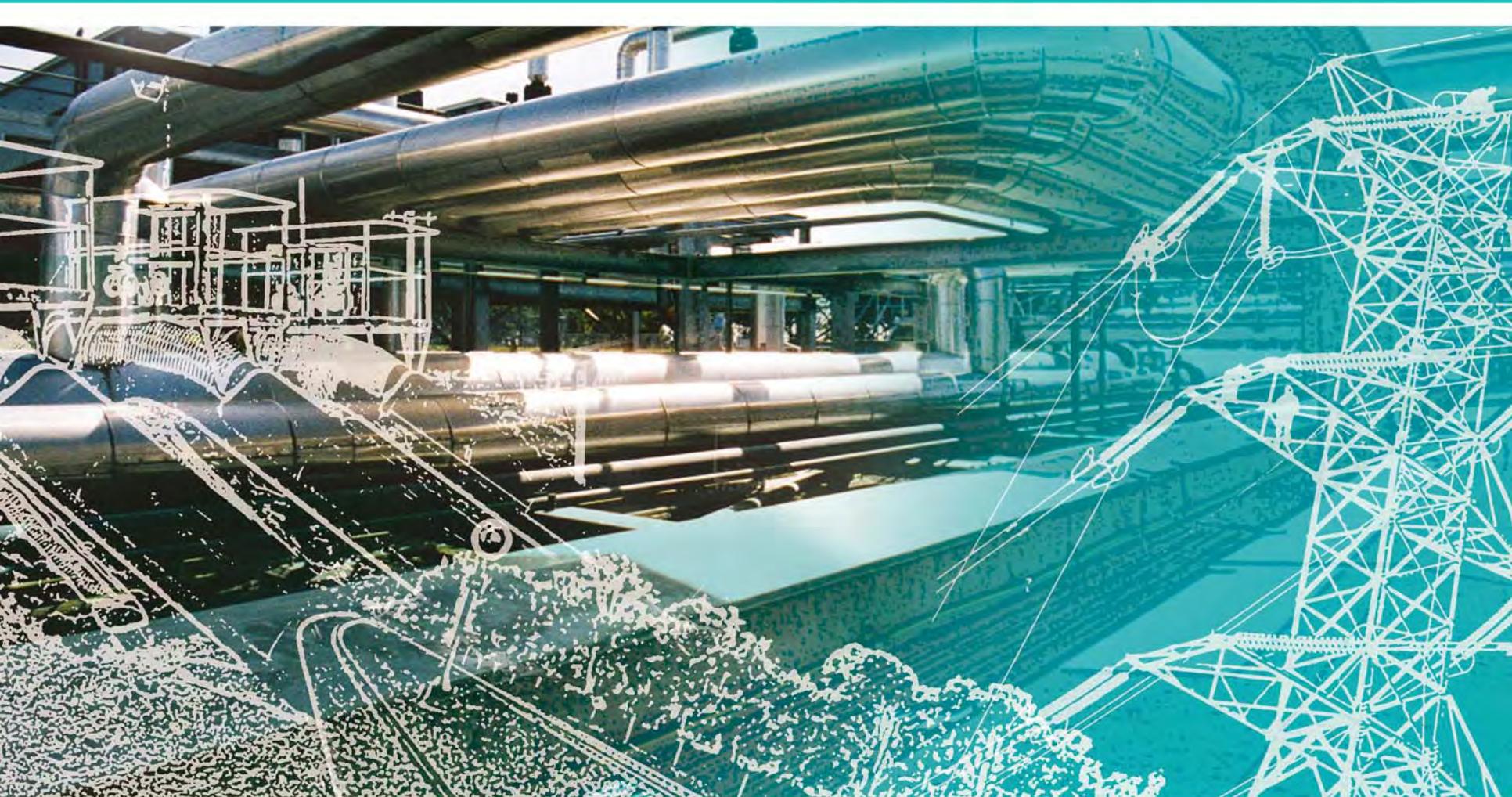


# Economic Regulation Authority

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## Economic Regulation in Energy

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# Economics for Sustainability

## Water Efficiency

**K Peter Kolf**

**General Manager & CEO**

**Economic Regulation Authority**

**20 June 2007**

**Institute for Sustainability & Technology Policy**

# Overview

- The Economic Regulation Authority
- Analytical Framework
- Water Pricing for Sustainability

# The Economic Regulation Authority

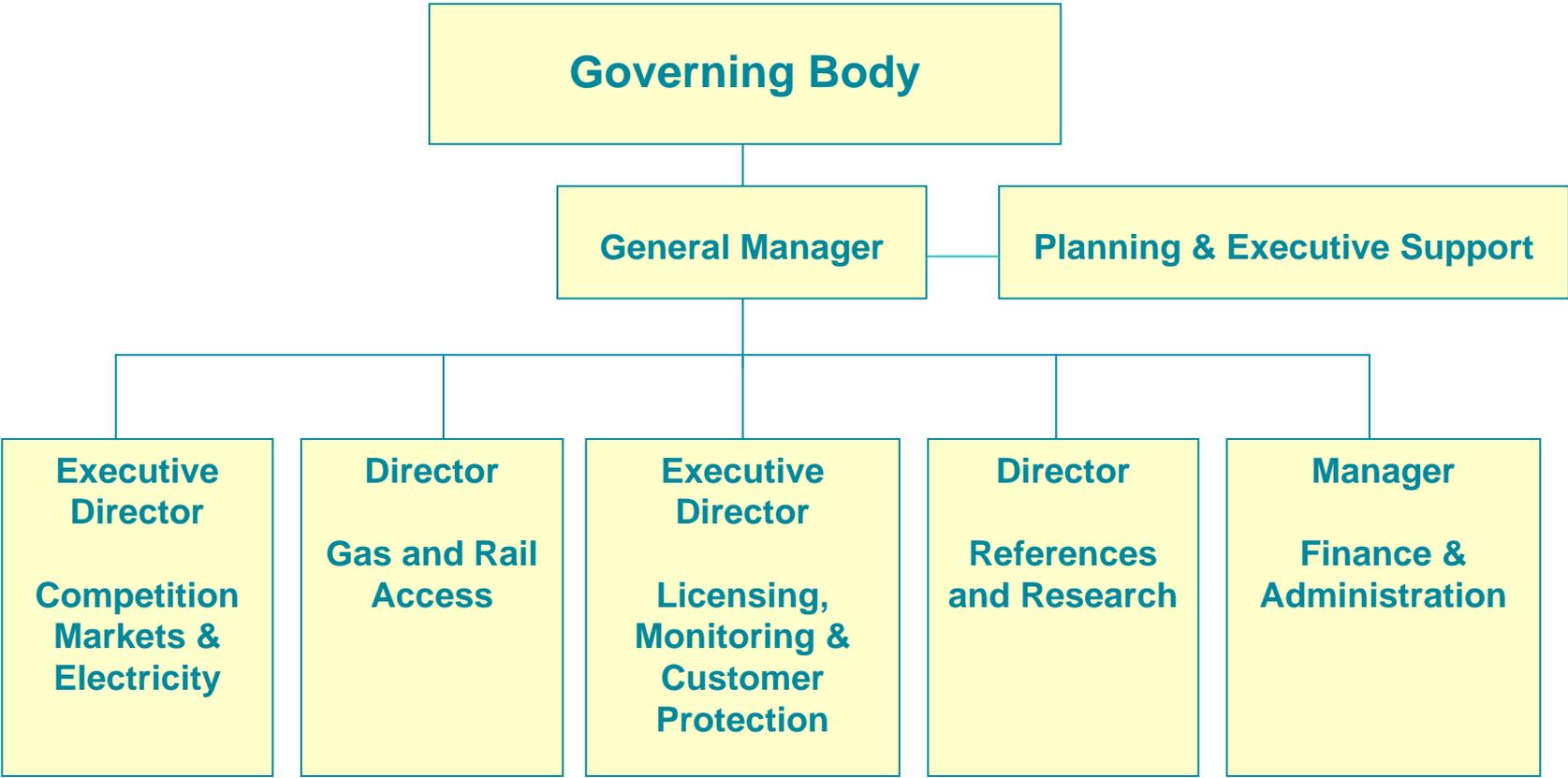
## Functions

- Administers Access to Infrastructure
- Licenses Service Providers
- Monitors & Regulates Markets
- Inquiries (Referred by Government)

## Features

- Independent of Government, Industry & Consumer Groups

# Economic Regulation Authority



# Inquiries in the Water Industry

1. Annual Urban Water & Wastewater Pricing [May 2007](#)
2. Harvey Bulk Water Pricing [May 2007](#)
3. Country Water & Wastewater Pricing [July 2006](#)
4. Esperance – Kalgoorlie Bulk Water Supply [Nov 2005](#)
5. Urban Water & Wastewater Pricing [Nov 2005](#)

# Future Inquiries in the Water Industry

1. Competition in the Water & Wastewater Services Sector
2. Developer Charges

# Analytical Framework

## Economic Efficiency

Singularity:

- Productive efficiency
- Allocative efficiency
- Dynamic efficiency

# Hope for the Future: The Western Australian State Sustainability Strategy

Sustainability is defined as:

*Meeting the needs of current and future generations through an integration of environmental protection, social advancement, and economic prosperity.*

# Objective Function

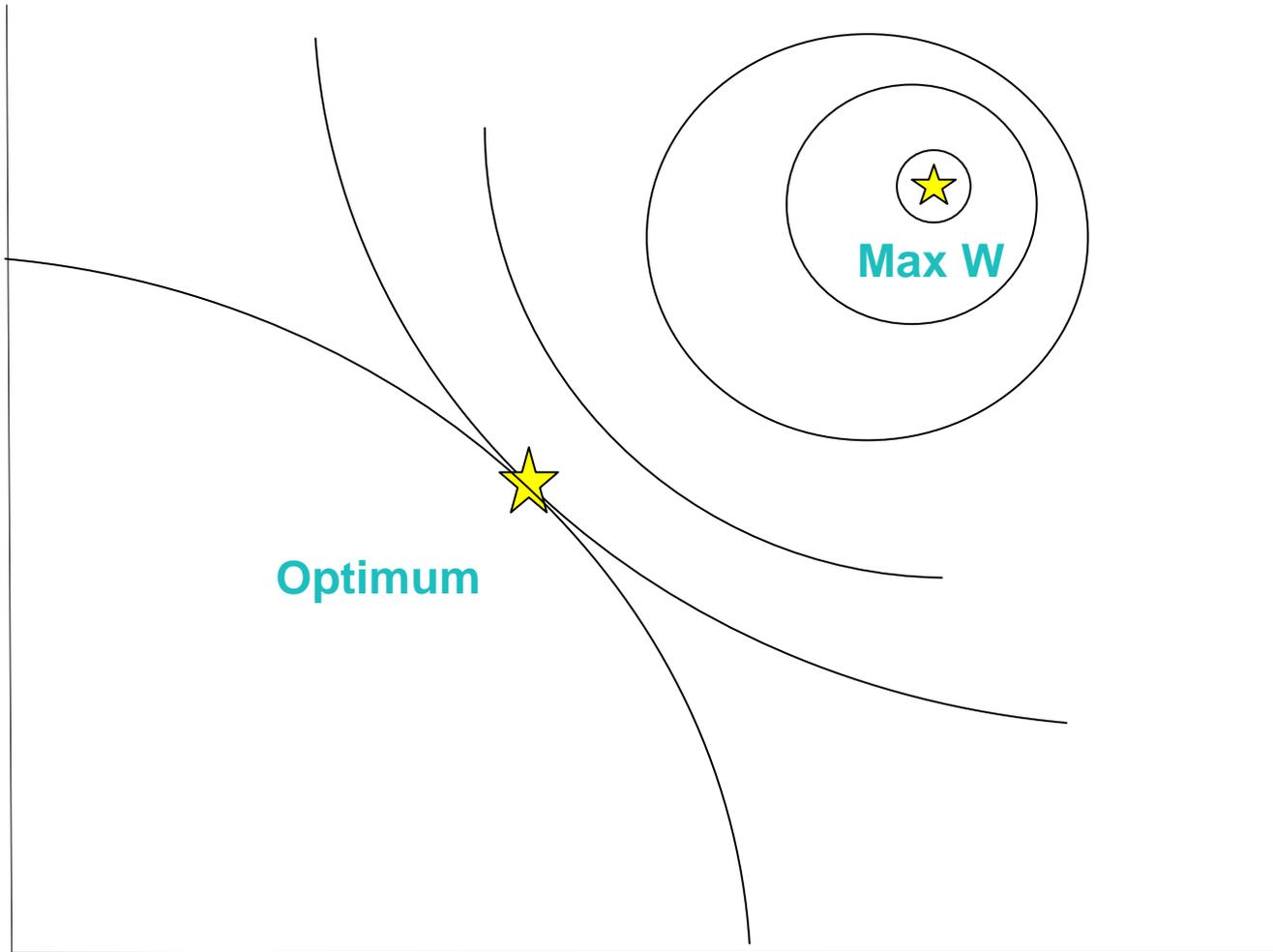
## Maximise:

- Needs of current and future generations

## Subject to:

- Environmental protection
- Social advancement
- Economic prosperity

**Economic Prosperity**



**Environmental Protection**

# Matters to which the Authority must have regard:

- Promote the public interest
- Consider the long-term interests of consumers
- Encourage investment
- Consider the interests of investors & service providers
- Promote competition & fair market conduct
- Prevent abuse of monopoly power
- Practice transparent decision making

Section 26 Economic Regulation Authority Act 2003

# Objective Function

## Maximise:

- Long term interests of consumers

## Subject to:

- Social advancement
- Environmental protection
- Economic prosperity
- Interests of investors & service providers
- Re-elect Minister

# Objective Function

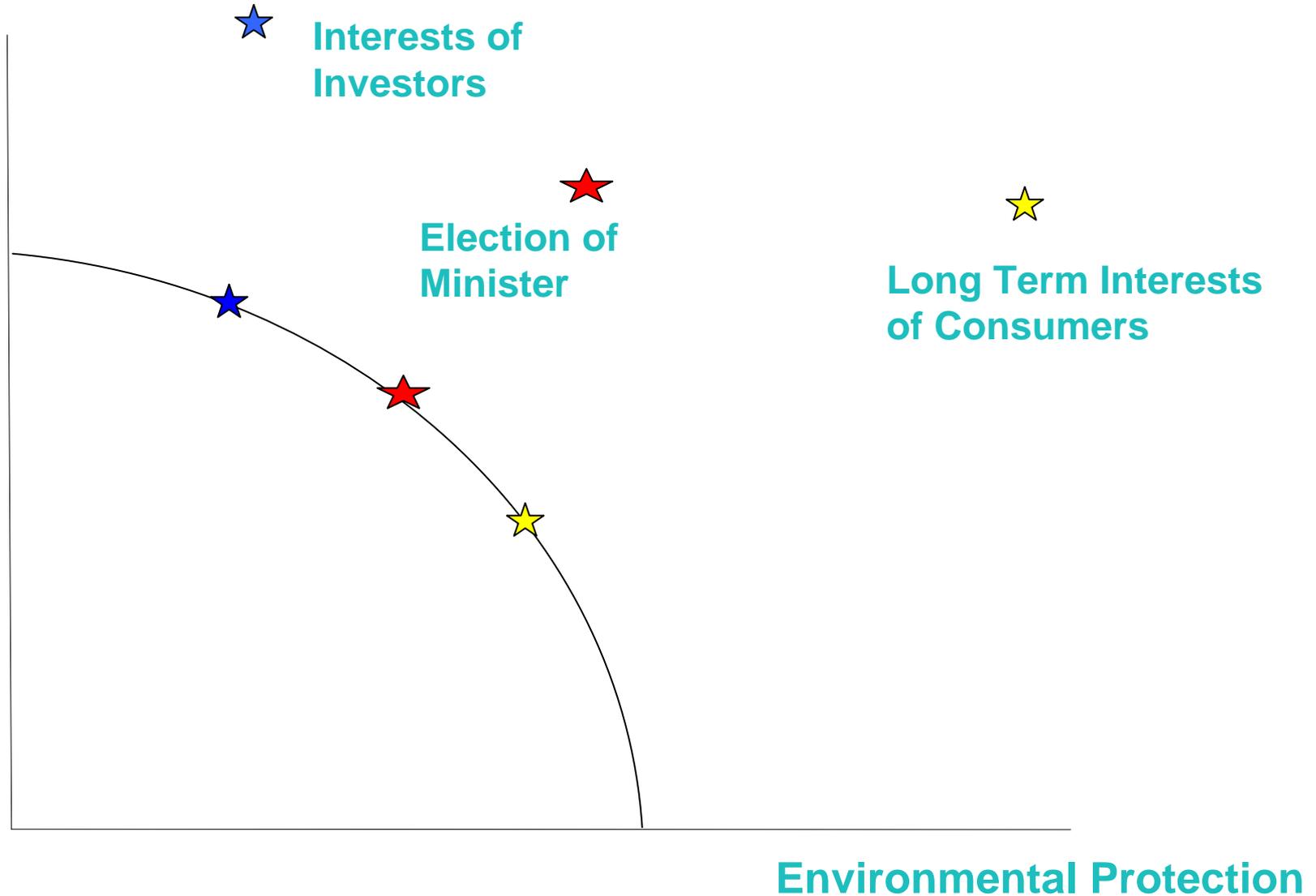
Maximise:

- Re-elect Minister

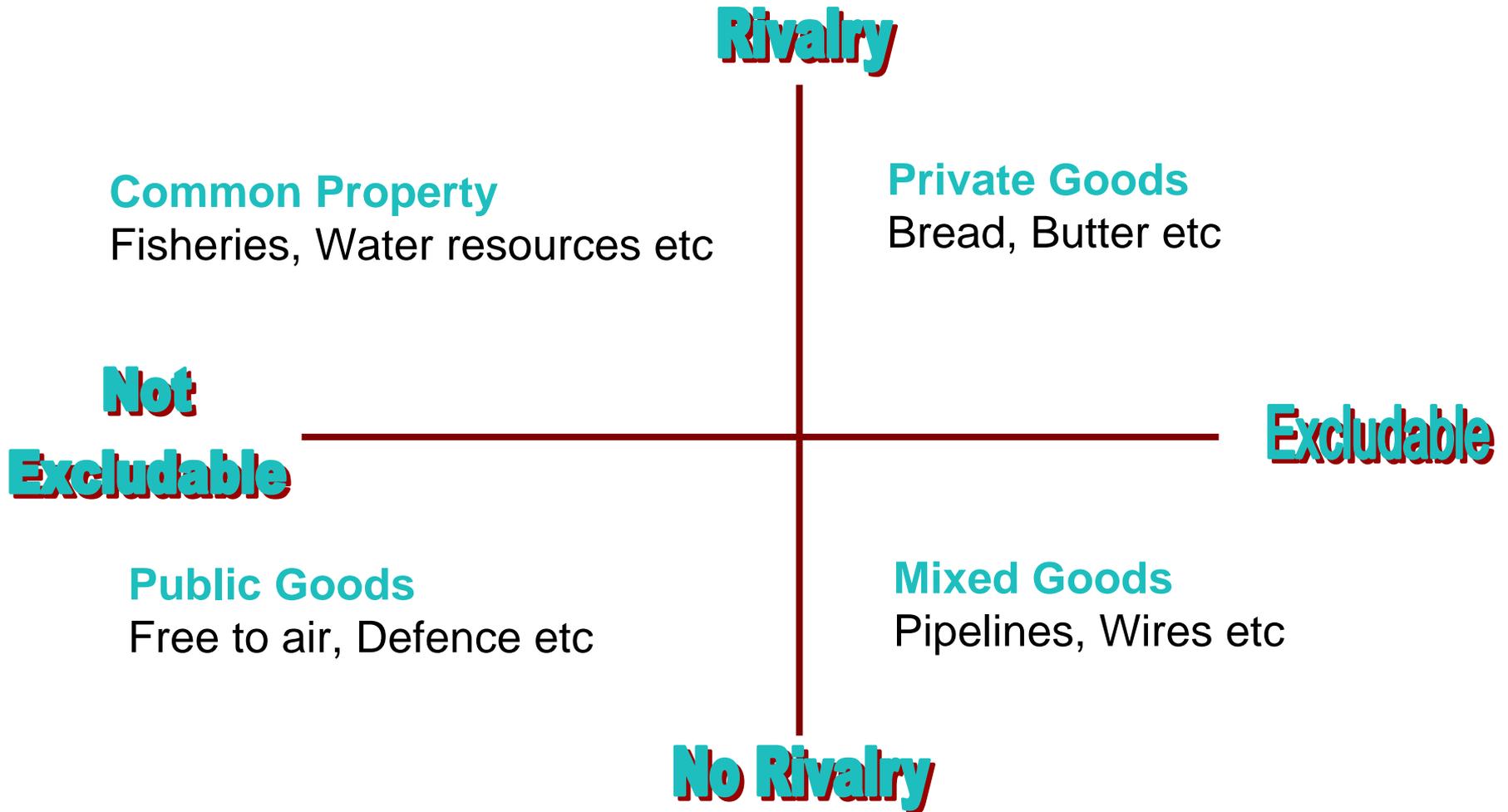
Subject to:

- Social advancement
- Environmental protection
- Economic prosperity
- Interests of investors & service providers
- Long term interests of consumers

# Economic Prosperity



# Supply of Goods & Services



# Monopoly

Other monopoly factors:

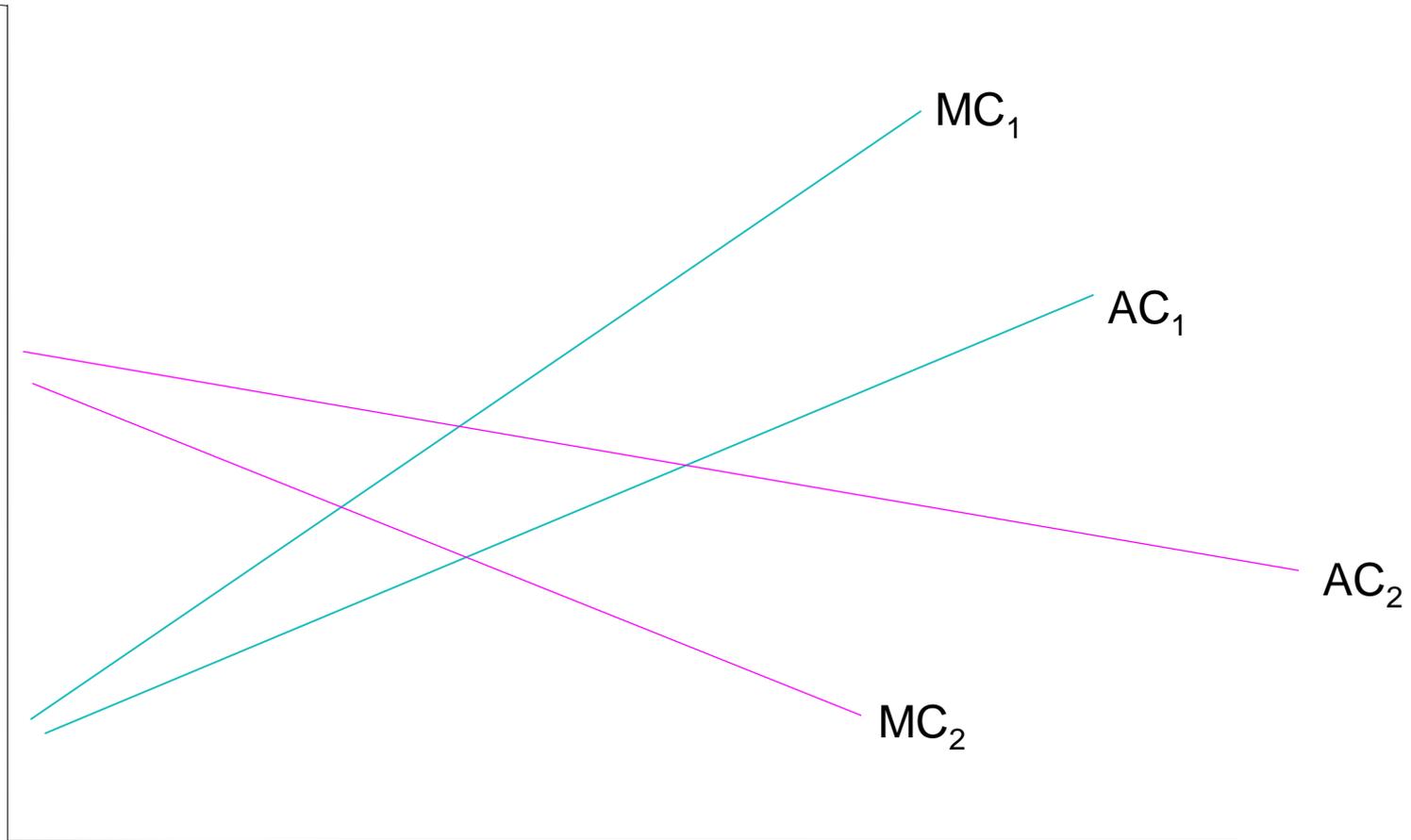
- Economies of scale
- Economies of scope
- Barriers to entry
  - infrastructure
  - legislative (legal)

# Externalities

- Environmental
- Social
- Technical

# Inclining & Declining Costs

Price



Quantity

# First Principles of Intervention

- There is a demonstrated need for intervention
- It creates the right incentives
- It's least restrictive on consumer sovereignty
- It's benefits outweigh its costs
- It's administratively simple, user friendly &  
⇒ It actually works

# Types of Intervention (Regulation)

- Public sector ownership & control
- Price control of private sector
- Market based regulation:
  - Open access
  - Structural separation
  - Markets in contestable elements
  - Artificial markets where possible
  - Price or revenue cap if all else fails
- Monitoring / transparency

# Water Pricing for Sustainability

## Maximise Welfare

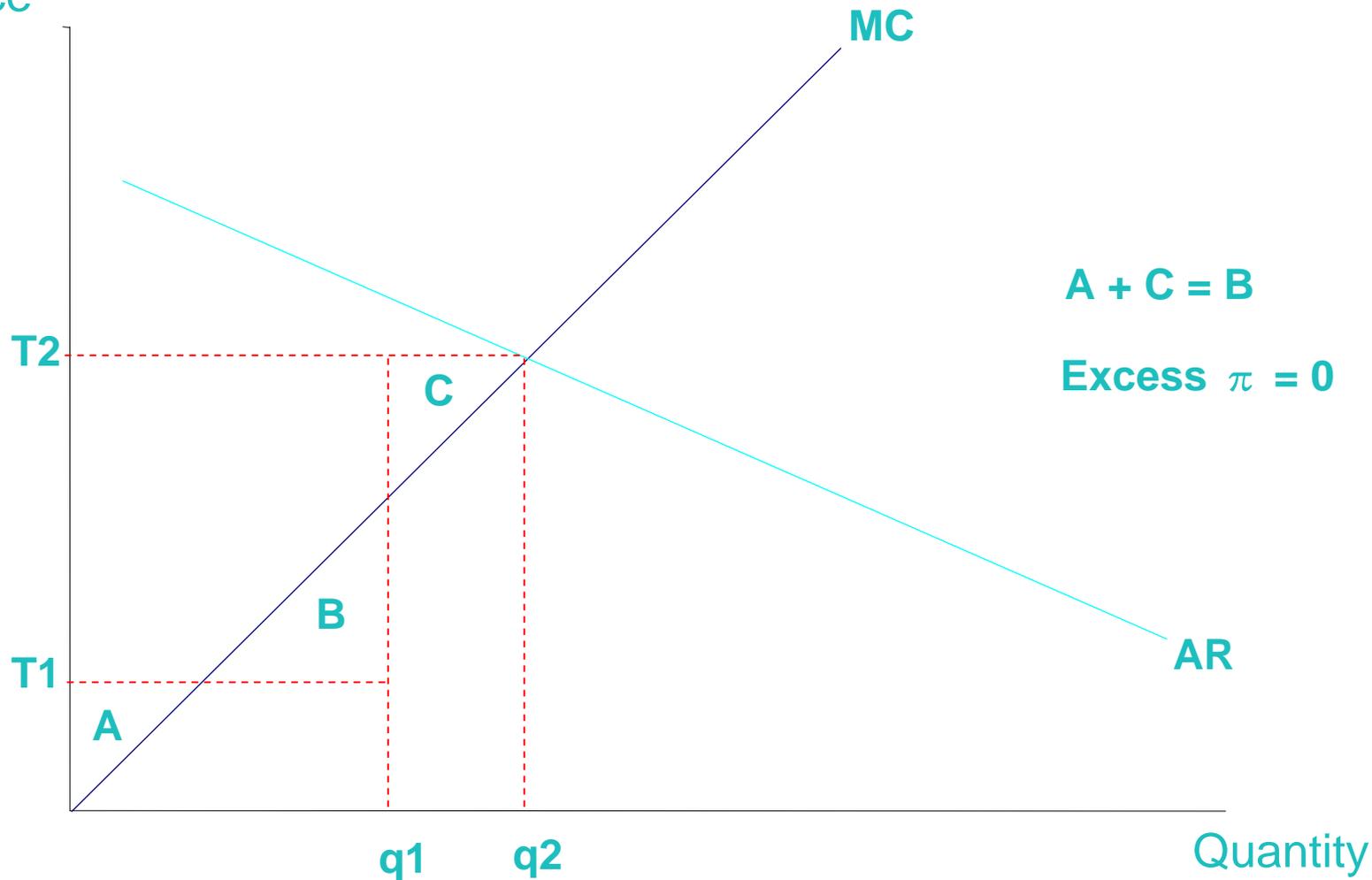
- Short run marginal cost ?
- Long run marginal cost ?
- Trade-off

# Cost of Water

- Average Cost (\$0.80/kL)
- Long Run Marginal Cost (\$1.40/kL)
- Bore water & tanks (\$1.10 - \$3.00/kL)
- South West Yarragadee (\$1.40/kL)
- Water trading (Harvey \$0.6/kL)
- Recycling (\$0.5 - \$1.80/kL)
- Desalination 2 (\$1.75/kL)

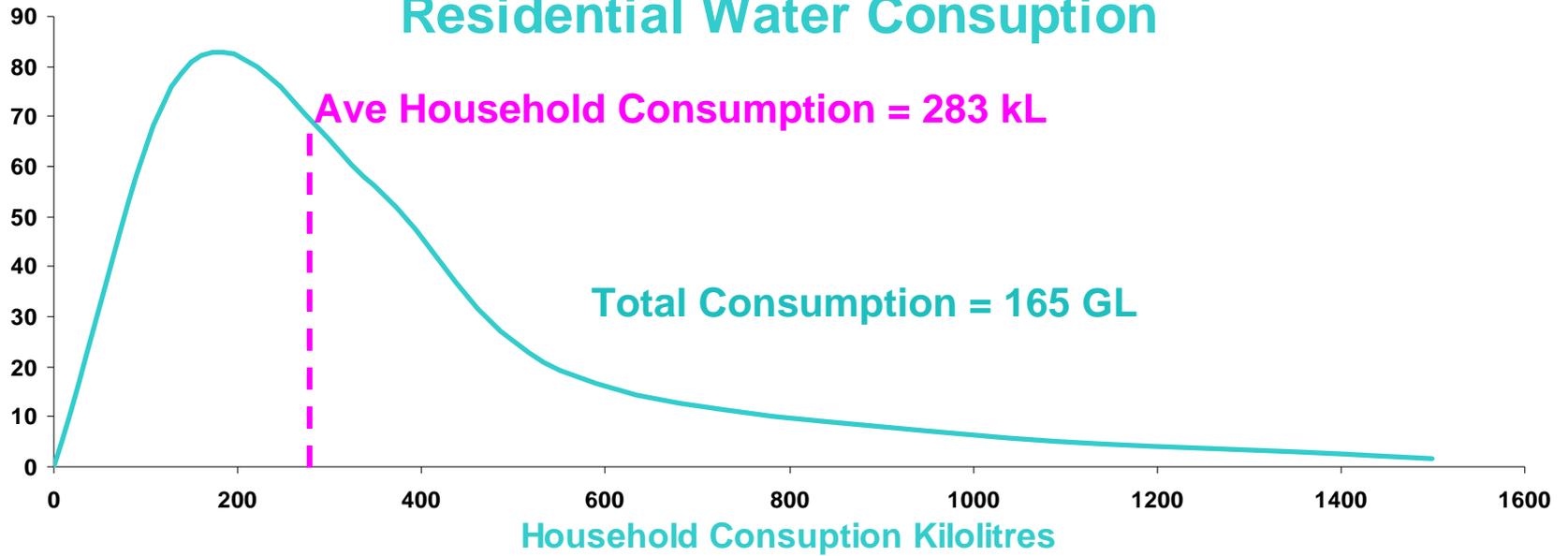
# Tariff Structures

Price



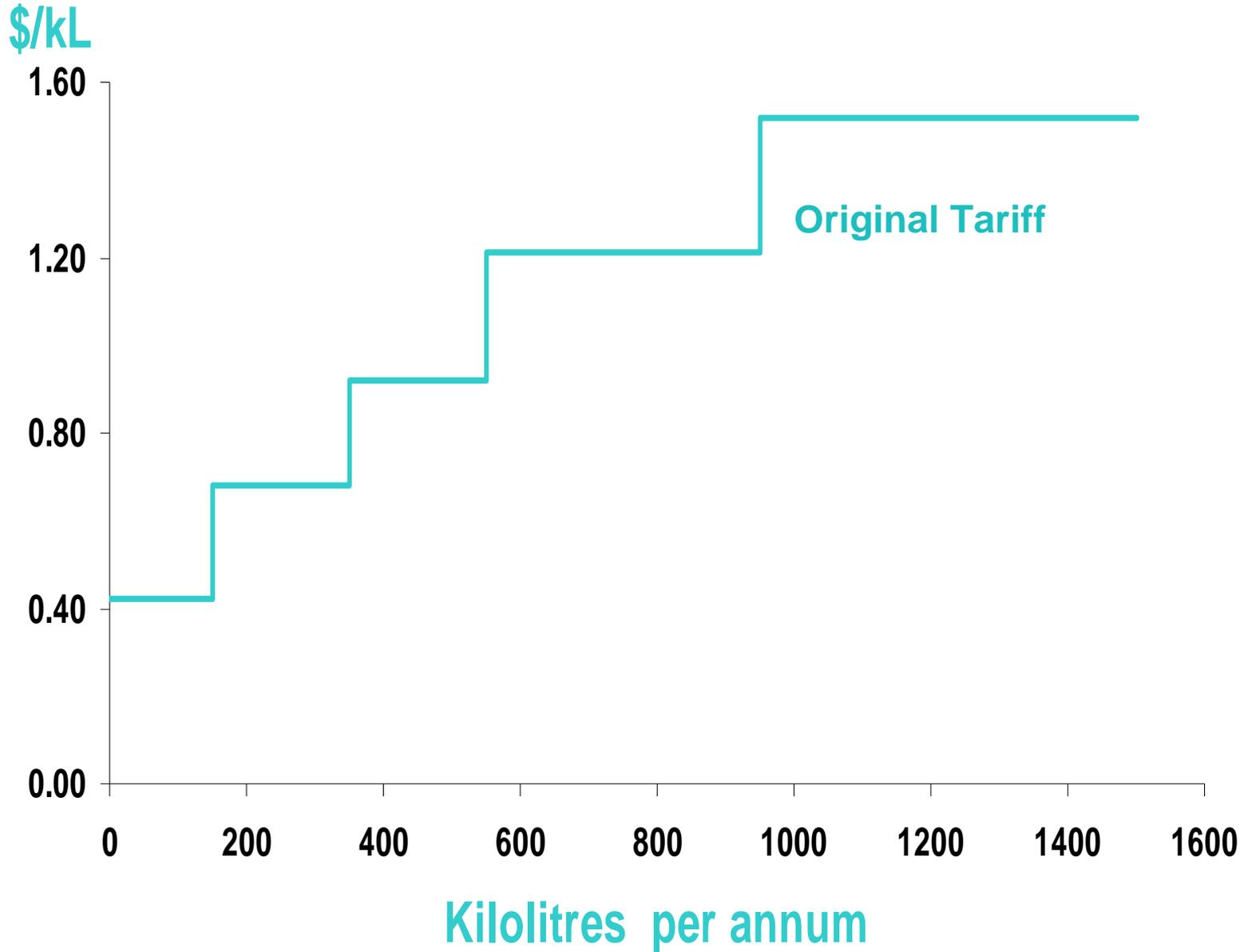
Aggregate  
Consumption GL

## Distribution of Residential Water Consumption

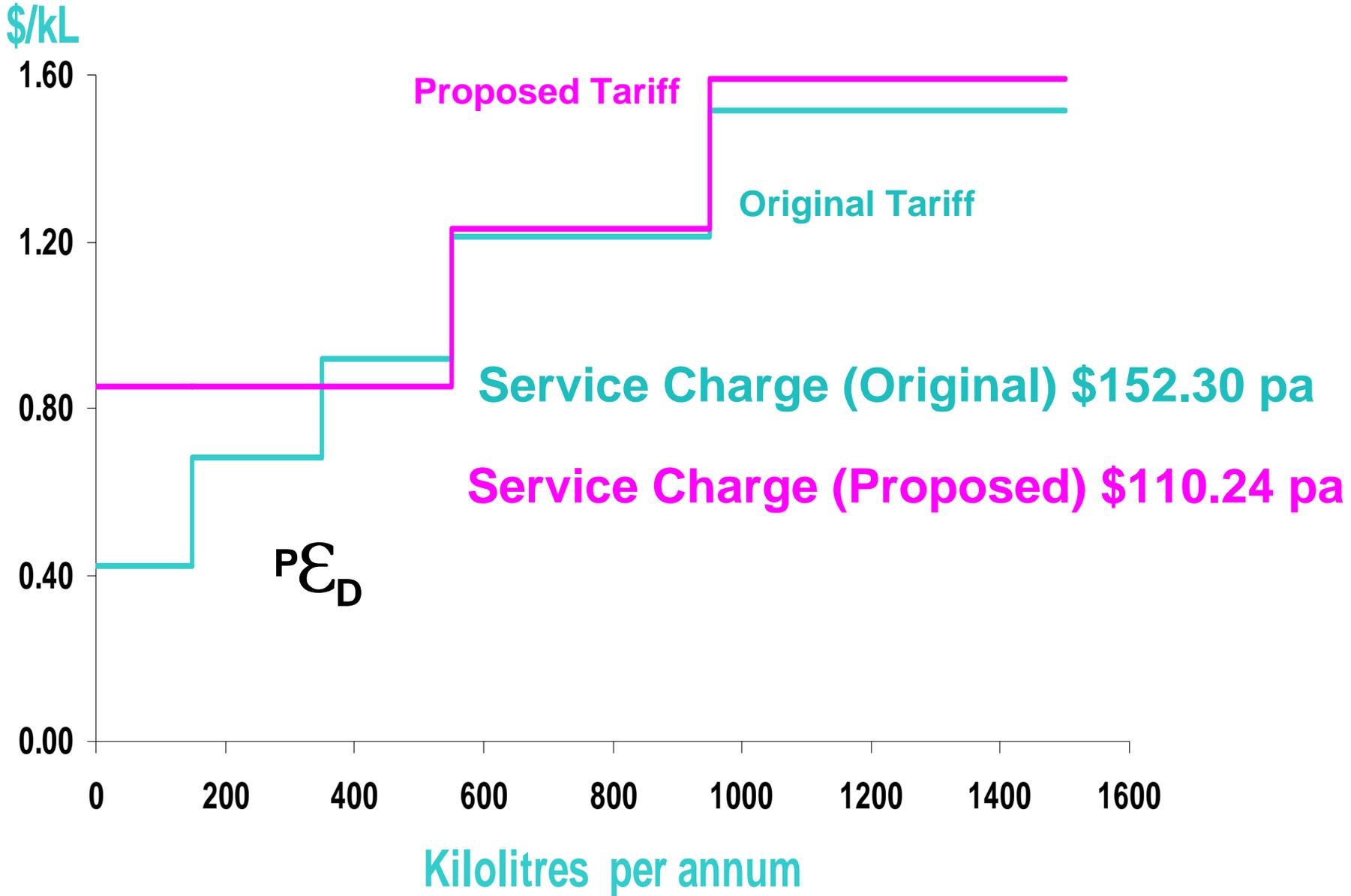


Estimated 2005/06

# Urban Residential Tariffs

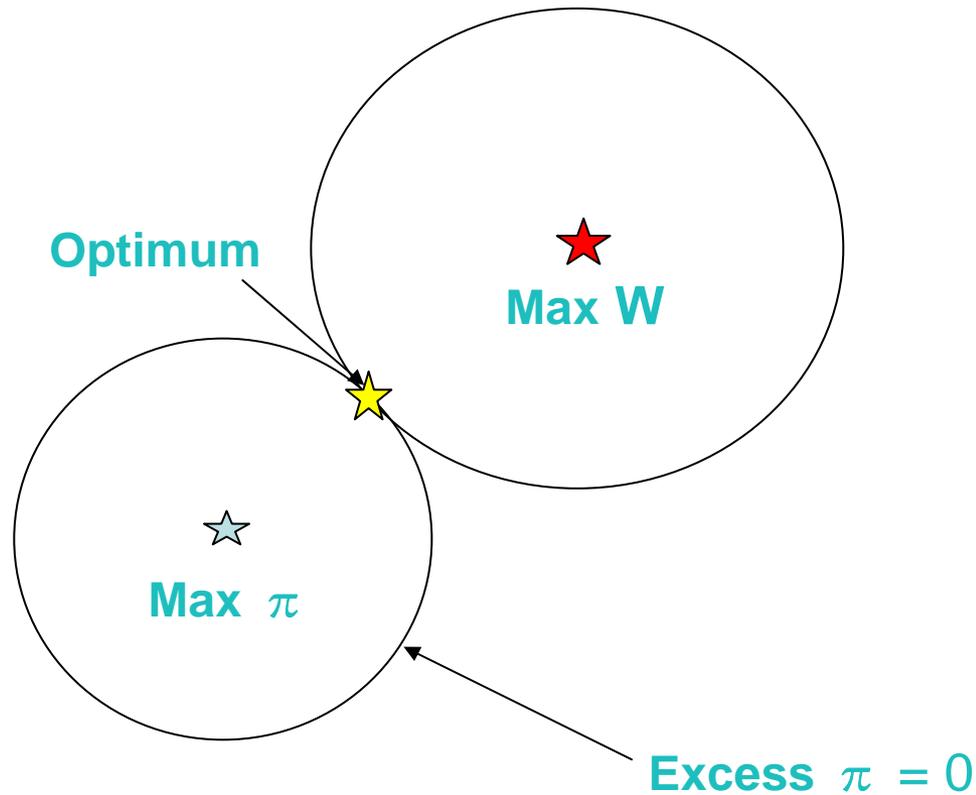


# Urban Residential Tariffs



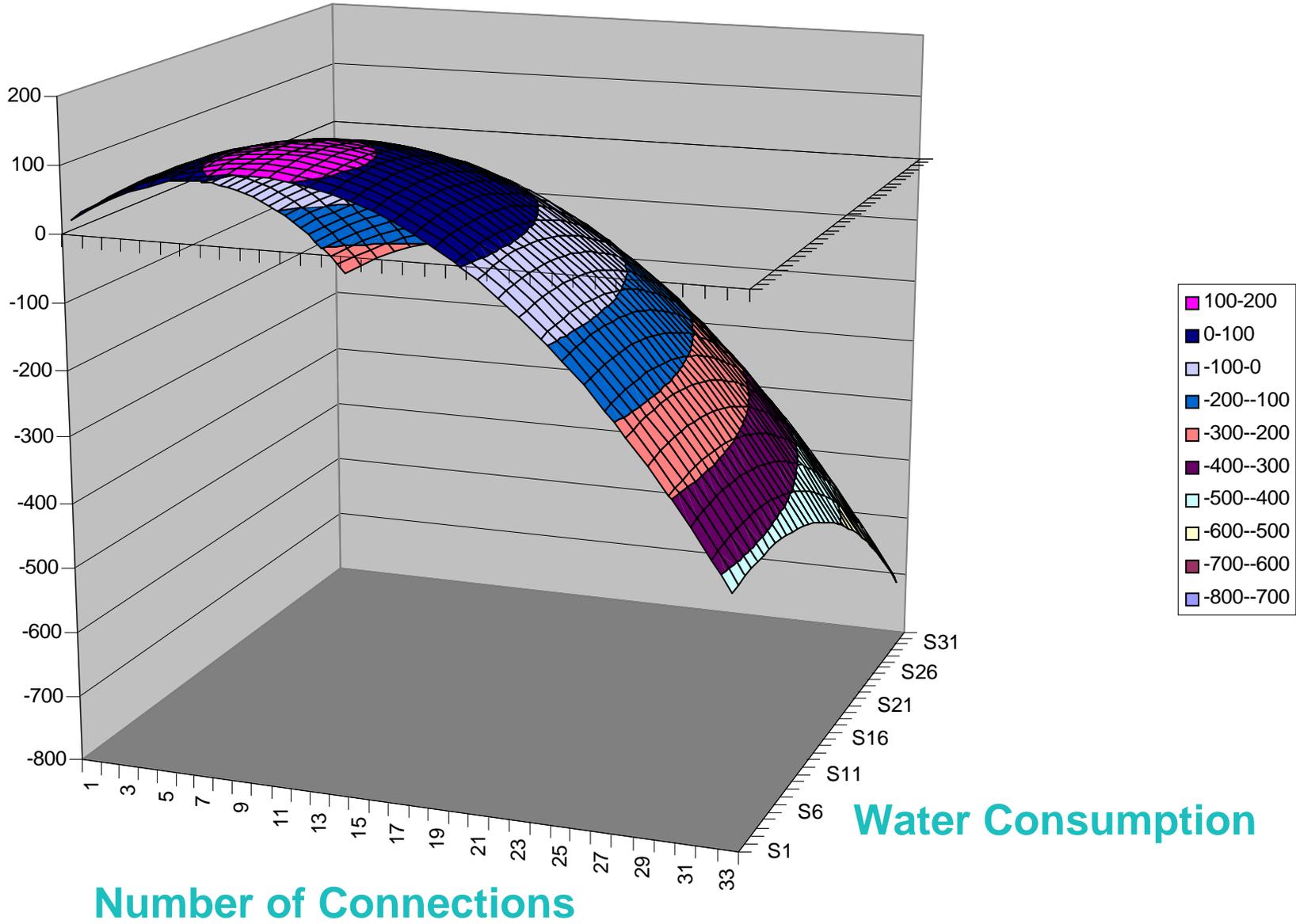
Number of Connections

# Water Company

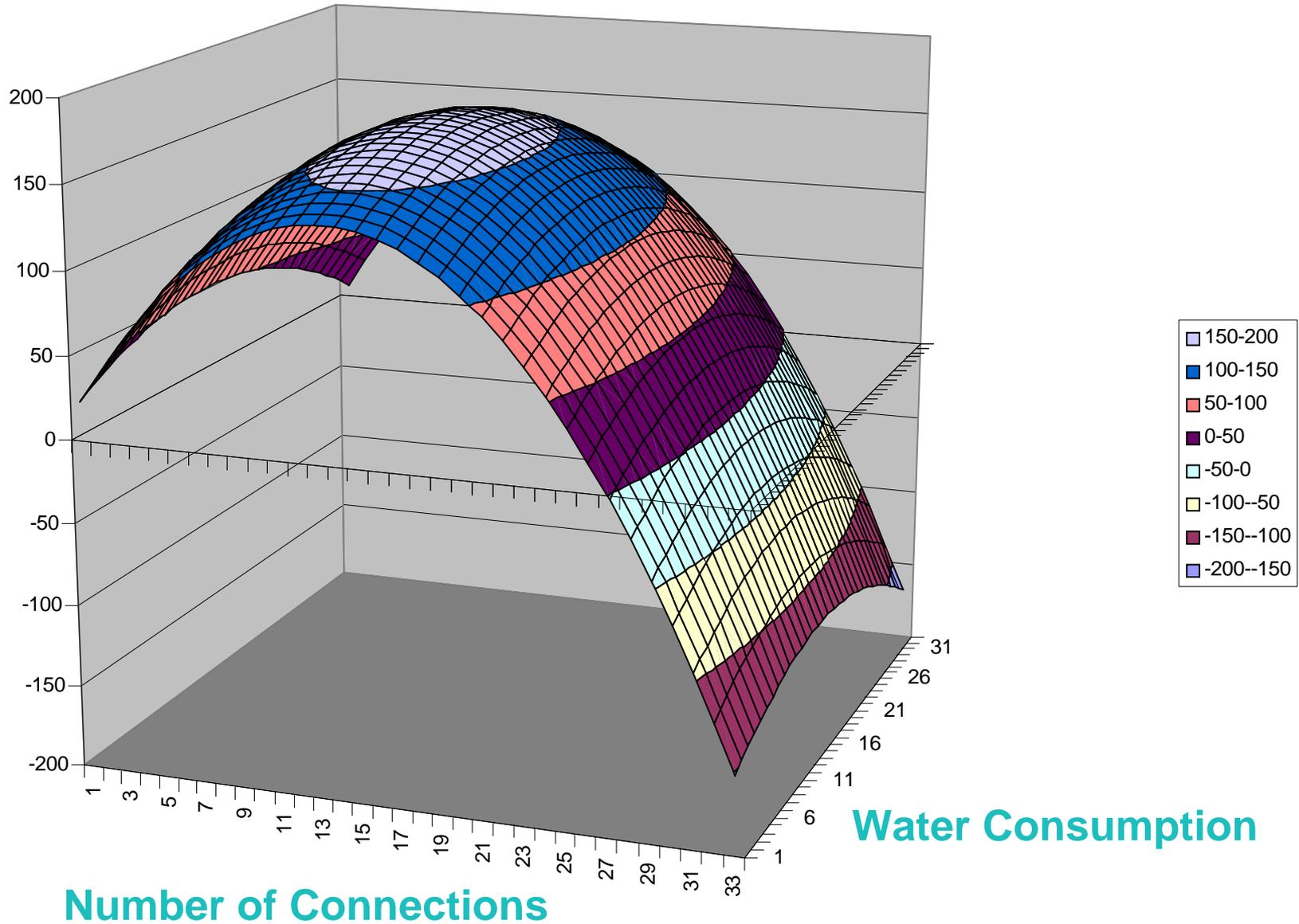


Water Consumption GL

# Profit



# Welfare



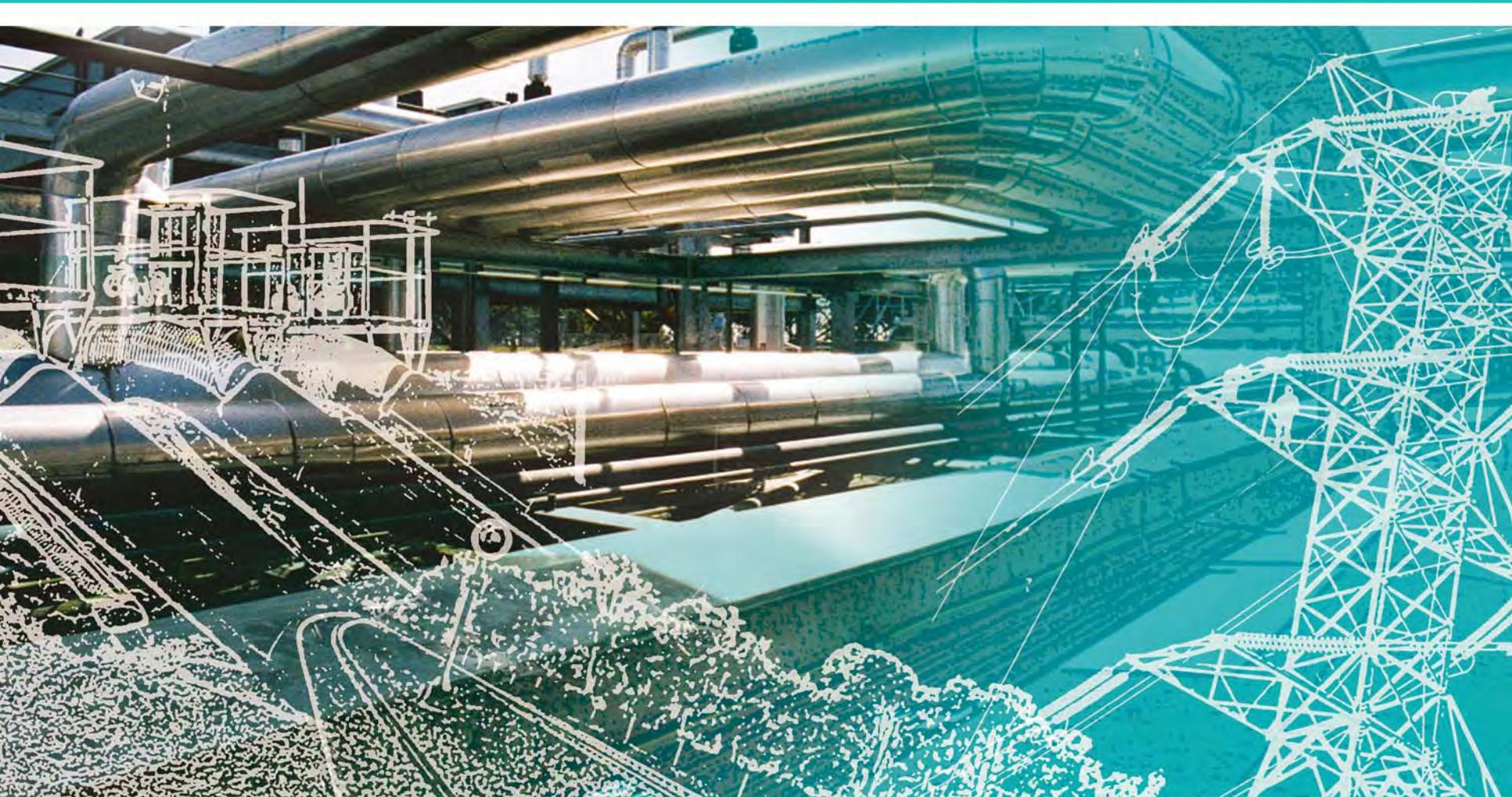
# Concluding Remarks

- Is water a special case?
- Is there water scarcity?
- Does water suffer an allocation problem?
- Can water pricing assist?
- Are there institutional problems?
- Can competition assist?
- Can markets assist?

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