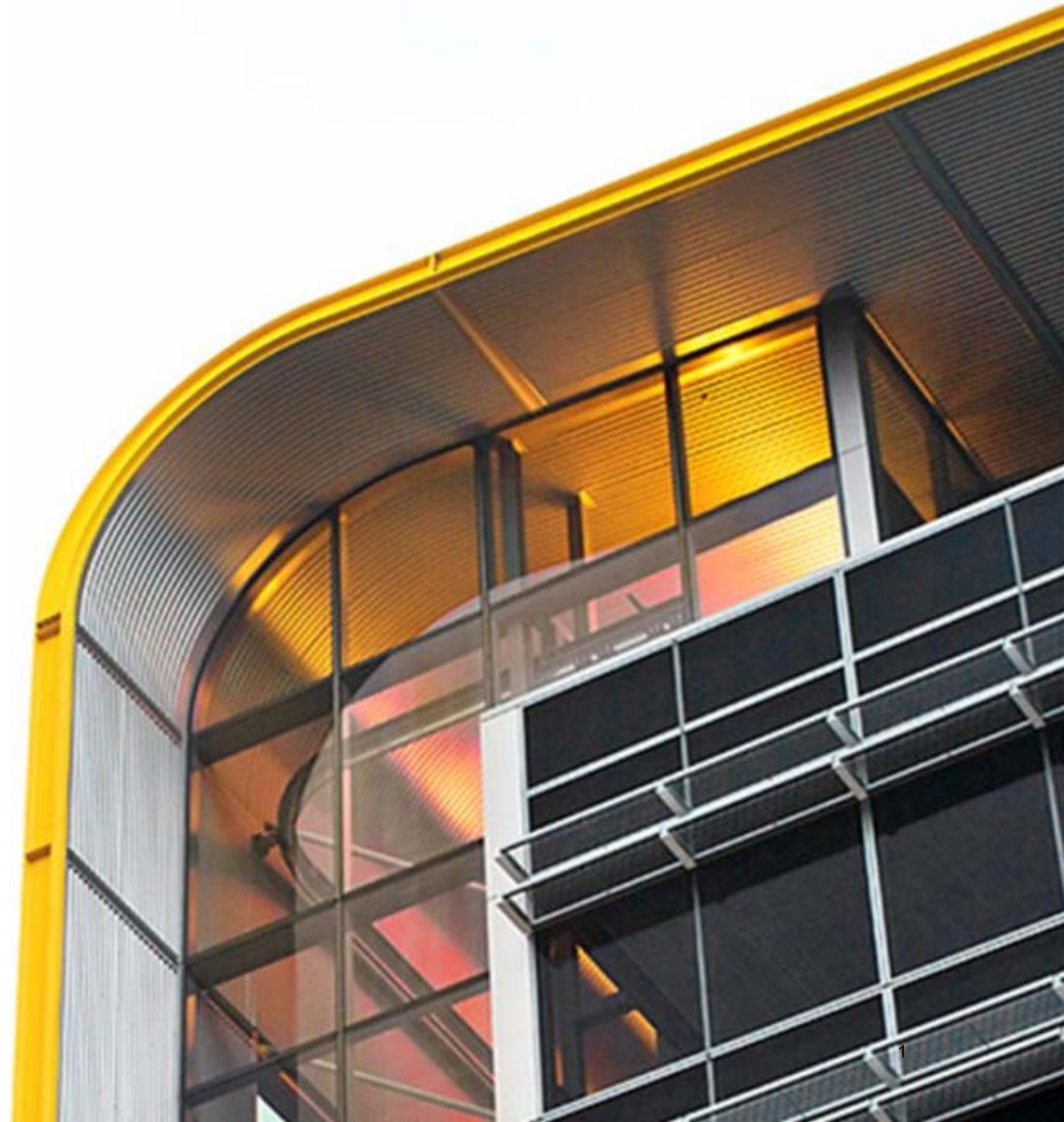




Implementing Sustainability Building Solutions

Jeremy Mansfield
Regional Sustainability Leader Queensland
Bovis Lend Lease

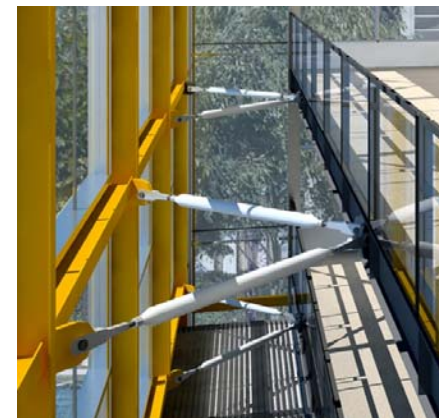
August 2009



Business Demands, Drivers & Impacts

Issues & Opportunities

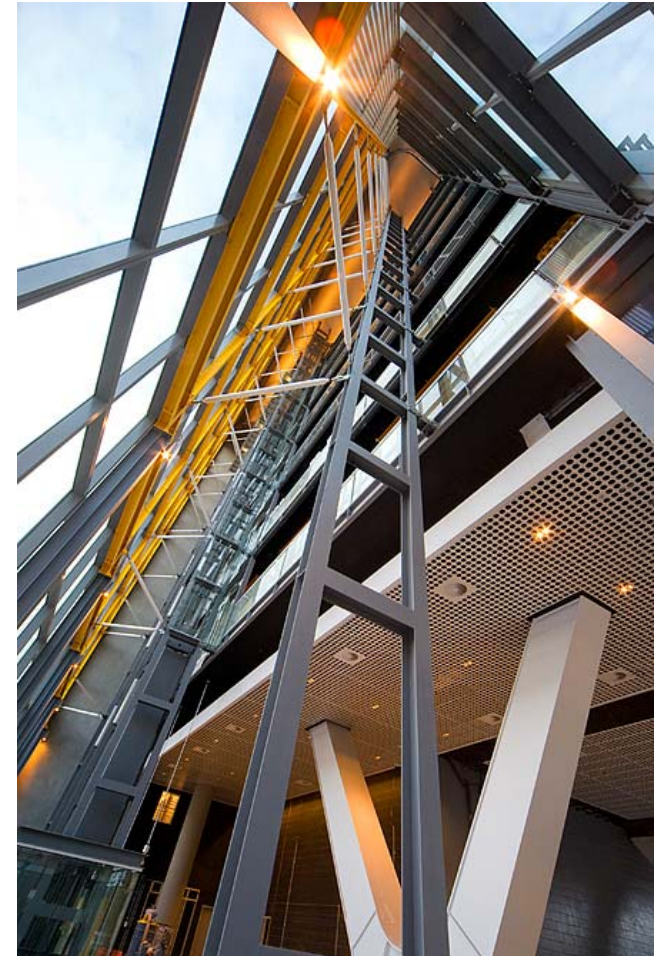
Delivering Outcomes



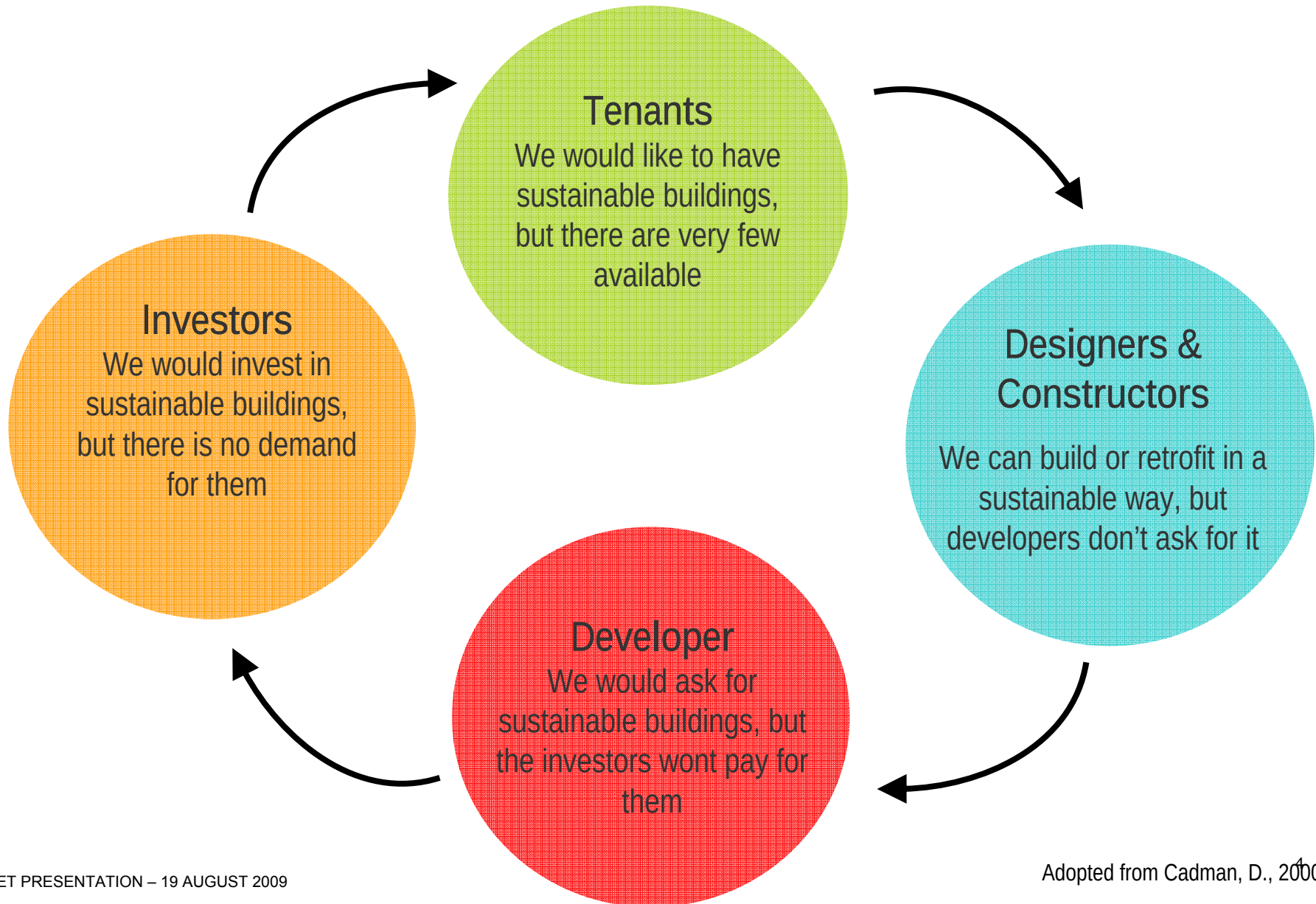
Business Demands, Drivers & Impacts

Issues & Opportunities

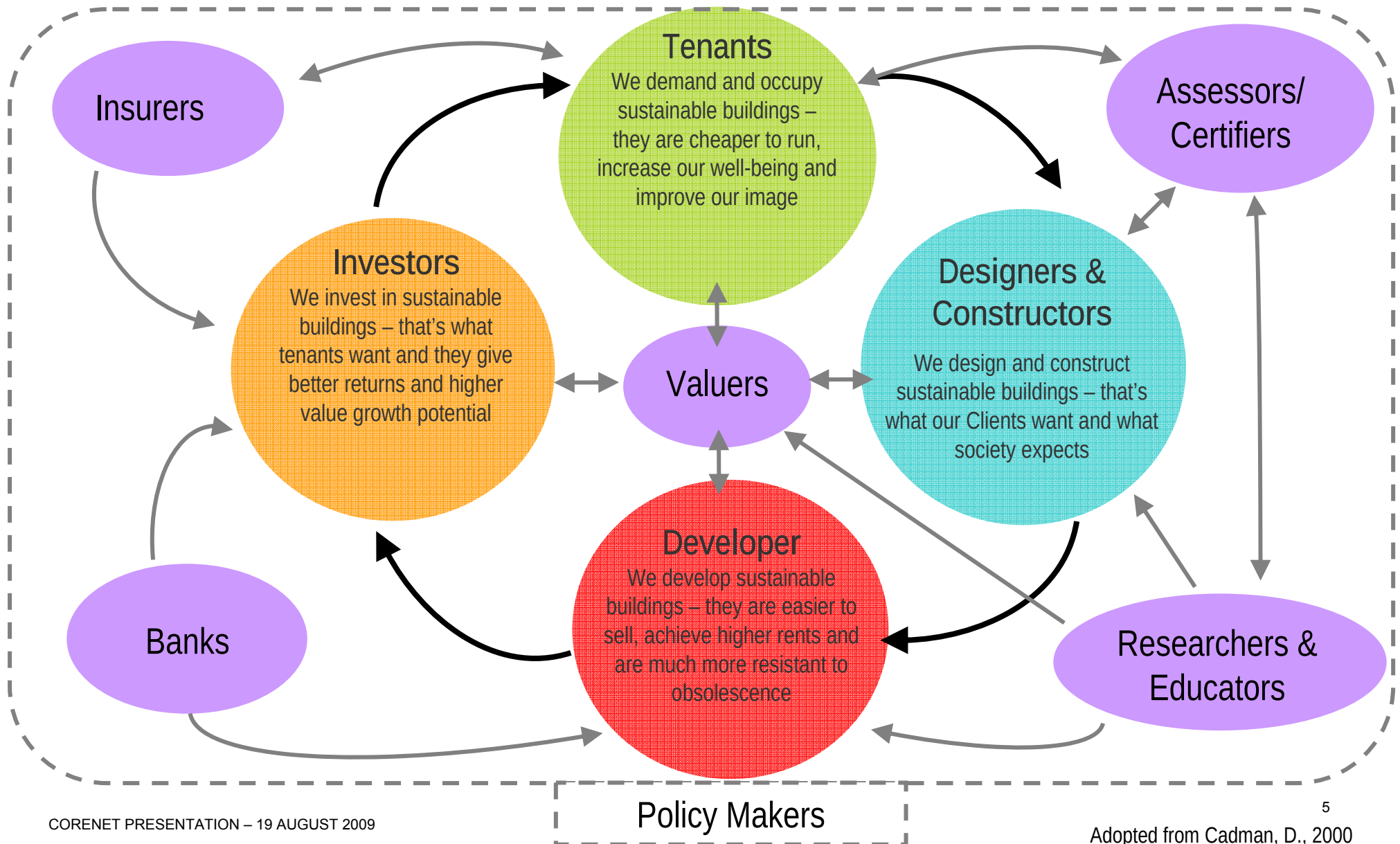
Delivering Outcomes



Circle of Blame

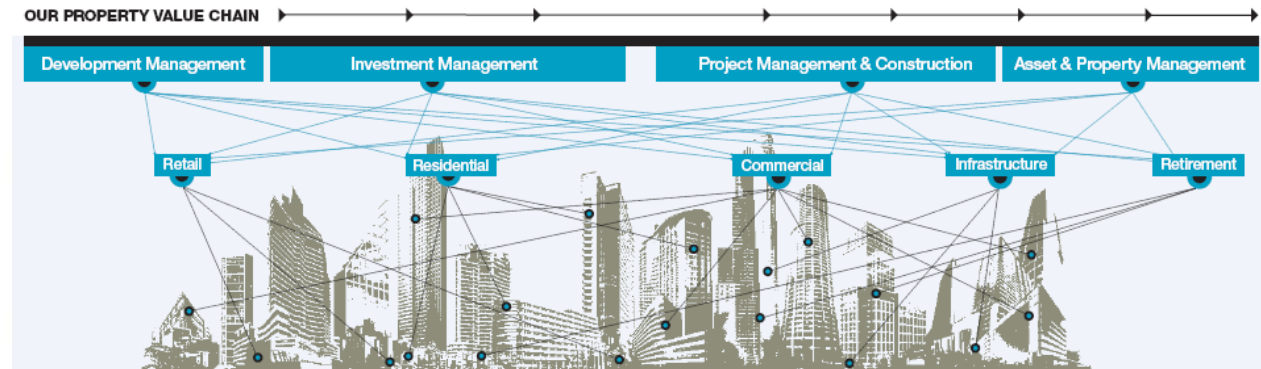


Network of Influence

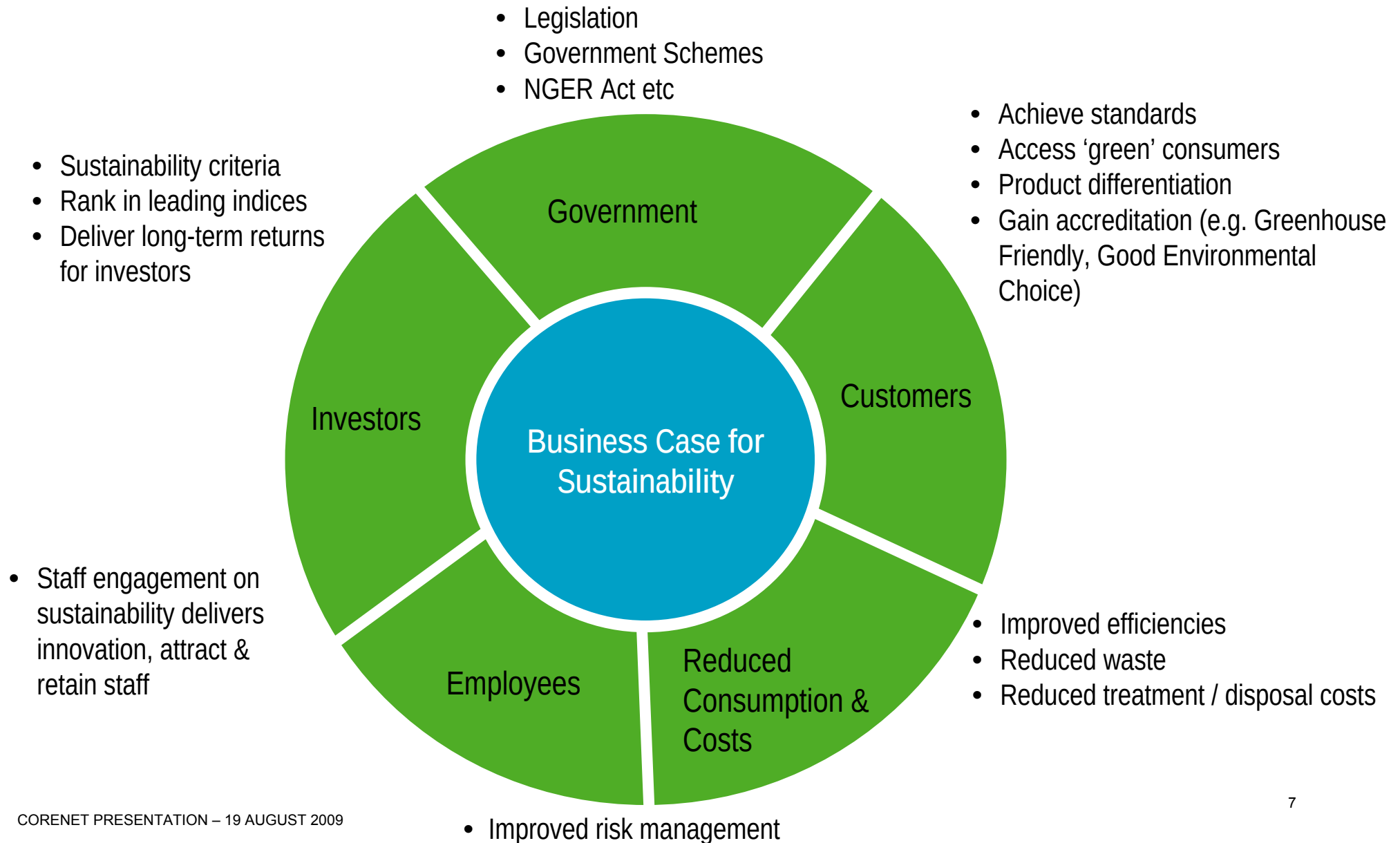


Lend Lease Group Integrated Business Model

- Based on our end-to-end integrated property skill-sets
- At the 'front end' we have a robust **Investment Management** business
- In the 'middle' we have focused most of our capital on our activities in the **Development of Retail and Residential Community Projects**
- At the 'execution phase' we have a strong, world class **Design, Project Management and Construction** business



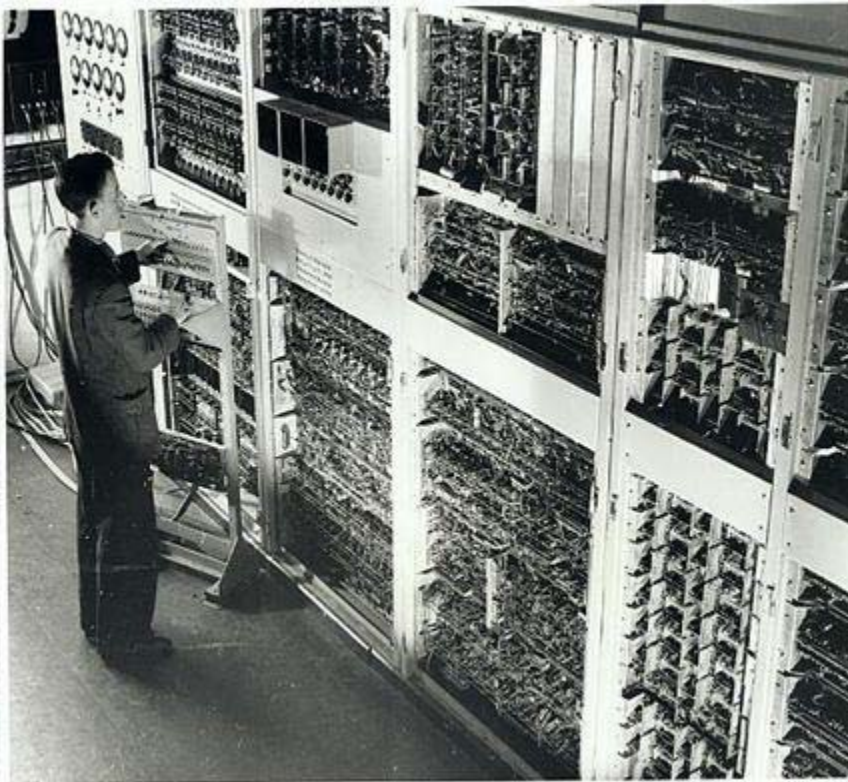
A Sustainable Supply Chain



Sustainable Responsible Investment Drivers

- Sustainability Value Proposition
- Legislation and Government Stimulus
- Reputational Risk





The CSIR Mk1 was the first electronic stored program computer ever developed in Australia, it was the 5th of its type in the world. Image courtesy of CSIRO.

Financial Influence:

- Capital Expenditure
- First year yields
- 10 year IRR
- Payback periods
- Opportunity Cost (NPV)

Valuation Influence:

- Rental Growth
- Renew/Release Potential
- Operating Expenses and Outgoings
- Terminal Yields
- Capital Expenditure

Can you afford redundancy and obsolescence?

Reputational Commitment



CARBON DISCLOSURE PROJECT



Goldman Sachs JBWere
Climate Leadership Index



Government Tenant Demand

Federal Tenants:

All new leases - minimum 4.5 Star NABERS Energy

Queensland:

New buildings housing Government tenants - minimum 4 Star Green Star (5 Star for New) and 4.5 Star NABERS Energy

Victoria:

New buildings housing govt tenants - minimum 4 Star Green Star and 4.5 Star NABERS Energy

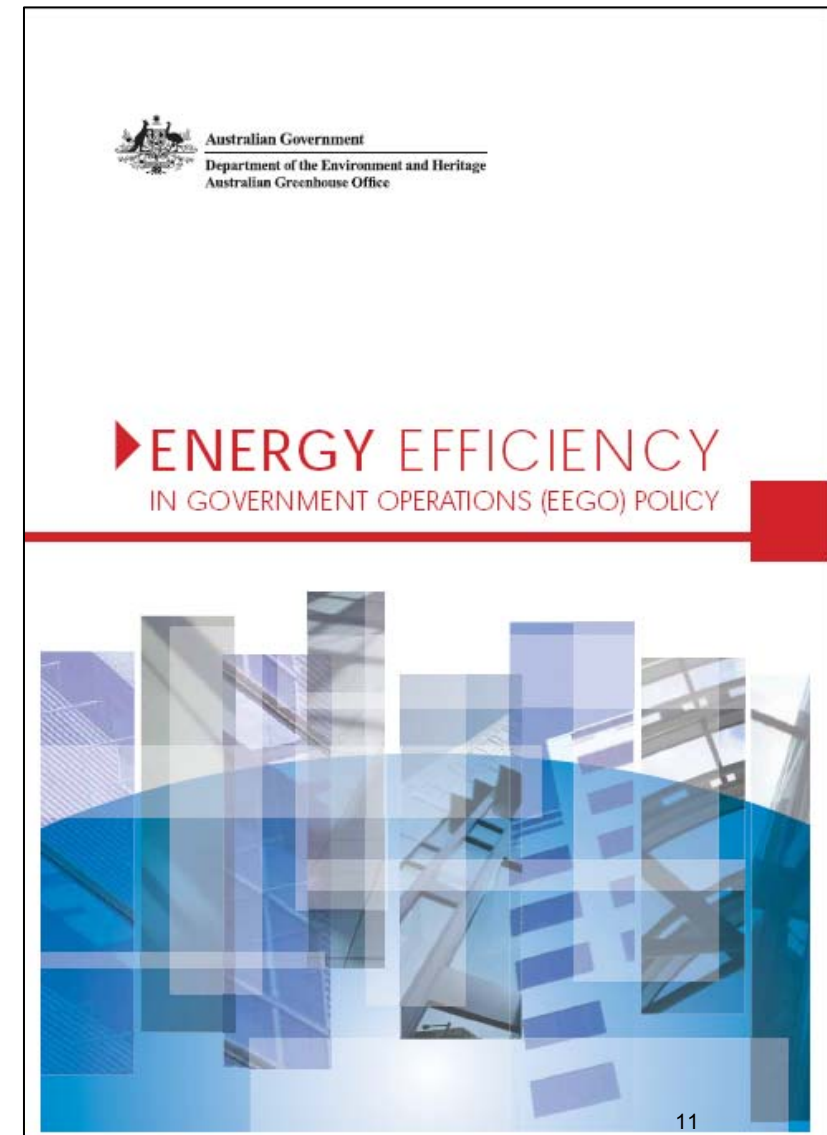
New tenancies - 4 Star Green Star Office Interiors Certified Rating

New South Wales:

All tenancies - minimum 4.5 Star NABERS Energy

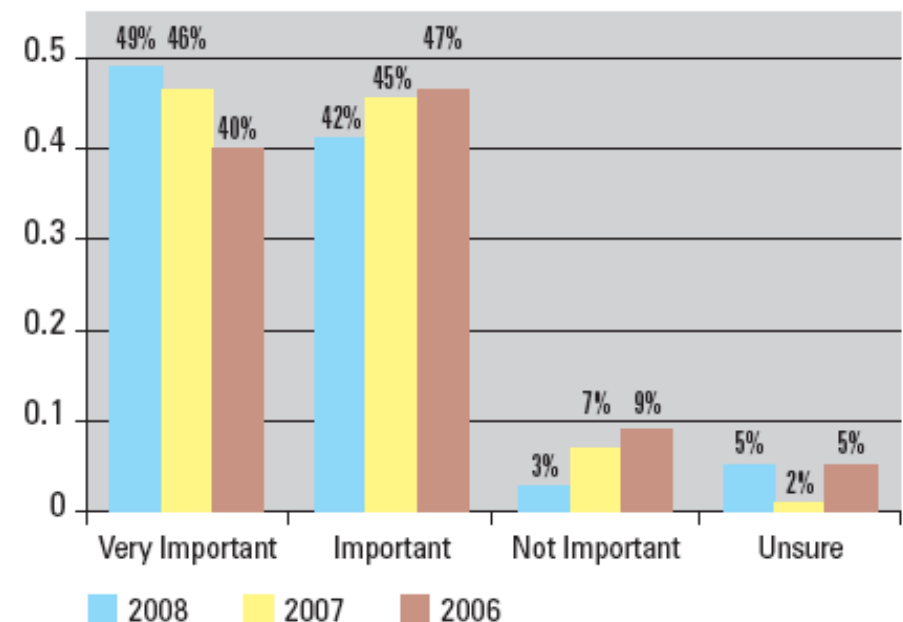
ACT:

All govt tenancies - minimum 4.5 Star NABERS Energy



- Alignment of Environmental Aspirations
- Improved Corporate Image / Reputation
- Increased Productivity / 'Battle for Talent'
- Commitments to be Carbon Neutral
- Reduced Risk

Figure 7 - How Important is Environmental Sustainability To Your Business?



Jones Lang LaSalle – Landlord of Choice Tenant Survey
Dec 2008 (288 Respondents)

Property Sector Environmental Impacts Globally



Buildings are responsible for
40%
of world's global greenhouse gas emissions.



Buildings are responsible for
40%
of solid waste generation globally.



Buildings use
12%
of the world's water.



Air quality in buildings typically contains up to
5x (and at times greater than 100)
more pollutants than outdoor air.



Buildings utilize
1/3 of
the world's resources.

1. Future Investments

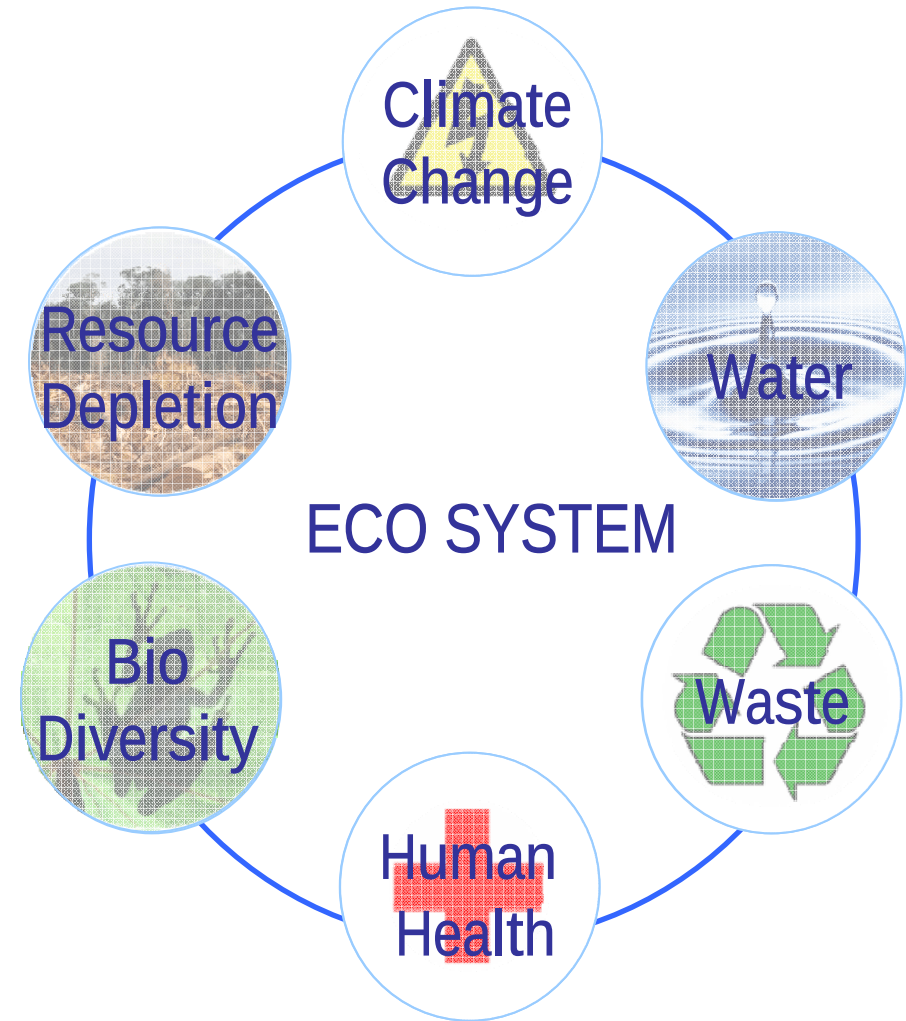
- LLC Pipeline Process
- BLL Pipeline Process

2. During Operations

- Environment Management System

3. During Business

- LLC Risk Matrix & Register



Greenhouse Gas Emissions

– Lend Lease Global and By Region

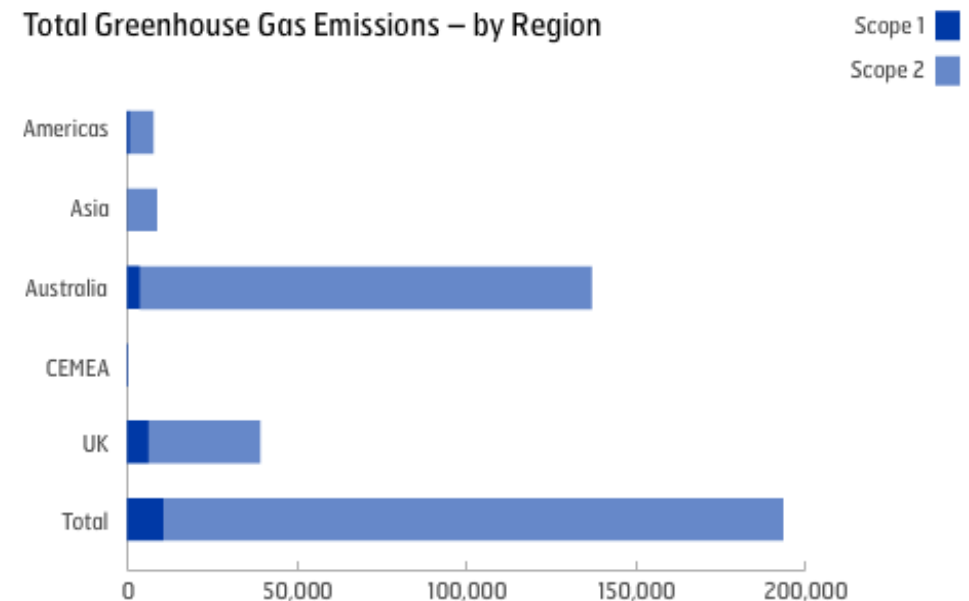
Greenhouse Gas Emissions

Global | Regional

Total Greenhouse Gas Emissions – by Region

Region	Scope 1	Scope 2	Total
Americas	651 tCO ₂ -e	7,125 tCO ₂ -e	7,776 tCO ₂ -e
Asia	0 tCO ₂ -e	8,953 tCO ₂ -e	8,953 tCO ₂ -e
Australia	3,732 tCO ₂ -e	133,435 tCO ₂ -e	137,167 tCO ₂ -e
CEMEA	51 tCO ₂ -e	287 tCO ₂ -e	338 tCO ₂ -e
UK	6,316 tCO ₂ -e	33,016 tCO ₂ -e	39,332 tCO ₂ -e
Total	10,750 tCO ₂ -e	182,816 tCO ₂ -e	193,566 tCO ₂ -e

Total Greenhouse Gas Emissions – by Region



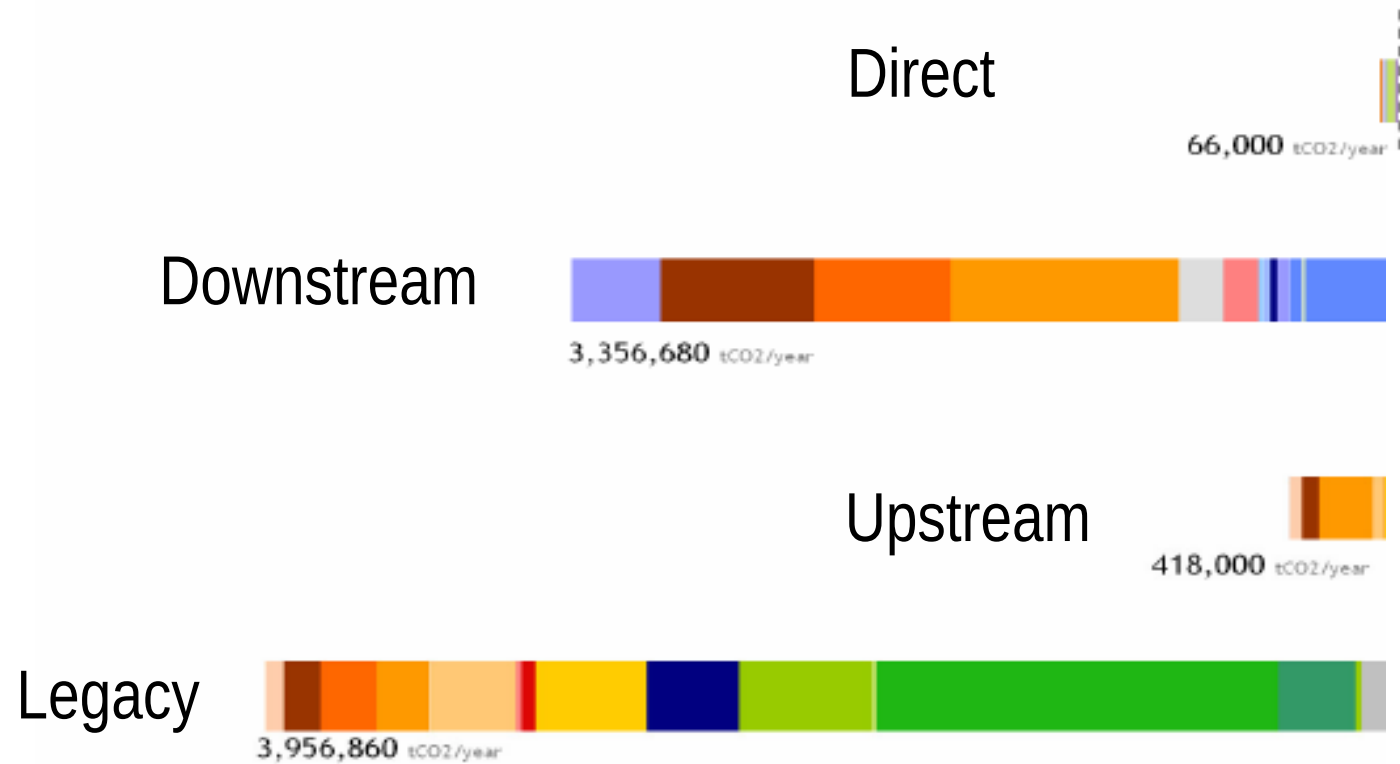
*Data represents April 2007 through March 2008.

[previous](#) | [next](#)

Our Emissions Legacy



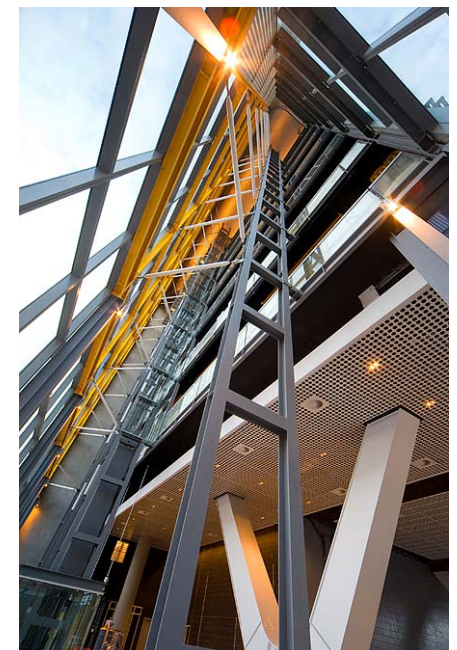
Lend Lease Annual Carbon Dioxide Emissions 2008:
8.3 Million tonnes/CO₂/year



Business Demands, Drivers & Impacts

Issues & Opportunities

Delivering Outcomes



Sustainability Legislation and Reporting

Carbon Trading	Australian Climate Exchange (ACX) Carbon Pollution Reduction Scheme International Carbon Trading Schemes
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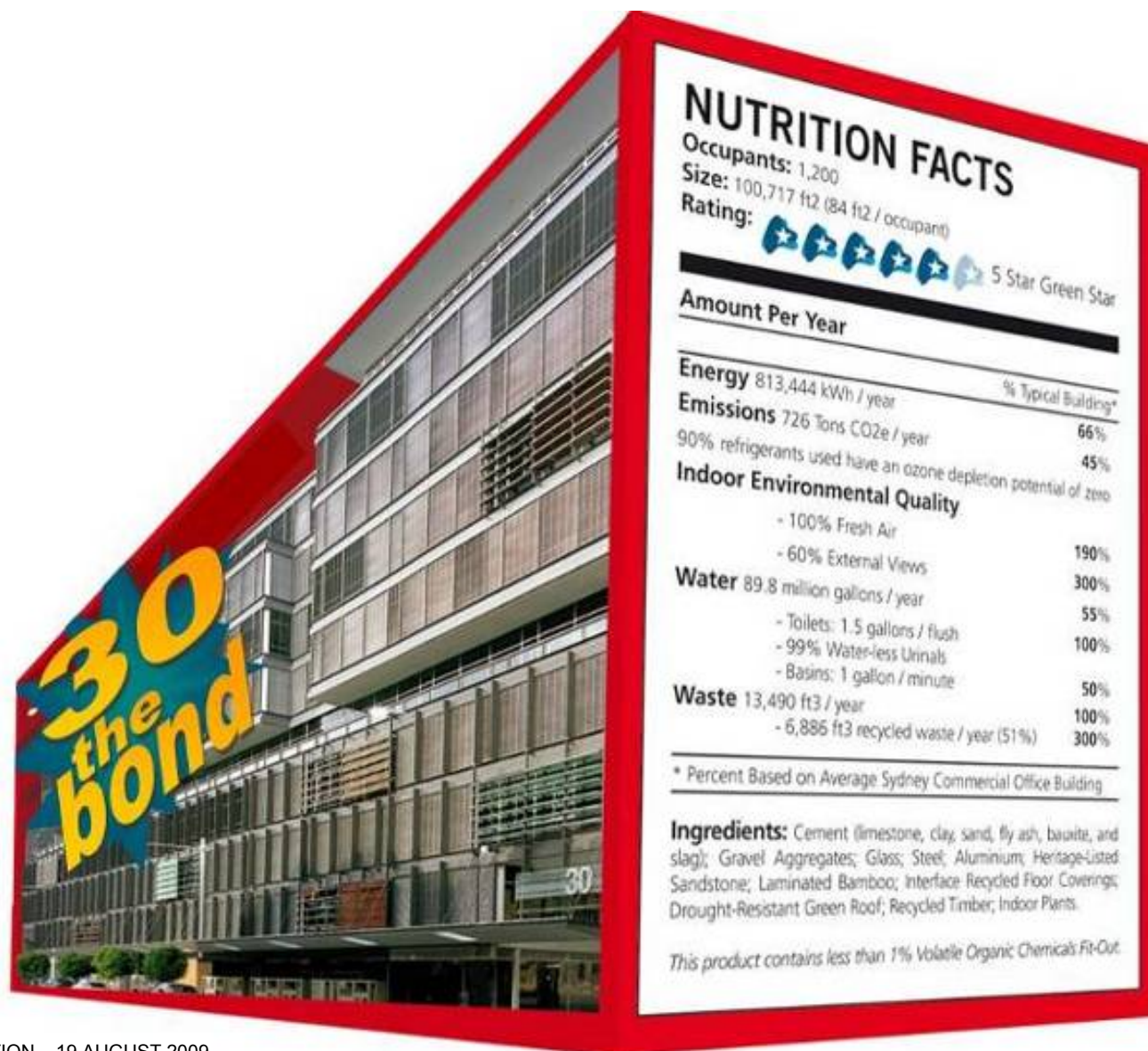
Voluntary	Global Reporting Initiative (GRI) Carbon Disclosure Project (CDP)
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Investment	Dow Jones Sustainability Index (DJSI) FTSE4Good Index Services Australian SAM Sustainability Index (AuSSI) Goldman Sachs JBWere 'Climate Leadership Index' Investor due diligence reports
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Legislative	Energy Efficiency Opportunities (EEO) Act National Greenhouse and Energy Reporting (NGER) Act State-based requirements (i.e. Queensland Clean Energy Act 2008) Building Code of Australia – Energy Efficiency
--------------------	--

Corporate	Annual reports CSR reports Sustainability / Environmental Reports
------------------	---

Operational	Green Star National Australian Built Environment Rating System (NABERS) Lease agreements
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What's Driving Retrofitting of Existing Buildings?

Office Vacancy Rates Increasing

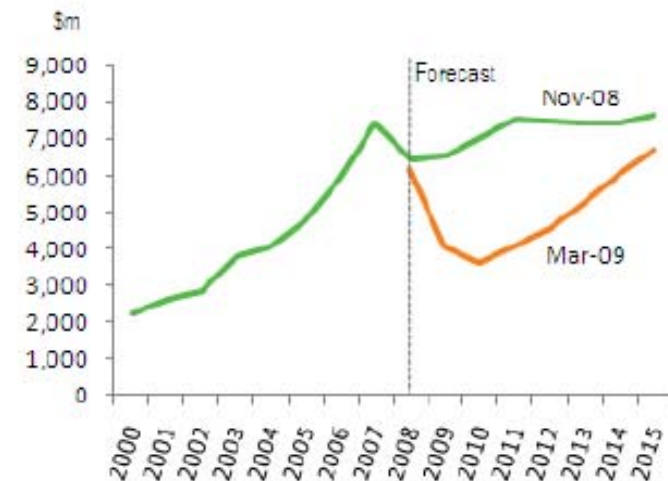
Tenant Demand for 'Green' Office Space

Energy and Water Costs

Compliance

Government Grants

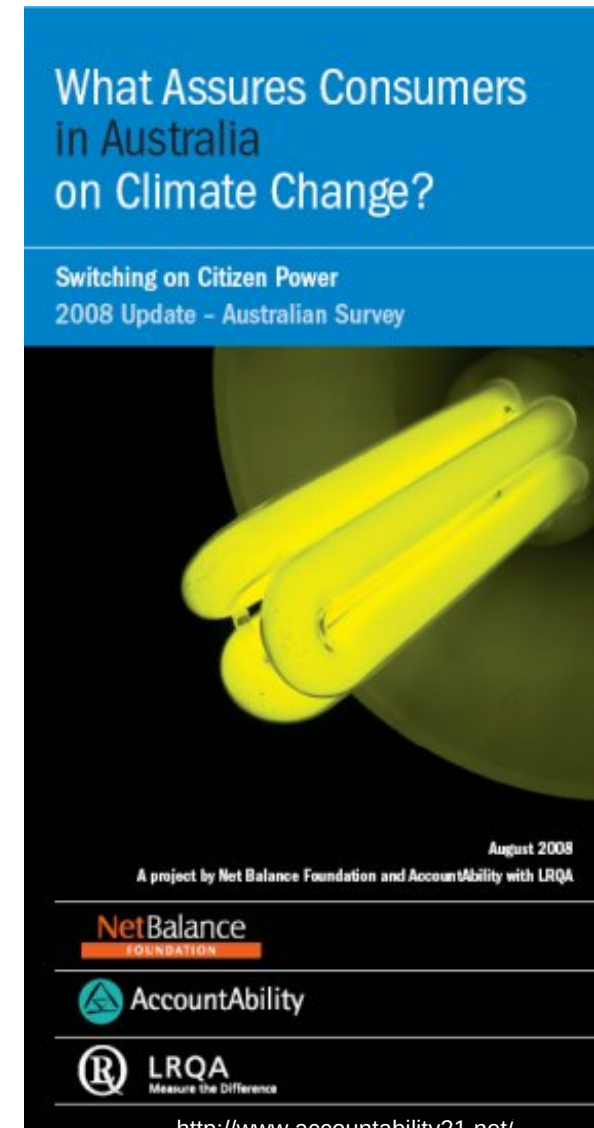
Reduced Future Office Supply



Supply Chain Products Issues and Opportunities

Product Verification

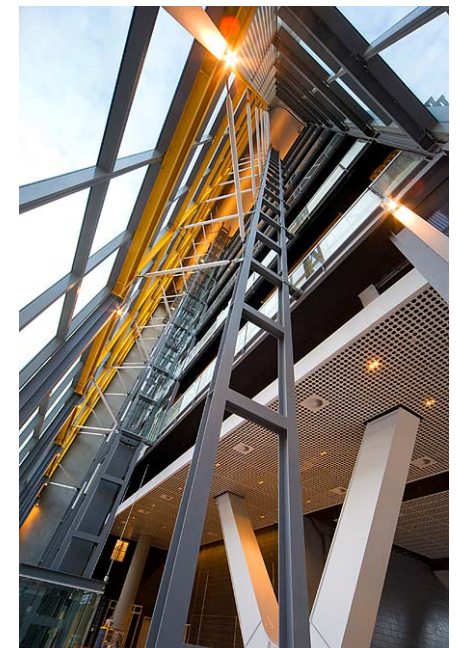
- Consumer assurance
- Third party certification
- QA 9001 & ISO14001
- Closed loop practices - cradle to cradle
- Life Cycle Assessment Growing in awareness



Business Demands, Drivers & Impacts

Issues & Opportunities

Delivering Outcomes



Commitment to Improvement in Sustainability

30 The Bond, Lend Lease Headquarters
Sydney Australia



The Gauge
Melbourne, Australia



One of the world's largest solar-powered
communities – Army Hawaii



2000

2004

2006

2008

2012

2015



Sydney Olympic Village
Homebush, NSW



Hanover Square
London, United Kingdom



Stratford City, Athlete Olympic Village
United Kingdom



- First use of passive chilled beam in Australia
- External operable blinds
- High levels of IEQ
- First 5 Star Green Star As Built
- 51kgCO₂/m²

- Cogeneration
- Blackwater reuse
- First 6 Star Green Star As Built
- 41kgCO₂/m²

- River water cooling
- On-site energy generation through Tri-gen, PV & Wind
- Underfloor air distribution
- Blackwater reuse
- 35kgCO₂/m²

Green Star Office Certified Projects



Tool	Total Certified	BLL Certified
Office Design	130	13
Office As Built	19	5
Office Interiors	13	4
Totals	162	22 (14%)

as of July 2009

Darling Park III

- Relatively conventional building (VAV)
- Focus on delivery
- Stakeholder engagement
- First 5 Star NABERS Energy building of its type
- Proves we can unlock 10-15% in performance by ensuring we deliver what we say we will deliver



Supported by In-house Expertise

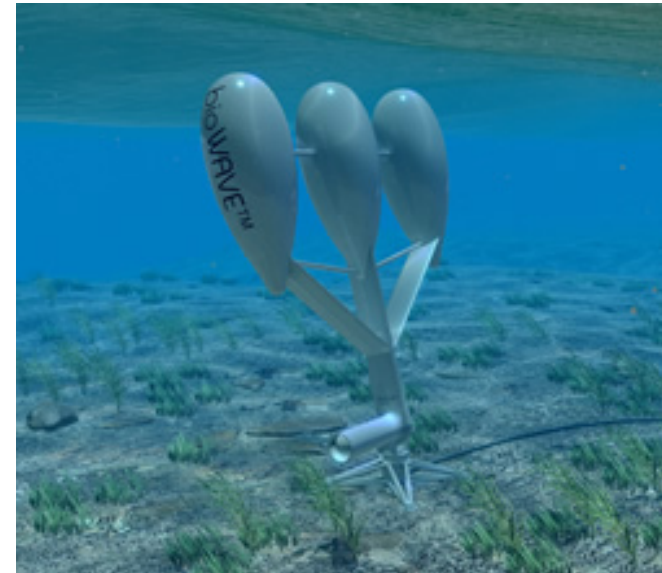
- Lend Lease design - In-house team of 130 design specialists
 - Architecture, Urban Design, Engineering, Structural Design, Sustainability, Procurement
- Over 130 staff are Green Star Accredited Professionals
- 7 Green Star Assessors, a Green Star Faculty member & Technical Advisory Panel member
- 6 NABERS Assessors and a NABERS Independent Design Review Panel member.
- Sustainability Leaders and peer groups in each business unit



Supported by Investment in Renewable Technologies



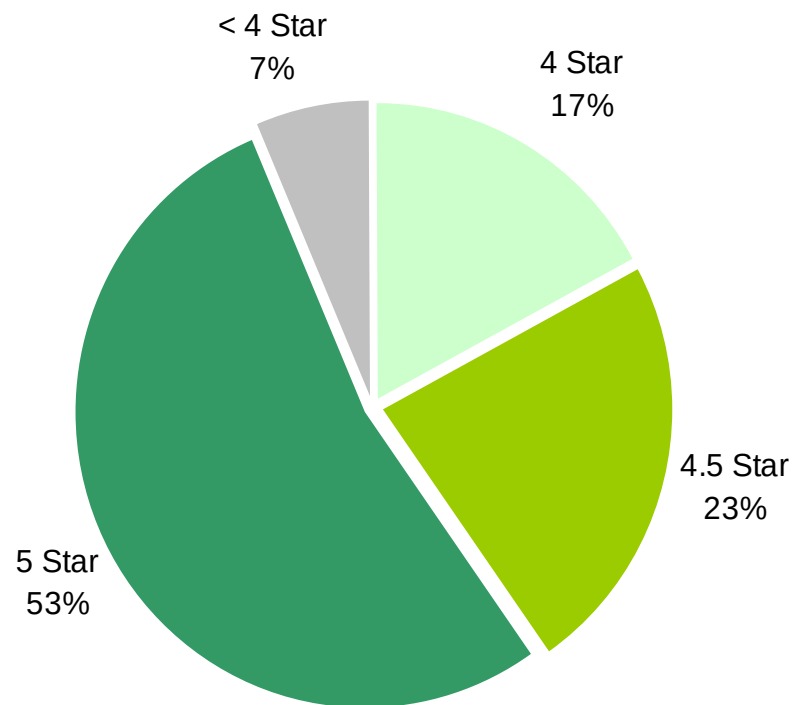
- First Solar
- Black Water Treatment
- Wave Power
- Towards Zero R&D



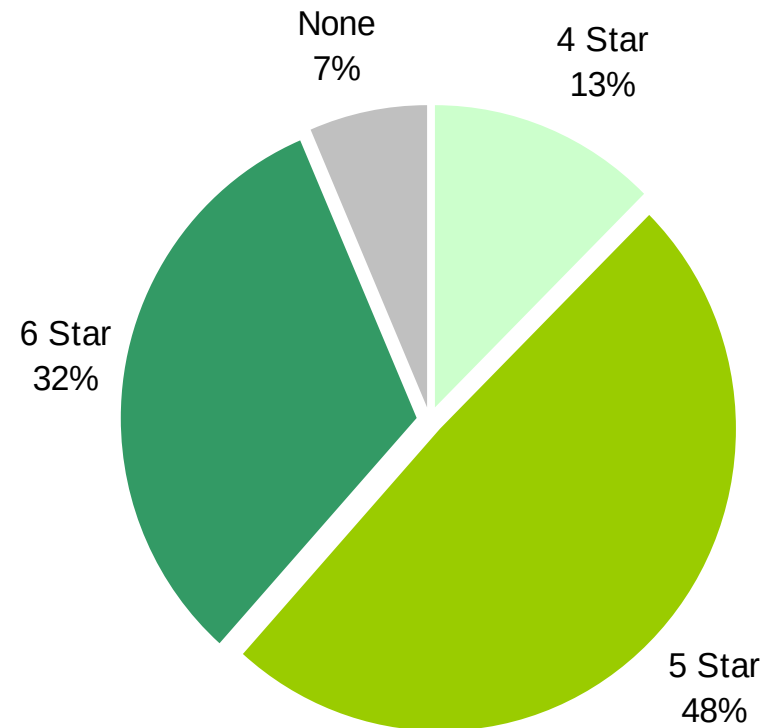
Where Are We Now? Commercial Buildings

Bovis Lend Lease Commercial Business Unit– Stats by NLA

NABERS Energy - Current Projects by NLA



Green Star - Current Projects by NLA



4 Star 4.5 Star 5 Star < 4 Star

4 Star 5 Star 6 Star None

Critical Success Factors for Green Star Projects

- Shared purpose / vision
- Effective leadership
- Committed project team
- Engagement process
- Integrated design process
- Suitable project delivery model



30 The Bond
Roof Garden

Owner & Tenant Obligations (Base Building NABERS)



The following elements need to be managed by the owner & tenant as they cannot be controlled by the contractor:

- Office Area in Use
- Tenancy NABERS Energy
- Lighting Load
- Equipment Load
- Occupant Density
- High Load Spaces
- Established Building Hours
- Extended Operation
- Temperature Setpoints
- After Hours Air Conditioning
- Vertical Transportation
- Fitout Changes
- Fitout Quality
- Operation & Maintenance
- Equipment Failure
- Weather

Sustainability at Bovis Lend Lease - Every Action Adds Up

THINKING

It is our opportunity

It is everyone's responsibility

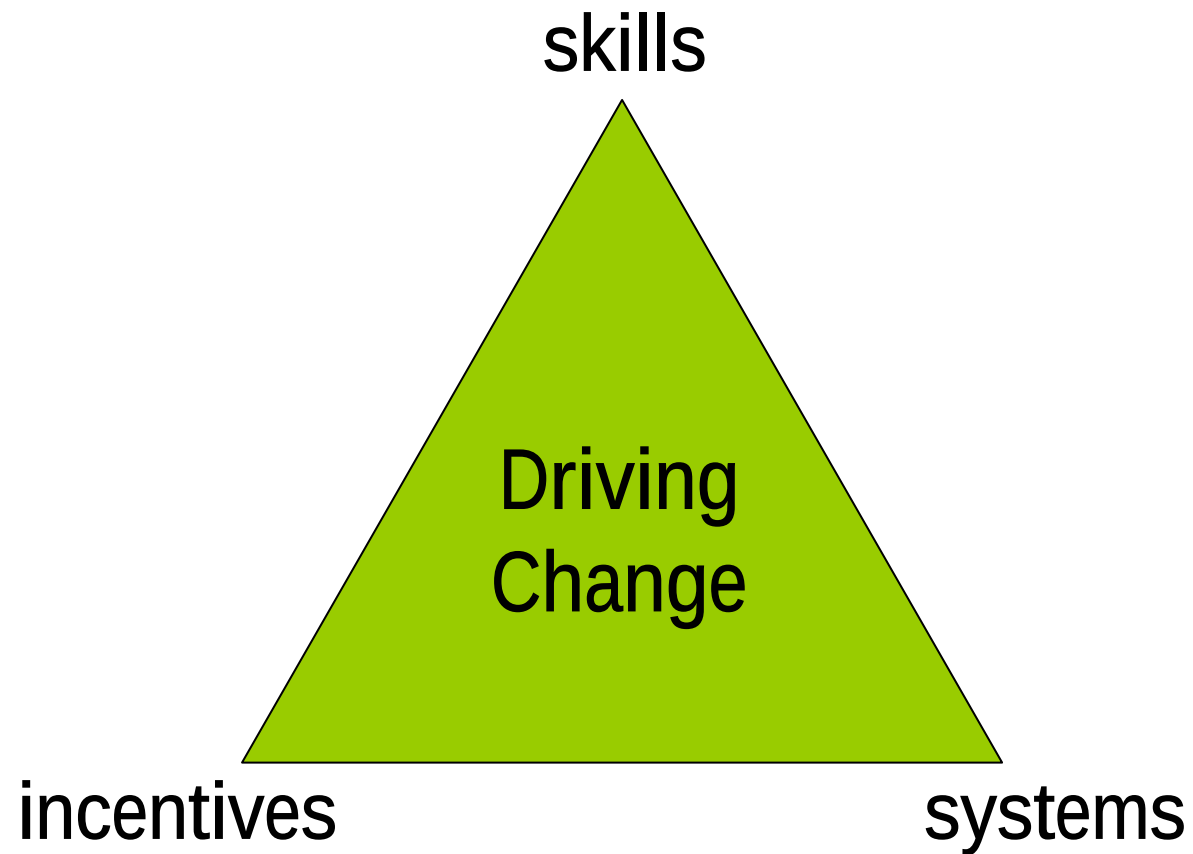
It is embedded in everything we do

DOING

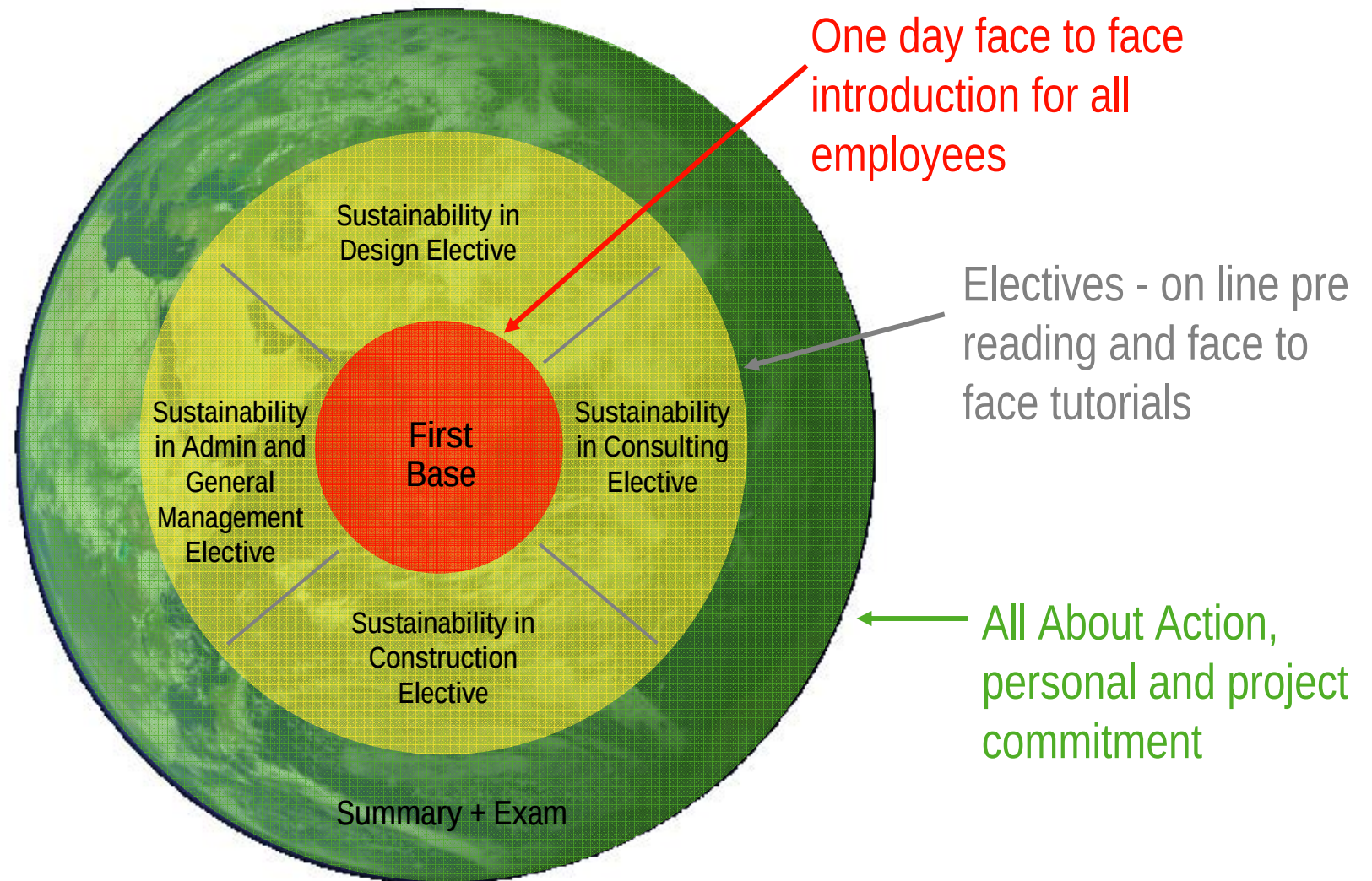
At key moments of influence ask:

How can we help create environmental, social and economic wealth?

A Model for Driving Change



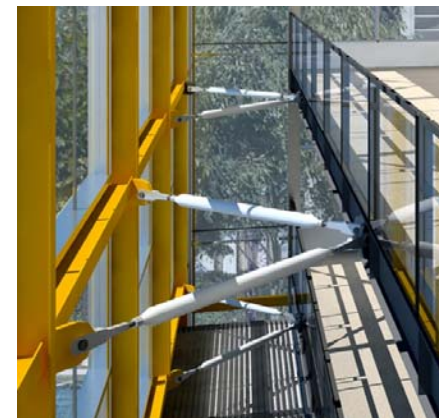
Sustainability Core Skills Program



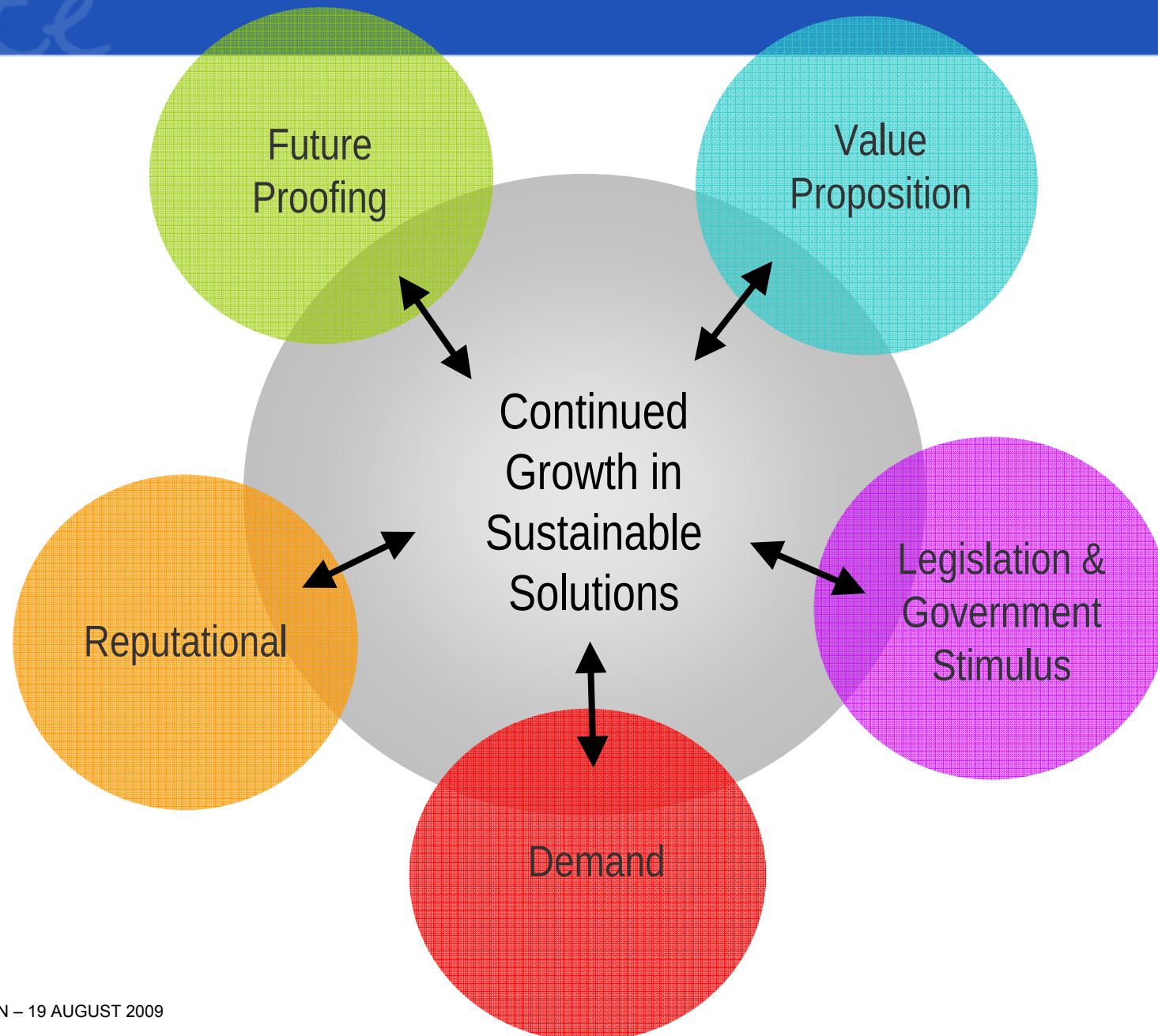
Business Demands, Drivers & Impacts

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Implementing Sustainability - Building Solutions



Implementing Sustainability Building Solutions

Jeremy Mansfield
Regional Sustainability Leader Queensland
Bovis Lend Lease

August 2009

