



Restructuring the Australian economy to emit less carbon

Report discussion slides

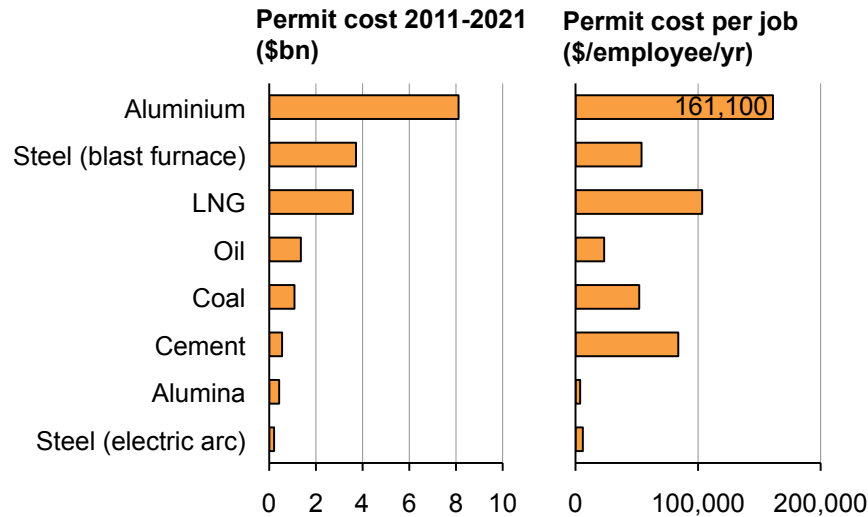
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Grattan Institute

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Free permits are \$20b waste of money that blunt incentives to reduce emissions

Cost of free permits



Problems with free permits

Less incentive to reduce emissions

- No incentive to reduce emissions below the free permits provided (no “windfall gains” provision)
- Less incentive for product substitution (wood for steel)
- Less incentive to move to low emissions facilities if different free permit entitlements within industry (blast furnace steel to electric arc steel)
- Work less hard if no burning platform
- No incentive to move offshore for lower emissions

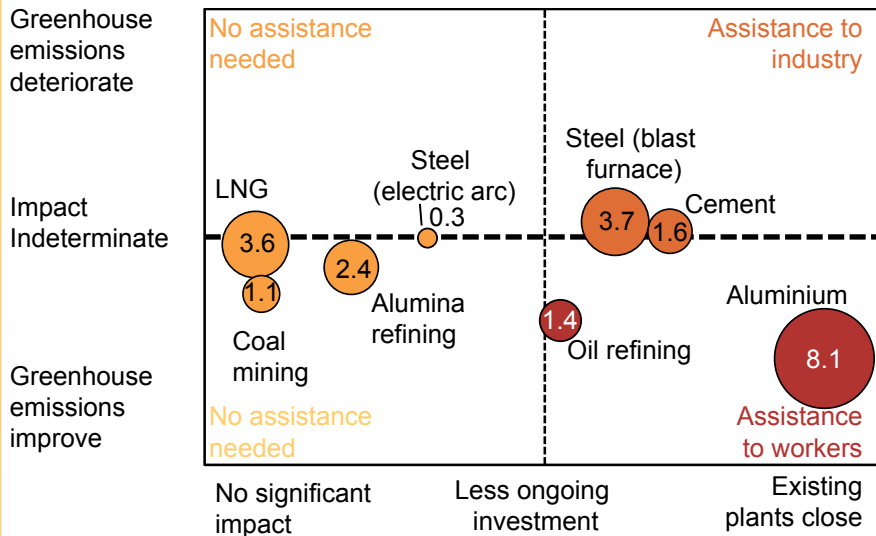
Free permits aren’t free

- Recipients “pollute for free” – others will have to abate to compensate
- \$20bn tax exemption

Carbon pricing reforms in context

Impact	Historic reforms	Carbon pricing	
Job losses	<p>Tariff reductions</p> <ul style="list-style-type: none"> • Car manufacturing employment fell from 100,000 to 45,000 • TCF employment fell from 113,000 to 49,000 <p>Electricity competition reforms</p> <ul style="list-style-type: none"> • Electricity sector employment fell from 330,000 to 154,000 	70,000 workers in facilities of studied industries – most continue to be viable	
Compliance burden	GST	<ul style="list-style-type: none"> • Every business for every transaction • \$4.5b admin cost 	1,000 firms with reporting obligations
Inflation	GST	<ul style="list-style-type: none"> • One-off 2.8% increase in CPI 	One-off 1-1.5% increase in CPI

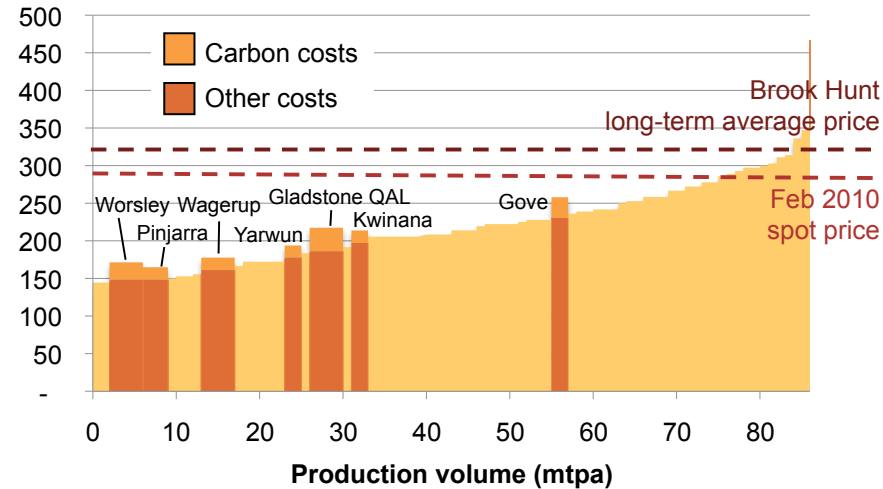
Targeted response to carbon leakage



Alumina refining, coal mining and LNG do not need industry assistance

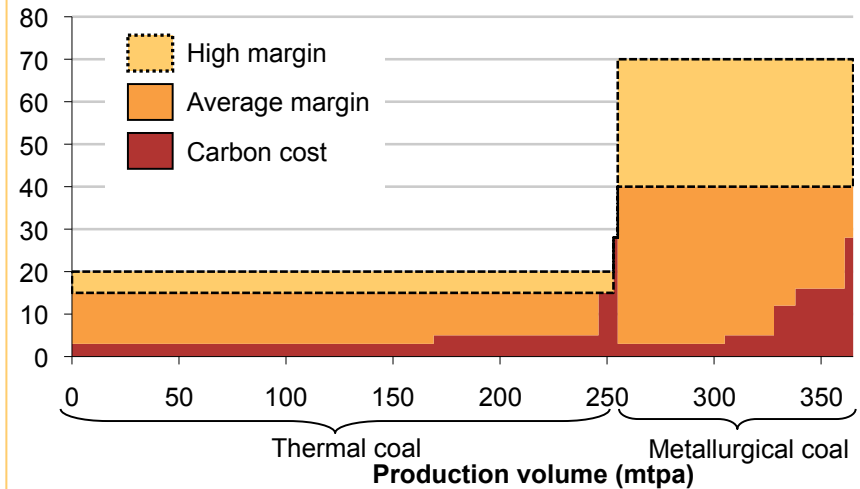
Alumina – still low cost after paying carbon costs

Alumina cash costs (US\$/t)



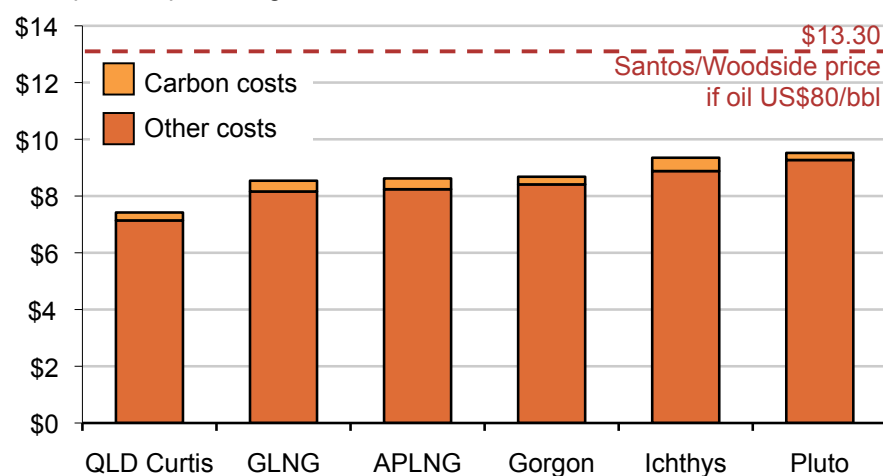
Coal – only a few gassy mines significantly affected

Coal margins and Carbon Cost (US\$/t coal)



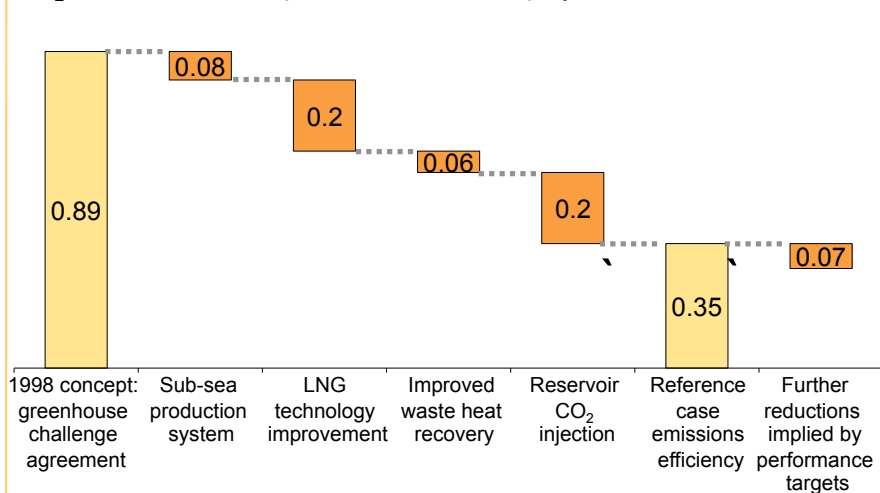
LNG projects very positive on projected prices

LNG price required to generate 12% return on investment



Strong abatement incentives make a difference to LNG

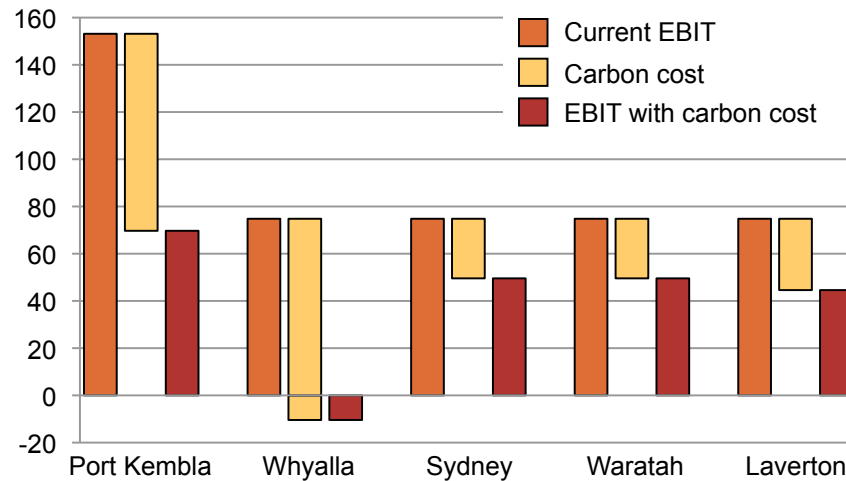
CO₂ emissions / t LNG produced – Chevron project



Assistance may be justified for steel and cement, although it could be better targeted

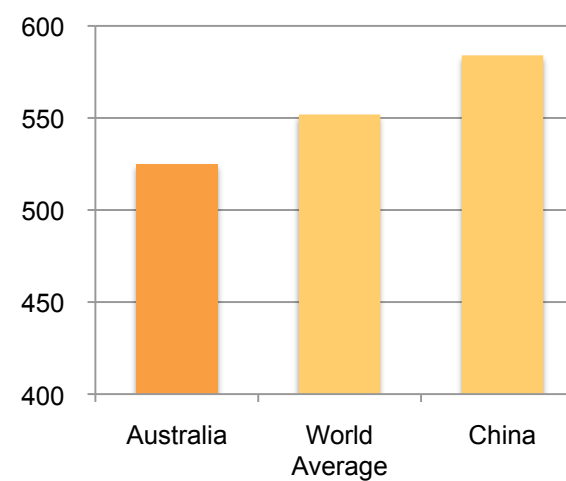
Steel profitability marginal after carbon costs

Steel producer profitability (A\$/t)



Replacement steel capacity may have high emissions

Reductant usage (kg reductant/t steel)



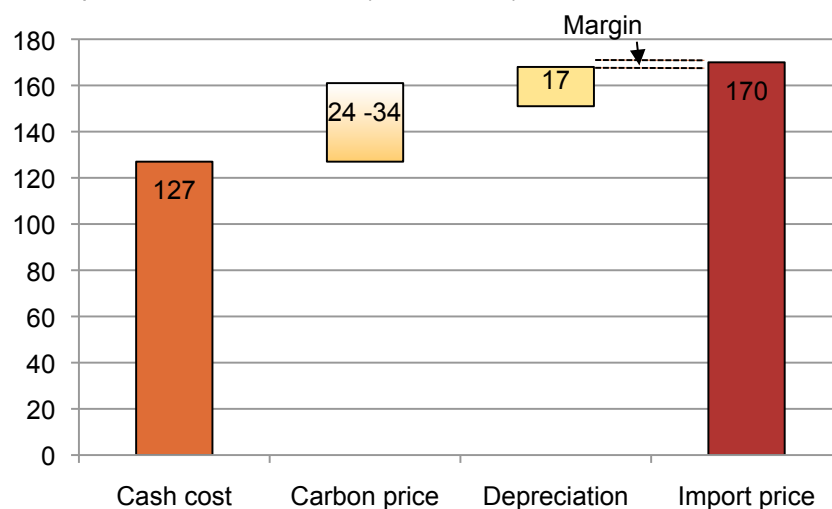
- Most new capacity being added in China

But:

- New Chinese capacity likely to be close to Australian efficiency
- Small inefficient Chinese producers are closing – unprofitable and central government policy

Cement profitability marginal after carbon costs

Cement prices and carbon costs (A\$/t cement)



Border adjustments better than free permits

- Free permits impair carbon-efficient economic restructuring
 - Reduce incentives to switch from steel and cement to wood and plastic
 - More efficient producers have no incentive to reduce emissions further under “no windfall gains” provisions
 - More free permits for steel blast furnaces than electric arc furnaces – mutes incentives to shift production to electric arc
- Border tax on imports complies with WTO rules provided local and imported production treated consistently (UK Government Carbon Trust)
- Should also rebate tax on steel exports to countries without carbon price

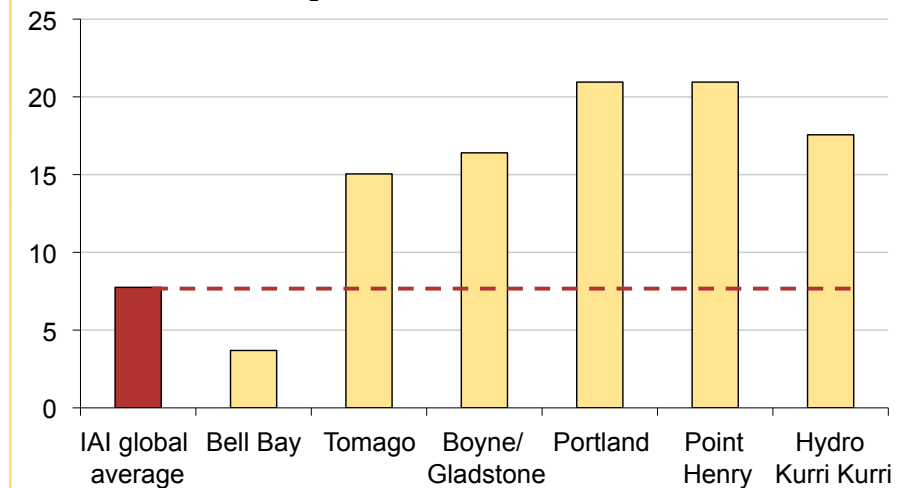
Aluminium threatened by market electricity prices and carbon prices, but lower average emissions offshore

Aluminium threats: electricity prices and carbon prices

Smelter	Change in Al production cost		Cost position (Quartile)			
	Market electricity prices	Carbon price	Current	Market electricity price	Carbon price	market electricity AND carbon price
Portland	\$307	\$623	1 st	low 3 rd	low 4 th	hi 4 th
Point Henry	\$330	\$623	up 1 st -low 2 nd	mid 3 rd	mid 4 th	hi 4 th
Boyne/ Gladstone	\$210	\$488	mid 2 nd	low 3 rd	mid 4 th	hi 4 th
			1 st	hi 2 nd	mid 3 rd	hi 4 th
Bell Bay	\$576	\$110	? 3 rd	hi 4 th	? hi 3 rd	hi 4 th
Tomago	\$266	\$448	low 1 st	low 3 rd	low 3 rd	4 th
Kurri Kurri	\$293	\$522	? 3 rd	4 th	hi 4 th	hi 4 th

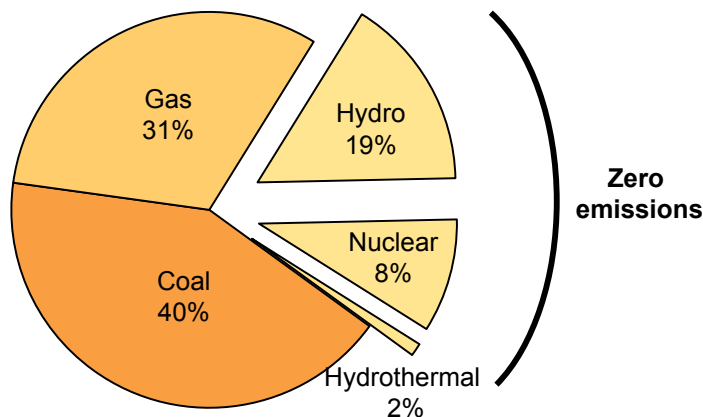
Australian emissions higher than current global average

Emissions intensity (t CO₂ / t Aluminium)



New global capacity disproportionately zero emissions

Power source for planned new Aluminium projects



Aluminium companies planning to shift to low emissions

- Key question: what is the **average** emissions of new capacity (irrelevant that there is a plant with higher emissions)
- Western Aluminium producers shifting to be near stranded low carbon electricity assets (Canada hydro, NZ and Iceland Geothermal)
- Economics of remote low carbon electricity are attractive for Aluminium – low freight costs on high value product

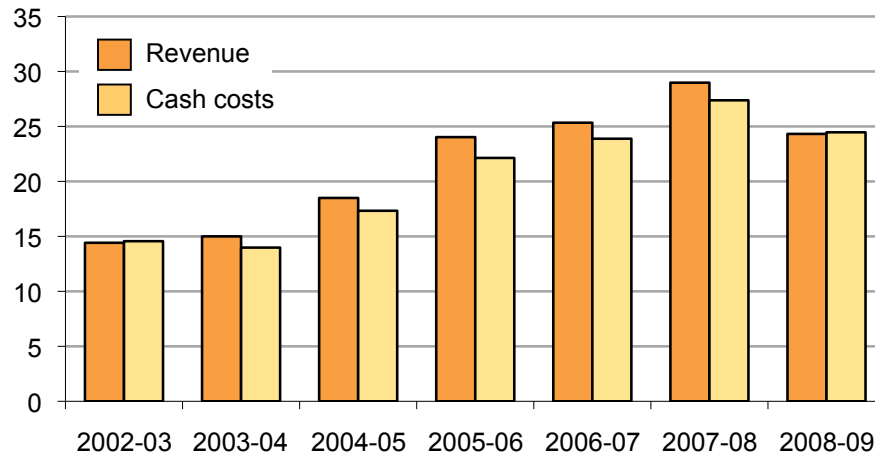
“The future belongs to those who can produce aluminium with less energy, less emissions and less cost”
2009 Annual Report of Norsk Hydro

“Growth in smelting restricted to stranded low carbon power options with expansion potential”
BHPB Aluminium investor presentation 2009

Oil refining: carbon pricing will bring forward the inevitable; security concerns need targeted response

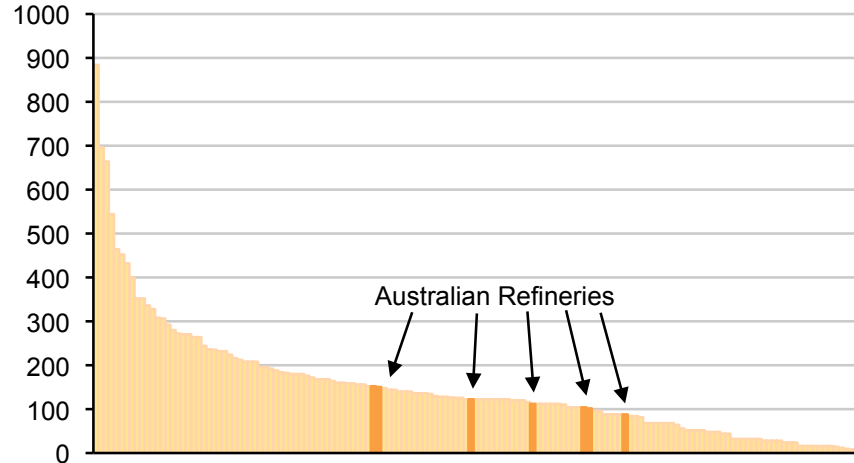
Australian oil refining operates on thin margins

Australian Industry revenue and costs (\$Ab)



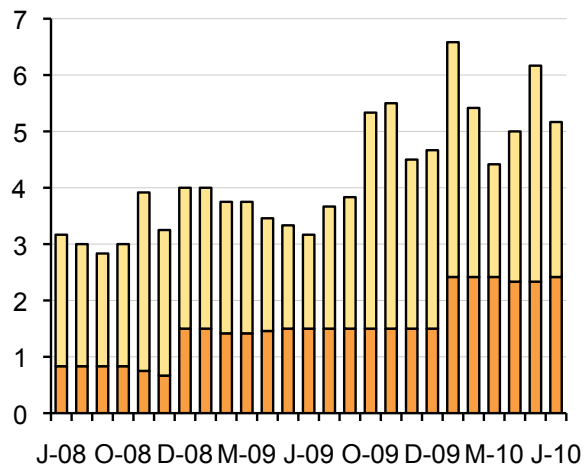
Australian refineries are sub-scale – so higher emissions

Asian refinery capacity ('000 barrels/day)



Freight and quality have protected Australian refineries

Premium for Australian-based production (\$/barrel)



Historic advantages likely to erode:

- Asian fuel standards likely to lift to Australian levels
- Asian supply likely to increase to match demand
- New refineries likely to be large and lower cost

Security concerns need targeted response

- Local refineries not important to security of domestic supply
 - Interruption due to outage in old local plant more likely than interruption due to shipping accident
 - Do not provide self-reliance - depend on international stability for crude oil flow (local oil only 20% of domestic demand)
- Most refineries not required for security of defence supply
 - Could locally refine Australian oil, but would require time to adapt local refineries for chemistry of Australian oil
 - Defence supply does not require all of the existing plants
- Security issues should be dealt with through targeted program