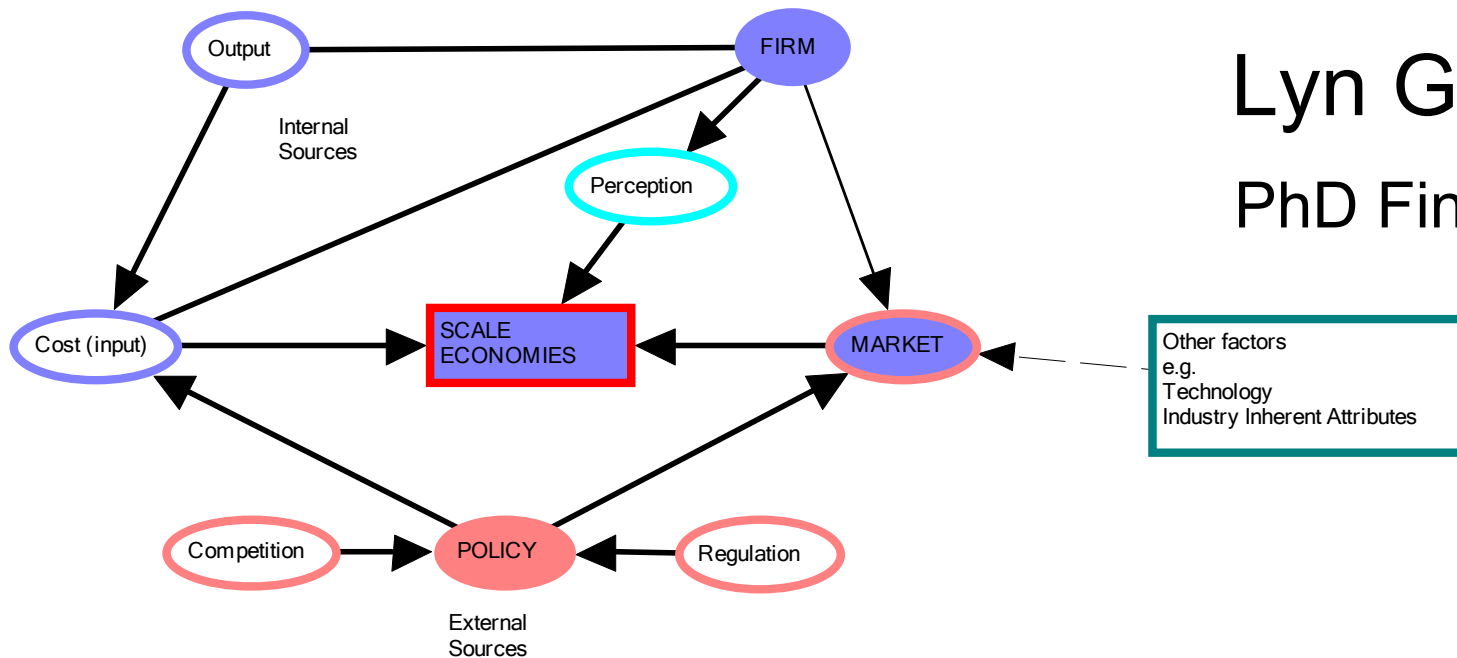


# Retail Electricity: Scale Economies, Competition, Regulation Policy

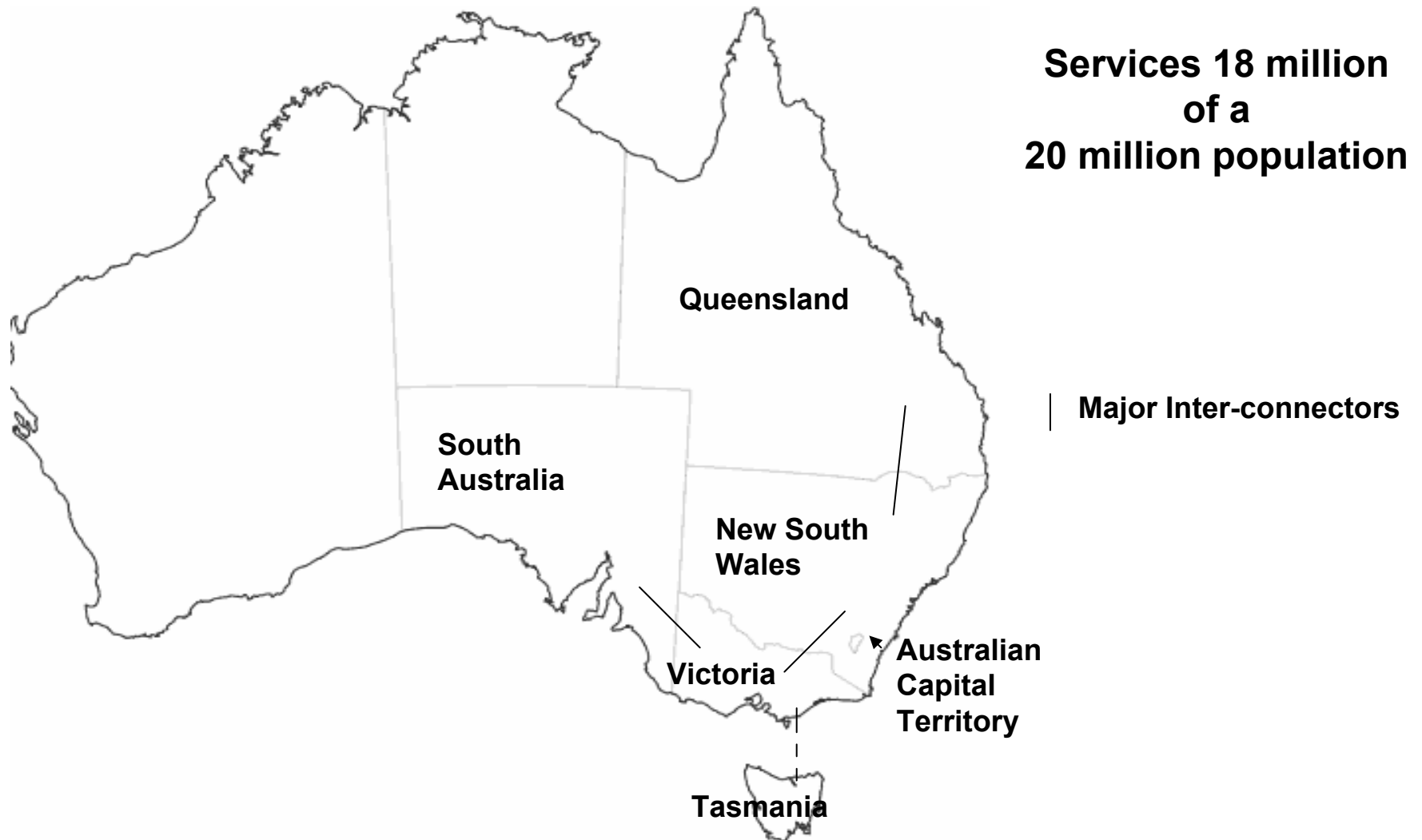
Figure 1.1 Theoretical Framework



Lyn Grigg  
PhD Findings

Retail Electricity in the  
Australian National Energy Market (NEM)  
10yrs of Reforms and Restructure

# Australian National Energy Market (NEM) States



# Pre & Reform Industry Structure

## PRE REFROM

## REFORM

<b>Regulation:</b>	States	<b>Federal &amp; State</b>
<b>Ownership:</b>	Public	Public & <b>Private</b>
<b>Market:</b>	Monopoly/Franchises	<b>NEM</b> <b>Competitive &amp;</b> Monopoly/Franchises
<b>Sectors:</b>	Generation, Transmission, Distribution	Plus <b>Retail</b>
<b>Structure:</b>	Fully vertically integrated, Generation & Distribution	<b>Separate</b> , Distribution & Retail

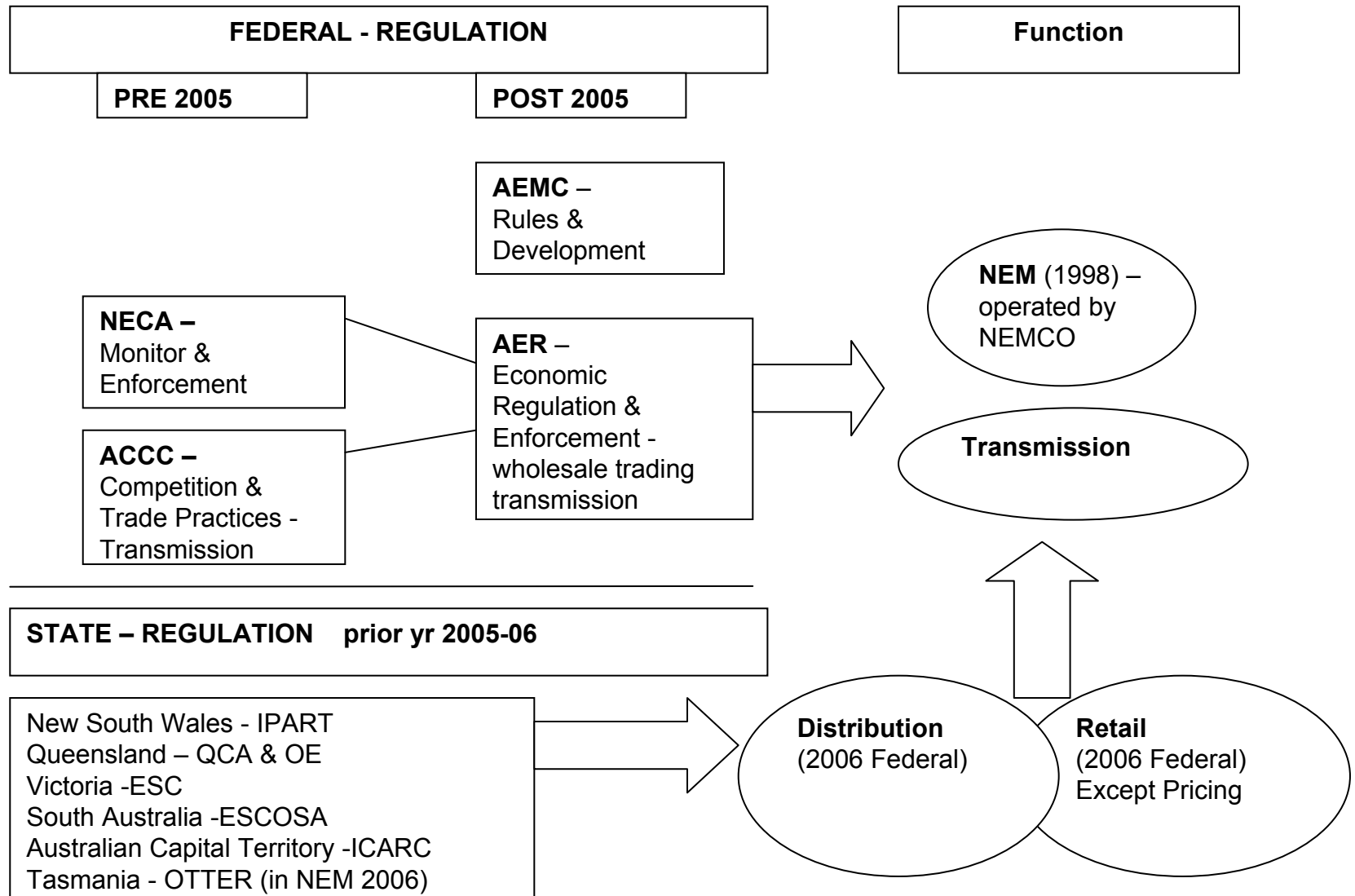
# Competitive Market Model

<b>Model</b>	<b>All Jurisdictions</b>	<b>Except</b>
<b>Full Retail Contestability</b>	phased in to 2003	Tasmania 2010 Queensland <100Mwh
<b>Market Contracts</b>	Yes - Transition <160Mwh franchise/regulated To 2007 ACT <100Mwh to 2006	Queensland No < 100Mwh Tasmania 2010
<b>No Retail Price Controls</b>	>100Mwh	Regulated Tariff <100Mwh to 2007
<b>Privatization Retail</b>	Victoria South Australia (100yr lease) ACT (joint)	NSW, Queensland Tasmania
<b>3rd Party Access</b>	Yes varies	Tasmania silent
<b>Auction Wholesale Trading</b>	Yes NEM compulsory	Tasmania fully 2006 NSW and Queensland balancing scheme franchise
<b>Sectors competitive</b>	Yes Generation, Retail	Networks monopoly franchise
<b>Vertical separation all sectors</b>	Victoria South Australia	Ring fenced retail/distribution Separate generation

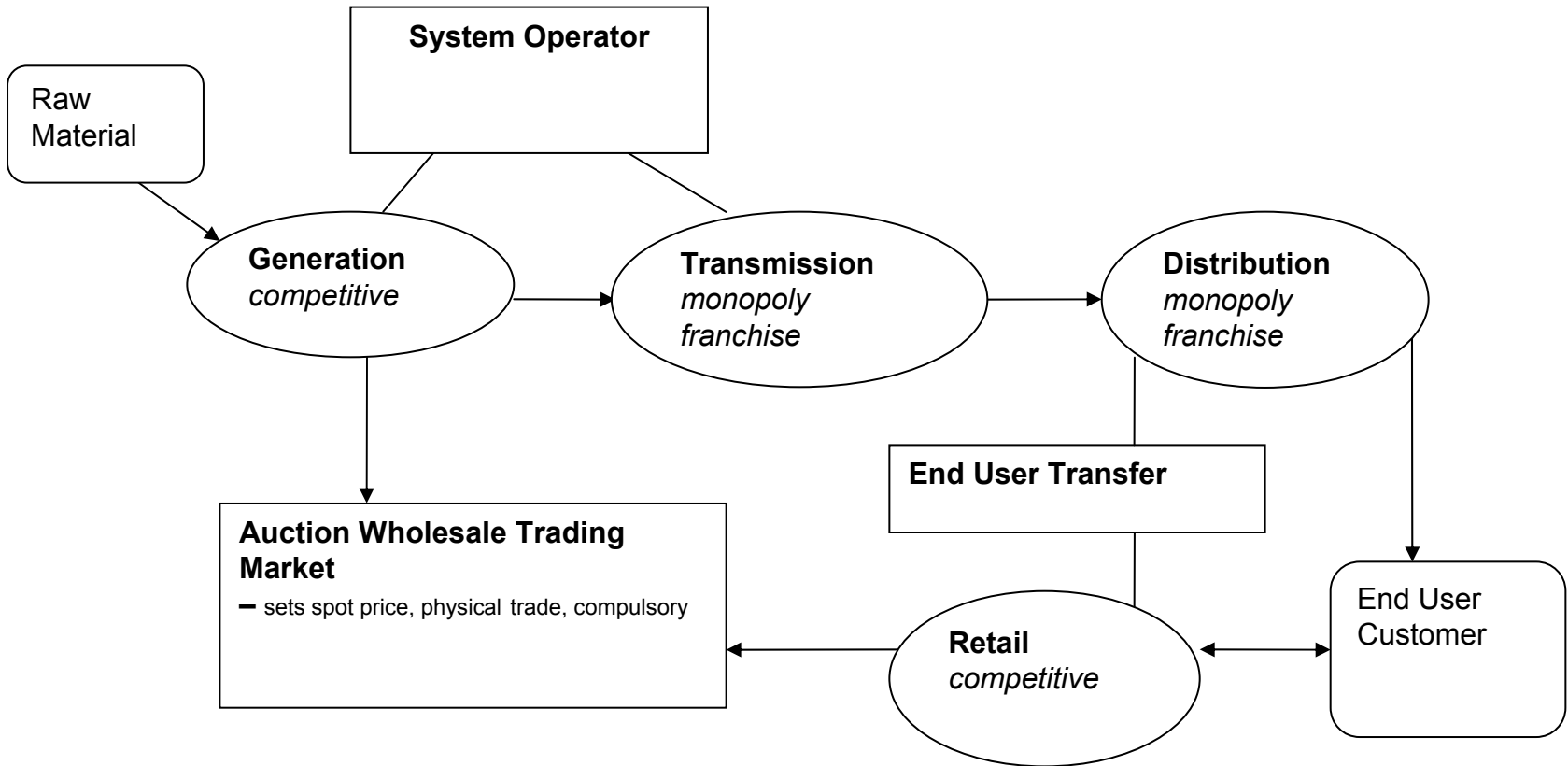
# Retail Electricity Firms – control?

	<b>Retail Electricity</b>	<b>Retail Electricity Distribution (some small generation)</b>	<b>Retail Electricity Generation</b>	<b>Retail Electricity &amp; Gas Distribution Generation Exploration Other Utilities</b>	<b>Retail Electricity Distribution Other utilities Water, Sewage, Telecom</b>
<b>Reform 1995 On (17)</b>	1 private	11 public 5 private			
<b>Study No. Firms (16)</b>	2 private	6 public	3 private	3 private 1 private/public	1 public
<b>Current (16)</b>  <b>Firm Home state</b>	5 private  2 NSW 3 Victoria	6 public  1 Tasmania 3 NSW 2 Queensland	1 public  NSW, Victoria,ACT	2 private 1 private plus part 1 private/public  2 Victoria 1 Victoria/South Australia/ACT	

# Regulatory Structure



# Australian NEM System



- Wholesale financial trading is outside of the NEM
- Limited - very large industrial end users do negotiate direct with generators/wholesale market

# PhD Research Questions

1. How do scale economies affect retail electricity?
2. How does the relationship between inputs and outputs in retail electricity operate?
3. How has competition and regulation policy affected scale economies in retail electricity?

# Method

**Strategy:** Industry Case Study

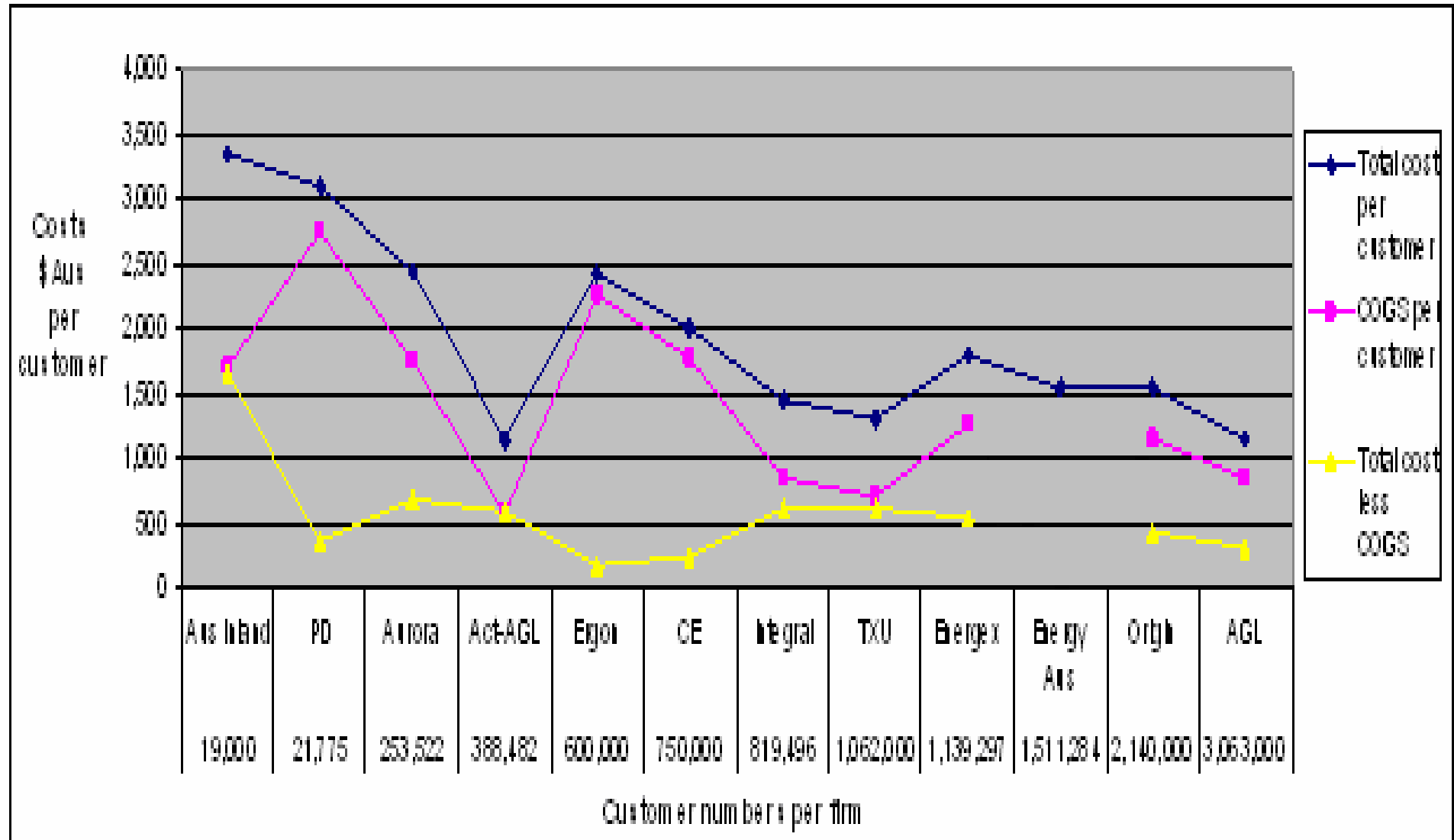
**Scope:** Pre reform to current - 16 NEM Retailers

**Data :** Interviews, Questionnaire, Document  
Analysis

**Participants:** 15 Retail Electricity Firms  
7 State and Federal Regulators  
3 Consultant Firms Retail Electricity

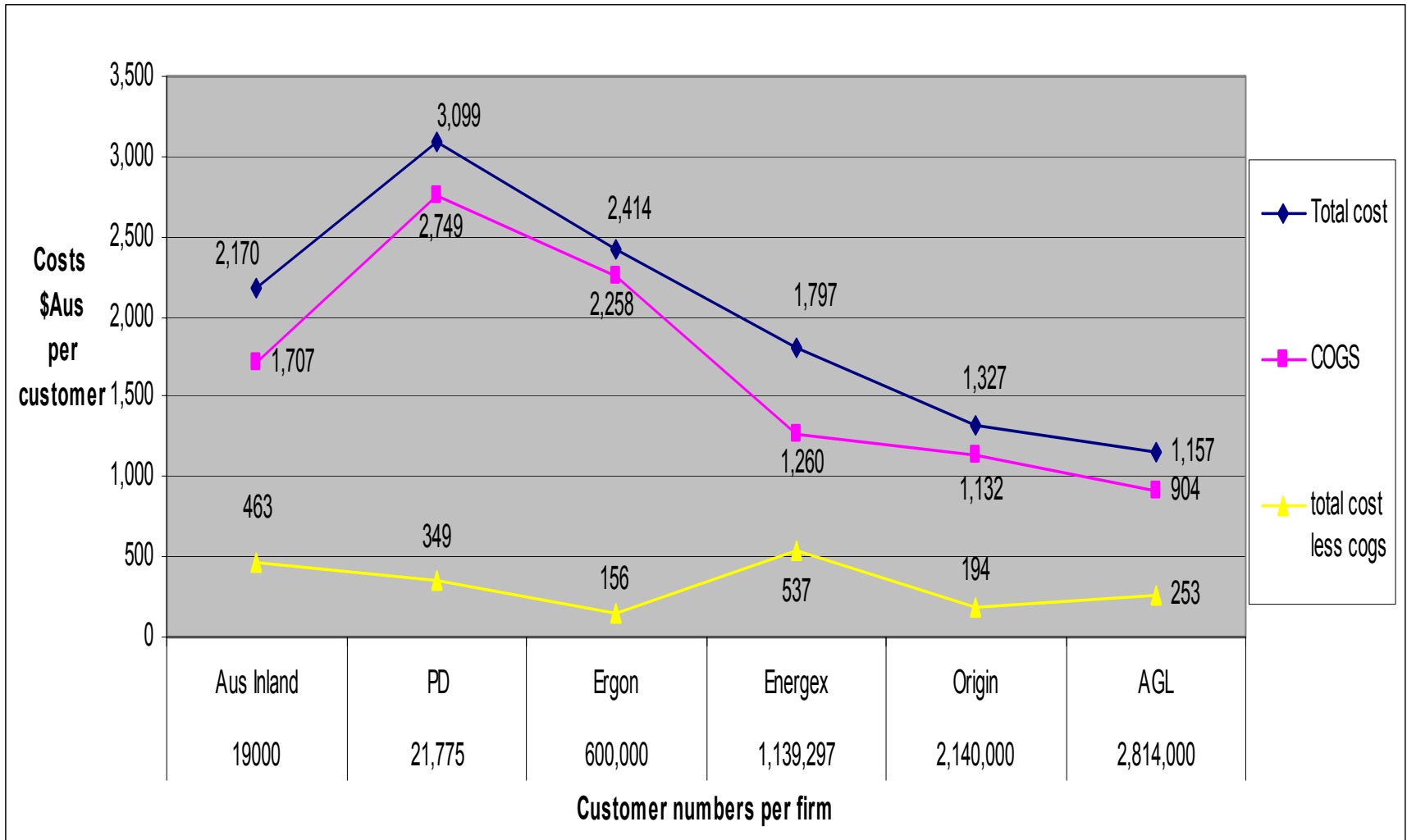
**Surveyed:** August to December 2004

# Scale in Firms = L shape, from COGS

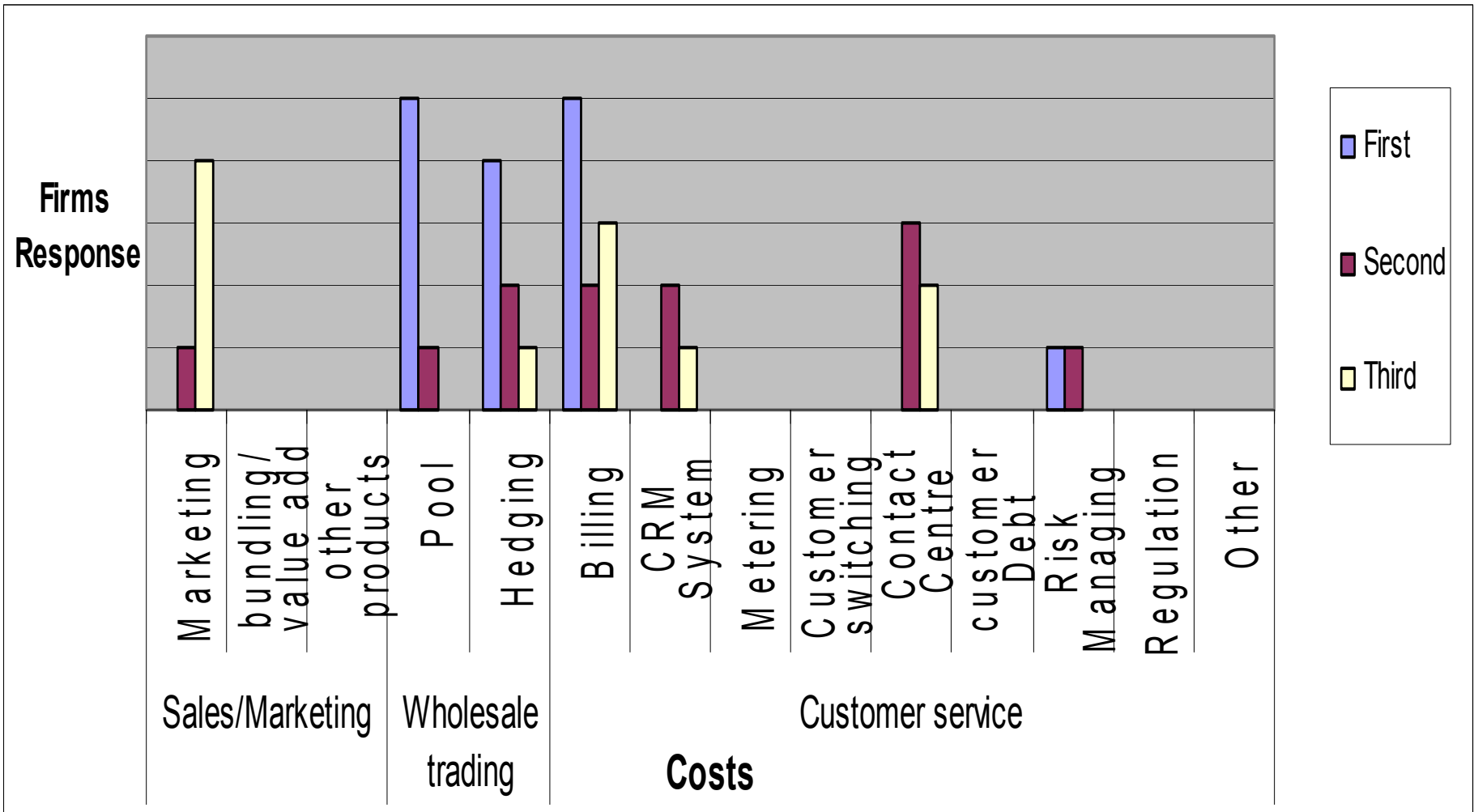


# Scale in Retail Sector Firms

= L slope - COGS, S slope – Op Costs



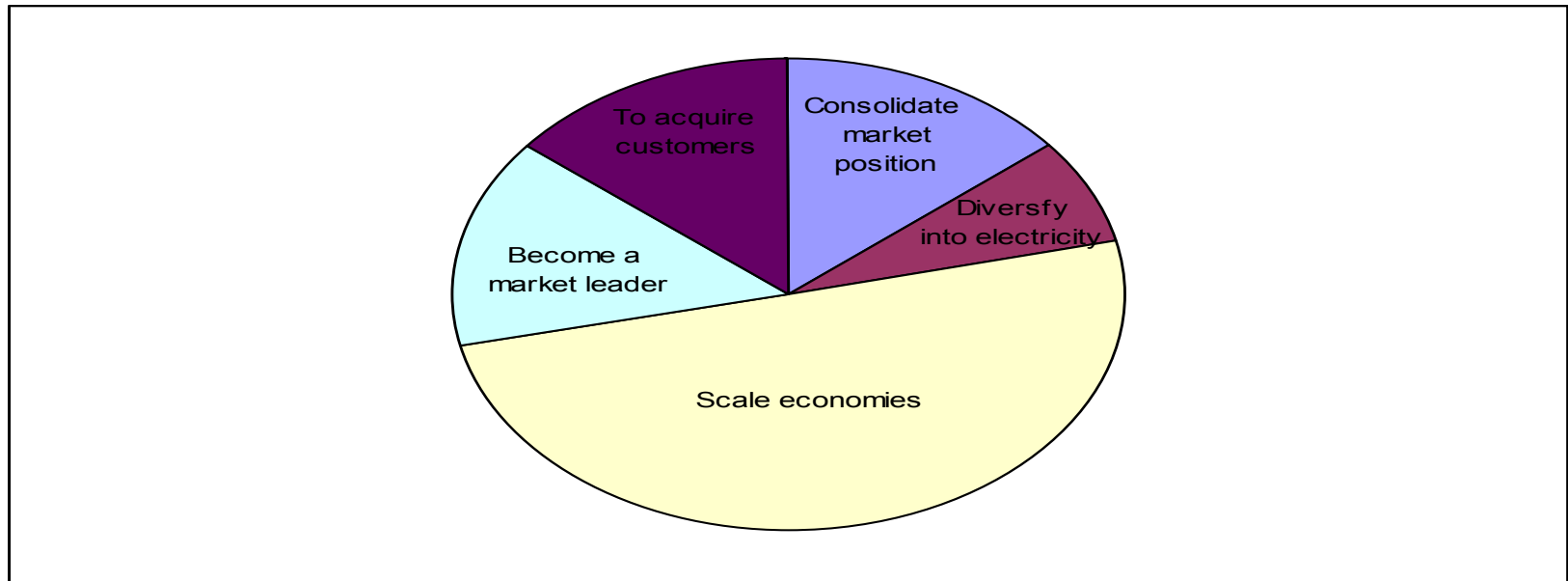
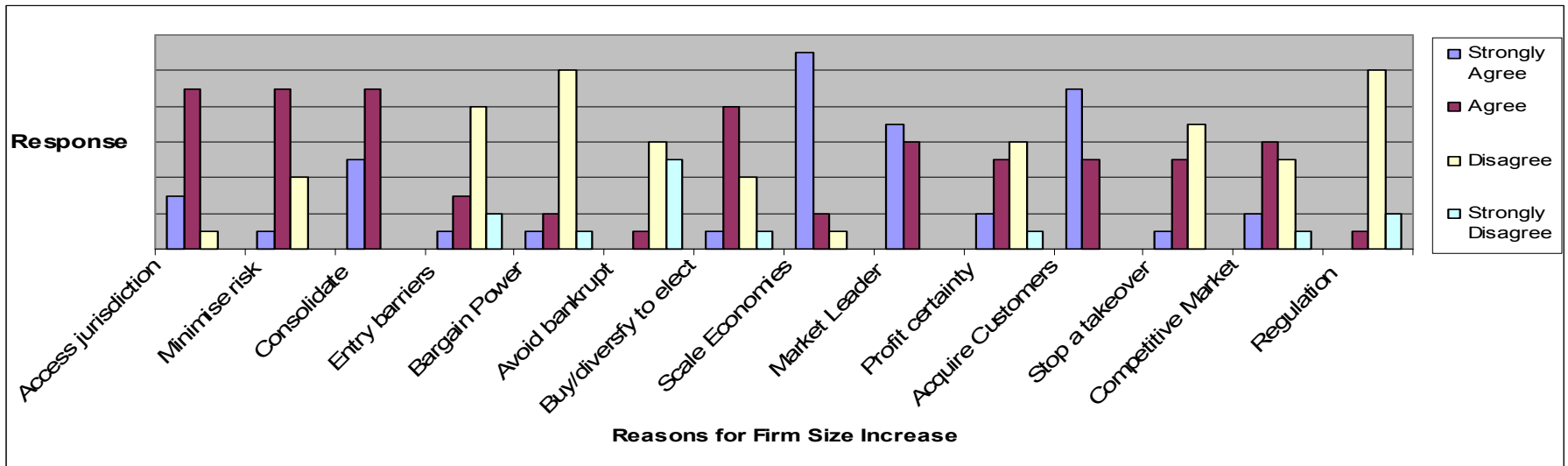
# Costs with Greatest Impact



# Regulation, Competition and Scale Findings

- Regulation was NOT a source of scale economies.
  - Cost greatest impact environment, 3<sup>rd</sup> party access these costs increase with customers.
- Competition is a source of scale economies
  - Design of competitive market model
    - Customer choice – Systems
    - Auction wholesale trading – Risk mitigation

# Perception-Reasons for growth of Firm Size



# Sources scale – structure

## Horizontal & Scope

- Horizontal 73% reduce costs
- Scope 50% reduce costs & 30% increase cost
- Outcomes are:
  - Bundling
  - Value adding such as Dual fuel
  - Market position increase customer base
- **BUT**

Does a decrease in average costs actually occur?

  - System compatibility restricts these cost savings

# Sources of scale - Structure

## Vertical Integration

- Financial support from large asset based sectors
- Reduction in transaction cost
  - Distribution
    - Contact centers, 3<sup>rd</sup> party access and administration
    - but not significant to show scale economies benefits
  - Generation
    - Reduces risk of transacting in the wholesale trading market Also, supports Transaction Cost Economies Theory

# Sources of Scale - Resources

- Most significant are retail operating costs found in customer services such as:
  - Billing, Contact Center, CRM
- Technology Gaps are identified as creating the biggest unrealized potential
  - System incompatibility creating data migration & integration issues
  - Multiple legacy systems

# Conclusion

- Believe there are scale economies
- Significant costs – *Result, Technology Gap*
  - wholesale trading, customer services-billing, contact center & customer relations system
- Competition – *Result, Scale and TCE*
  - Introduced customer choice, disaggregation, spot market increased the complexity of transacting, risk & cost.
- Regulation – *Result, Capture theory*
  - was not considered a source of scale economies.

# Scale Economies

- *Theory* Production Function– Relationship inputs and outputs over time
- *Result* average costs of output declines as output increases
- *Graphically* U, L, W shape on cost/output axis
- *Dominate influential Costs* Fixed
- *Sources of Scale* Resource–Assets, labor  
Firm structure

# Sources of Scale Economies

Figure 1.2 Sources of Scale Economies Retail Electricity

