



Reducing electricity use in Victoria through demand management

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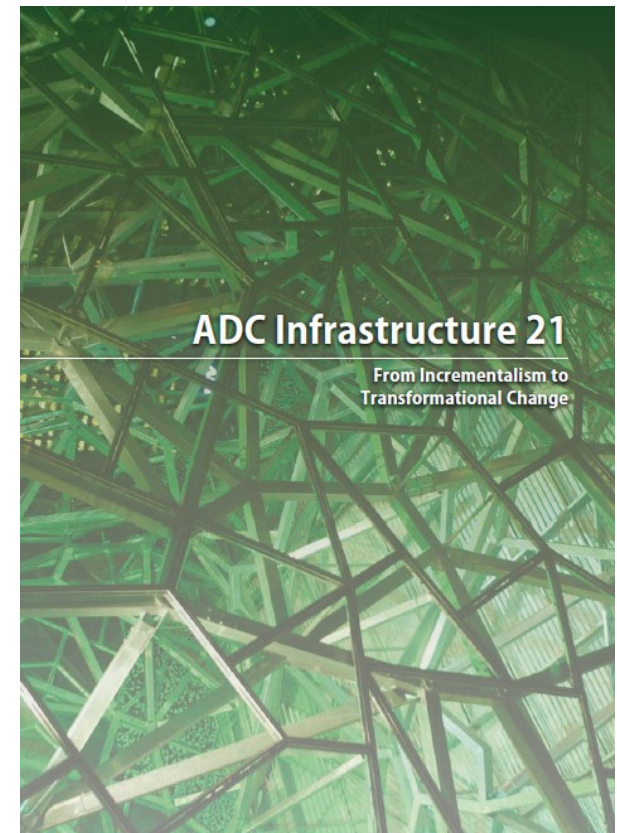
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Macpherson
Smith
Trust



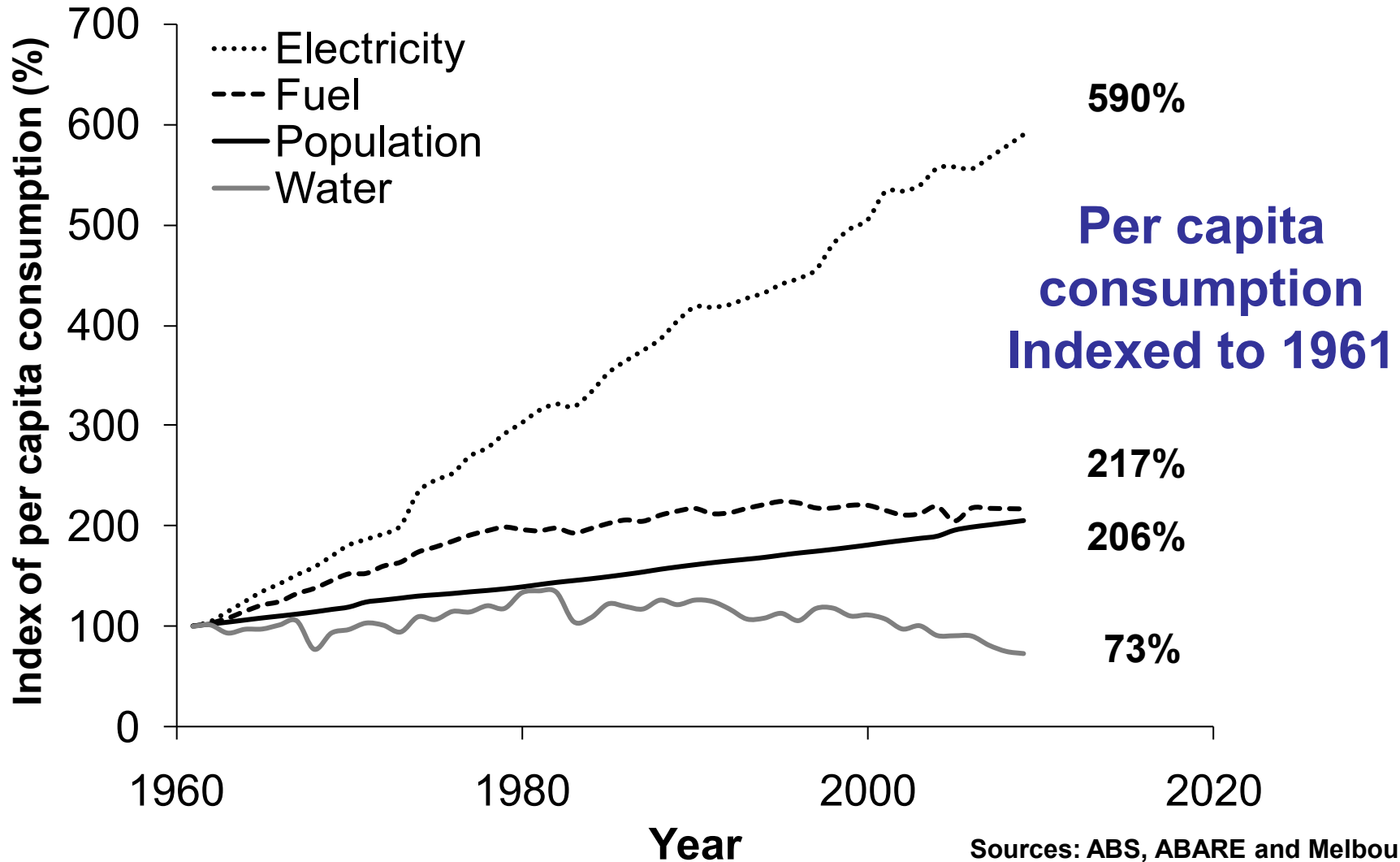
MSI Collaborative Project

- **Water, energy and transport**
- **Infrastructure 21 Summit (Brisbane, October 2008)**
- **Working group on efficiency and demand management**

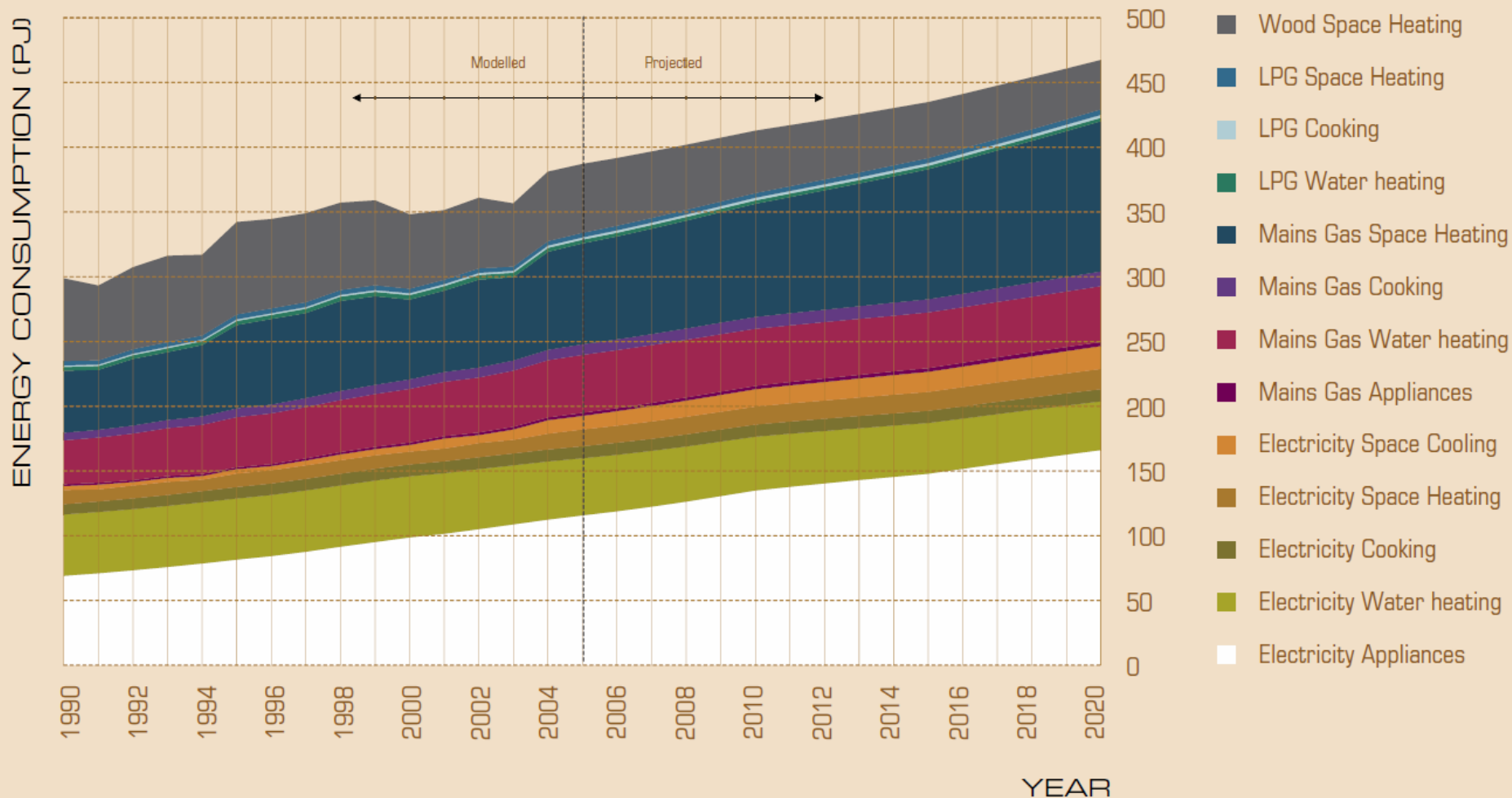


Full report at:
www.ausdavos.org

Project Rationale

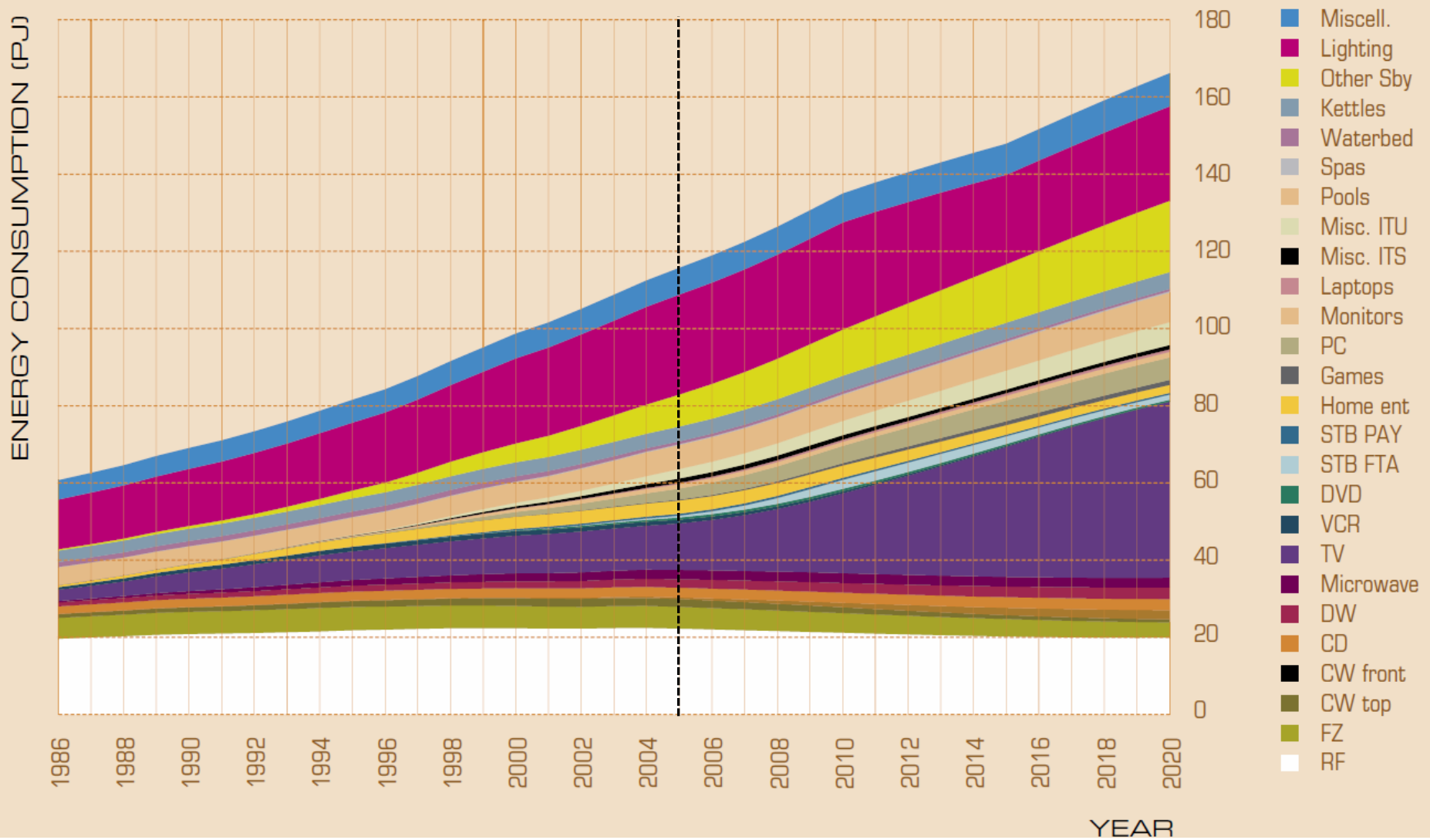


Electricity demand by end-use

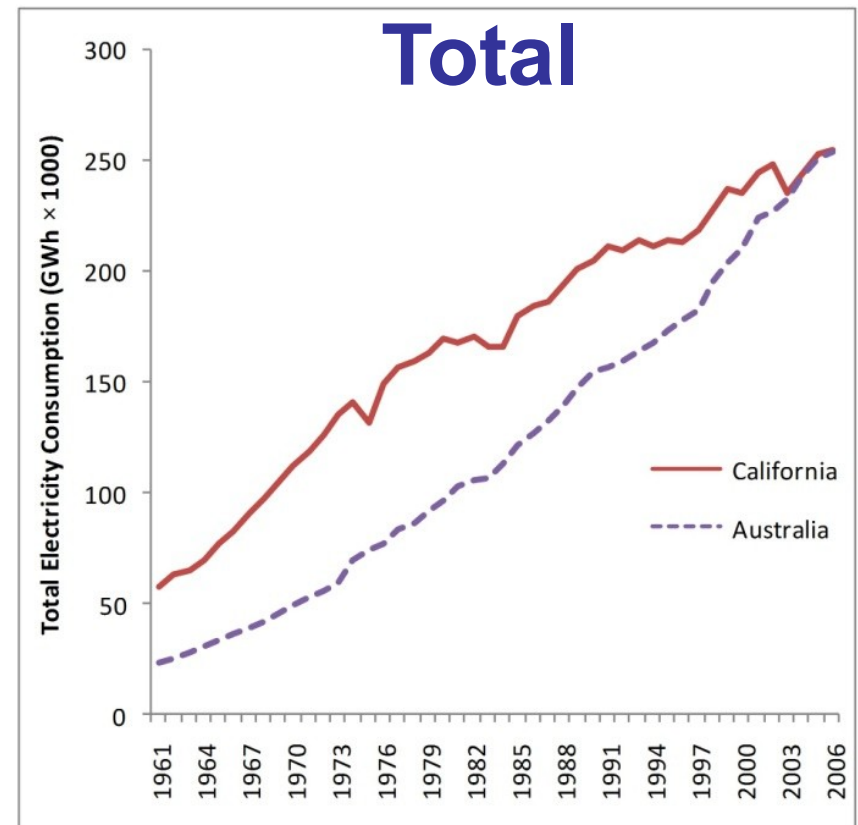
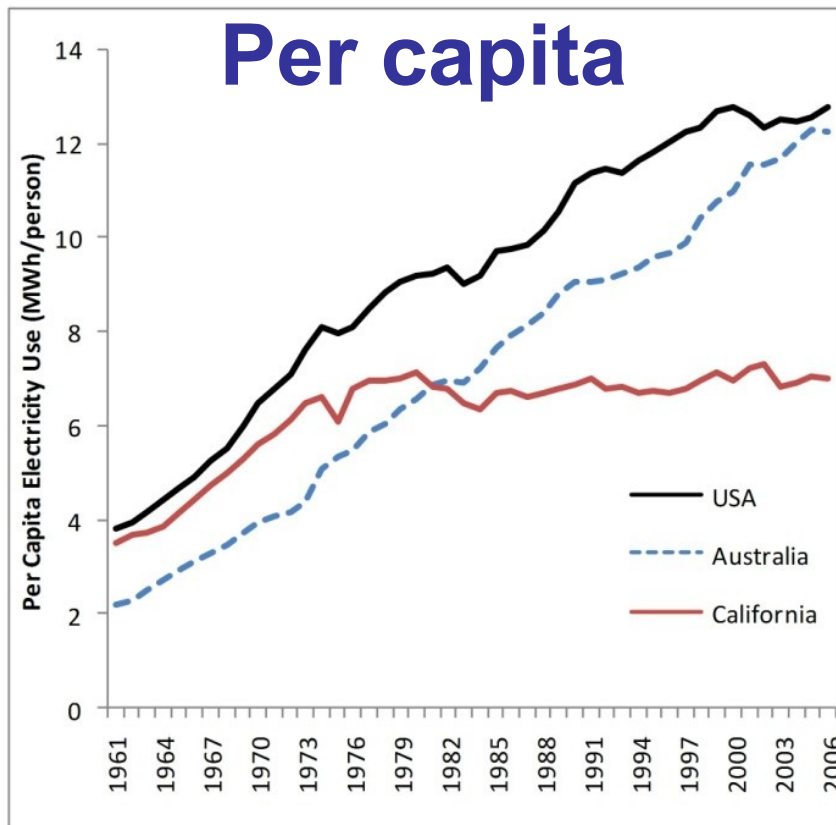




Appliances



Demand Management in California



Objectives



- **Helen Macpherson Smith Funded**
- **Four Stages:**
 1. DM measures
 2. Victorian context
 3. Recommendations
 4. Engagement

History of the situation

1921 – State Electricity Commission of Victoria

1982 – Reforms

1990 – Partial privatisation

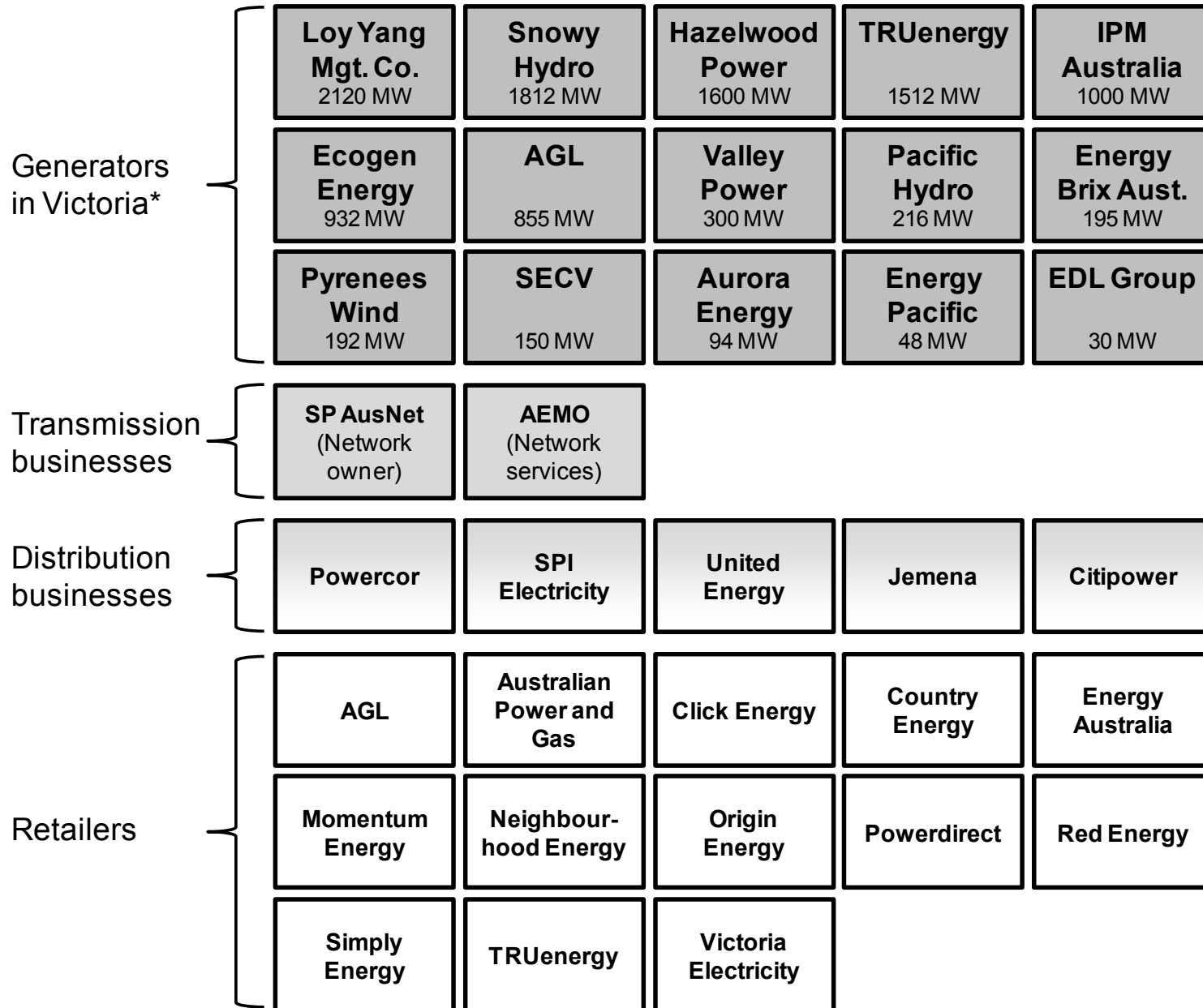
1992 – Openly competitive market

1994 – Market unbundling

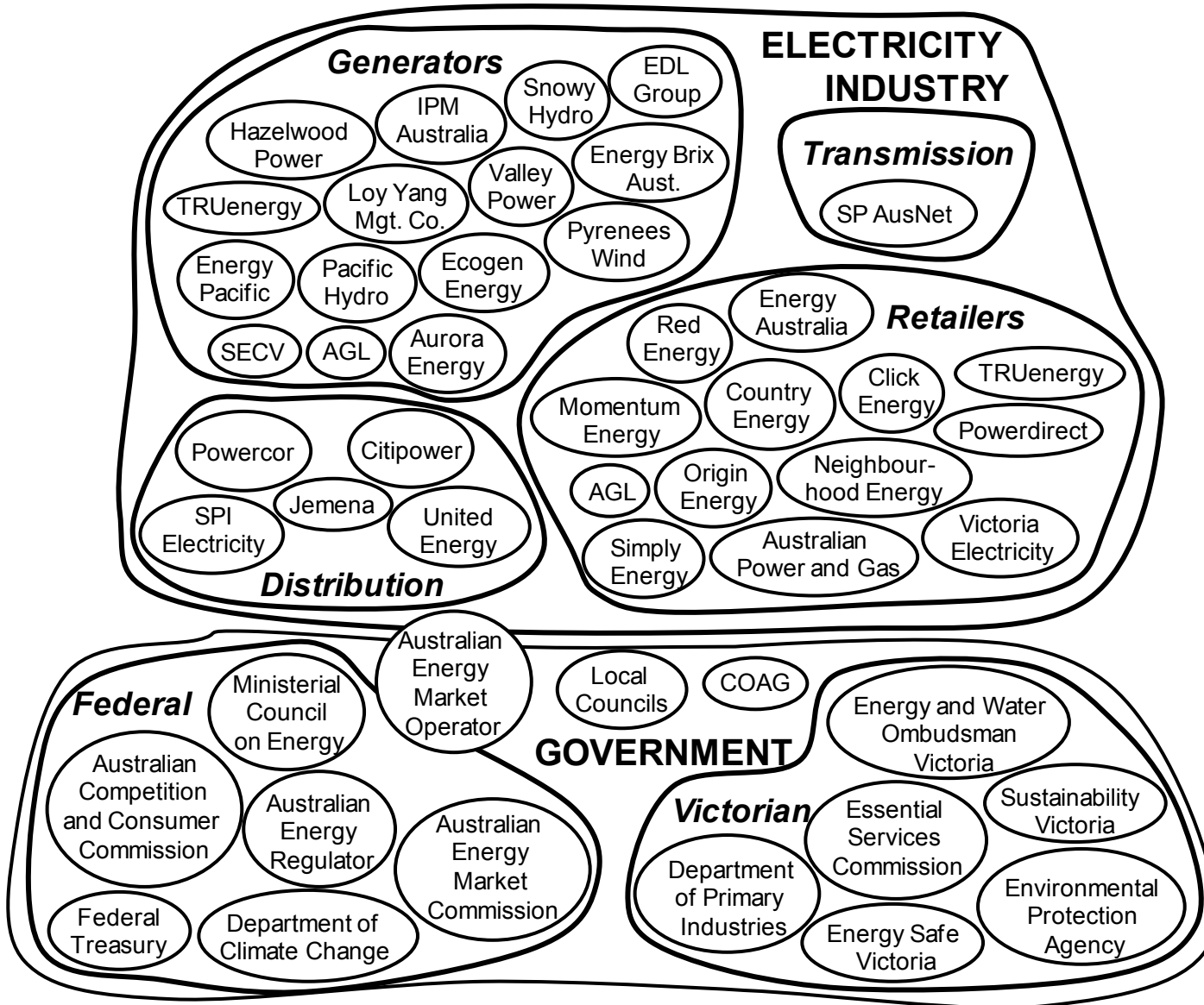
1998 – National Electricity Market (NEM)

2002 – Full retail competition

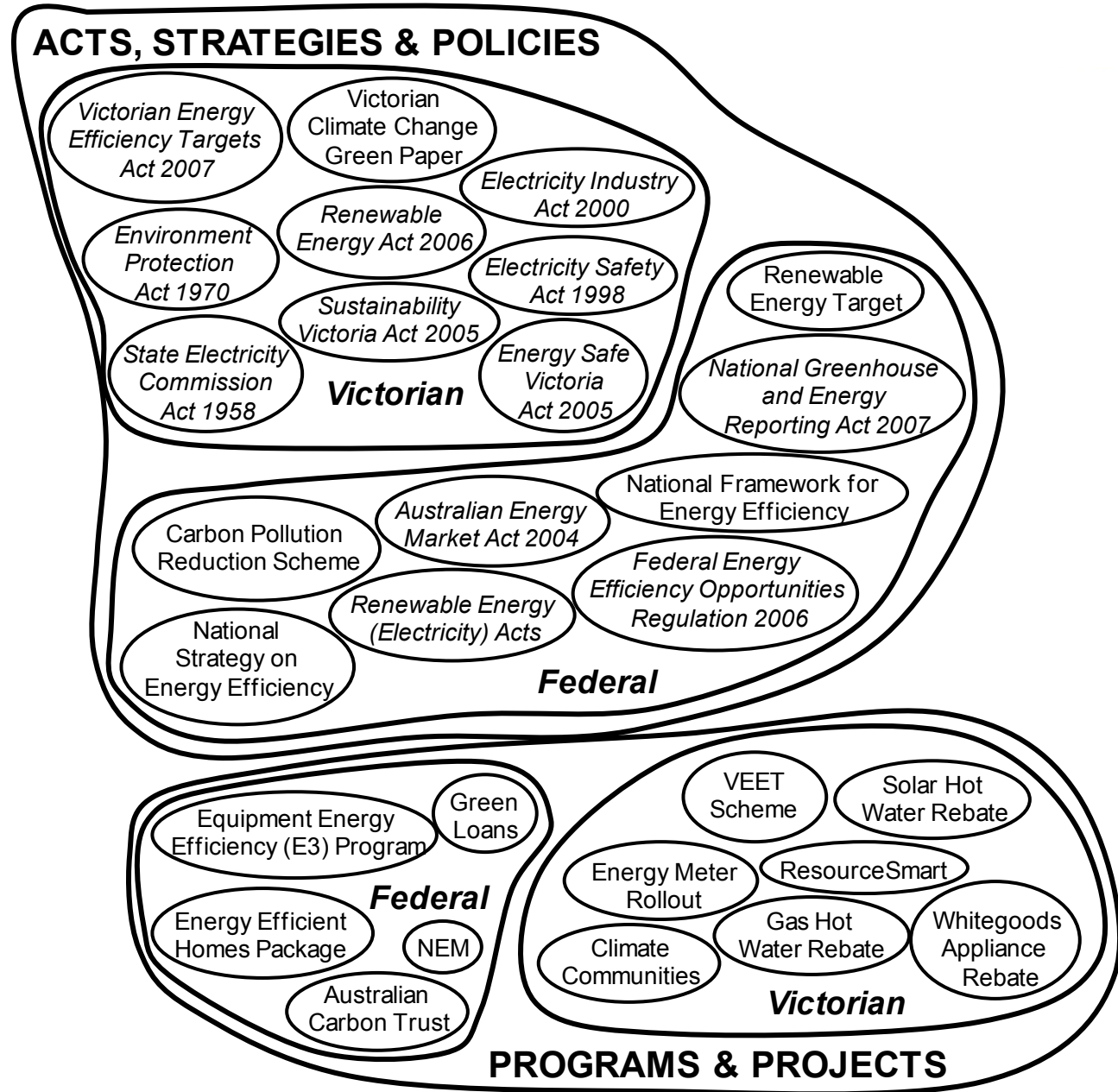
Industry structure



Organisations



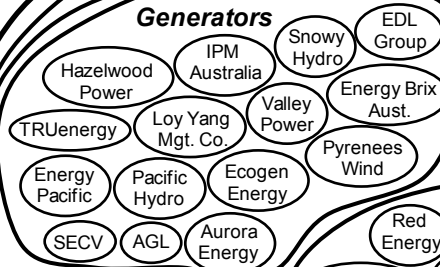
Project, programs and policies



Victorian electricity system

ORGANISATIONS

Generators

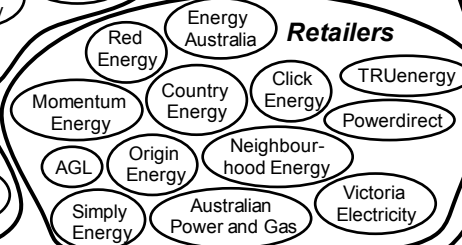


ELECTRICITY INDUSTRY

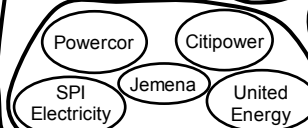
Transmission

SP AusNet

Retailers

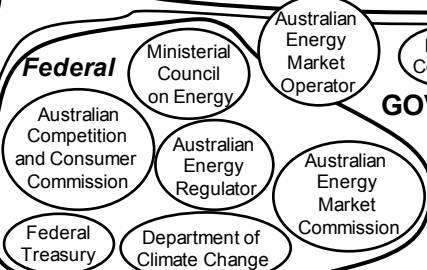


Distribution

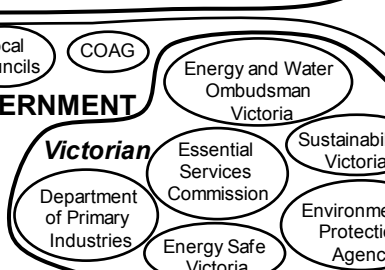


GOVERNMENT

Federal

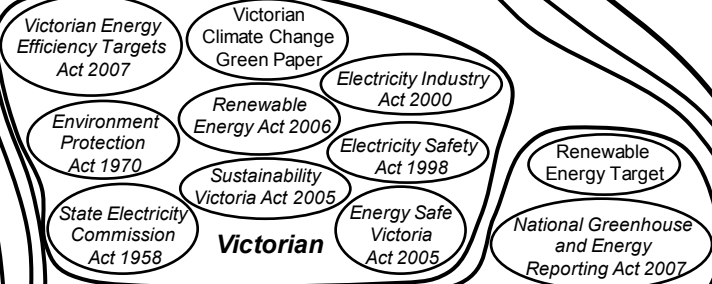


Victorian

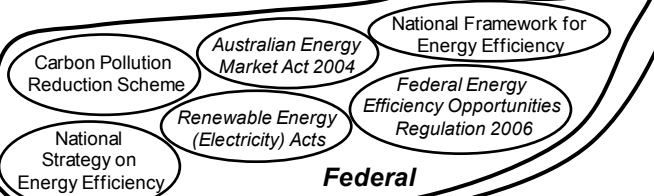


NON-ORGANISATIONS

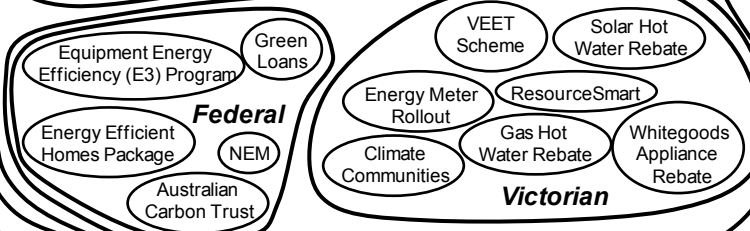
ACTS, STRATEGIES & POLICIES



Victorian



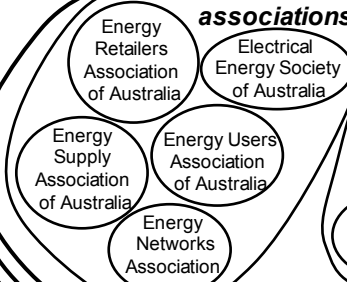
Federal



PROGRAMS & PROJECTS

SUPPORTING AND INTEREST GROUPS

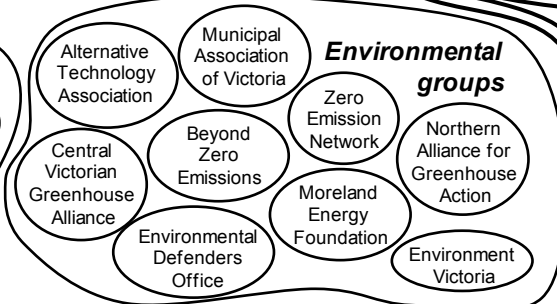
Industry associations



Consumer rights groups



Environmental groups

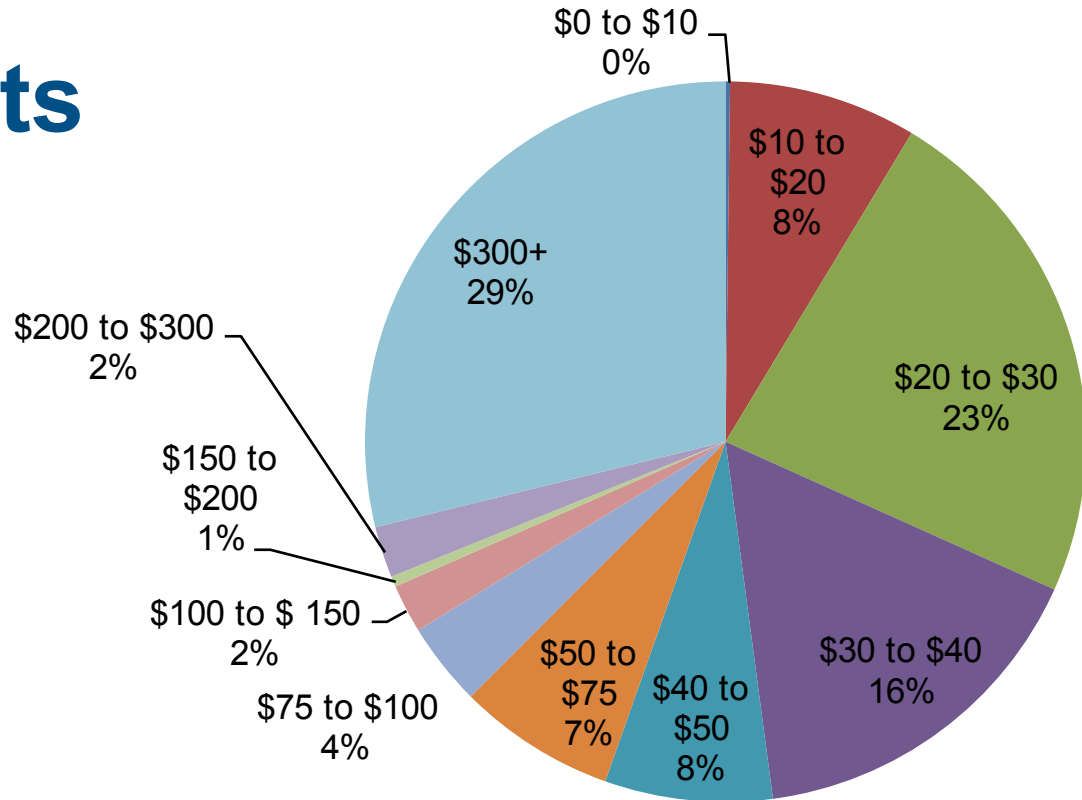
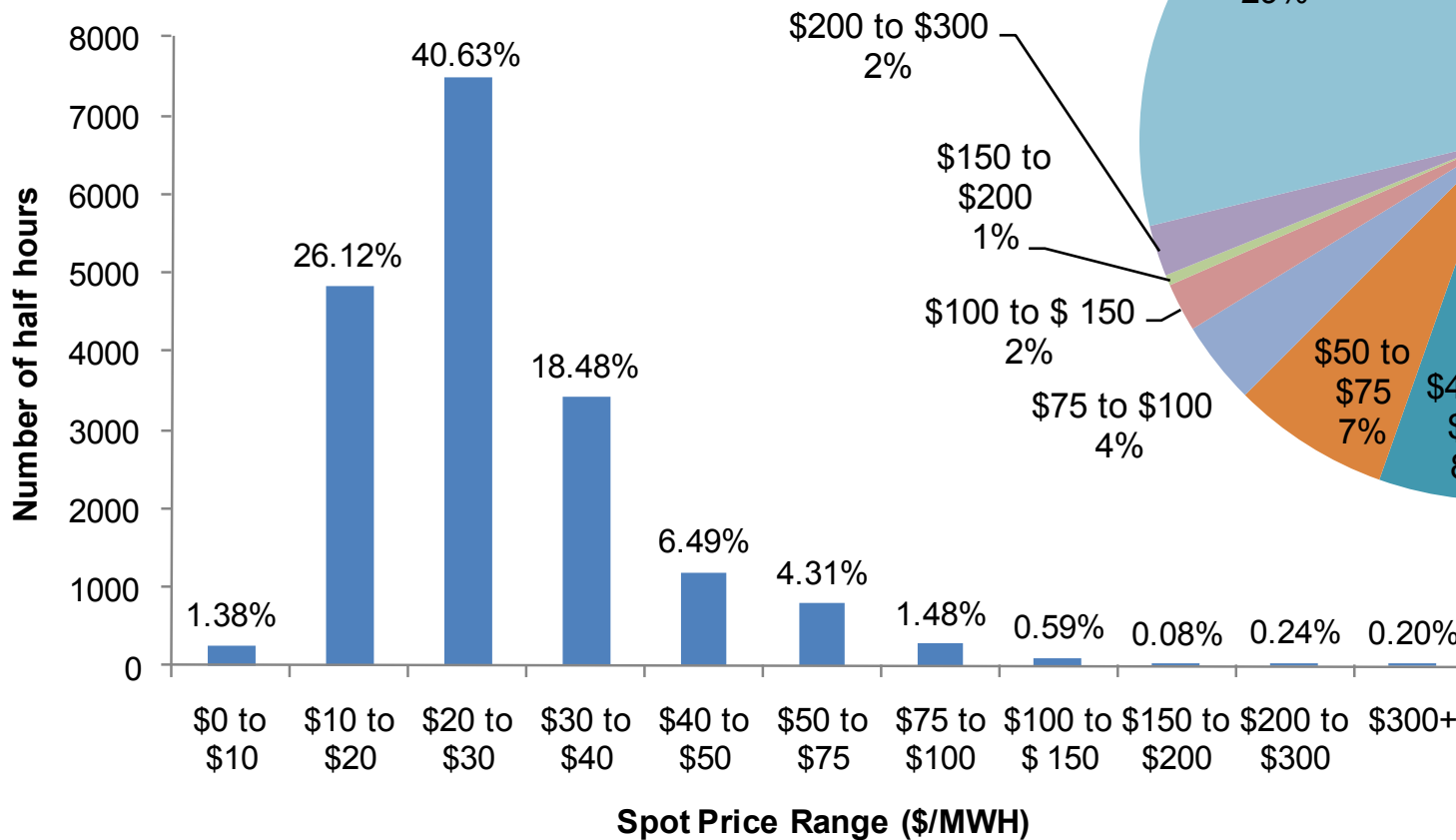


Demand Management Measures

STRATEGY	METHOD	TECHNIQUE
Pricing	Pricing structures	Time-of-use variable pricing Real-time pricing Pre-paid electricity Critical-peak pricing
	Consumer incentives	Rebate schemes and subsidies Energy saving certificates Green loans Peak-time rebates
Smart operating systems	Metering	Real-time electricity metering In-Home displays
	Direct load control	South Australia A/C load control trial
	Power factor correction	
Regulation	Utility incentives	Rate decoupling New South Wales D-Factor Systems benefit charges Shareholder incentives Demand Bidding Loading Order
	Efficiency	Mandated minimum efficiency standards Voluntary efficiency standards
Behaviour change	Influences on behaviour	The rational economic model of behaviour Social-psychological factors and models
	Strategies for behaviour change	Persuasion Social learning theory Participatory problem-solving Community based social marketing
	Consumer information	Appliance Labelling Consumption information at billing

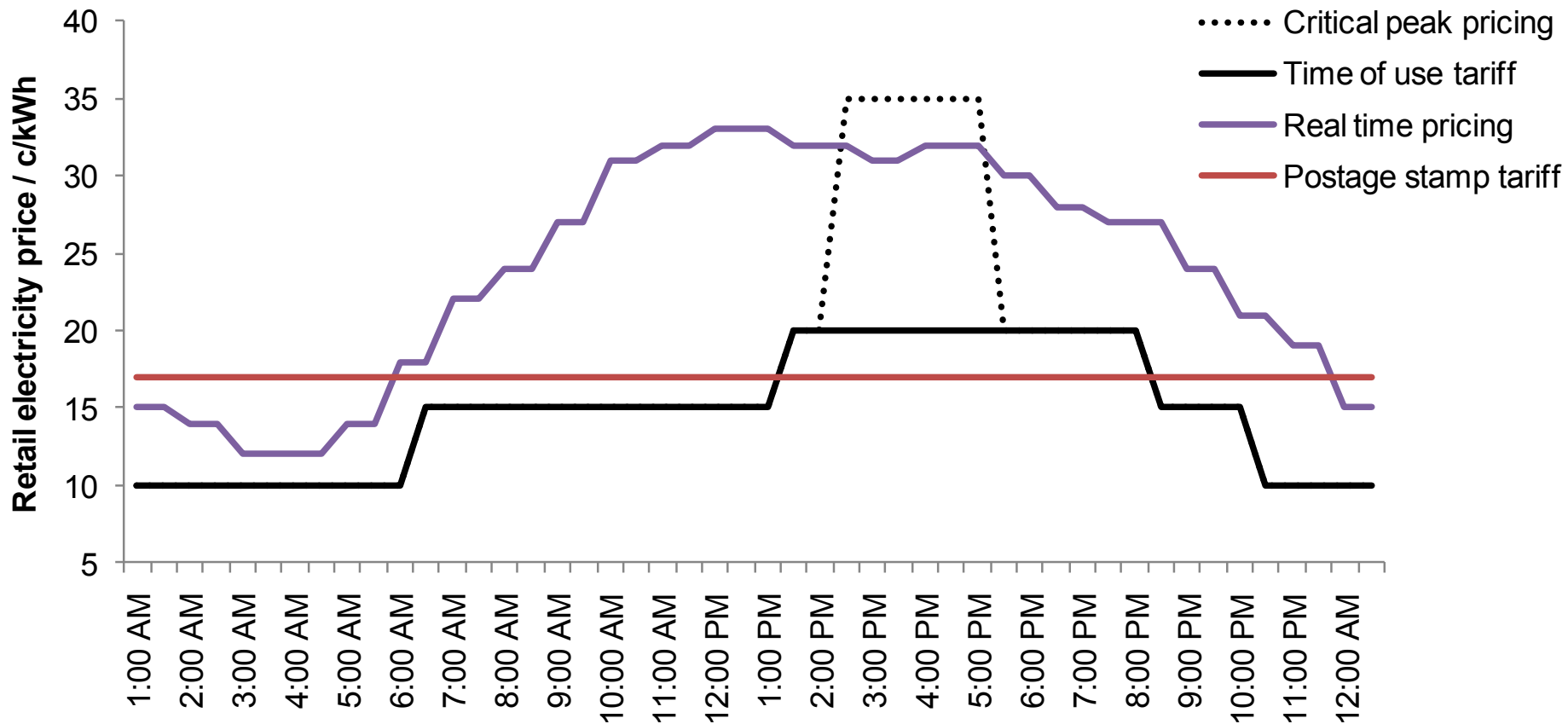


Wholesale costs



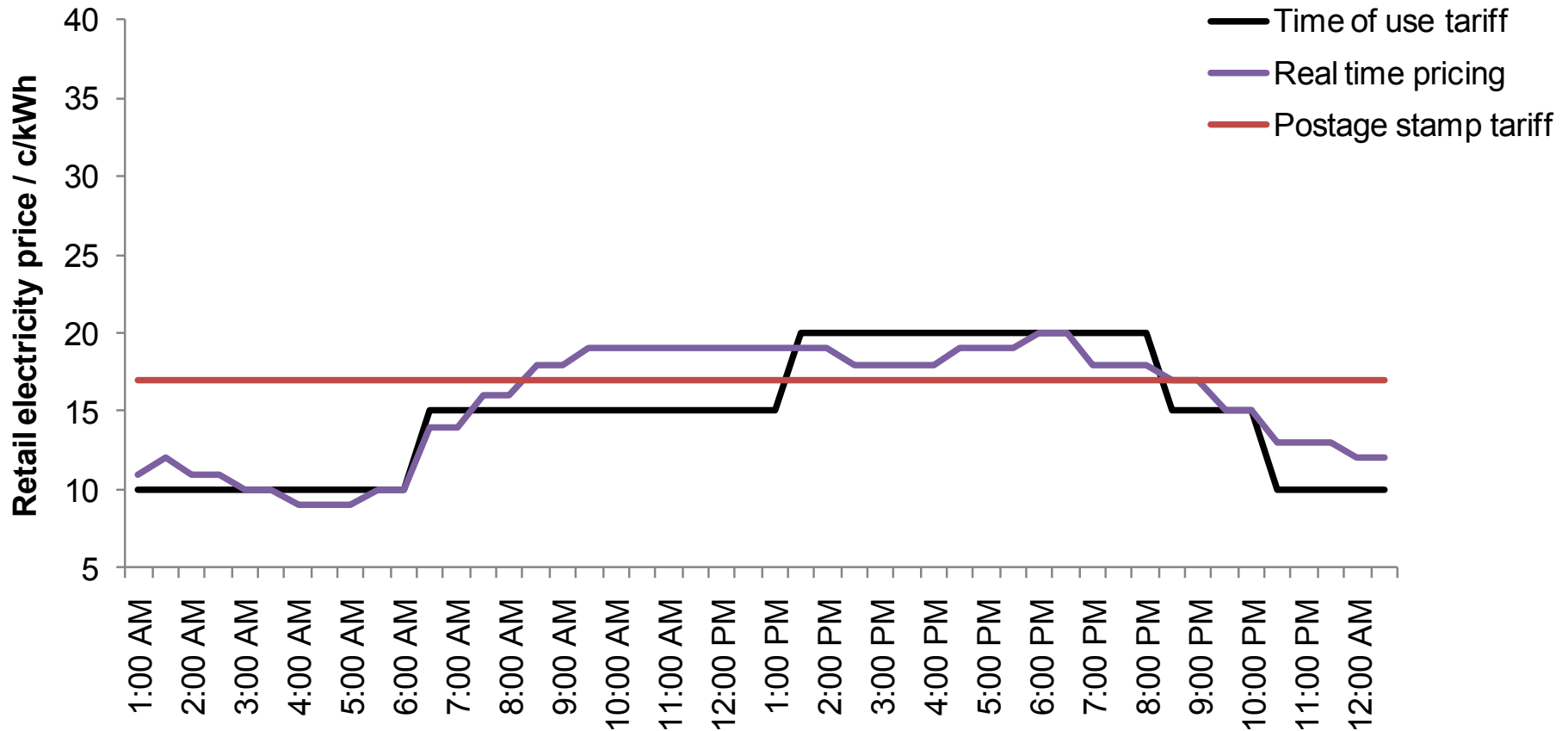
Pricing mechanisms

High demand day



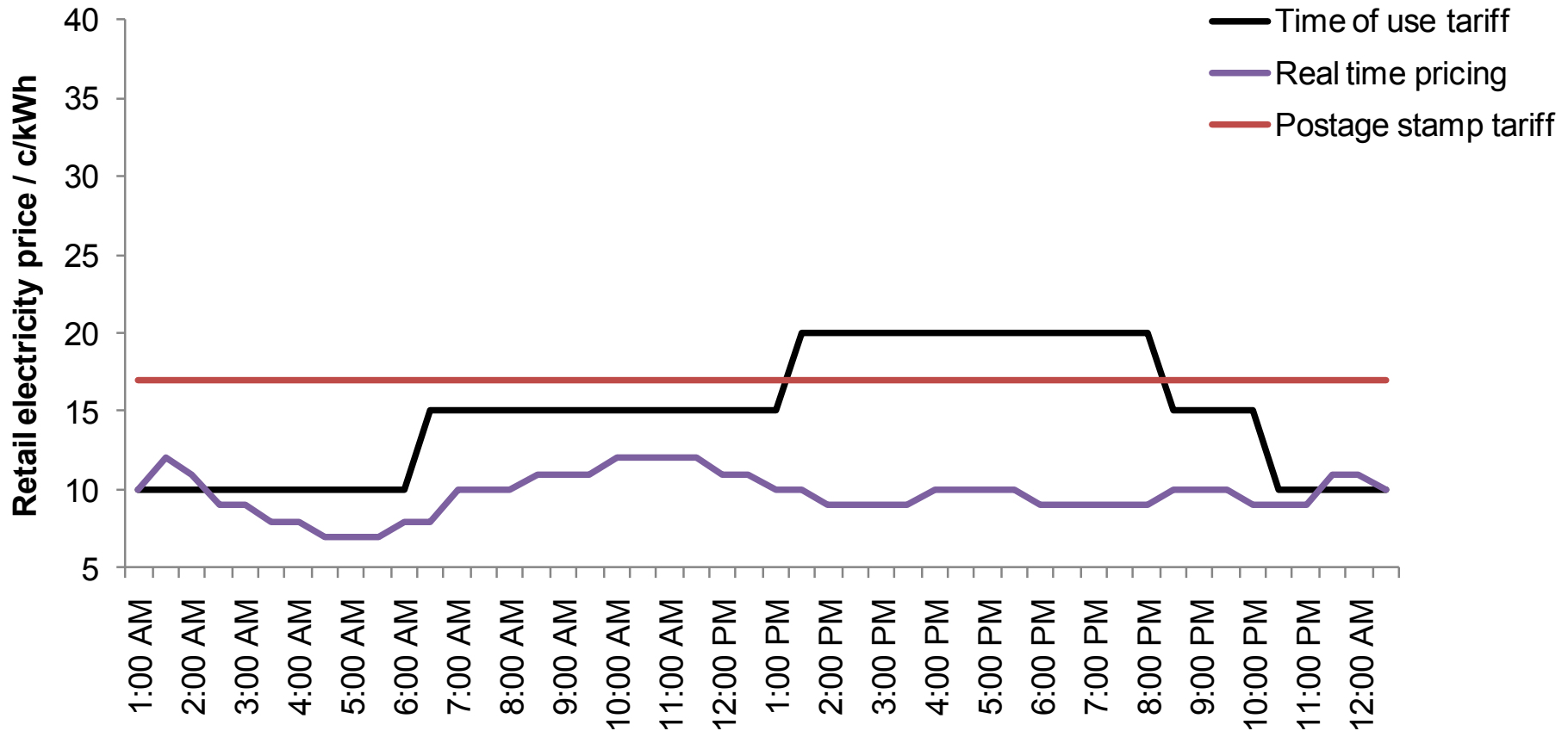
Pricing mechanisms

Average demand day



Pricing mechanisms

Low demand day



Smart operating systems



Smart
Meters



In Home
Displays



Direct
Load
Control

Consumer incentives

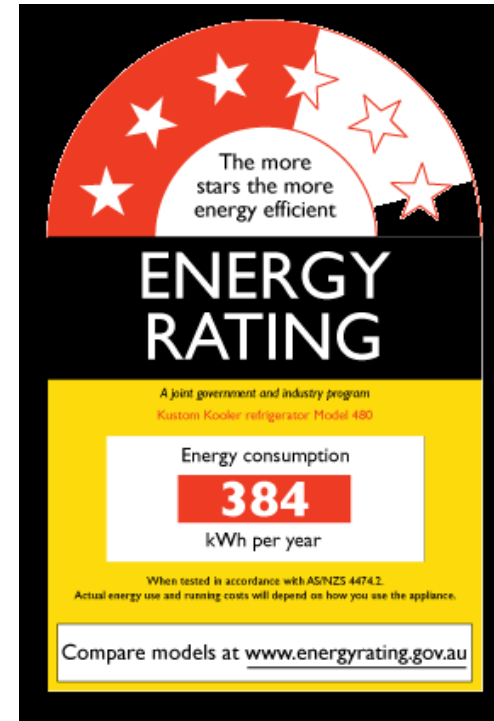
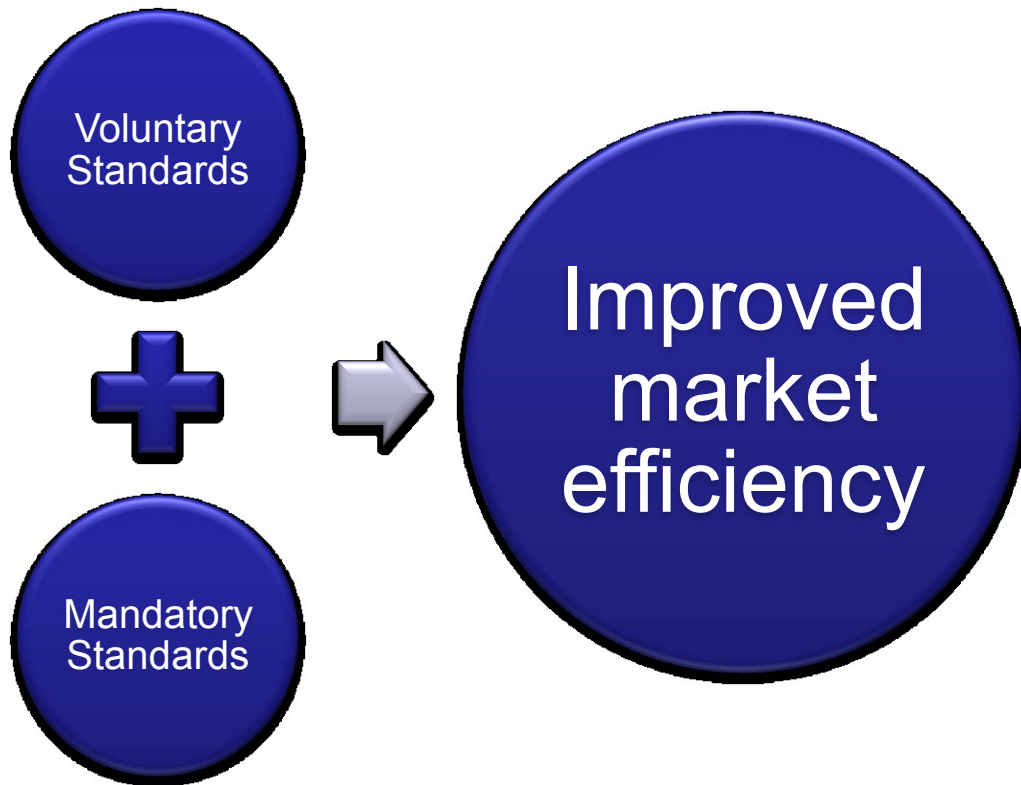
Rebates

Green Loans

Energy Saving
Certificates



Efficiency standards



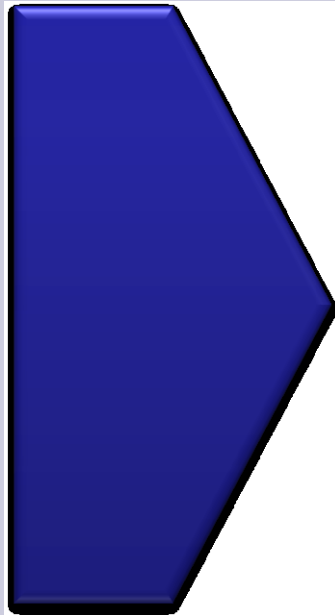
Utility incentives

Barrier

Cost of implementation

Lost revenue

Management motivation



Technique

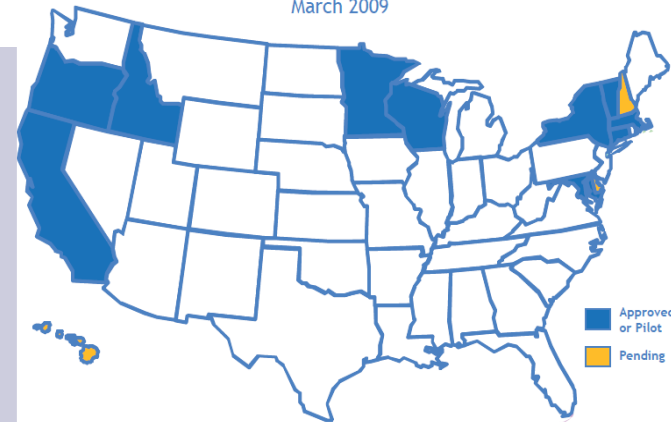
System Benefits Charge

Revenue Decoupling

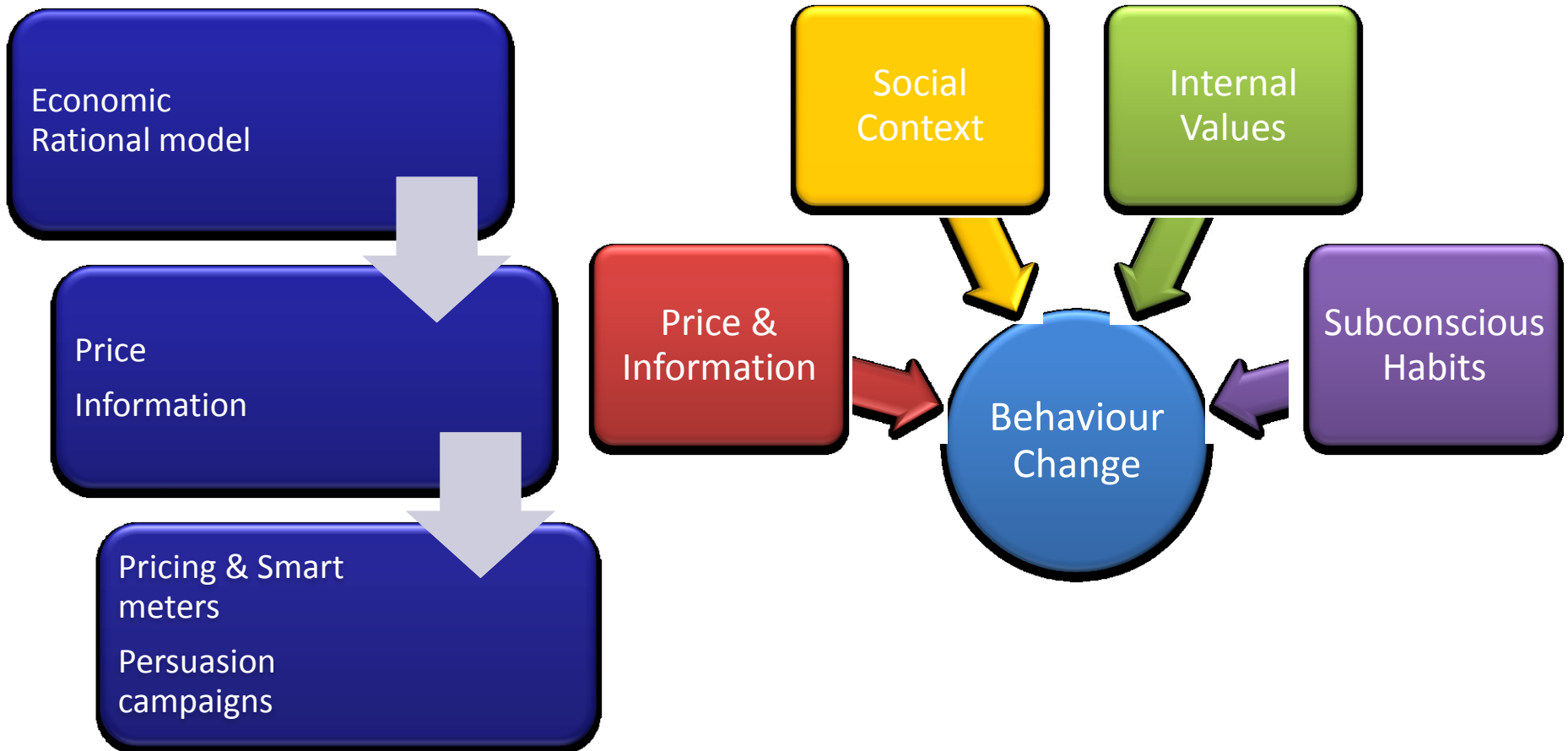
Shareholder Incentives



Status of Revenue Decoupling for Electric Utilities by State
March 2009



Behaviour change models





Recommendations

Purpose



Target



Mechanism



Recommendation

**Reducing
Electricity
Use**

CONSUMERS:
Responsibility and
response-ability

Pricing

**TIME-DEPENDENT
PRICING USING
SMART METERS**



Purpose



Target



Mechanism



Recommendation

**Reducing
Electricity
Use**

CONSUMERS:
Responsibility and
response-ability

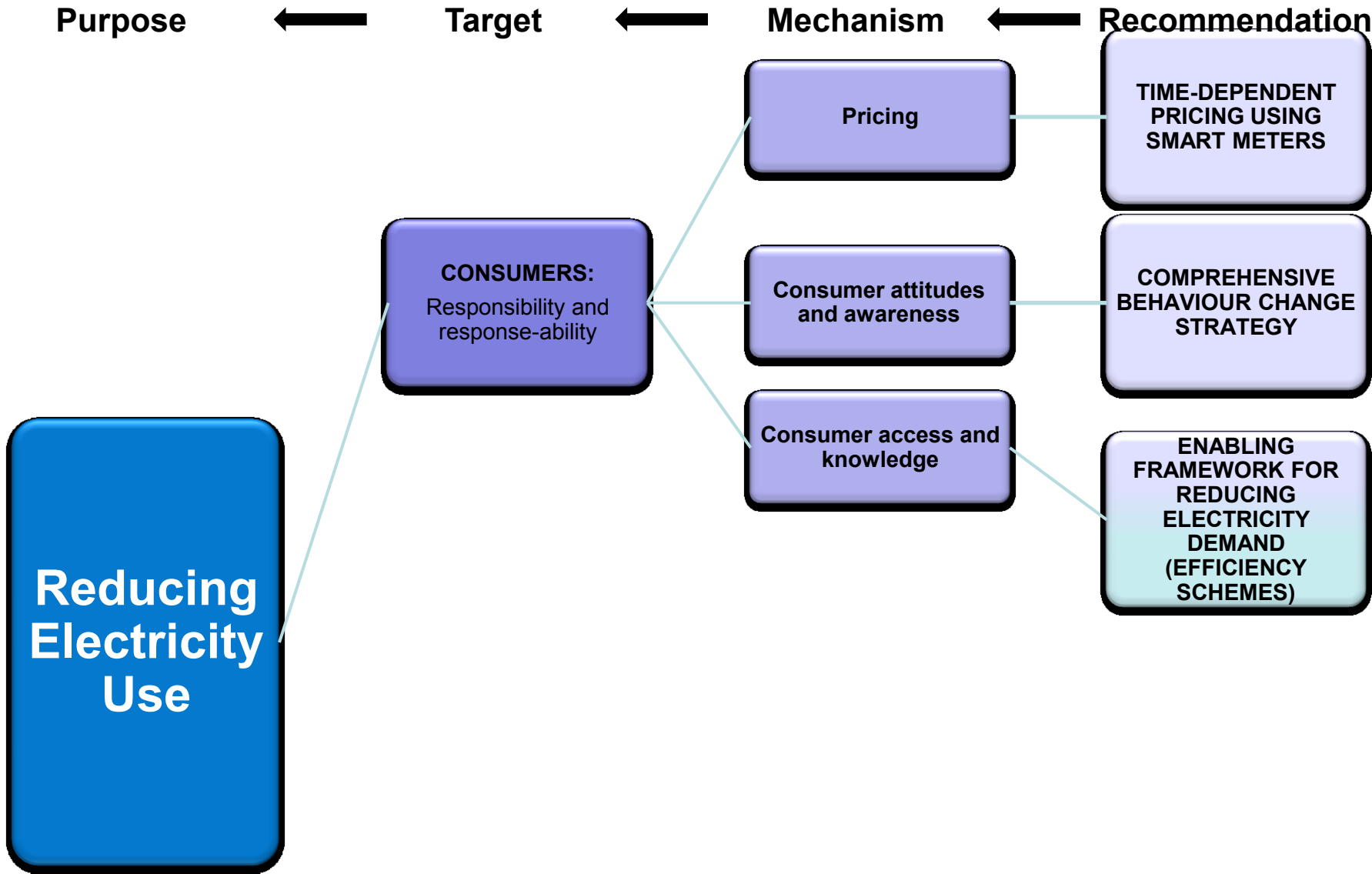
Pricing

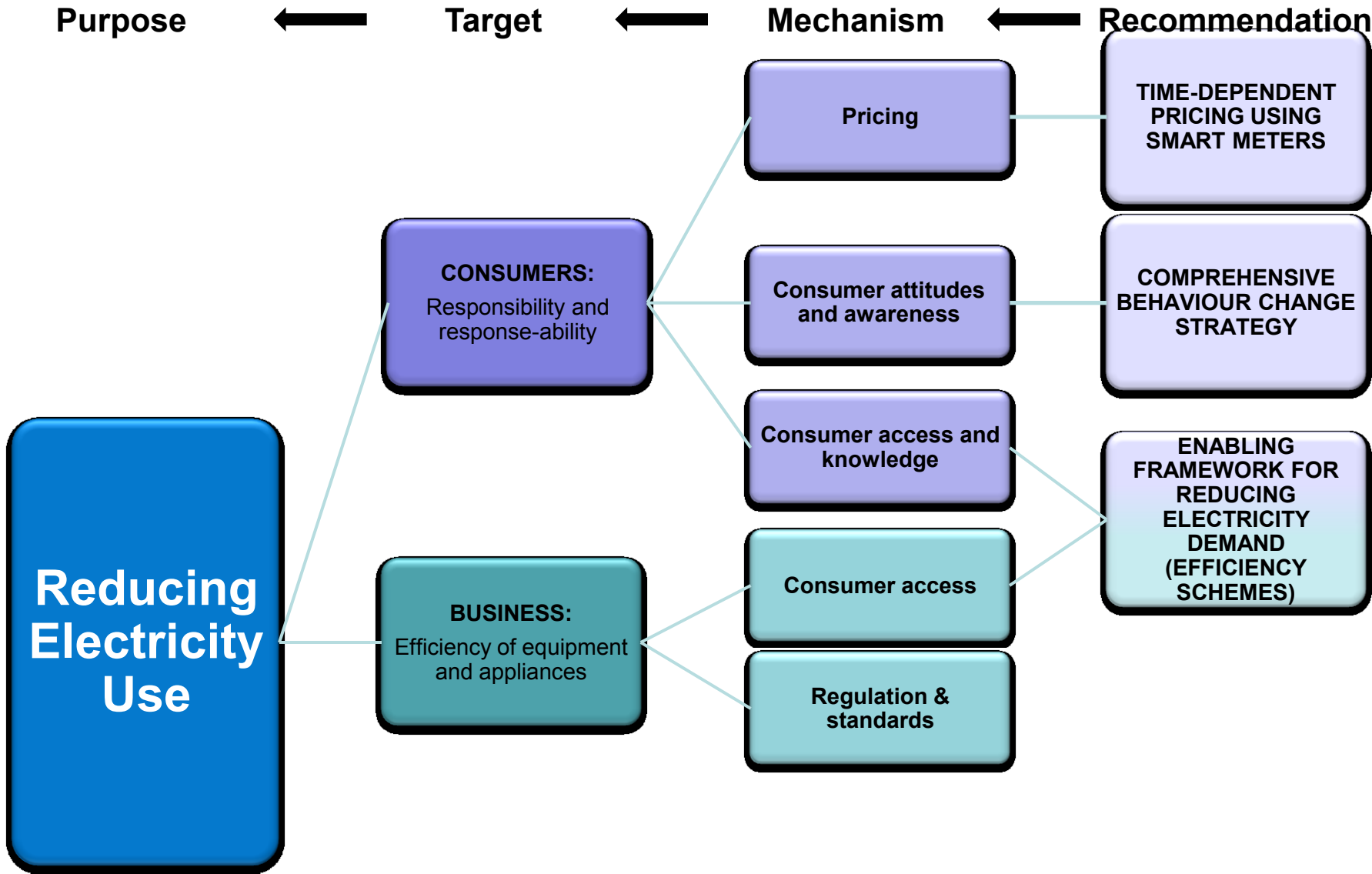
**Consumer attitudes
and awareness**

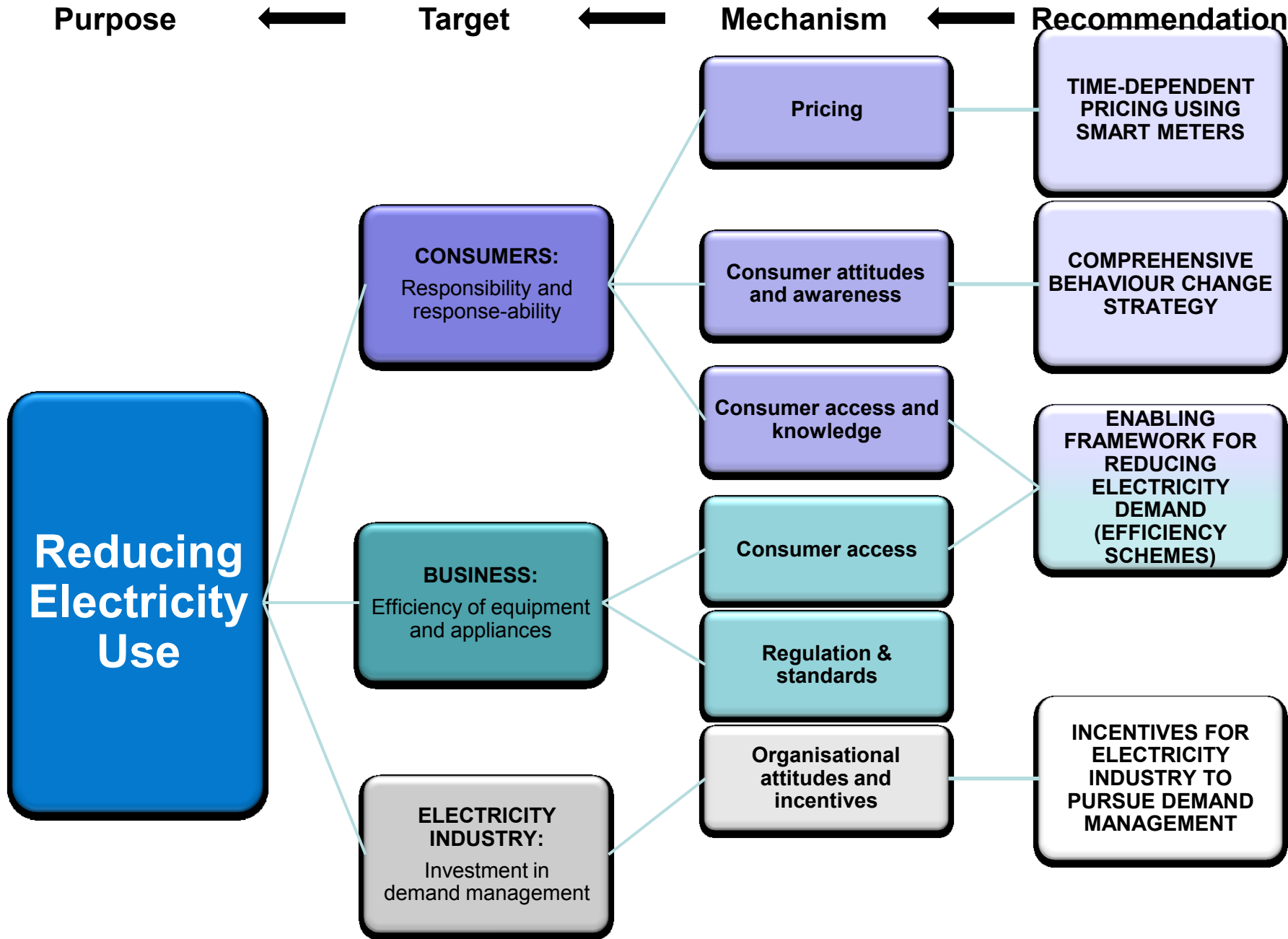
**TIME-DEPENDENT
PRICING USING
SMART METERS**

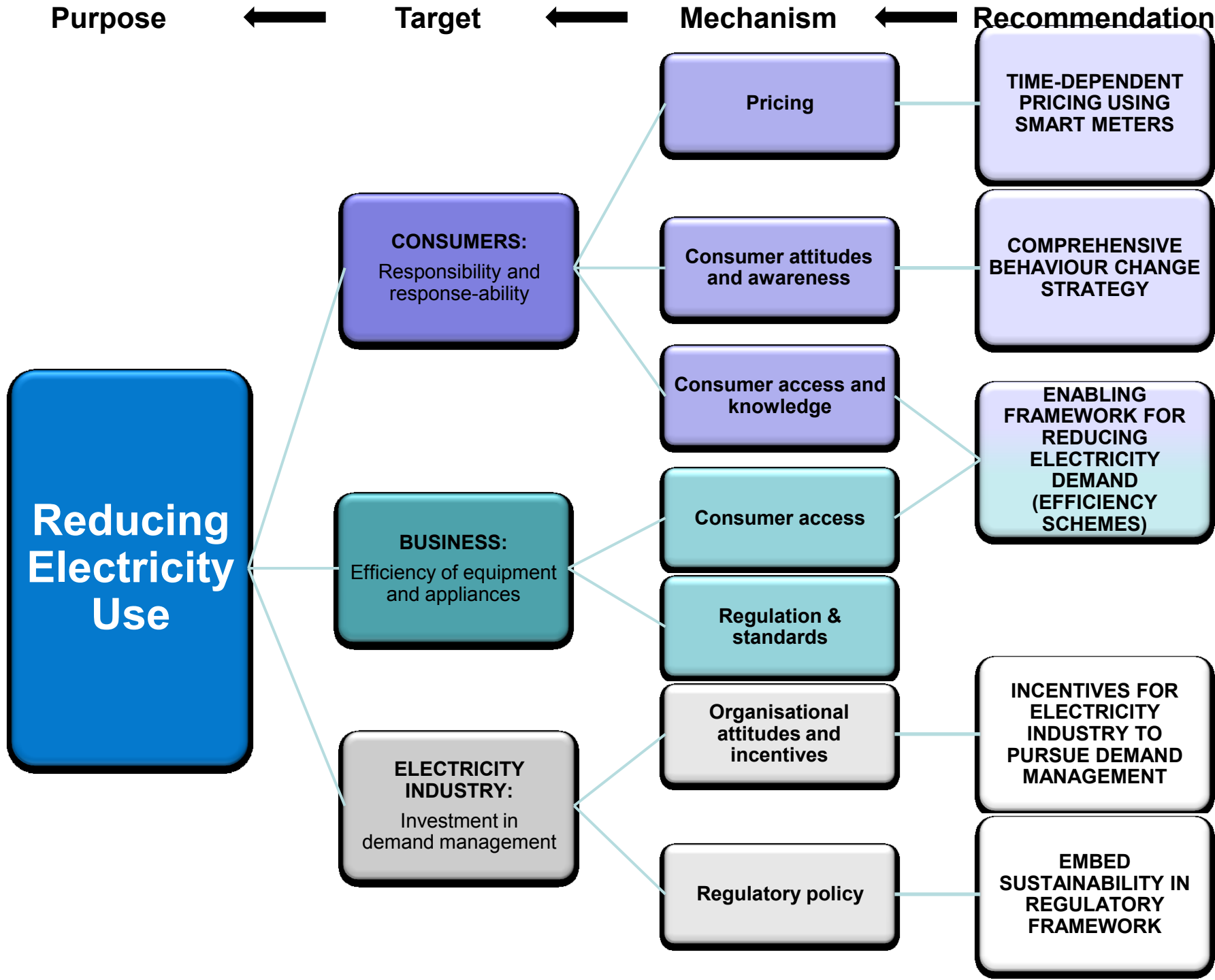
**COMPREHENSIVE
BEHAVIOUR CHANGE
STRATEGY**











Acknowledgements

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