EMERGING ENERGY MARKET ISSUES AND THE BUILDING ENVIRONMENT

Gadens Lawyers , 17 November 2009

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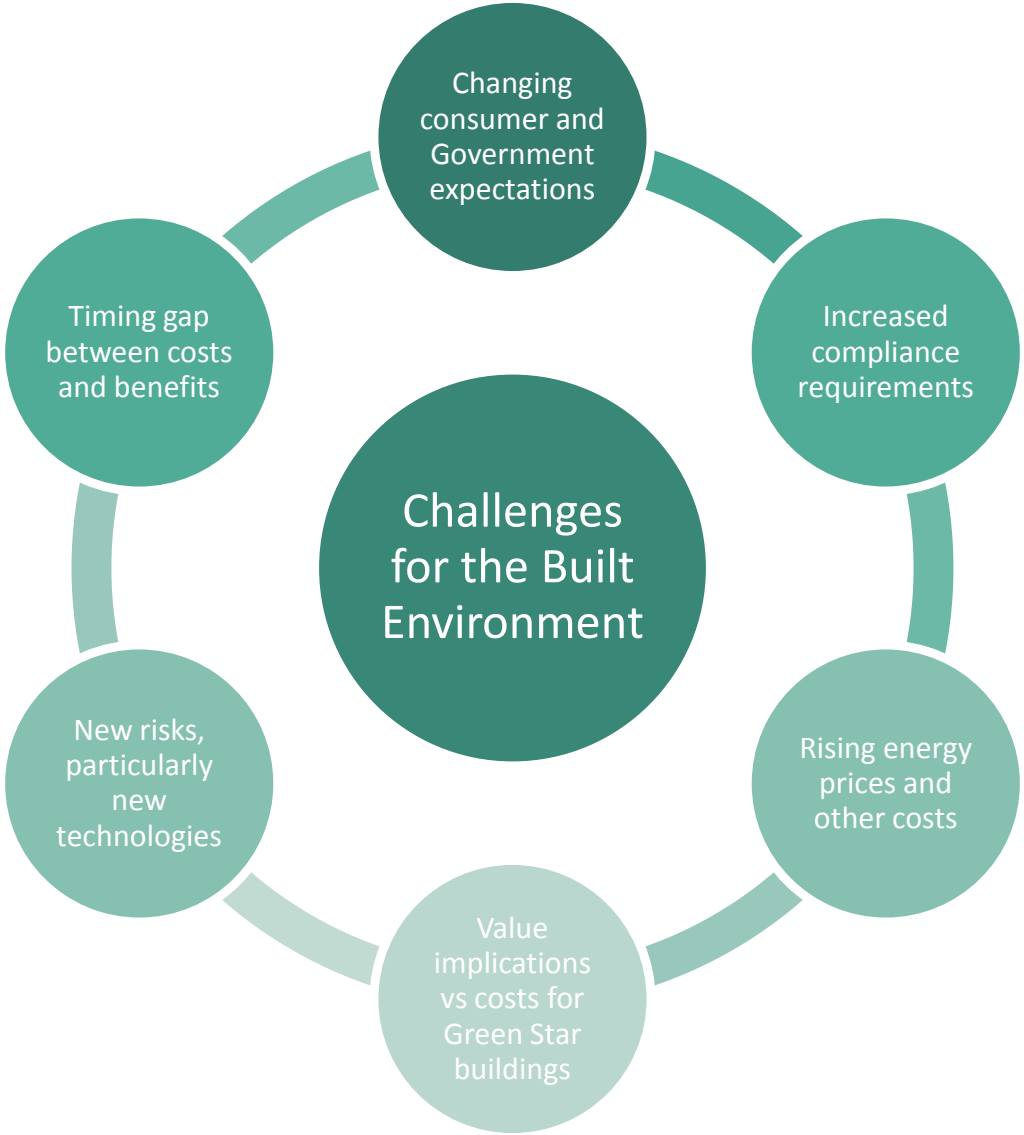
Challenges for the Built Environment
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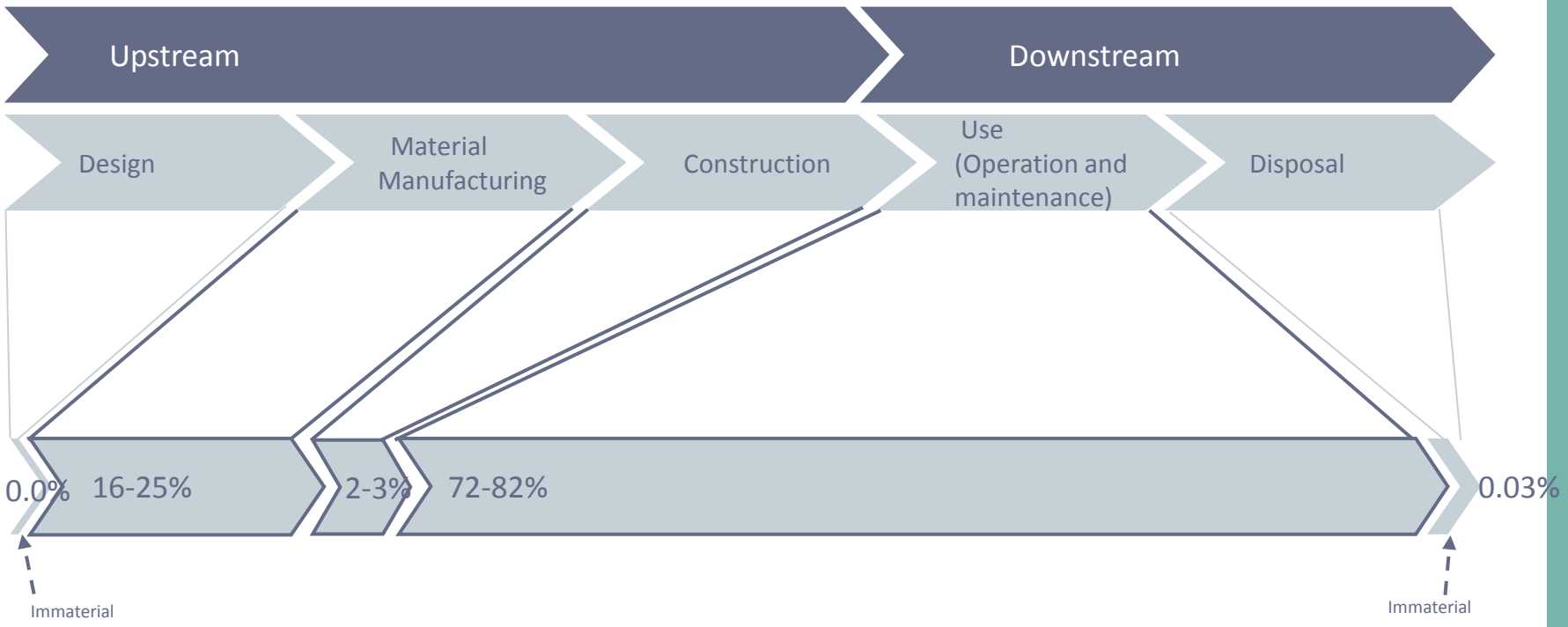
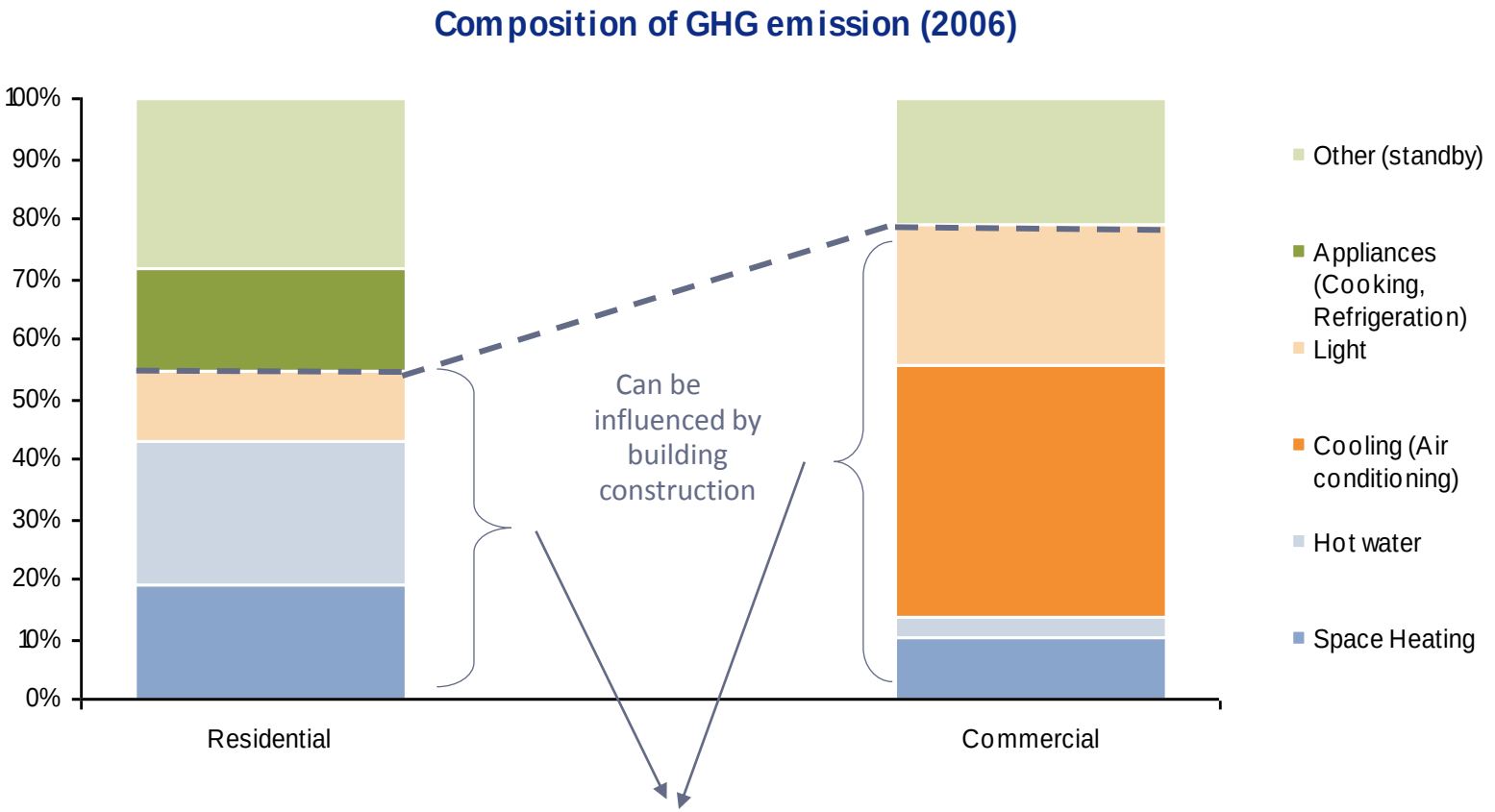
Greenhouse Gas Emissions – Property Sector Lifecycle Assessment

More than 70% of total lifecycle emissions from buildings are from tenants and building energy usage



Source: Lifecycle Energy Consumption, Energy Efficient Strategies and Deakin University Faculty of Science and Technology, 2000.

Greenhouse Gas Emissions – Property Sector
Composition of GHG Emissions



80% of commercial sector GHG emissions can be influenced

Source: National Inventory by Economic Sector 2006, Australian Government Department of Climate Change, June 2008

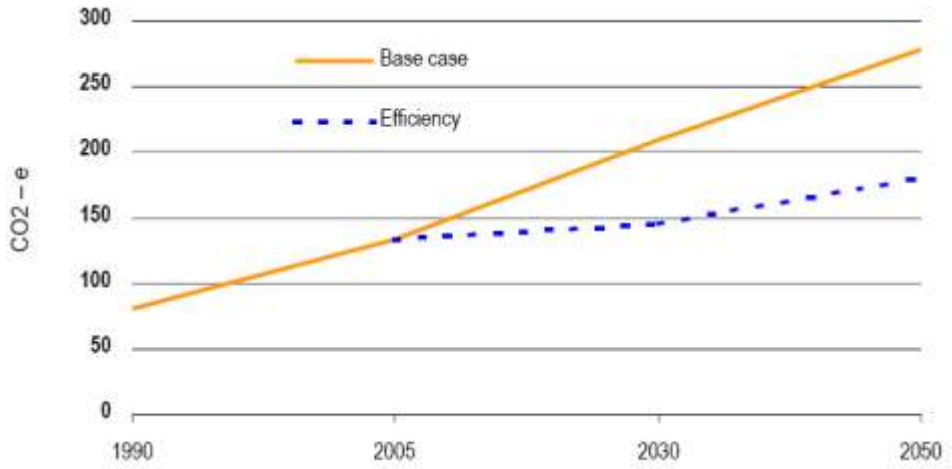
Emissions Reduction Potential

- Energy efficiency could deliver 30-35% savings across the whole building sector by 2050
- Electricity demand in residential and commercial buildings can be halved by 2030 through energy efficiency

Energy efficiency measures:

- Building fabric improvement
- Lighting system
- Heating and cooling system
- Energy efficient motors
- Energy efficient equipments
- Passive design
- Onsite generation

Estimated change in total GHG emissions from built environment



Source: CIE, Centre for International Economics, 2007

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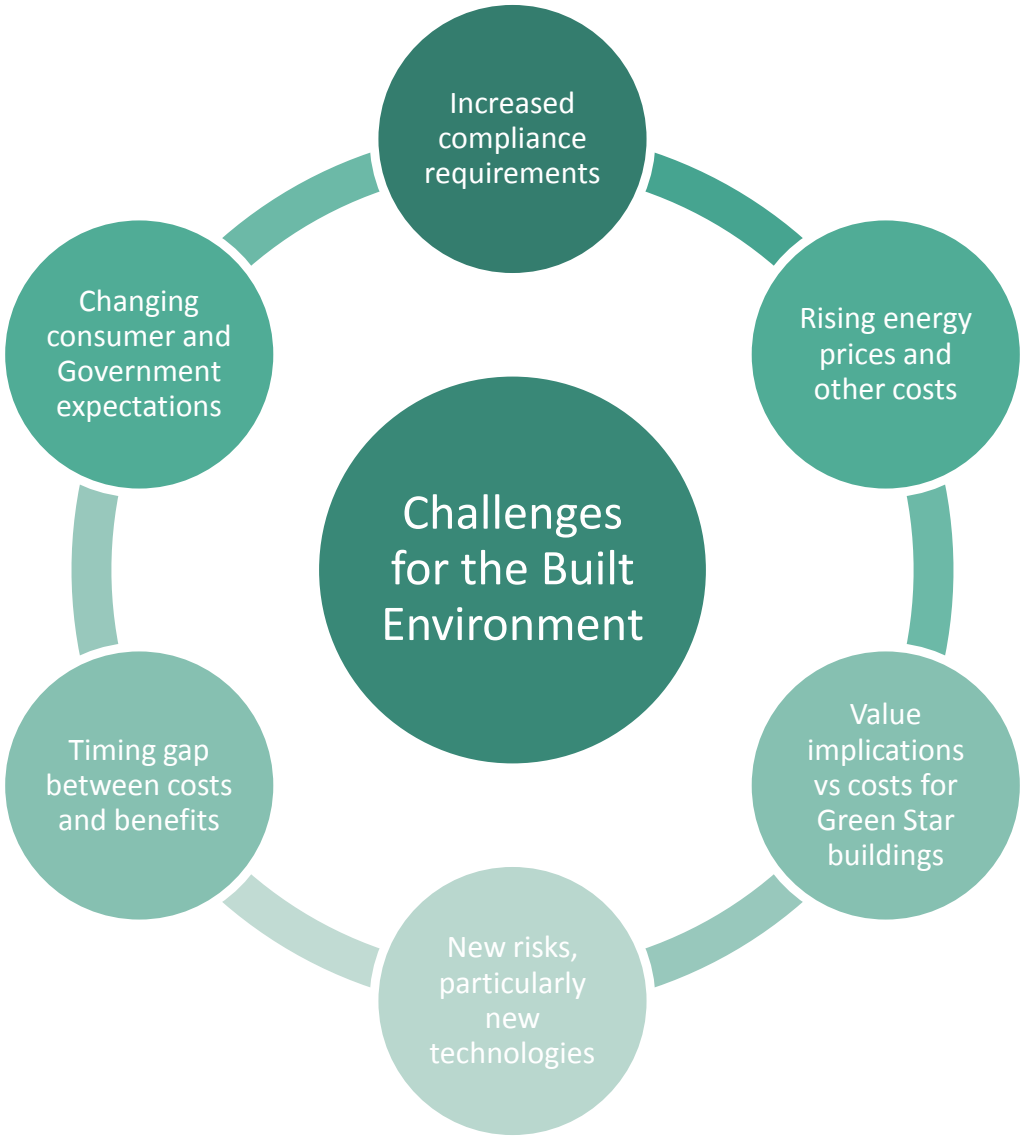
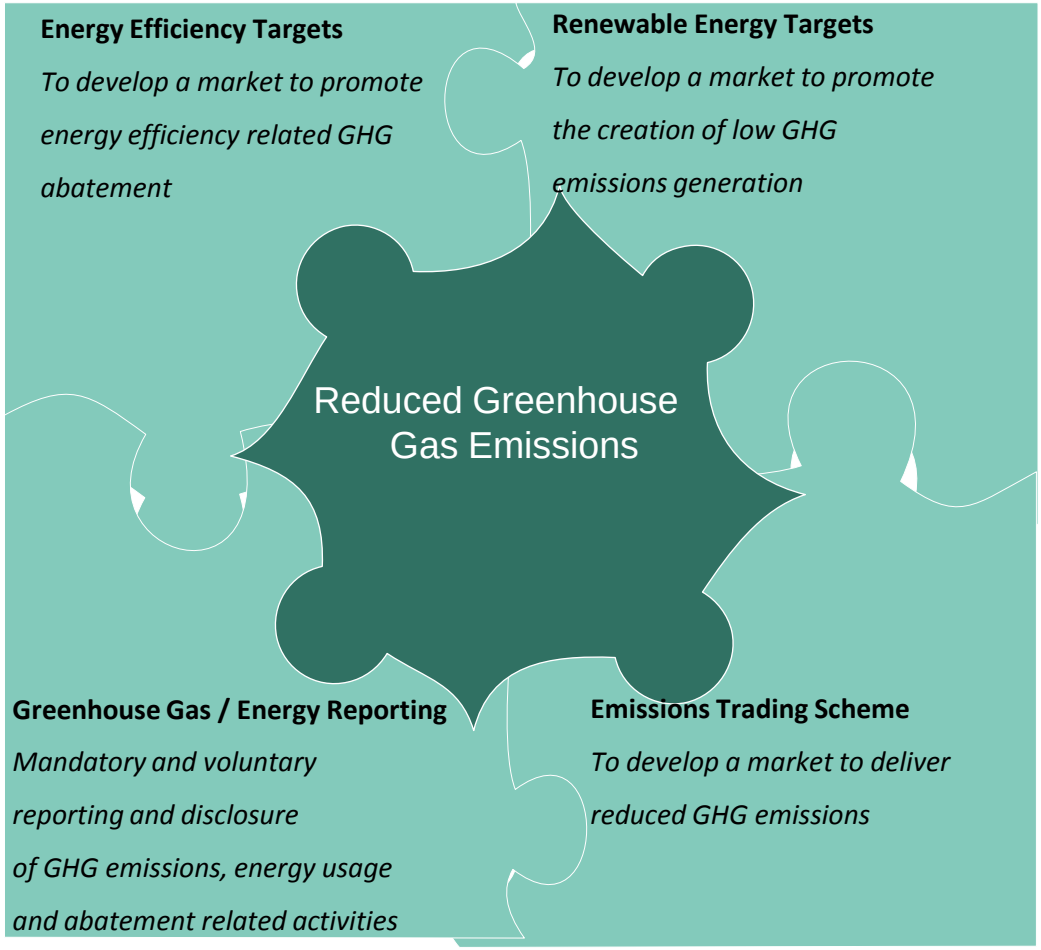
Increased Compliance Obligations



Policy Framework
Key Government Policies

Objectives

- Achieve emission reduction targets
- Price carbon externality
- Shift value within the economy
- Manage the transition



Key Policy Milestones

- **Garnaut Review**
- **NGER**
- **Green Paper**
- **White paper**

- **CPRS Draft Bills**
- **Expanded RET Bill**
- **CPRS Final Bills (?)**

- **Mandatory disclosure energy efficiency**

- **CPRS (?)**

- **20% RET**
- **5% - 25% Emissions reduction target**

- **60% Emission reduction target**

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Other initiatives

- Melbourne City Council
  - 1200 Buildings Program
  - Zero emissions target 2020
  - CitySwitch
- Federal Government
  - Green Buildings Fund - Phase 3 provided $16.4 million for 27 projects
  - Climate Change Action Fund – for adaptation / mitigation


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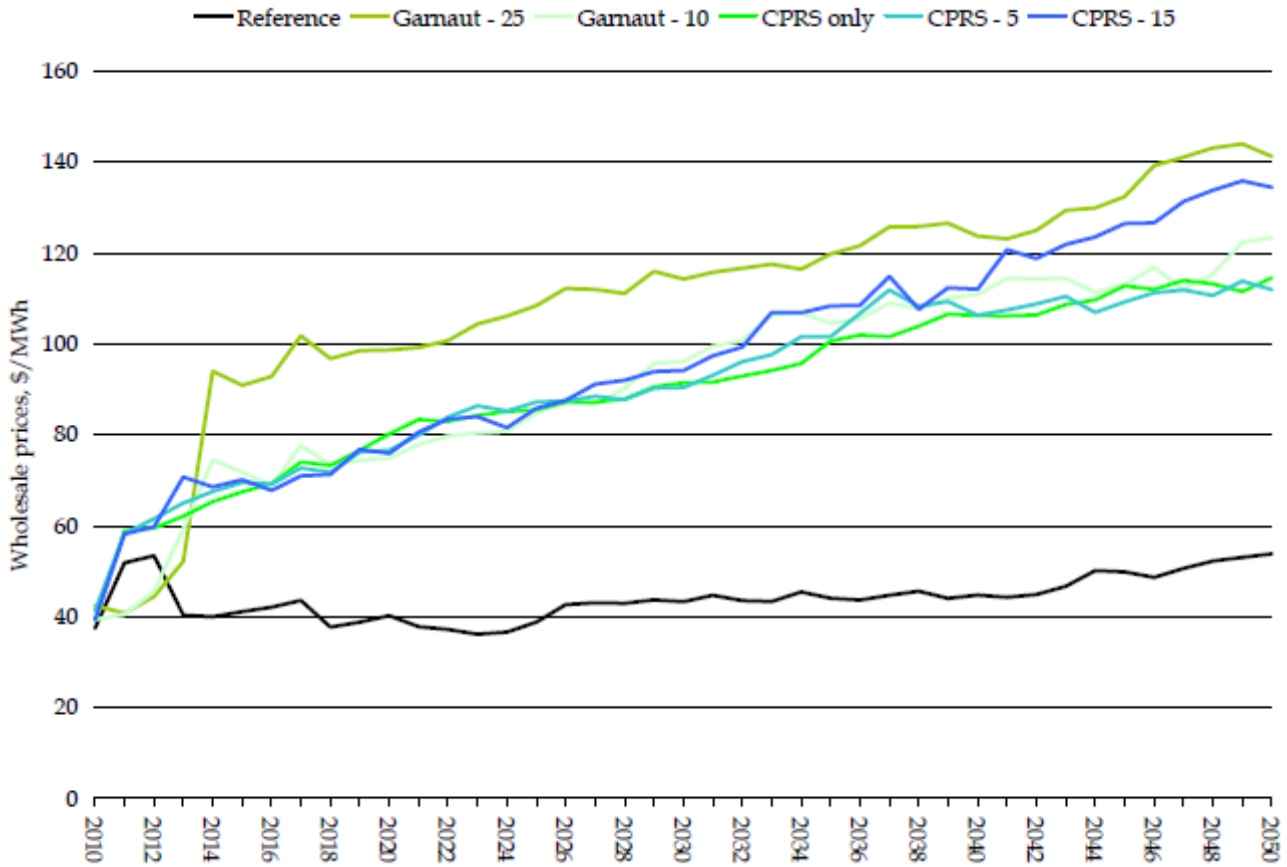
Wholesale Electricity Price Forecasts (Australia)



Source: Impact of the Carbon Pollution Reduction Scheme on Australia's Electricity Markets, McLennan Magasanick Associates, December 2008.

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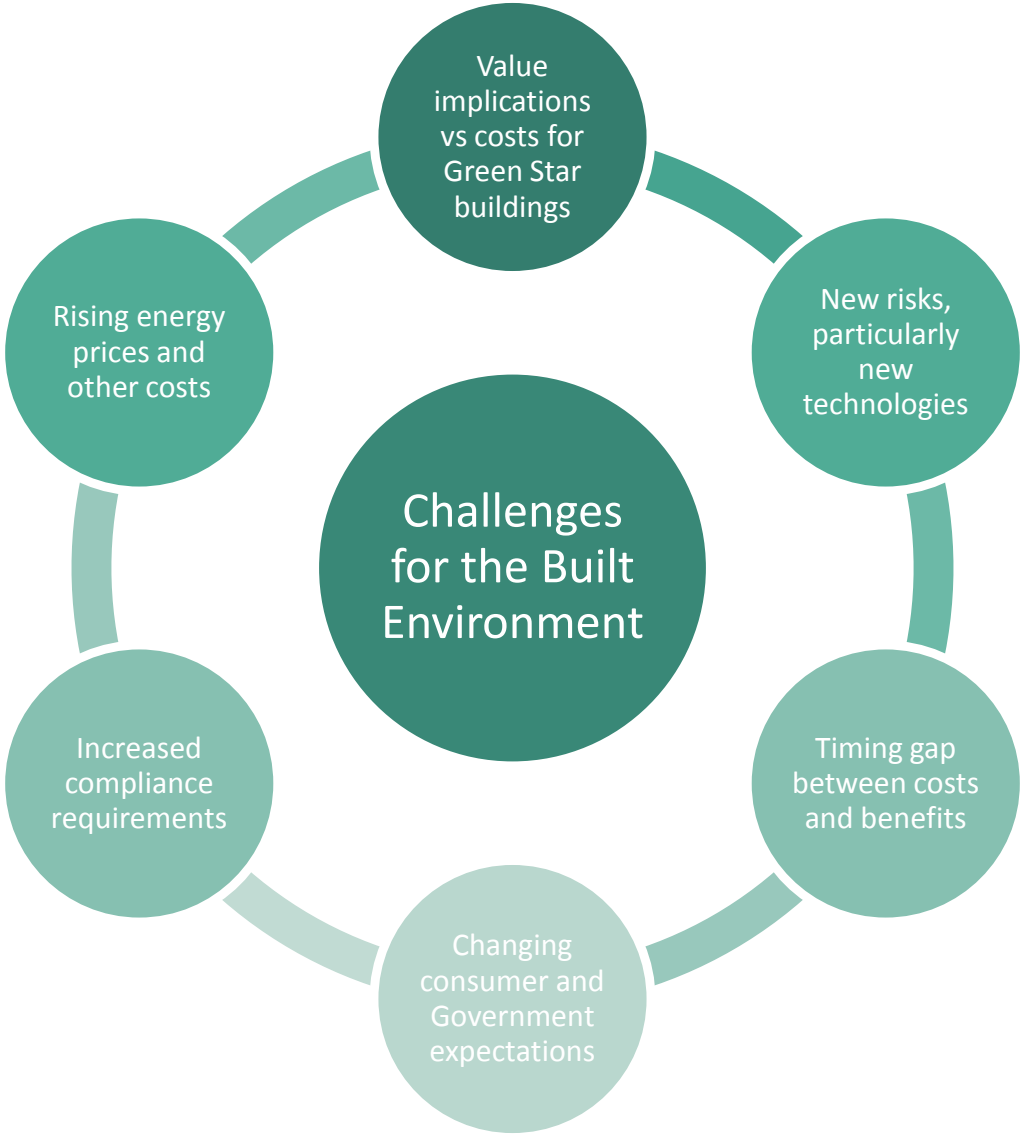
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Value implications vs cost of Green Star

"A Green Star rent premium may also be emerging as a value factor, but it is still too early to quantify this. Likewise, the view that Green Star rated buildings are 'future-proofed' will, if accurate, eventually translate into market value, but it is still difficult to find specific market valuations."

"Whilst lower rental rates, rental growth rates and higher capital expenditure may be anticipated for non-Green Star buildings, there is, to date, limited rental and sales evidence to allow a valuer to accurately determine the value impact."

Source: Valuing Green, How green buildings affect property values and getting the valuation method right, Green Building Council of Australia, 2008

Initial impact on construction costs

	Percentage	Average m^2 GFA (excluding development on costs)
4 Star - Green Star (per PCA Guide)	0%	$0
4 Star to 5 Star - Green Star	3% to 5%	$98
4 Star to 6 Star - Green Star	9% to 11+%	$203

Additional gross rental required

	Initial Impact on Construction Costs (average)	Additional Gross Lease Rental Required to Achieve 11% IRR
	m^2 GFA	m^2 NLA/pa
4 Star - Green Star	$0	$0
4 Star to 5 Star - Green Star	$98	$19
4 Star to 6 Star - Green Star	$203	$40

Source: The costs and benefits of green buildings, Davis Langdon, 2007.

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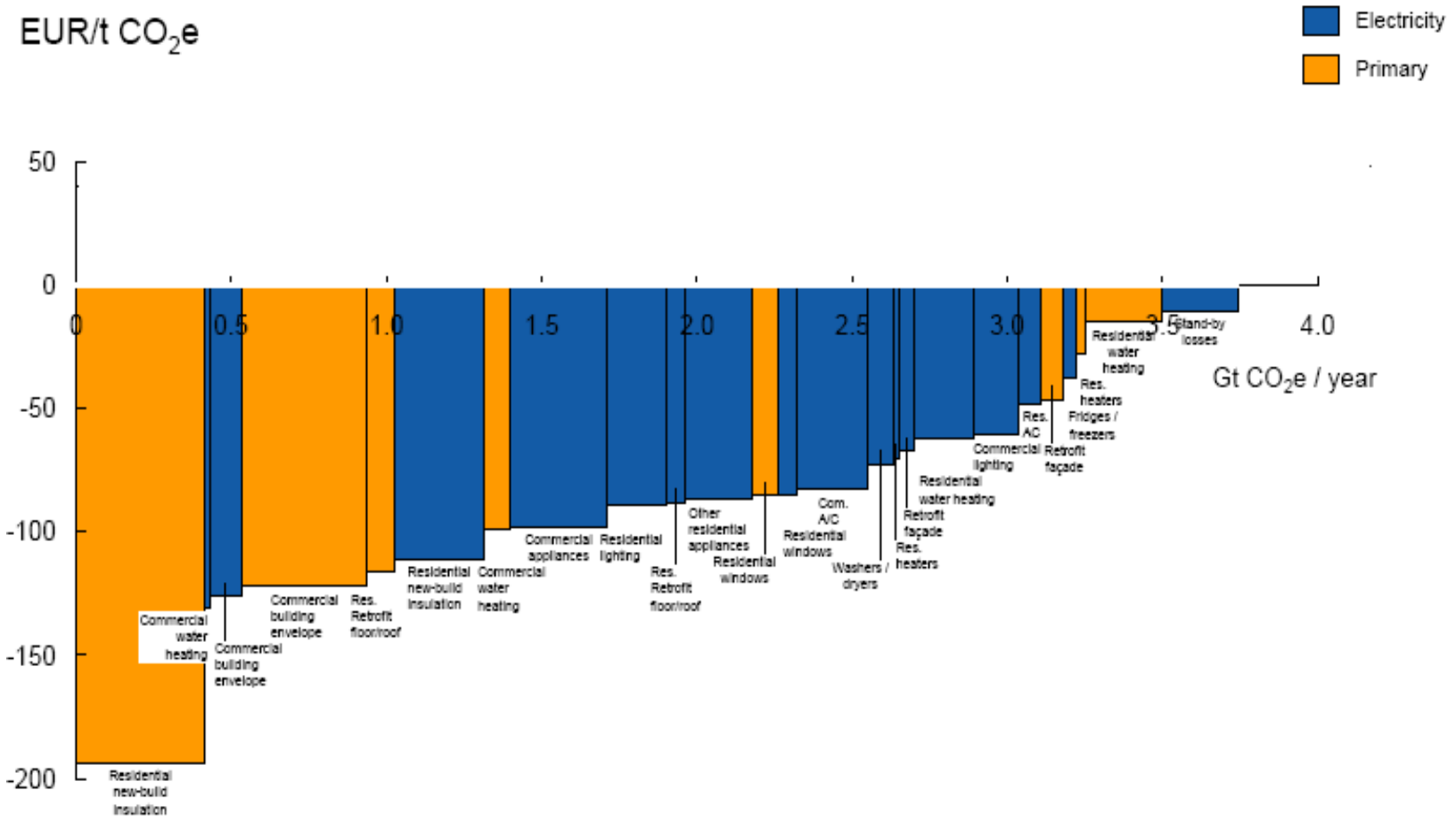
Marginal Abatement Cost Curve - Buildings



Source: Global Mapping of Greenhouse Gas Opportunities, Vattenfall, January 2007.

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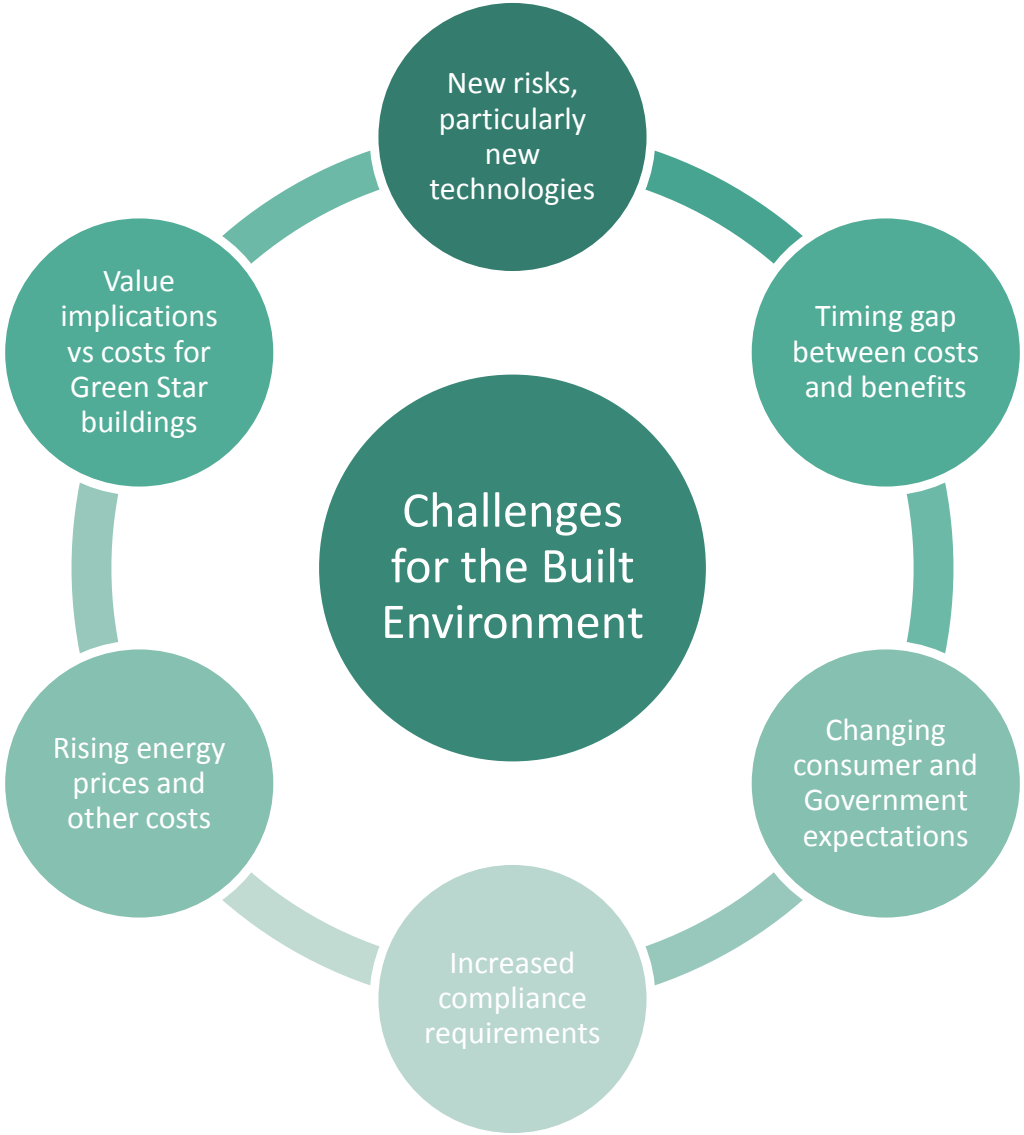
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Key Impact Points

Capital Expenditure

- Emissions reductions technology costs (energy efficiency, fuel switch, investments etc)
- Complexity: technology & contracting
- Retrofitting costs
- Compliance costs

Market Elements

- Market risk (beta)
- Reputation & brand

Balance Sheet

- Physical weather exposure
- Asset base depreciation
- M&A activity, transactions
- Litigation risk

Operating Expenditure

- Supply chain costs (electricity), fuel costs
- Construction and development costs
- Abatement costs or savings
- Compliance costs (monitoring, verification, disclosure)

Revenue

- Consumer / tenant preferences
- Rental yields
- Access to grants / funding
- Mismatch between investment timeline, revenue contracts


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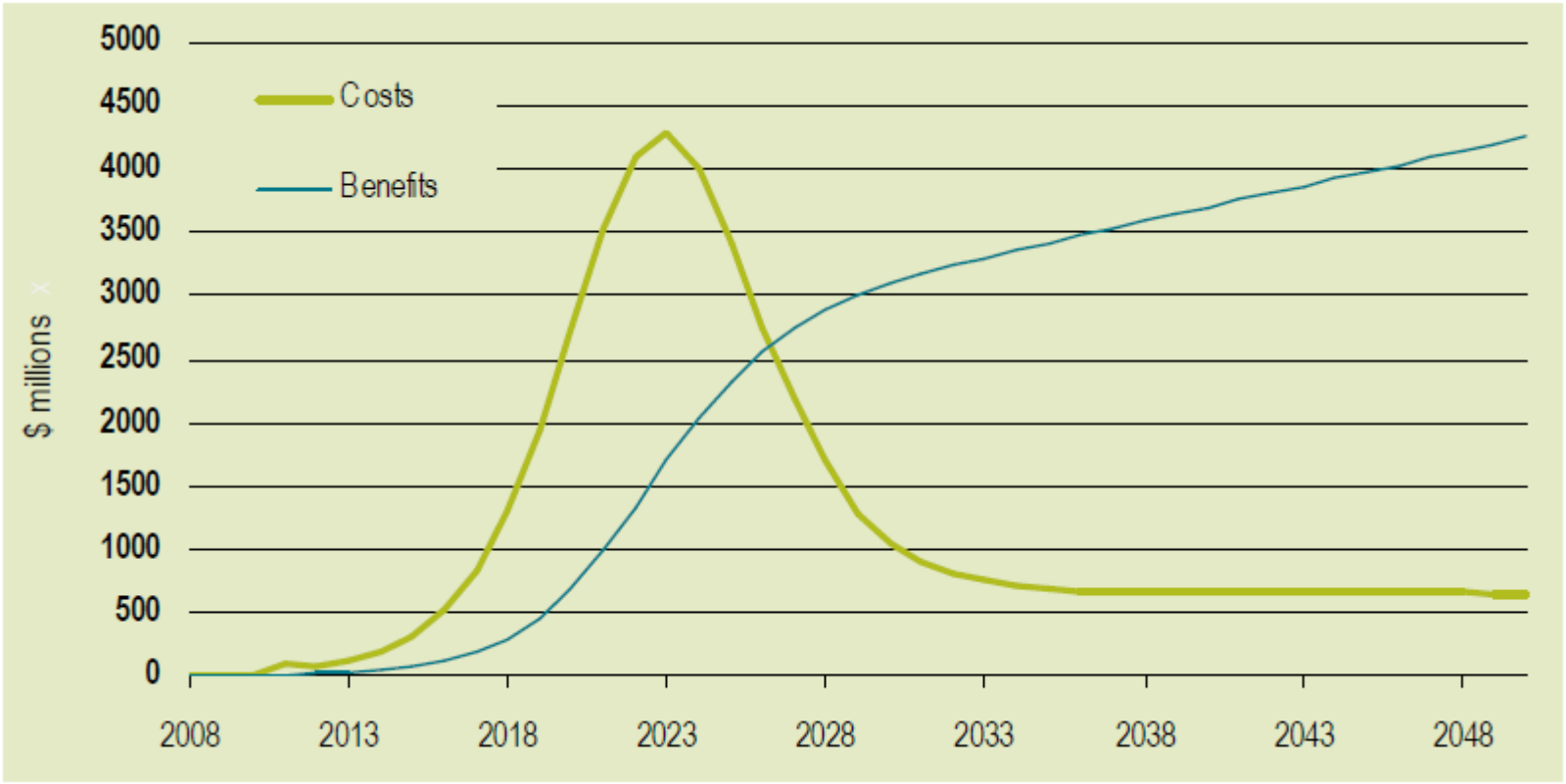
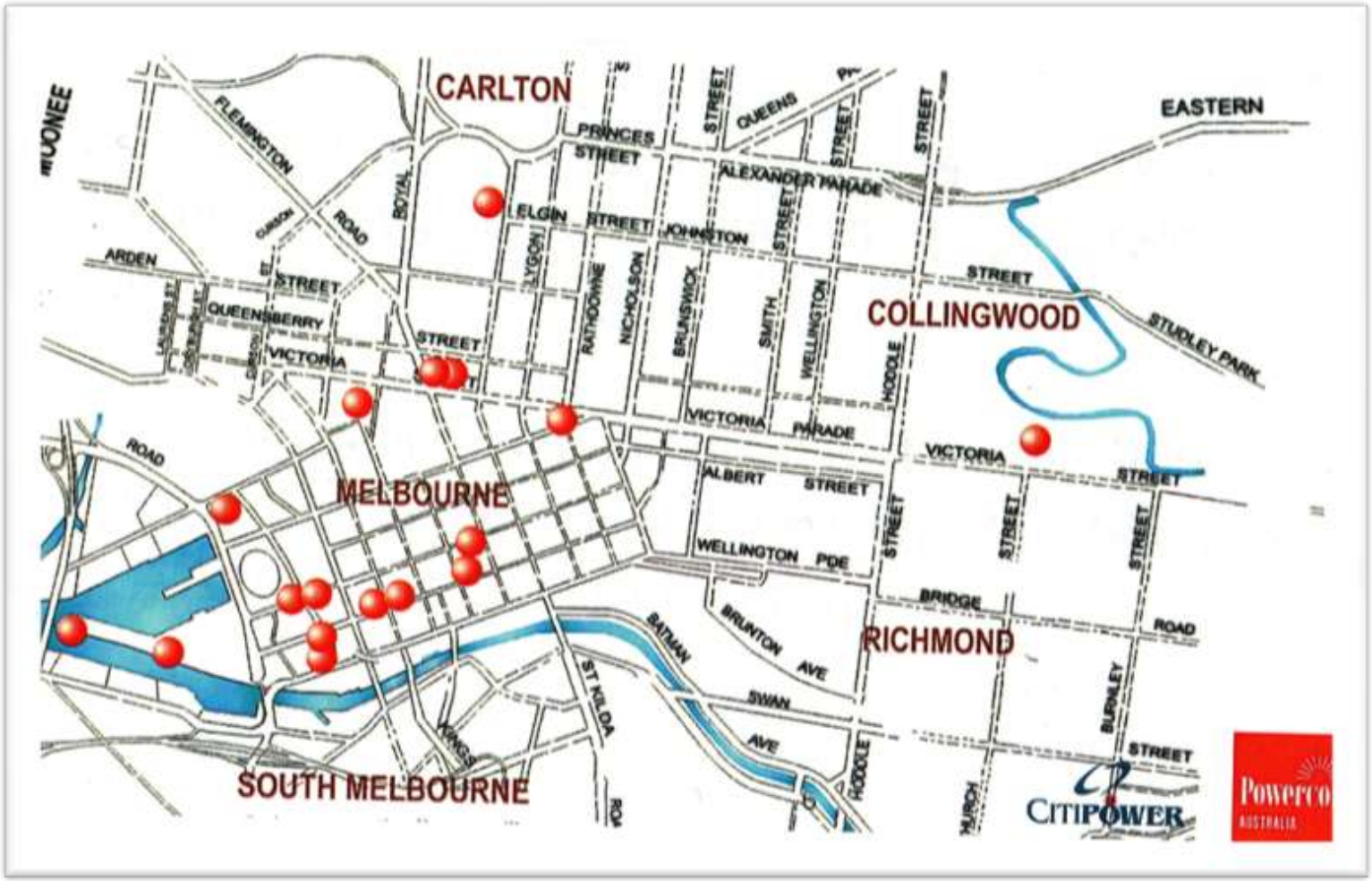
Financing gap



Source: The second plank – building a low carbon economy with energy efficient buildings, Australian Sustainable Built Environment Council, 2008

Potential cogeneration projects - Melbourne CBD



Source: Citipower, *Climate Change Policy Challenges for the Network*, City of Melbourne 1200, 20 March 2009

Cogeneration – practical challenges

- The connection process
  - Transparency
  - Information sharing
  - Timeliness
  - Who pays
- The commercial problem
  - The costs of Green Star vs the prospective benefits
- The regulatory debate
  - Current regulatory debate about climate change and the energy market
  - The changing nature of the distribution network
  - Investment recovery: parallels with the water industry
- Responding to climate change
  - The costs of the response: parallels with the introduction of the MRET Scheme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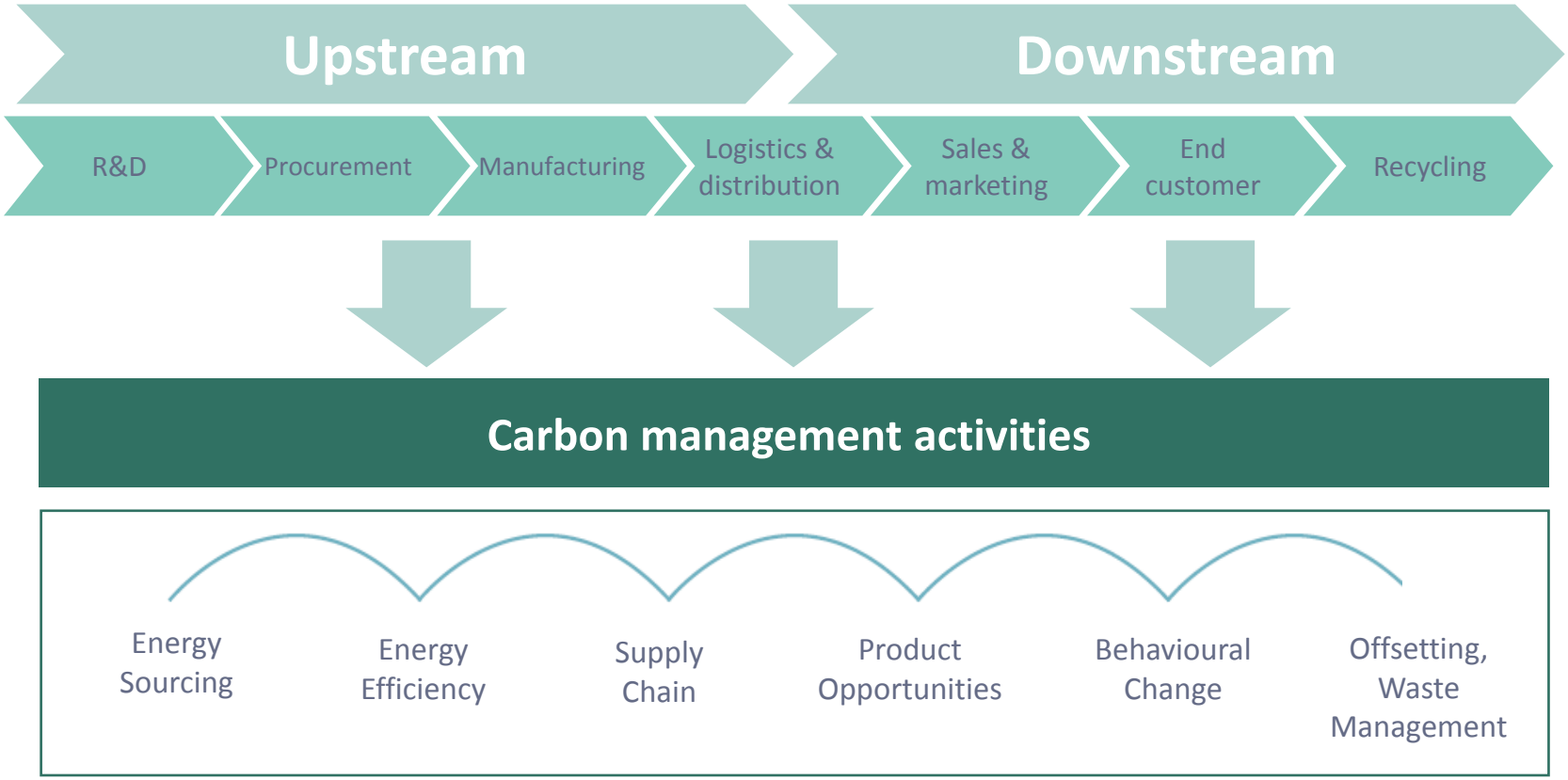
Business Response Framework



Key actions

Now

- Understand changing regulatory impacts
- Develop initial capability to comply with regulations
- Stakeholder engagement
- Understand energy cost drivers and initial abatement and energy efficiency opportunities

Next

- Understand desired market positioning
- Develop a broader strategic response and product / service opportunities
- Undertake supply chain analysis and abatement cost analysis
- Review energy sourcing, generation and contracting options

Later

- Embedding strategy and management control systems
- Longer term investment considerations

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