



**LOWCARBON**  
AUSTRALIA

# Who are we? – complimentary measure under Government's programs



**Low Carbon Australia** was established by the Federal Government and commenced operations in 2010

Independent public company limited by guarantee

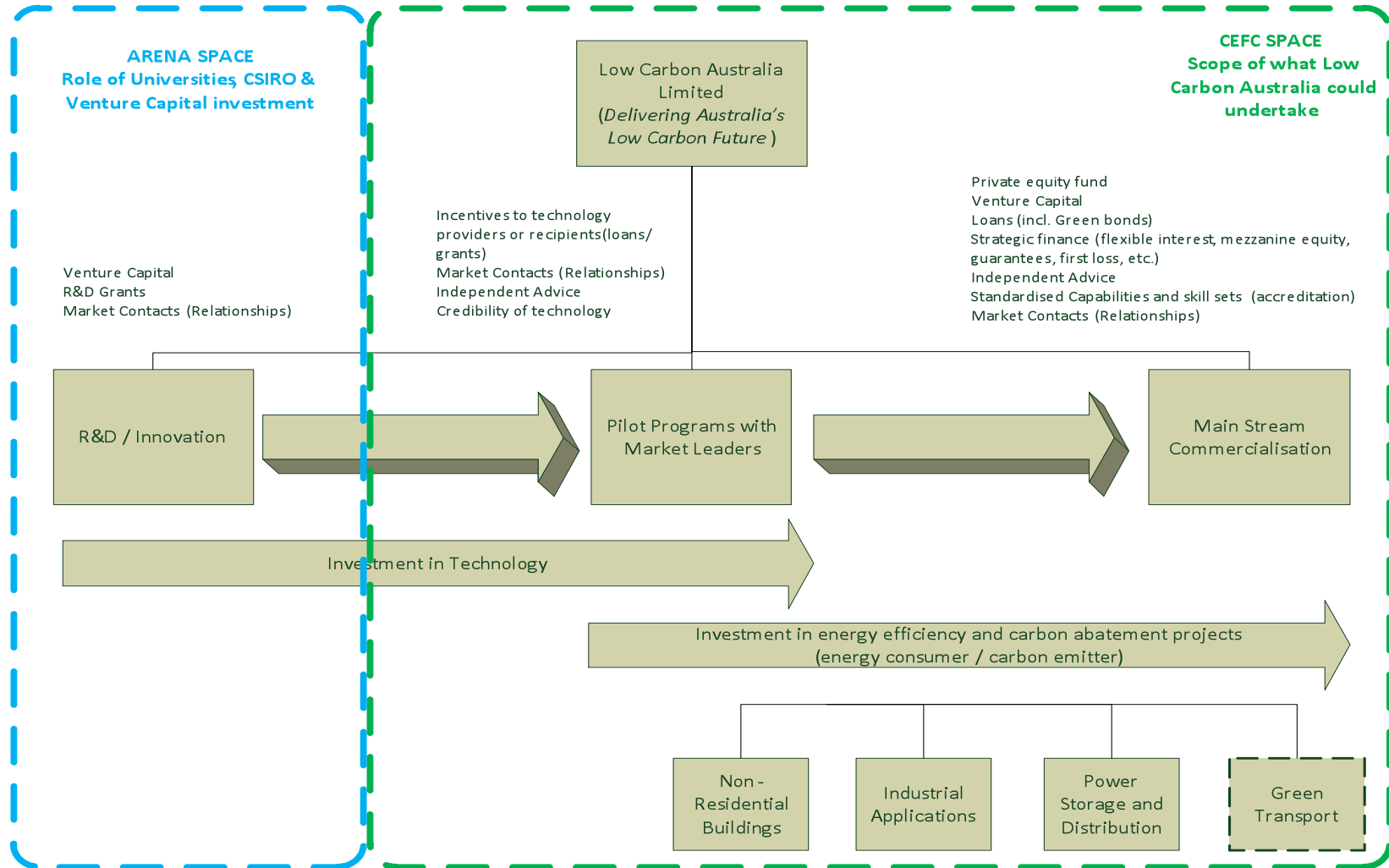
~\$100m initial funding

**Low Carbon Australia** manages two innovative programs:

**Energy Efficiency Program** - finance and advice to business for retrofit of non-residential buildings.

**Carbon Neutral Program** - accreditation for organisations of products or operations certified as carbon neutral under the National Carbon Offset Standard (NCOS)

# LCAL's place in the Clean Energy Future.



# Company Constitution & Activities Scope.

Low Carbon Australia Limited capability map (in the CEFC space)  
(with appropriate capitalisation, governance & licenses (eg APRA & Financial Services))

Scope of Low Carbon Australia Limited activities as contemplated by its Constitution

Current scope of  
Low Carbon  
Australia Limited's  
funded programs

Low Carbon Australia  
Limited  
(Delivering Australia's  
Low Carbon Future)

Energy  
Efficiency

Distributed  
Generation &  
Renewables

Power

Piloting & up-scaling for deployment of technologies that address :  
Energy Supply / Demand Reduction / Power Generation &  
Transmission losses

Market Based Incentives

Environmental  
Upgrade  
Agreements

On-Bill-Finance

Leases  
(Operating &  
Finance)

Co-Investment  
(Debt & Equity)

Grants

Loan  
Guarantees

Public Private  
Partnerships

Venture  
Capital &  
Private Equity

Policy Risk  
Insurance

Tax Measures

Non-Residential Buildings

Industry

Power (Generation, Storage, Distributed Generation and Transmission)

Transport

Households

Agriculture & Forestry

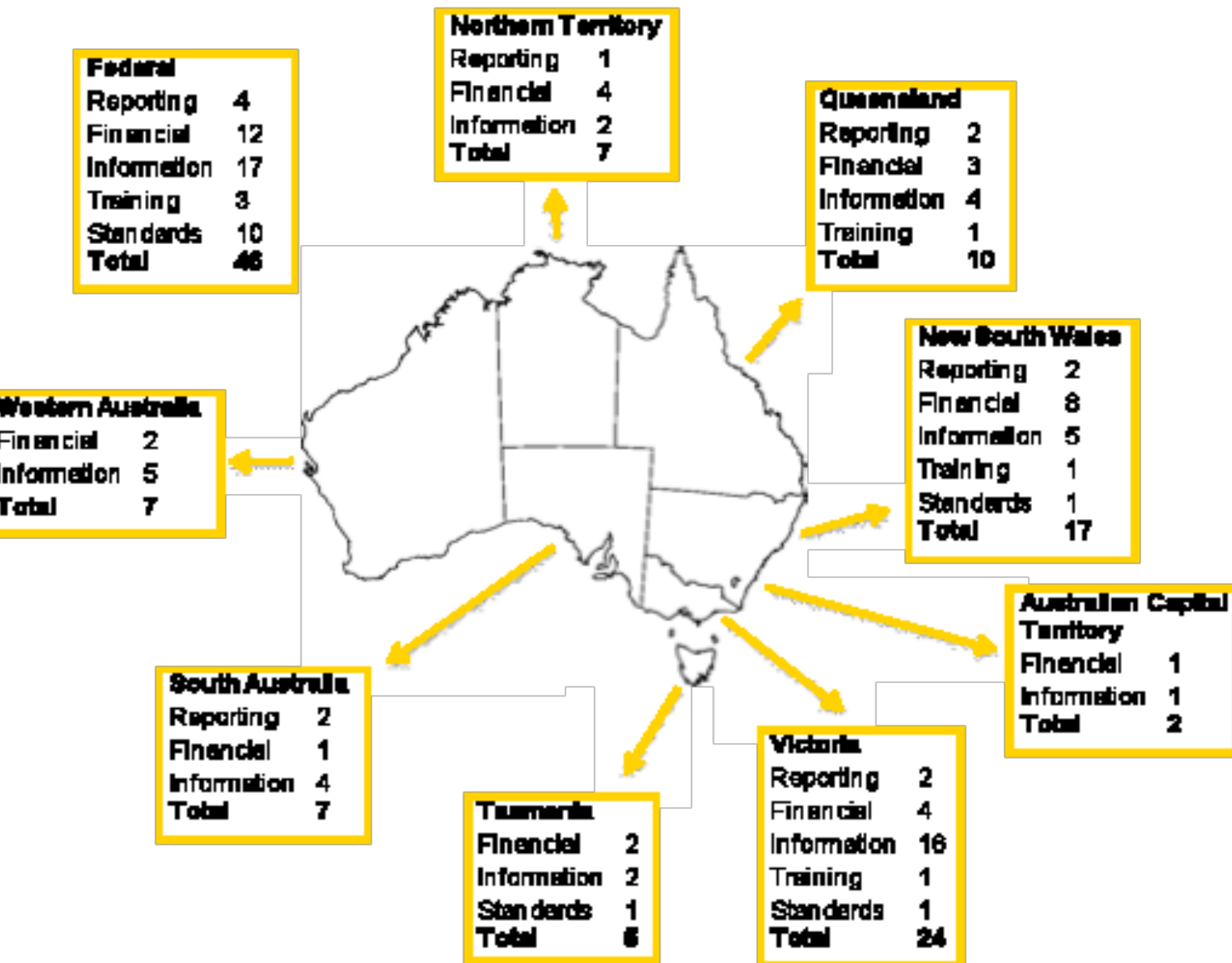
Examples of technologies that are either currently or could be considered in relation to carbon reduction :

- Solar (PV)
- Geothermal
- Smart metering
- Solid state lighting
- HVAC
- Wind power
- Biomass
- Smart grids
- Hydrogen fuel cells
- Motors & Drive
- Bio-fuels
- Building materials
- Smart cities
- Standby power-boards
- Compressed Air
- Marine energy
- Network efficiency
- Efficient power IC
- Lighting
- Building Management Systems

# A broad, but complex, array of energy efficiency policy measures already exists



Number of existing policy measures by geography and focus







Primary assistance	No.
Information	56
Financial	37
Reporting	13
Standards	13
Training	6
<b>TOTAL</b>	<b>125</b>

Target entity*	No.
Household	109
Business	83
Government	25
Education	18
NGO/community	14
Health	5

\* Policy measures can target multiple entities

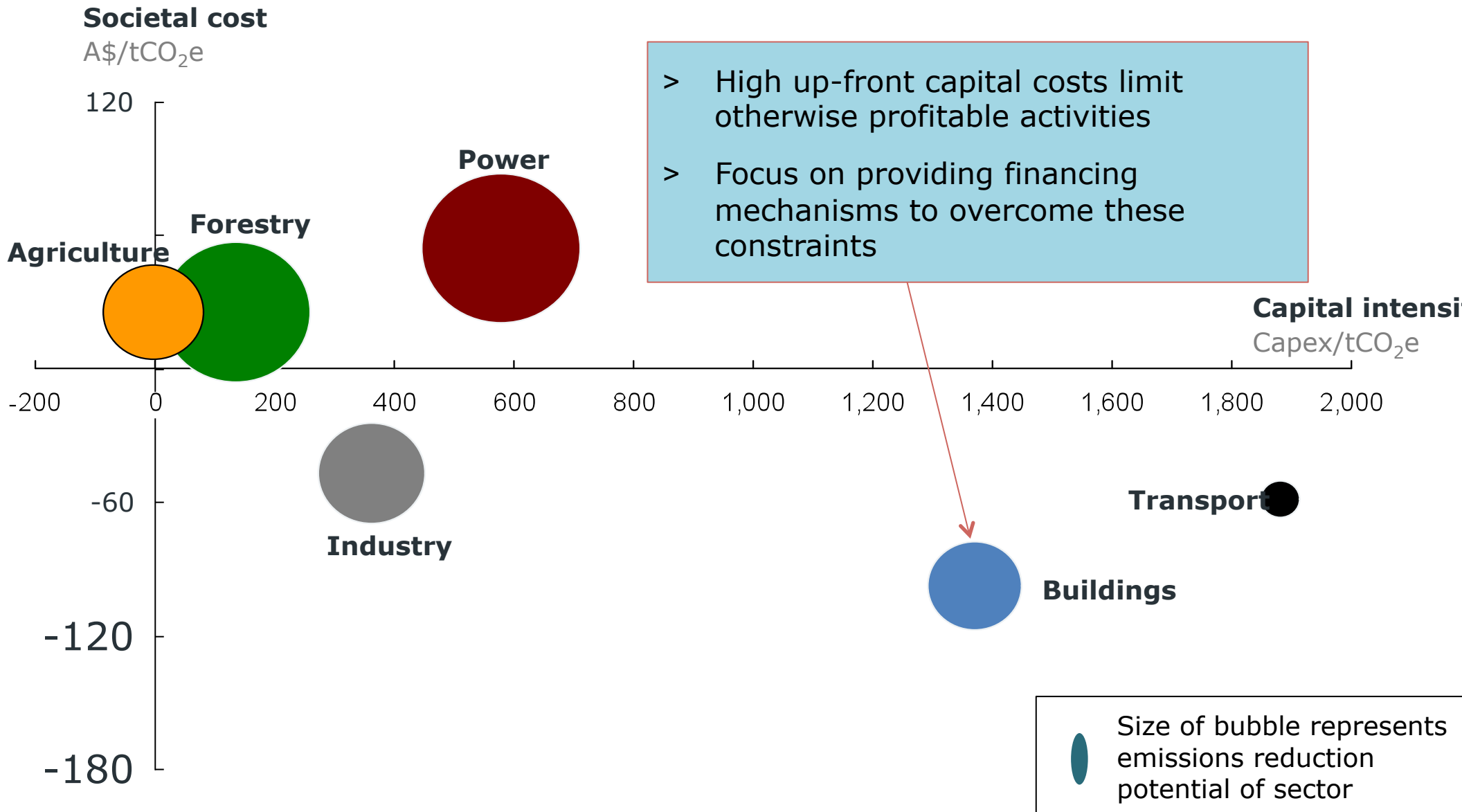
# LCAL will leverage and complement existing business-oriented policy measures

Barrier	Lack of awareness	Financial constraints	Implementation difficulty (technical)	Structural issues
Density of policy measures to address the barrier				
Difficulty level for policy measures to address barriers				

Low Carbon Australia's role

- 'Sign-posting' for businesses to identify and benefit from the most appropriate existing policy measures
- Provision of energy efficiency finance (On-Bill, loans etc)
- Helping governments to promote and replicate successful existing initiatives, e.g. energy efficiency audit programs

# Major Opportunities for cost-effective emission reductions



## LCAL's existing Energy Efficiency Finance solutions - consistent with best practice internationally on EE finance



- Swing internationally towards revolving loan funds (and almost universal move away from government grants)
- Structures being developed internationally are largely focused on:
  - Direct loans (secured and unsecured);
  - Operating leases;
  - On-bill Financing;; and
  - PACE (pay as you save through council rate mechanisms)
- Others areas being considered:
  - **US** : monetization of tax credits, establishment of initial loan reserves to leverage down ongoing cost of funds, establishment of secondary markets for consolidation of (and take out of) pools of funding devoted to energy efficiency, including the initial warehousing of these loans
  - **Europe:** EE technology guarantees, Policy risk insurance, Venture Capital funds for early-stage technology development and establishment of Green Bonds as part of *Green Bank* (e.g. in the UK up to \$2b initially committed)



# Low Carbon Australia's projects need to meet clear criteria to successfully correct the market failure in this sector – set by Government



- Deliver cost-effective carbon savings
- Delivery measurable results
- Leverage private investment
- Be 'additional' to business-as-usual
- Minimise delivery risk
- Catalyse future activities
- Contribute to LCAL's Financial Sustainability

➤ **Net cost < economy average \$23/ MtCO<sub>2</sub>e\***

- **Outcomes-based KPIs**
- **Robust measurement, monitoring & reporting**

➤ **LCAL is a co-investor in projects – not the sole investor**

- **Would not have happened in the absence of our intervention, OR**
- **Would have happened more slowly or on smaller scale**

- **Commercially available technologies**
- **Established partners**

- **Strong demonstration value**
- **Pilot projects which are scalable, replicable, adaptable**

➤ **Projects must deliver appropriate risk-adjusted rates of return while still stimulating investment in EE**

\* Based on Australian treasury modelling of carbon price under CPRS with target of 5% reduction on 2000 emissions by 2020

# Value to the market of LCAL's Customised finance solutions for Energy Efficiency



- LCAL's Advantages offered to the market:
  - Longer term (up to 10 years)
  - Competitive interest rate
  - Can overcome market failures:
    - Split incentives (Landlord pass costs to tenants)
    - Up-front capital limitations
    - Matching of costs and savings
  - All building types
  - All EE technologies
  - De-risking particular investment structures
  - Innovative customised finance solutions

# Energy Efficiency Program..... Current financial solutions



Direct finance	Co-finance with service providers			
<p>Loans - Energy Efficiency</p> <p>Direct loans to building owners, local councils and businesses to finance energy efficiency upgrades</p>	<p>Loans - Energy Efficiency</p> <p>Co-financed energy efficiency improvements for building owners and tenants.</p> <p>Benefits:</p> <ul style="list-style-type: none"> <li>• Increase asset value,</li> <li>• Attract higher quality tenants</li> <li>• Better rental returns,</li> <li>• Owners and tenants realise energy cost savings opportunities.</li> </ul>	<p>Equipment Leases - Energy Efficiency</p> <p>Overcome constraints to businesses of providing up front capital for energy efficiency equipment</p> <p>Benefits:</p> <ul style="list-style-type: none"> <li>• Flexibility for owners and tenants to upgrade as technology improves</li> <li>• Removes residual value risk of the asset for lessee.</li> </ul>	<p>On-bill Financing - Energy Efficiency</p> <p>Enables businesses to install and upgrade energy efficiency equipment, financed by a utility, with repayments through monthly utility bill.</p> <p>Benefits:</p> <ul style="list-style-type: none"> <li>• Removes the requirement for upfront capital for energy efficiency equipment</li> <li>• Repayments typically equal to or less than the energy cost savings achieved.</li> </ul>	<p>Environmental Upgrade Agreements (EUAs)</p> <p>Building owners can access finance for environmental upgrades to buildings under an EUA agreement between the building owner, a finance provider and local council.. Repayments are structured through a council levy on the property, with the council forwarding payments to the finance provider. Benefits:</p> <ul style="list-style-type: none"> <li>• Overcome difficulties for building owners in providing upfront capital</li> <li>• Allow for structured payments that remain with the property if ownership changes.</li> <li>• Building owners may pass on repayment costs to tenants who benefit from reduced energy costs and a more environmentally efficient workplace.</li> </ul>



## **Environmental Upgrade Agreements- NAB and Eureka Funds Management**

Legislation enabling Environmental Upgrade Agreements has been enacted for the City of Melbourne and in NSW.

NAB, Eureka Funds Management and Low Carbon Australia have developed the NAB Environmental Upgrade Loan program anticipated to grow well beyond \$50 million over the next two years.

Supporting the energy efficiency retrofit of non-residential buildings in Melbourne under the \$2 billion City of Melbourne 1200 Buildings program and in Sydney and regional NSW cities

- > potential for this type of financing to be implemented Australia-wide.

# Energy Efficiency Operating Leases - Alleasing



- > Up to \$100 million of financing available under a new Energy Efficiency Equipment Lease (E3 Lease) from Low Carbon Australia and Alleasing.
  - > Includes HVAC, LED and other lighting systems and Building Management Systems.
- > The E3 lease will benefit any business looking to reduce energy costs and GHG emissions
  - > Including REITS, private owners, office, retail, commercial, industrial, university, hospital and local government.
- > Benefits of the E3 Lease include:
  - > 100% of Energy Efficiency equipment acquisition cost with no capital outlay by end-user/lessee
  - > Flexibility to move to newer technology as it becomes available, in a rapidly evolving industry
  - > Preserves capital in the business by eliminating capital expenditure requirements
  - > May eliminate 'split incentive' issues

# On-bill Financing – Origin Energy & Low Carbon Australia



Origin Energy are Australia's largest Energy (electricity and gas) Retailer – private company servicing residential, commercial and industrial customers

Origin Energy and Low Carbon Australia are co-funding delivery up to \$12.7million in energy efficiency upgrades for their business customers

Customers can access energy saving equipment without up-front capital expenditure

Provides business customers end-to-end service to reduce their energy use and costs,

Identifying energy saving opportunities and technologies

Structured finance and repayments to lower the cost for business of energy efficiency technologies

Being marketed to Origin's ~15,000 business customer sites in non-residential industry, distribution and infrastructure properties nationally.

# How the alliance with Origin works



Low Carbon Australia provides a direct loan to Origin Energy which it then uses to fund customer energy efficiency opportunities

The cost of finance is lower, and the term of the loan often longer, than Origin Energy would otherwise be able to offer, meaning more projects are cost effective

Origin Energy then recovers the loan repayments through the customer's utility bill

An 'On-bill finance' mechanism successfully adopted in the US

Origin Energy provides a turnkey solution - spanning opportunity identification, implementation and resulting in a guarantee of energy savings.

# The 4-Step Process



Origin follows a 4 step process with a guaranteed solution, for business:

1. No-obligation site visit and Energy Use Review
2. Detailed proposal with Low Carbon Australia funding options
3. Project implementation with an Energy Savings Guarantee (+/- 20%)
4. Measurement and verification – via an Actual Savings Report



# The Customer Benefits – overcoming the following barriers



Financing repayments are structured to deliver cost neutral or positive returns to your business – with repayments typically equal to or less than the energy cost involved

Origin provides a business with a complete end-to-end service, identifying energy saving opportunities and facilitating the implementation of energy efficiency technologies specific to business needs

Origin measure and verify that the energy savings have been realised post implementation

Using Low Carbon Australia finance, Origin's Energy Savings Guaranteed product achieves efficiency dividends with no upfront expenditure

# Example ESCO Solution being considered by LCAL, includes energy savings guarantee



## ENERGY SAVING MEASURES SUMMARY TABLE

Energy Saving Measures	Area	Total Annual Savings	KVA Peak Demand	MW/hour Annual Savings	Co2 Annual Savings	Investment ex GST	Return on Investment	Pay Back Years ex Funding	Pay Back Years with Funding
Refurbish Light Fittings	Various	\$19,077	48	138	182				
Fluorescent Lighting Voltage Reduction Units	Various	\$7,046	18	56	74				
Lighting Controls	Various	\$35,692	0	329	436				
Install 7 day Timers	Various	\$987	0	10	13				
Rotary Frequency Inverter Controls	Various	\$26,849	24	280	371				
<b>TOTAL ENERGY</b>		<b>\$89,651</b>	<b>90</b>	<b>813</b>	<b>1076</b>	<b>\$235,271</b>	<b>38%</b>	<b>2.6</b>	<b>4.0</b>

## ENERGY SAVING PROJECT CASHFLOW SUMMARY TABLE

Estimated Monthly Savings	Monthly Payment for 48 Months	Positive Monthly Cashflow
\$ 7,470.00	\$ 6,363.00	\$ 1,107.00

# Typical project improvements considered include:



- Light fitting refurbishments and replacements
- Voltage regulation devices, both for selected lighting and whole of sites
- Lighting controls
- Building Management system optimization and replacement
- Efficiency upgrades to Heating, Ventilation and Air Conditioning systems
- Variable speed drives on fans and pumps run by smart controls
- Power Factor Correction
- Chiller control upgrades
- Efficiency upgrades on travelators and lifts
- Building Fine Tuning / Control Strategy implementation
- Cogen-Trigen
- Real Time Energy & Water Building Monitoring / Sub metering with monthly site facilities management energy discussions

# Typical projects under consideration – both high and low payback projects



Technology	Cost	Savings (pa)	Additionally
Co-generation	\$4.8m	\$750,000	Below IRR for project approval
Roof paint technology	\$160,000	\$30,000 (to be confirmed)	Payback for project is 5 years, but max loan term offered by bank is 3 years
Lighting in cold storage (Induction and LED lighting)	\$375,000	\$50,000	Payback for project above normal criteria to investment
Chiller upgrade	\$1.5m	\$187,000	8 year ROI. Payback for project above normal criteria to investment. Peak demand savings.

# Benefits to a Utility of this type of approach – lessons learnt



Providing added value to their business customers therefore more likely to retain and acquire new customers

Recognise the substantial activity in the energy efficiency sector and the opportunity to be a significant player – or risk losing out to others

Demonstrate a Utility's credentials in the sustainability space through positive action, staying ahead of regulatory requirements

# The Future for Low Carbon Australia – what have we learnt is key?



- > Help business stay competitive in the face of rising energy prices and access carbon reductions at least cost
  
- > Create new financial vehicles to catalyse private sector investment across industry sectors and other innovative programs
  
- >
  
- > New strategic alliances and a flow of new energy efficiency project financing
  
- > Pipeline of project finance to help small, medium and large businesses and the public sector
  
- > Revolving fund approach with flexibility for tailored financial support :
  - > continuity
  - > market driven
  - > overcomes barriers that other Government interventions have not
  - > savings to business with cost effective carbon reductions
  - > capacity to expand and broaden approach for industrial and other sectors.



# THANK YOU

You can find out more at

<http://www.lowcarbonaustralia.com.au/>