

Economic Regulation Authority

 WESTERN AUSTRALIA

Promoting fair prices, quality services and choice.



Economics for Sustainability

www.era.wa.gov.au

Economics for Sustainability

Water Efficiency

K Peter Kolf
General Manager
Economic Regulation Authority

23 August 2006
Institute for Sustainability & Technology Policy

Overview

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

Economic Efficiency

Singularity

- Productive efficiency
- Allocative efficiency
- Dynamic efficiency

Hope for the Future: The Western Australia 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

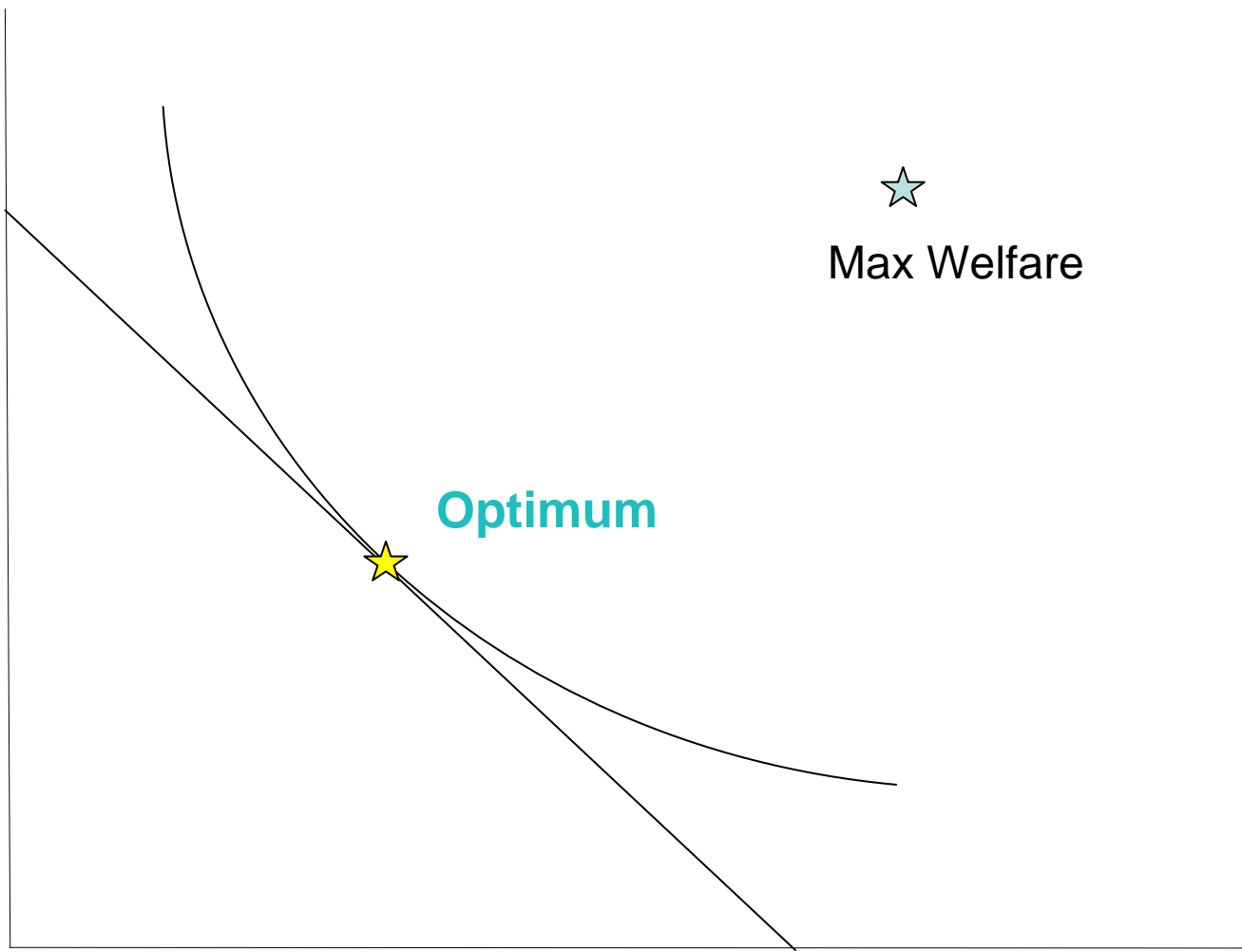
Maximise:

Needs of current and future generations

Subject to:

- Environmental protection
- Social advancement
- Economic prosperity

**Environmental
Protection**



★
Max Welfare

Optimum

Social Advancement

Objective Function

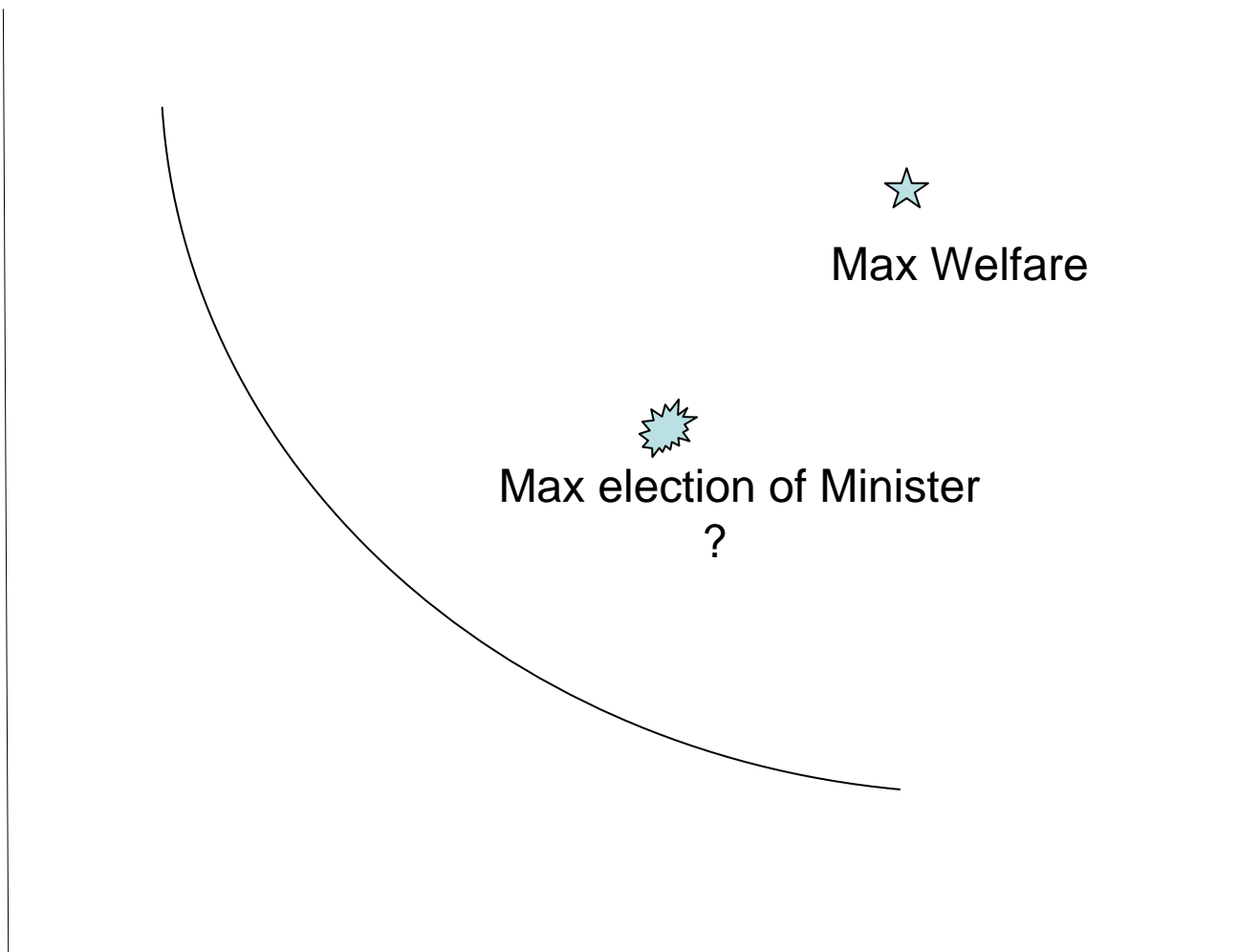
Maximise:

- Needs of current and future generations

Subject to:

- Environmental protection
- Social advancement
- Economic prosperity
- Re-elect Minister

**Environmental
Protection**



Social Advancement

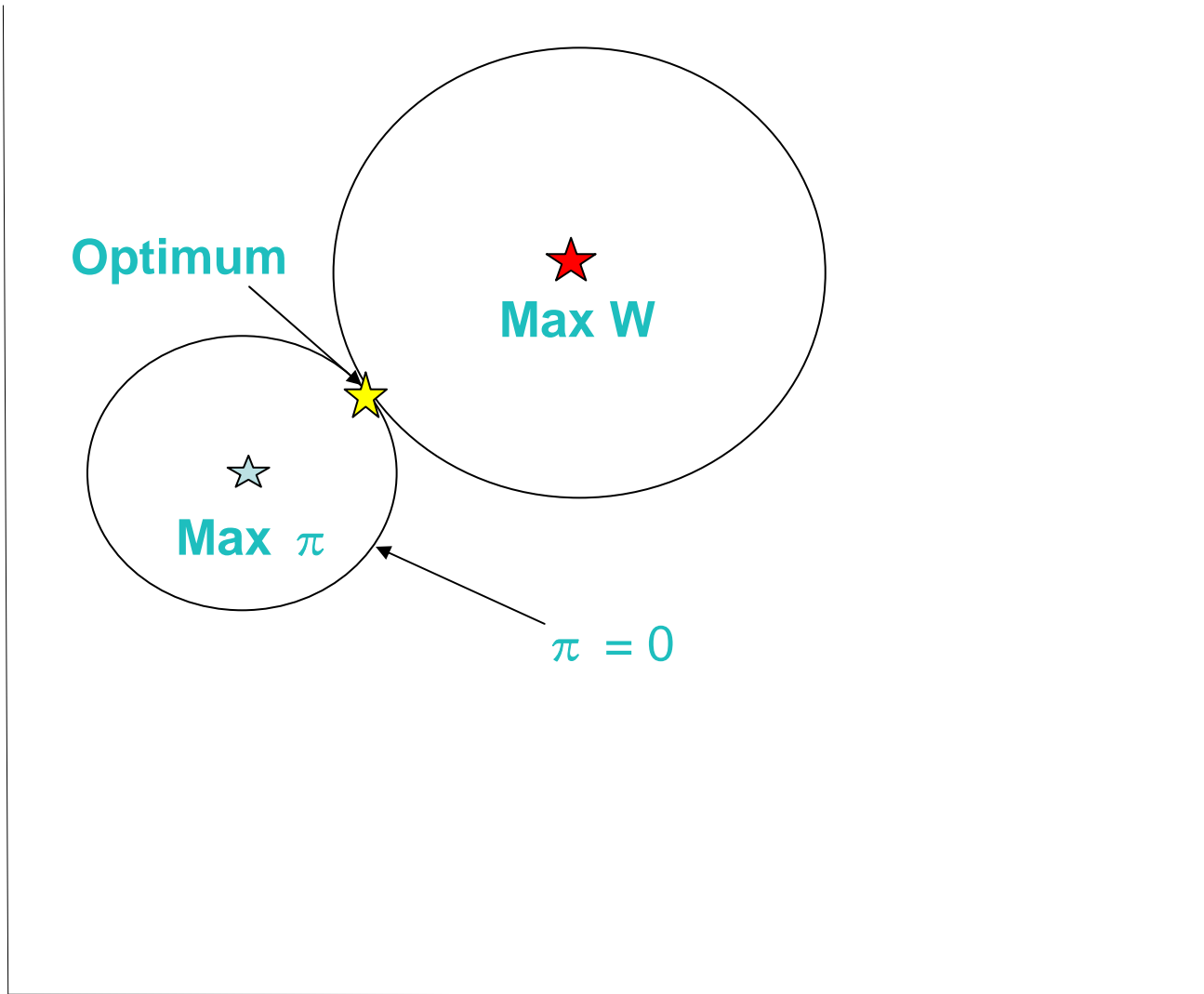
Matters the Authority must have regard to:

- 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

kL of Water Consumption

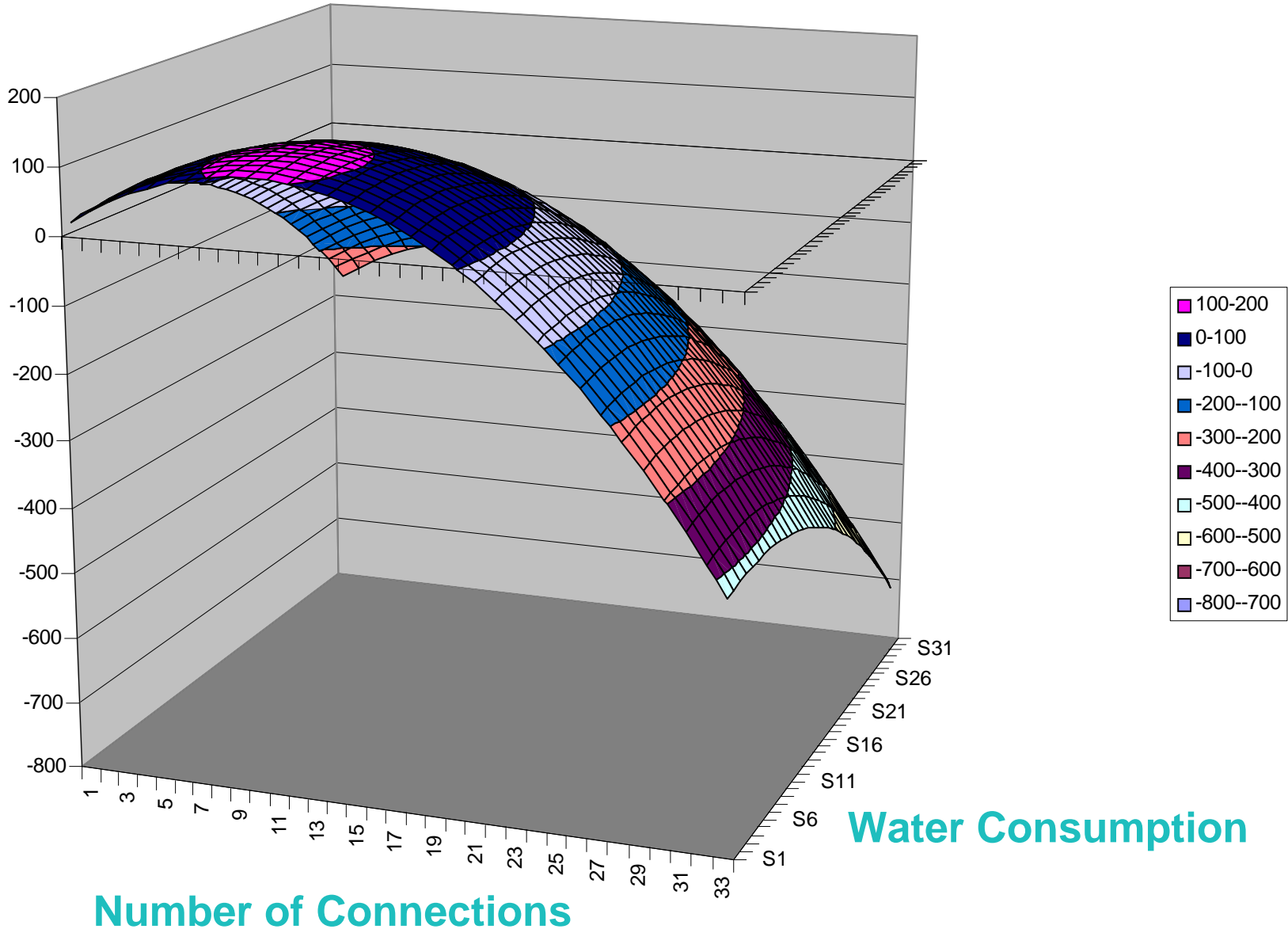
Usage Charge



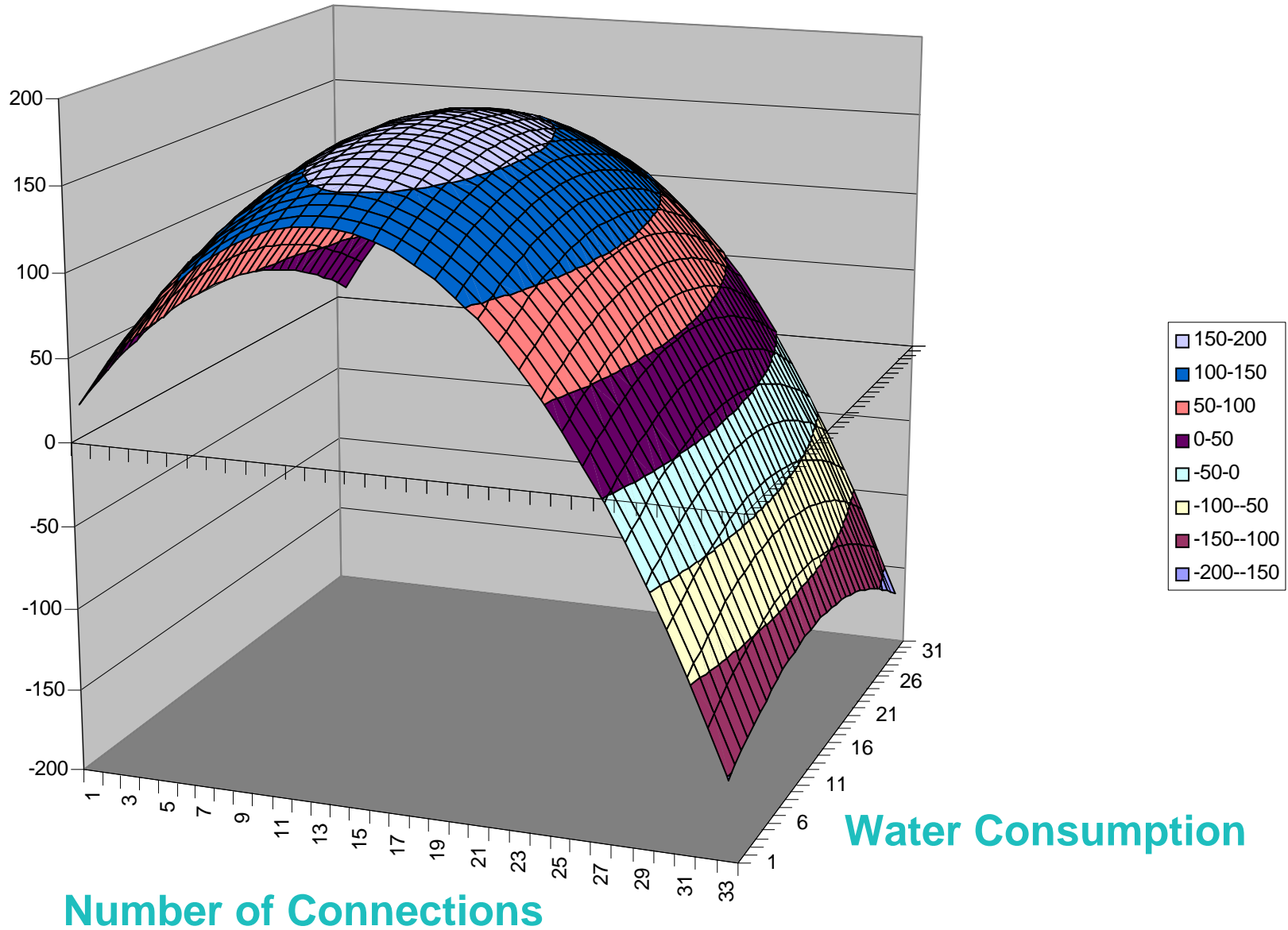
Number of Connections

Service Charge

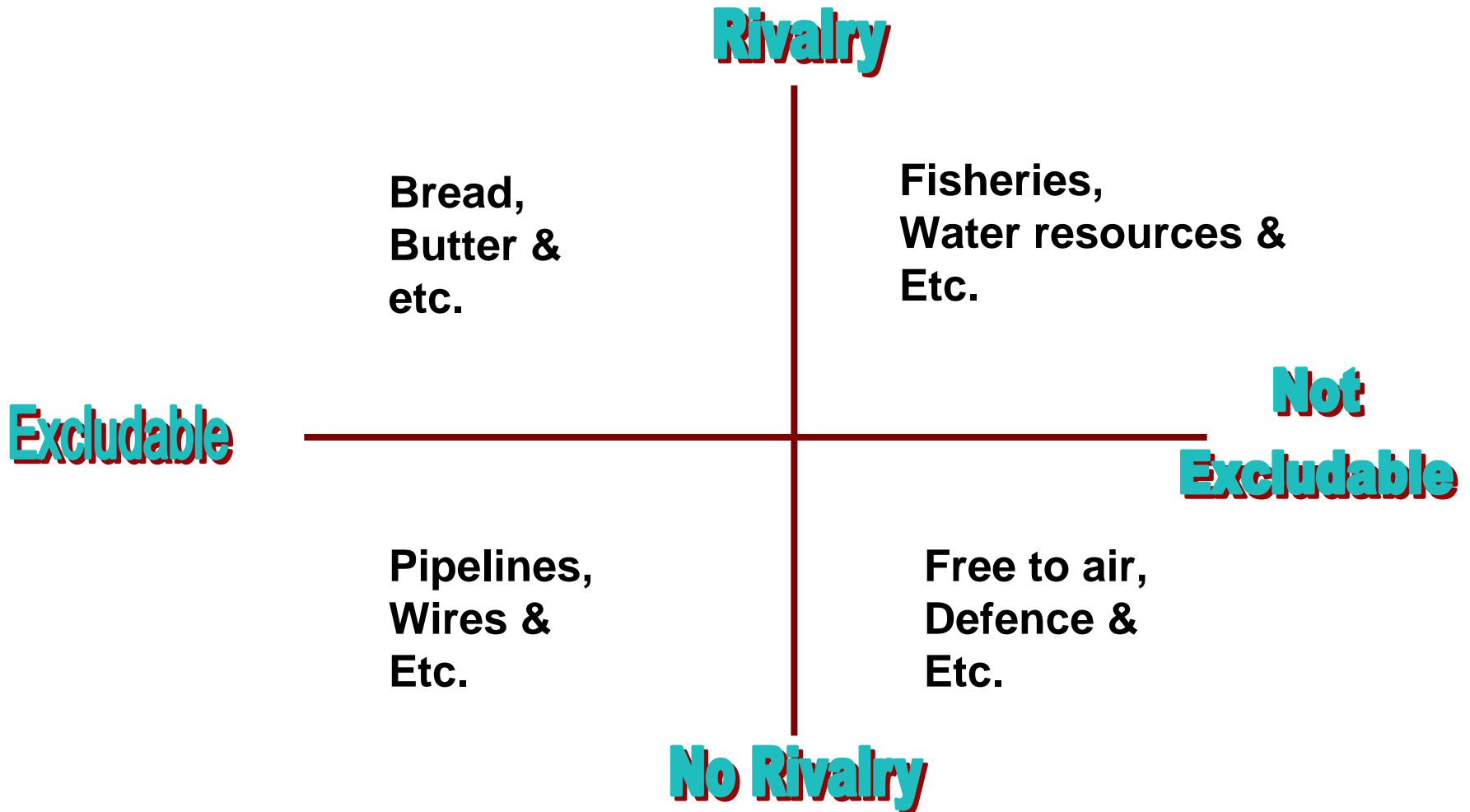
Profit



Welfare



Supply of Goods & Services



Monopoly

Other monopoly factors:

- Economies of scale
- Economies of scope
- Barriers to entry – new infrastructure

Other Externalities

- Environmental damage
- Resource management

No Proof of Hypothesis

“The great difficulty in the social sciences (if we may presume to call them so) of applying scientific method, is that we have not yet established an agreed standard for the disproof of an hypothesis.

Without the possibility of controlled experiment, we have to rely on the interpretation of evidence, and interpretation involves judgement; we can never get a knock-down answer. But because the subject is necessarily soaked in moral feelings, judgement is coloured by prejudice.”

(Joan Robinson, Economic Philosophy, 1962, p26)

Prejudice

“Anyone who says to you:
‘Believe me, I have no prejudices,’ is either succeeding
in deceiving himself or trying to deceive you.”

(Joan Robinson, Economic Philosophy, 1962, p26)

The Economic Regulation Authority

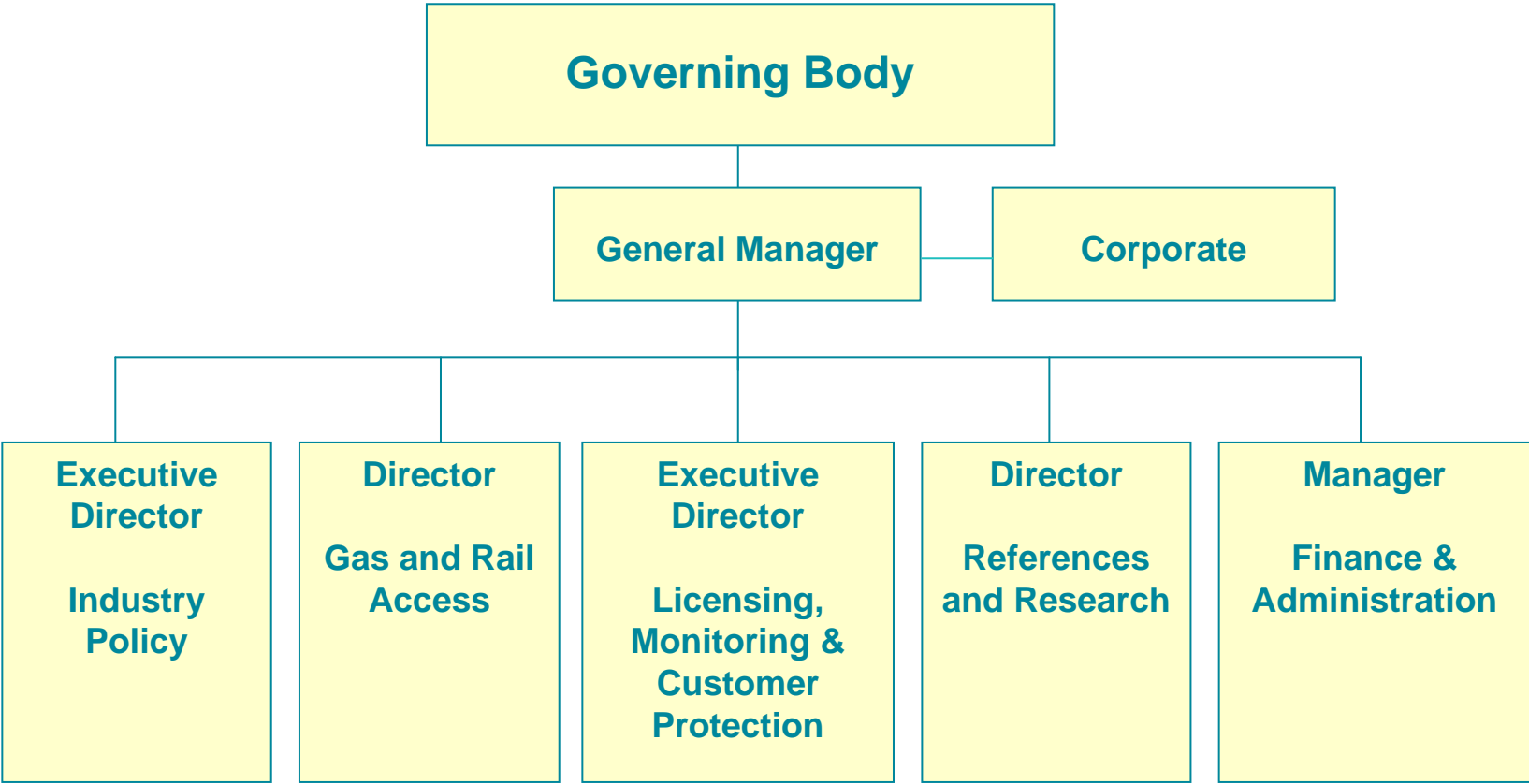
Functions

- Administers industry specific legislation
- Inquiries (Referred by Government)

Features

- Independent of Government & Industry

Economic Regulation Authority



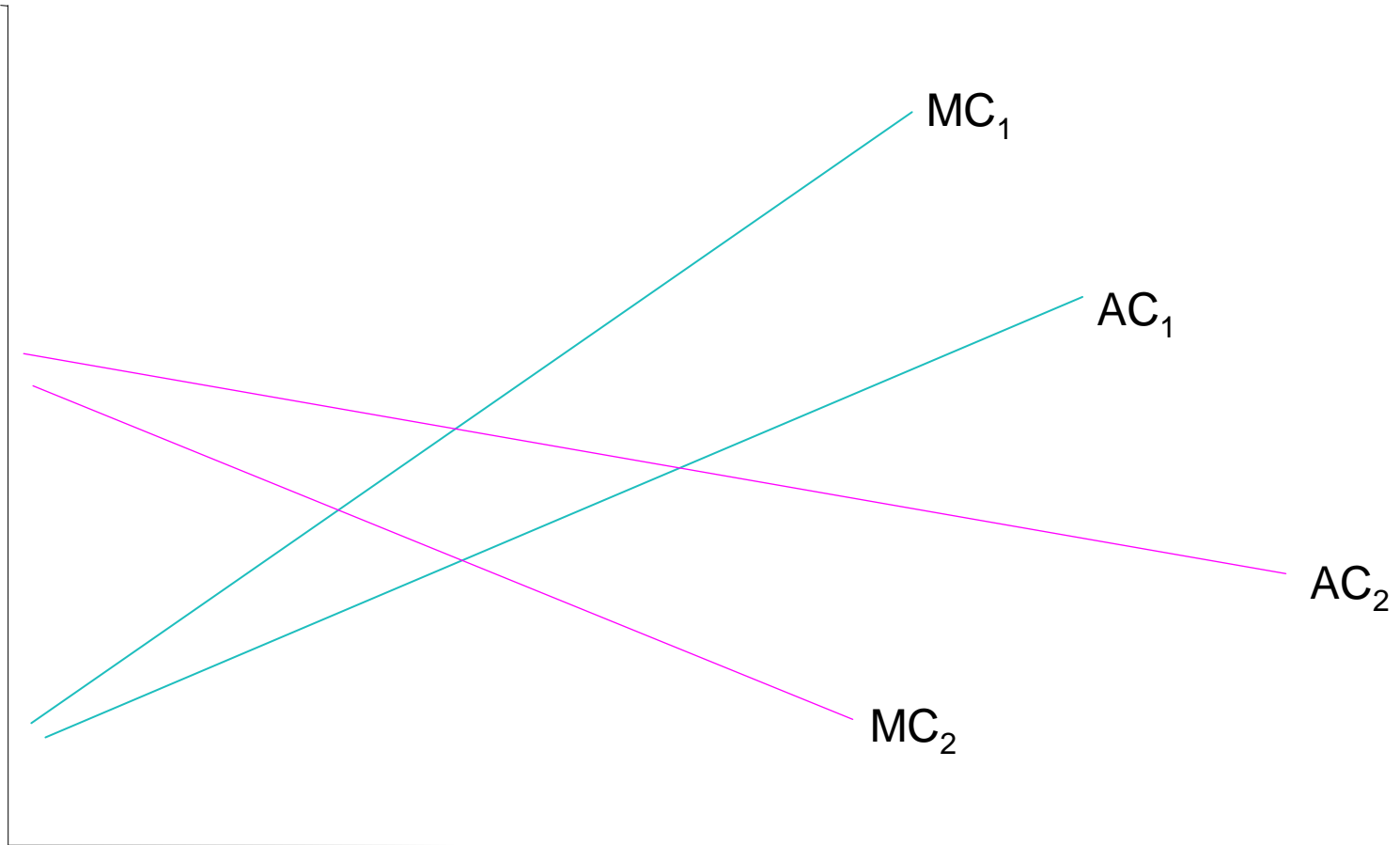
Water Pricing for Sustainability

Maximise Welfare

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

Inclining & Declining Costs

Price



Quantity

Cost of Water

- Water storage
- Gnangara Mound
- Bore water & tanks (\$1.09 - \$2.91/kL)
- South West Yarragadee (\$1.07/kL)
- Water trading (Harvey \$0.6/kL)
- Recycling (\$0.5 - \$1.00/kL)
- Desalination (\$1.16/kL)

Water Scarcity “due to agriculture” Report

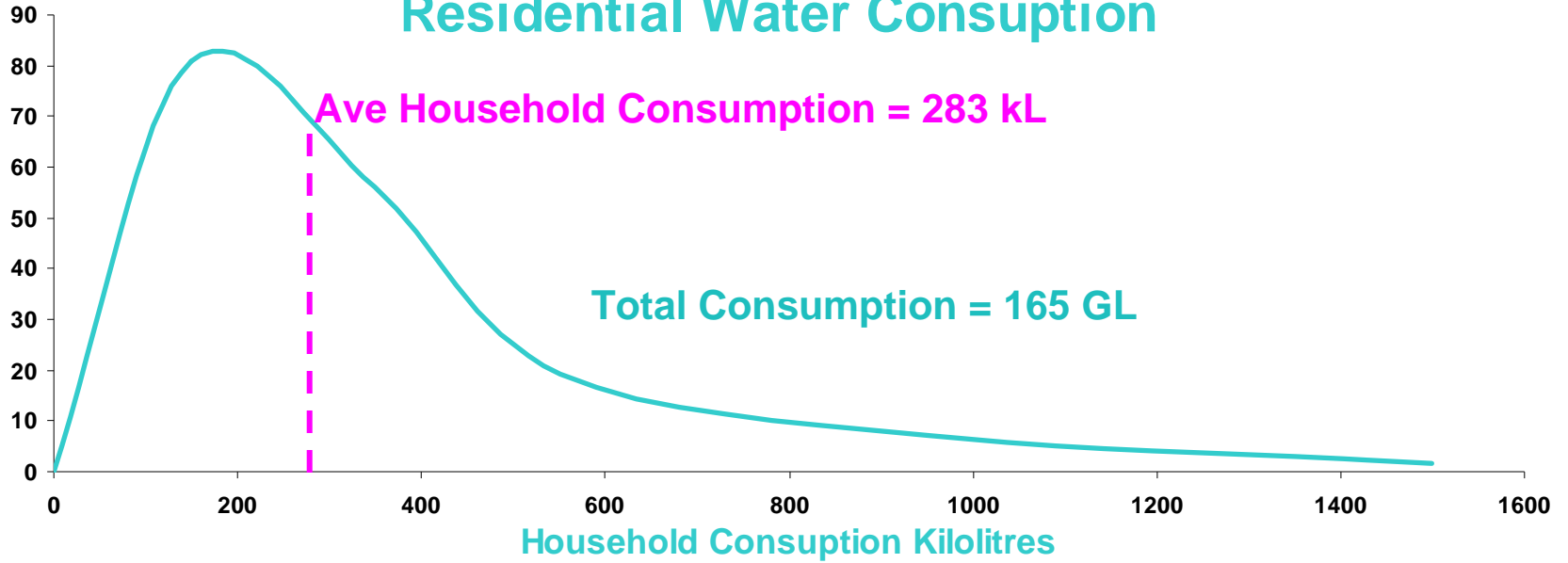
- 7:30 Report – Kerry O’Brian, 16 Aug 06
- Frank Rijsbermann, Sri Lanka
 - “..the world needs roughly 70 times more water to produce food than for cities.”
 - Why desalinate? (agricultural water is 1/10th the cost)
 - Water trading?
 - (Water Scarcity is in part an allocation problem)

Long Run Marginal Cost

- Turvey Method (1.20/kL)
- Average LRMC (0.70/kL)
 - Future improvements in technology
 - Impact of future opening of water market

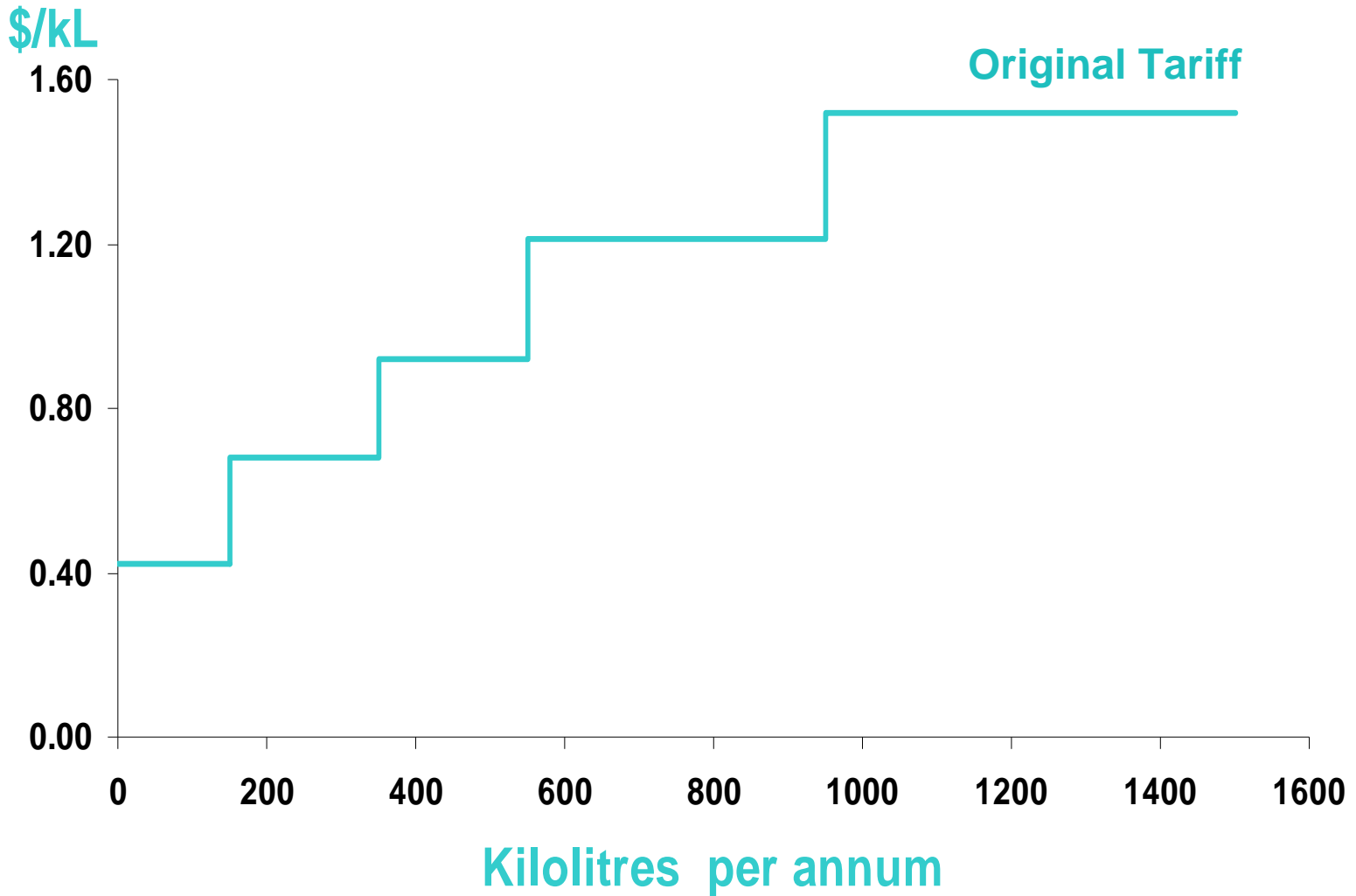
Aggregate
Consumption GL

Distribution of Residential Water Consumption

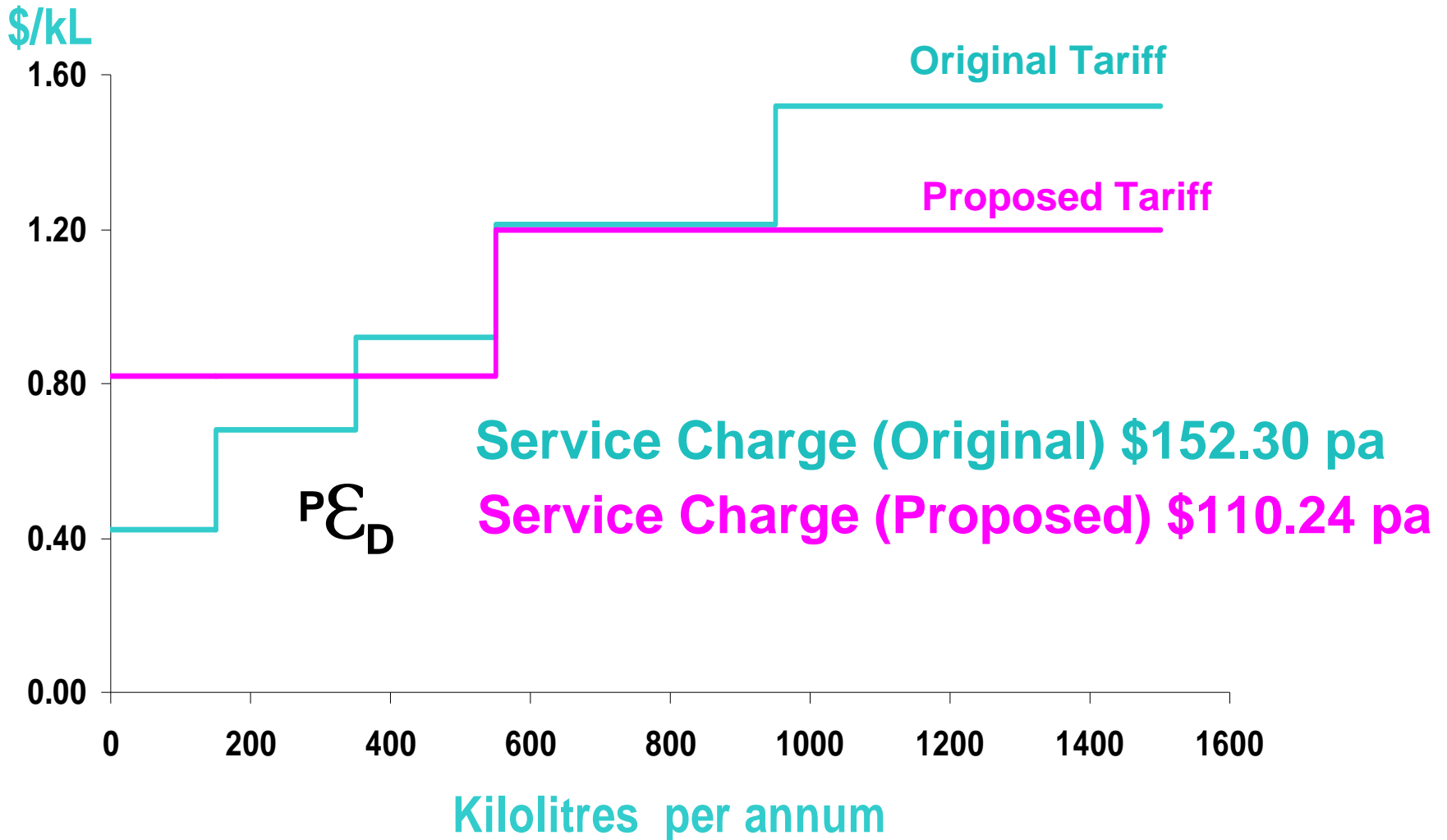


Estimated 2005/06

Urban Residential Tariffs



Urban Residential Tariffs



Conclusions

- Water is not a special case
- There is no water scarcity
- Water - partly an allocation problem
- Water pricing can assist
- Water recycles real well
- Recycling water may pose an energy issue (CO₂)
- Objective is maximising welfare