



Mitigation: Can we? Yes we can
Economic opportunities in low carbon transition for Australia

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Anna Skarbek
Executive Director, ClimateWorks Australia
www.climateworksaustralia.org

About ClimateWorks Australia



ClimateWorks Australia is a non-profit organisation created in 2009 by a partnership between The Myer Foundation & Monash University, focused on enabling practical projects to deliver emissions reductions in Australia.

Our first major project, the *Low Carbon Growth Plan for Australia*, won the 2010 Eureka Prize for Innovative Solutions to Climate Change.



THE MYER
FOUNDATION



MONASH University

Affiliations:

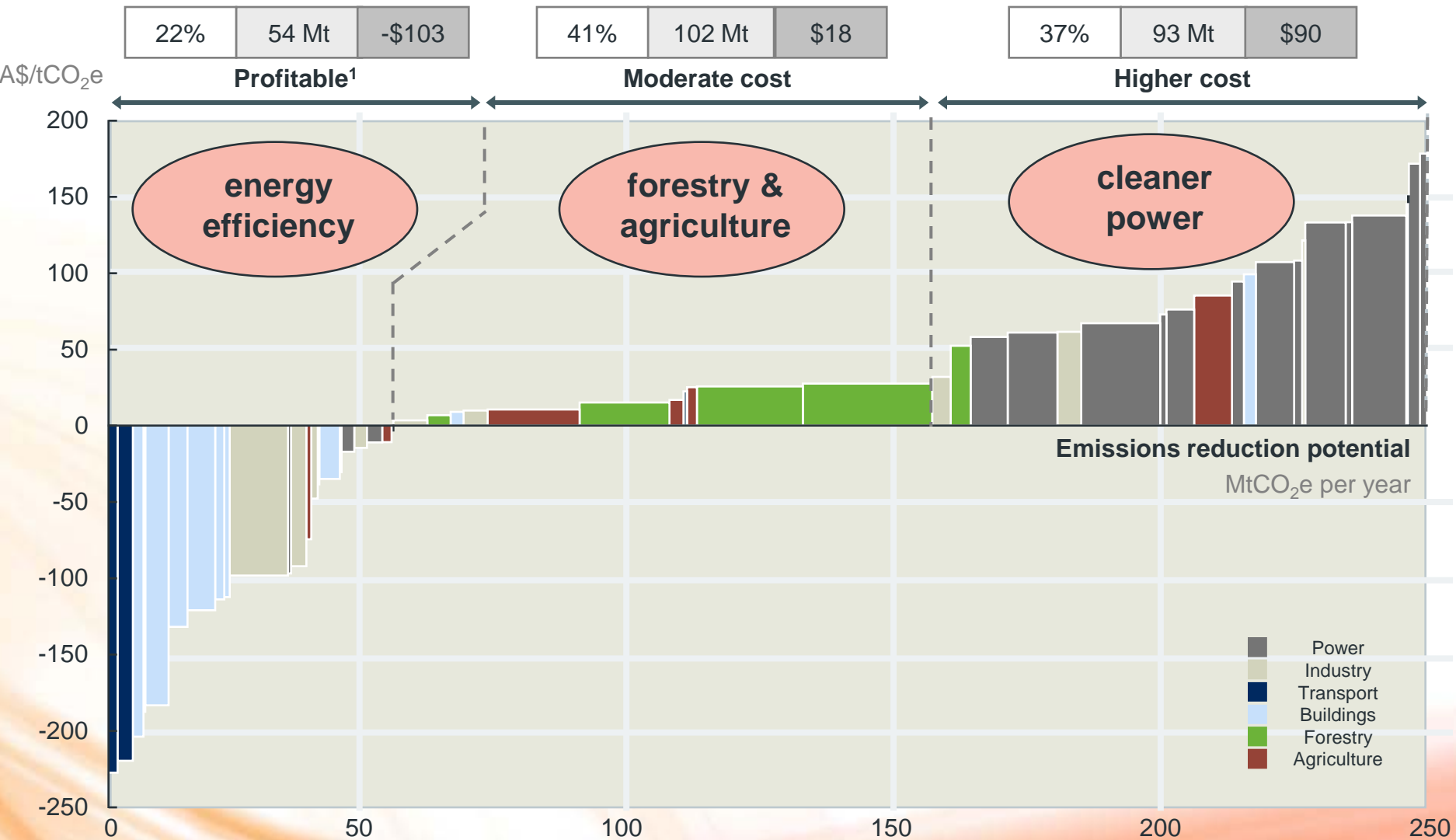


ClimateWorks



In 2010, we identified 54 opportunities within Australia that would achieve a 25% reduction on 2000 levels by 2020

- Percent of total opportunity
- GHG reduction, MtCO₂e
- Average cost, A\$/tCO₂e



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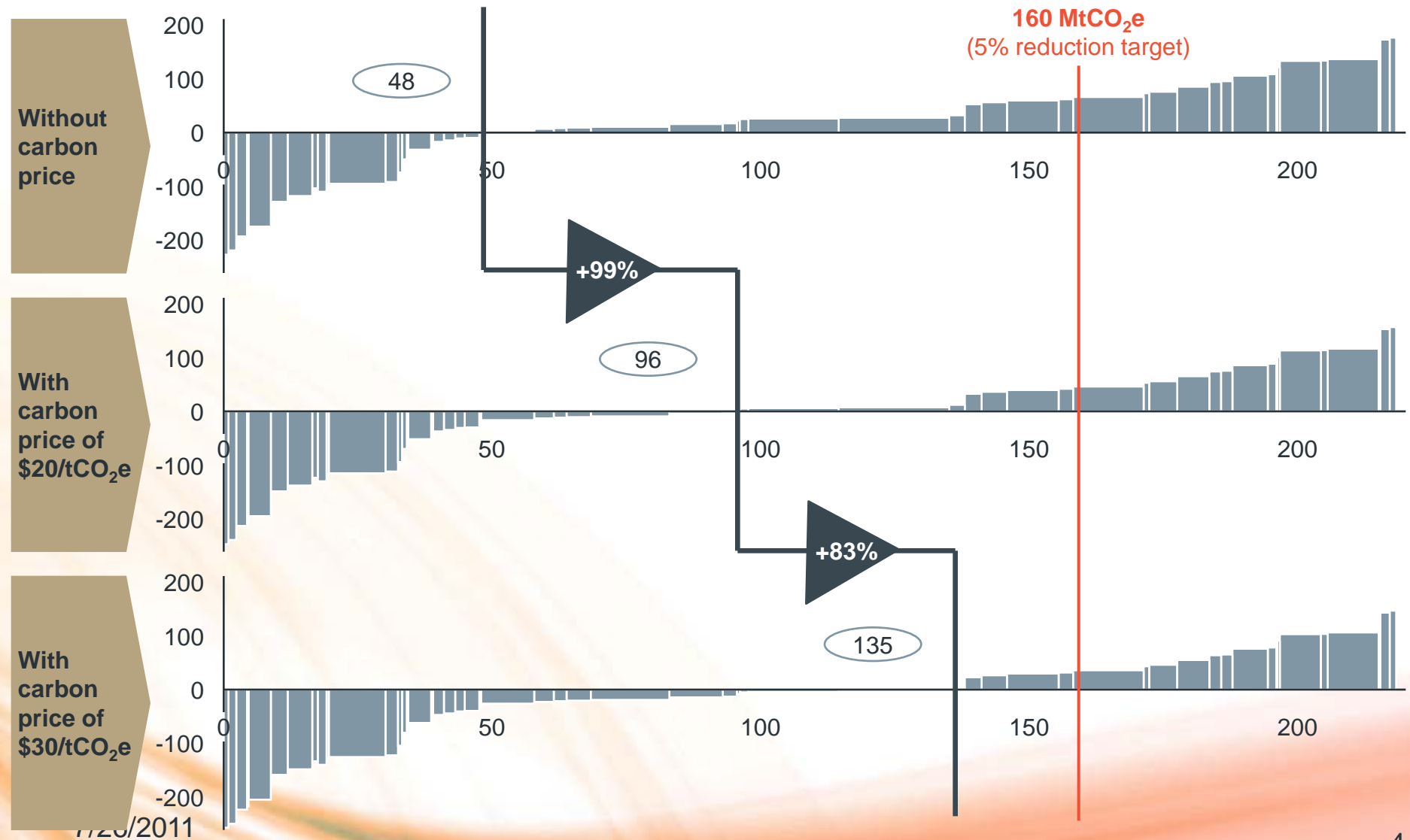
¹ In this report, profitable is defined as positive return on incremental invested capital and operating expense (excluding transaction or policy implementation costs)

Introducing a carbon price of \$20 to \$30/tCO₂e in 2013 doubles or triples the amount of profitable opportunity








2020 GHG emissions reduction investor cost curve in 2013

○ Megatonnes of profitable abatement opportunities
 ▲ % increase in profitable abatement opportunities



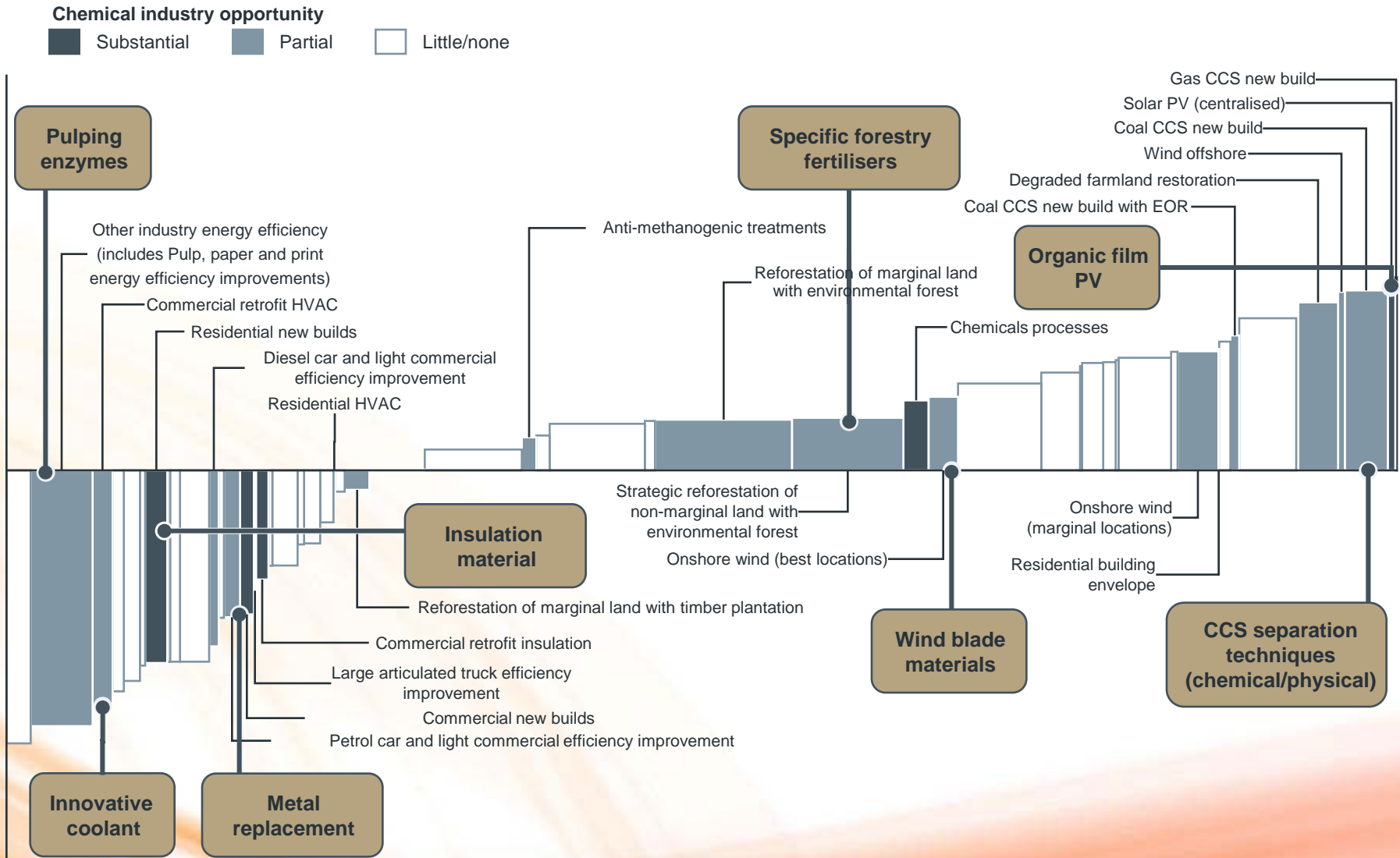
SOURCE: ClimateWorks analysis

A range of barriers currently hinder the capture of emission reduction opportunities ...but the new Carbon Price Package addresses many of these

Specific barriers	Examples	Solutions in the carbon price package
Investor profitability	<ul style="list-style-type: none"> ▪ Positive cost ▪ Non-market pricing (fixed fees, negotiated rates) ▪ Scientific or technical uncertainty 	 <ul style="list-style-type: none"> ▪ Carbon tax & emissions trading ▪ CFI credits
Capital availability/priorities	<ul style="list-style-type: none"> ▪ Finite access to capital ▪ Payback periods ▪ Investment hurdle rate > cost of capital 	 <ul style="list-style-type: none"> ▪ Grants for big RE, R&D, capital equipment and energy efficiency upgrades
Informed decision process	<ul style="list-style-type: none"> ▪ Access to information ▪ Lack of awareness or understanding ▪ Low business priority ▪ Lack of statistical experience to prove benefits ▪ Lack of long term view on carbon/energy price ▪ Split administrative structures or budget allocation process 	 <ul style="list-style-type: none"> ▪ Information & capacity-building support for SMEs, farmers ▪ New obligation on energy retailers to deliver energy efficiency (NESI)
Market structure and supply	<ul style="list-style-type: none"> ▪ Split incentives (owner/tenant, current/future) ▪ Lack of project scale (increased transaction costs, fragmented decision-makers) ▪ Sufficient availability of or access to equipment, infrastructure and skilled labour ▪ Reliability/quality of supply (immature markets) 	  <ul style="list-style-type: none"> ▪ ABS and AEMO to produce better data

There are new growth opportunities for many sectors

Eg: Green growth for a chemicals company example



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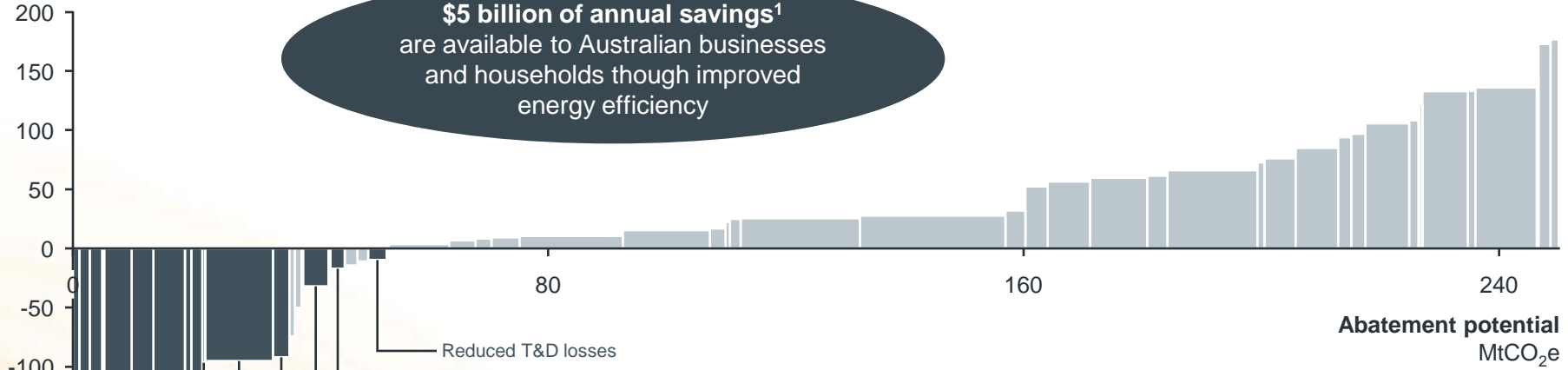
Significant opportunities exist to save money for operators of plants, infrastructure, buildings and vehicles



2020 GHG emissions reduction investor cost curve in 2011

Cost to investors

A\$/tCO₂e



\$5 billion of annual savings¹ are available to Australian businesses and households through improved energy efficiency

- Reduced T&D losses
- Operational improvements to existing coal plant thermal efficiency
- Residential new builds
- Mining energy efficiency
- Other industry energy efficiency
- Operational improvements to existing gas plant thermal efficiency
- Commercial retrofit lighting
- Residential lighting
- Commercial elevators and appliances
- Commercial retrofit HVAC
- Commercial retrofit energy waste reduction
- Residential appliances and electronics
- Petrol car and light commercial efficiency improvement
- Diesel car and light commercial efficiency improvement

Evidence of benefits:

The Energy Efficiency Opportunity program (the EEO program) mandates energy efficiency assessments and reporting by the 199 largest energy using businesses in Australia. The mid-cycle review was conducted at the end of financial year 2008/09 after 3.5 years of operation. It found that:

- The energy savings with a payback of 4 years or less identified amount to a **7% reduction on business-as-usual energy use**
- This corresponds to 93.1 PJ, or **2.4% of total Australian energy use** in 2009
- It represents **\$1 billion in net annual financial savings** for those companies

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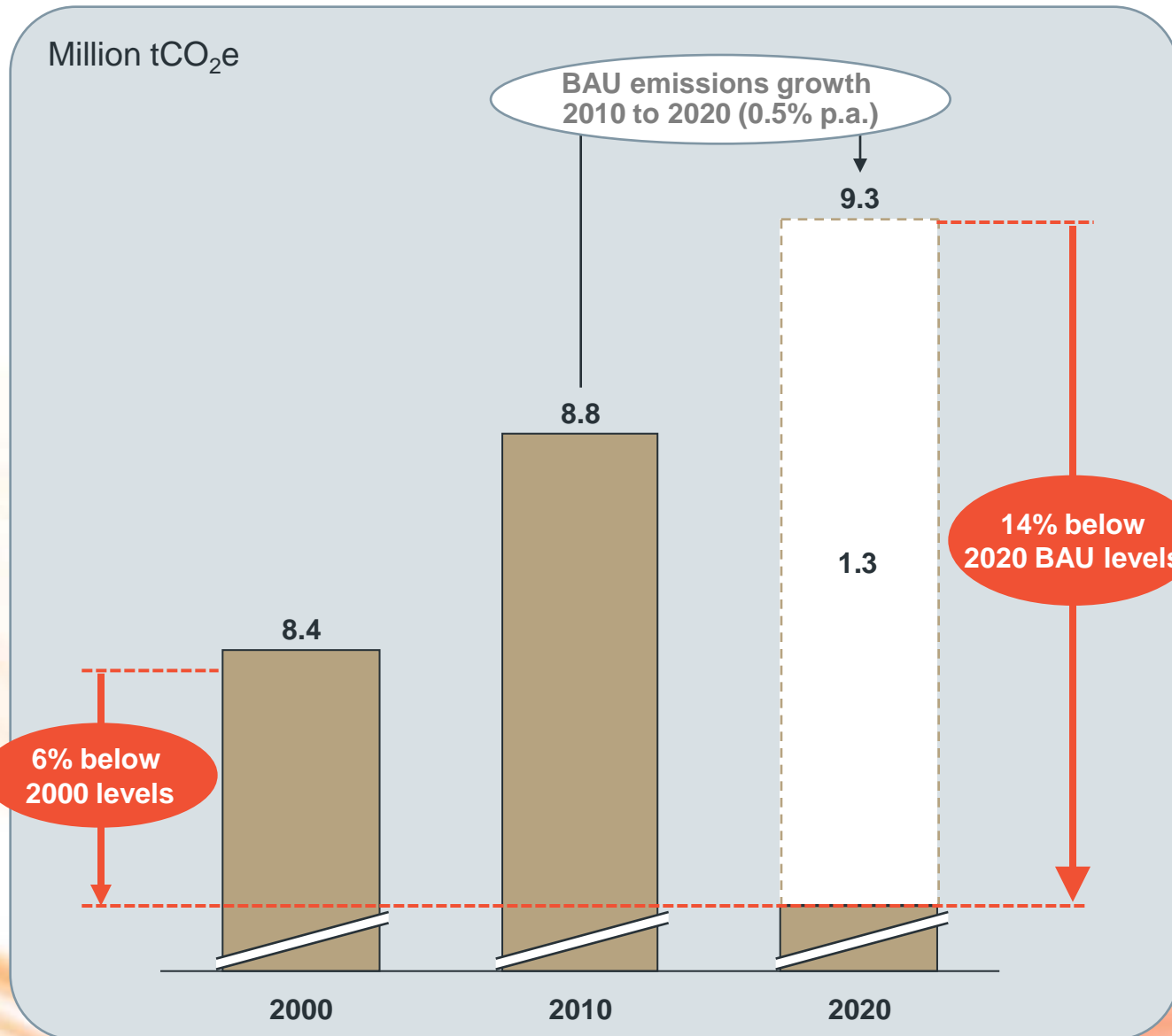
¹ Value of savings in 2020 from actions conducted in next 9 years

Geelong findings: reducing GHG emissions makes economic sense

- ▶ Geelong can reduce emissions by 6% below 2000 levels by 2020 using known technologies
- ▶ = avoiding all household emissions in Geelong each year by 2020 (110,000 households)
- ▶ Net savings of \$60m pa from energy efficiency
- ▶ \$1 billion in inward investment to implement all
- ▶ Everyone has a role to play – no single solution
- ▶ Aggregation of opportunities is key in regions
- ▶ Funding available through some programs



Our research found that Geelong could reverse the growth in its emissions this decade



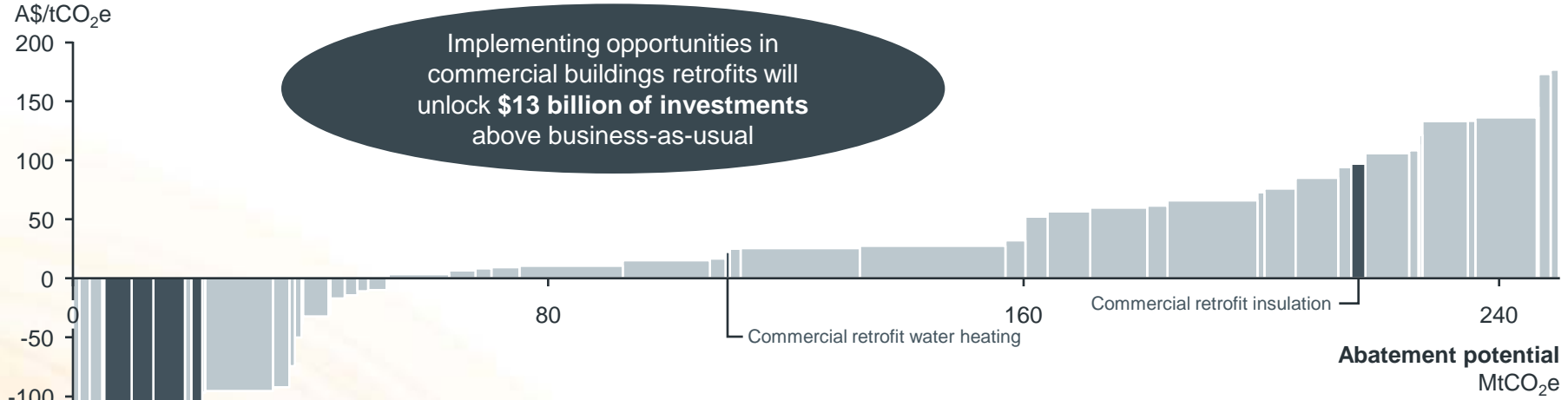
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Nationally there will be new investment and opportunities for equipment manufacturers, construction and engineering companies and service providers



Commercial buildings retrofits example
 2020 GHG emissions reduction *investor cost curve* in 2011

Cost to investors
 A\$/tCO₂e



Evidence of benefits:

The **1200 Buildings Program in Melbourne** is now underway and is forecast to drive positive economic impacts on the local construction sector:

- It could drive around **\$1.3 billion in additional** retrofitting construction **expenditure** into the City of Melbourne alone
- Between 5,800 and 11,800 FTE years of direct employment would be created over the eleven year period
- This equates to an additional **800 full time positions in the building industry and its supply chain** over the eleven year life span of the initiative, more than 1.5 times the employment in the baseline case

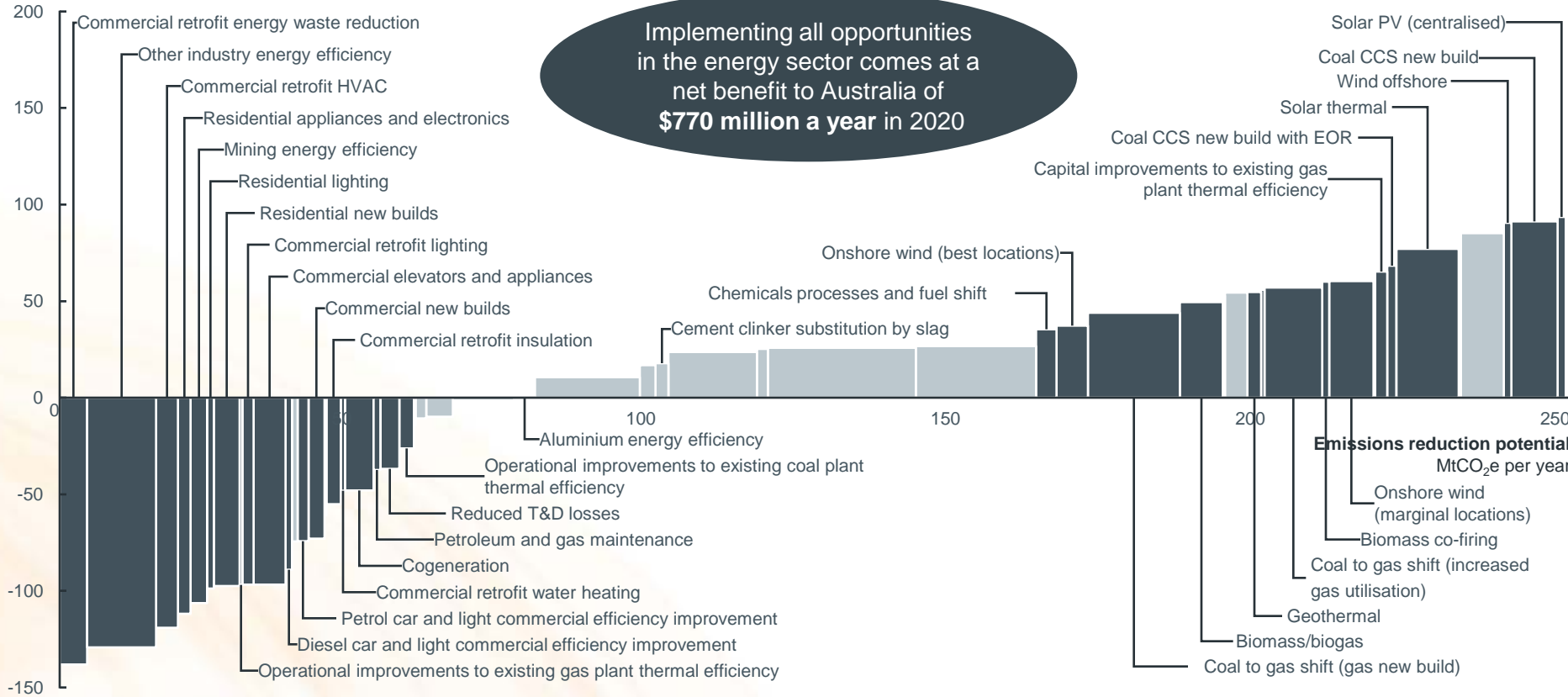
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System-wide approaches also deliver net benefits: energy demand savings can more than cover costs of cleaner power



2020 GHG emissions reduction societal cost curve in 2011

Cost to society, A\$/tCO₂e



The **EU 2050 roadmap**¹ has found that decarbonizing EU's energy sector comes with many benefits:

- The decarbonised pathway **reduces the cost of energy supply** by 9% in 2020 compared to BAU and by 25% in 2050
- **Increase in employment** in renewable energy supply and energy efficiency (420,000 additional jobs in 2030) **will outweigh the reduction** of employment in the fossil fuel supply chain efficiency (260,000 fewer jobs in 2030)

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¹ End state is an 80% reduction in GHG below 1990 levels by 2050 across the EU economy, which includes a 95 to 100% decarbonized power sector
 SOURCE: ClimateWorks analysis; Roadmap 2050, A practical guide to a prosperous, low carbon Europe, Technical and economic analysis (April 2010)



THANK YOU

Questions?

www.climateworksaustralia.org