# Alumina Limited Australian Greenhouse Gas Position

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# Who is ALUMINA LIMITED

- Listed on ASX and NYSE
- Open register – majority Australian owned
- Only asset is 40% joint venture shareholding in world's largest bauxite and alumina business (with Alcoa Inc.)
- JV known as AWAC owns 8 refineries, 7 mines, 2 smelters in 7 countries

# A global alumina and aluminium producer

- Alumina Limited owns 40% of Alcoa of Australia
  - Bauxite mining in Western Australia
  - 3 alumina refineries in regional Western Australia
  - 2 aluminium smelters in Portland and Geelong, Victoria

- Eight refineries
- Seven bauxite mines
- Two smelters


All assets 100% owned by AWAC except

| | |
|---|---|
| Portland Smelter – 55% | Guinea – 23% |
| Sao Luis - 40% | MRN – 9.6% |
| Jamalco – 55% | Ma'aden – 25.1% |



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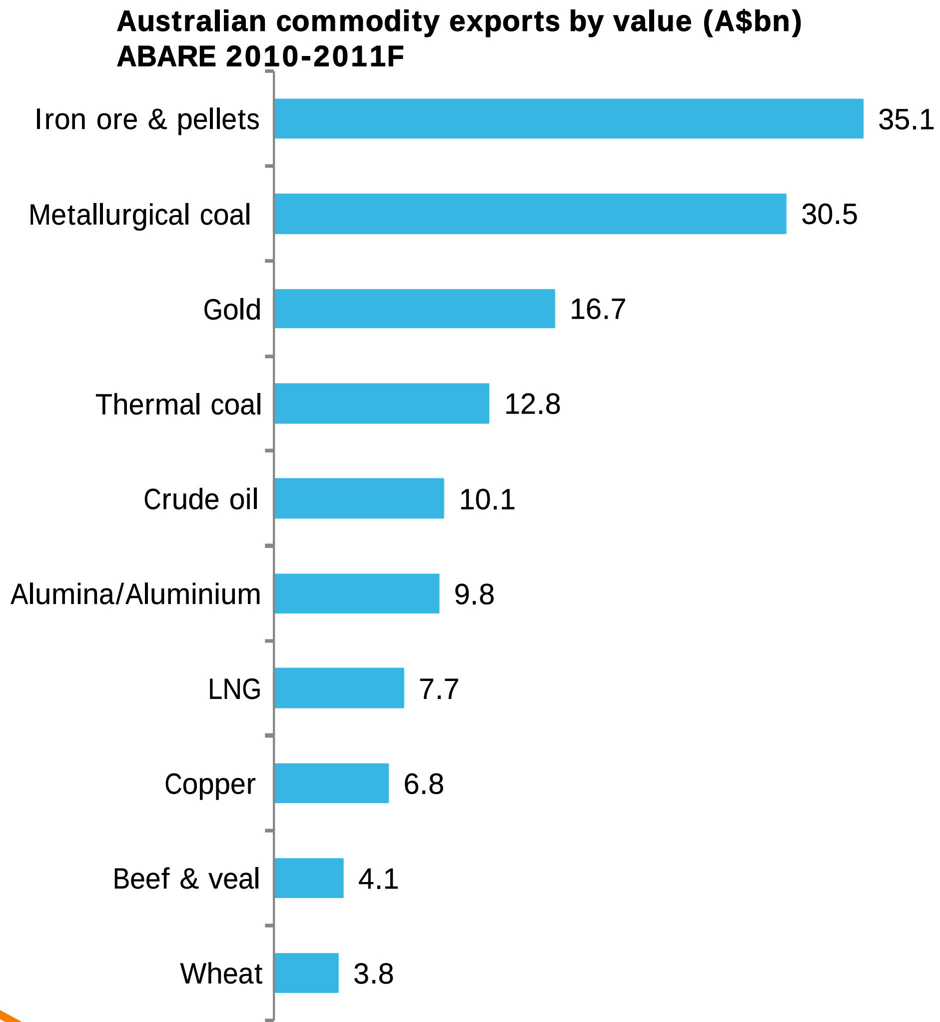
# Australia's highest manufactured export earner




- The Australian aluminium industry:
  - is globally competitive
  - adds significant value to an Australian resource (bauxite) by processing into alumina and aluminium
  - Aluminium industry employs 17,000+ people and with flow on impacts sustains more than 50,000 regional families*

**Source: Australian Aluminium Council Ltd*



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# Australia is a leader in the global industry

| Bauxite | | Alumina | | Aluminium | |
|---|---|---|---|---|---|
| Australia | 33% | China | 31% | China | 41% |
| China | 19% | Australia | 26% | Russia | 9% |
| Brazil | 15% | Brazil | 10% | Canada | 7% |
| India | 9% | India | 5% | Australia | 5% |
| Guinea | 8% | USA | 4% | USA | 4% |

Aluminium is the second most used metal after iron

Source: Australian Aluminium Council Ltd



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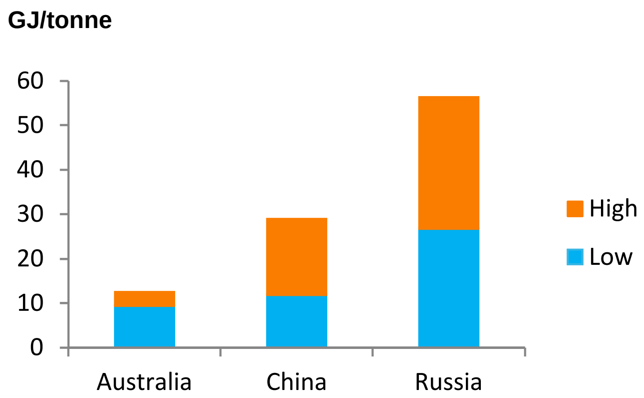
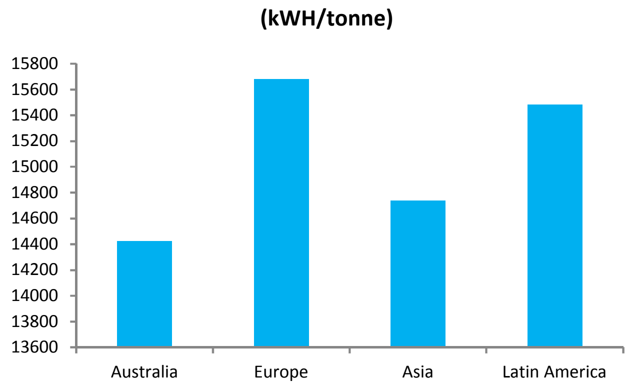
# Australia is a globally energy-efficient producer

## Alumina Energy Use[1]




## Aluminium Energy Use[1]




- Any carbon tax impost reduces Australia's international competitiveness
- China world's largest and fastest growing alumina and aluminium producer
- Chinese future smelters expected to mainly run on electricity from regional captive coal
- China currently has virtually no carbon impost (US$0.85/t$CO_2$)[2]
- Energy used in Australia's alumina production and in smelting is better than the global average

[1] *Source: International Aluminium Institute (2009 data)*

[2] *Source: Australian Aluminium Council 2010*



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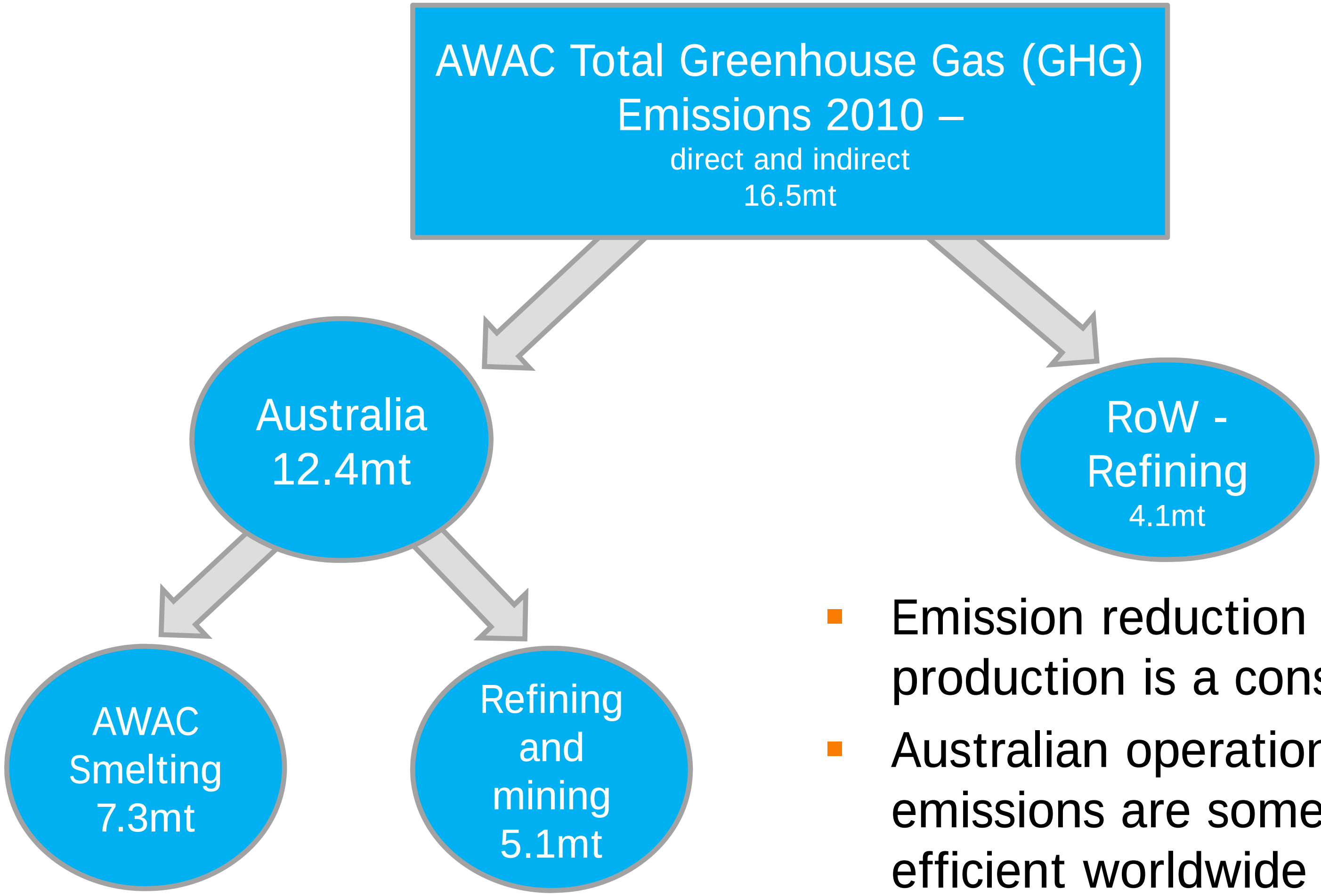
# AWAC* is a global producer




- Emission reduction per tonne of production is a constant objective
- Australian operations direct emissions are some of the most efficient worldwide

*AWAC is the global joint venture 40% owned by Alumina Limited and 60% by Alcoa Inc.



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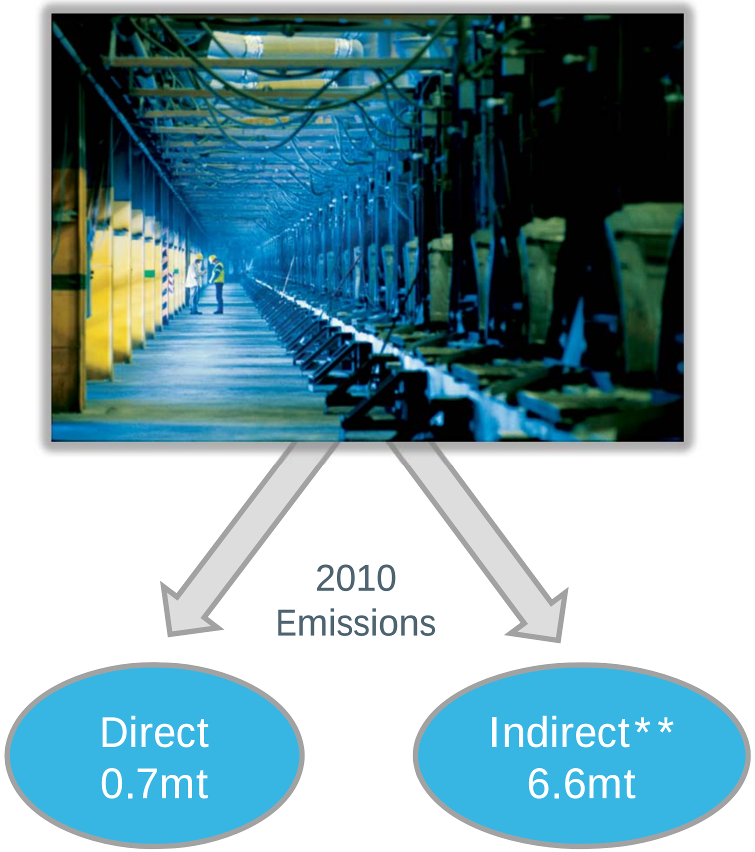
# AWAC’s Victorian smelter operations




- Smelter production 356,000+t (AWAC share)
- Total AWAC GHG emissions 7.3mt**
- Direct GHG emissions reduced 65% per tonne since 1990
- GHG emissions per tonne down 8% since 2008 and 3% 2009-10
- Aluminium is Victoria’s largest export



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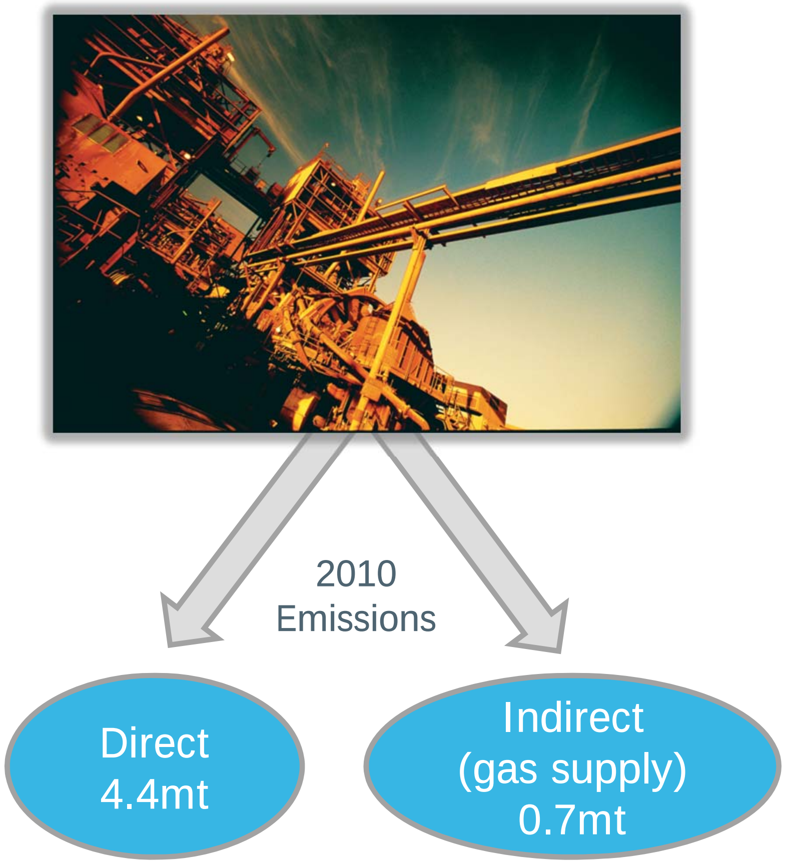
# AWAC 's Western Australian refining operations




- AWAC W.A. refineries produce 9 million tpa of alumina – largest alumina cluster globally
- Total AWAC mining and refining emissions 5.1 million tonnes in W.A.
- Refining reduced GHG intensity 23% since 1990
- GHG emissions per tonne down 1% 2009-10



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# Parameters of carbon tax

- Based on an initial review of the announcement by the Government, the scheme will commence 1 July 2012 with:
  - 94.5% free permit allocation factor applying for smelting and refining
  - 1.3% p.a. permit decline (90% floor expected if 70% of relevant global competitors do not have comparable carbon constraints)
  - Scheme based on direct emissions and contractual arrangements will govern the electricity and domestic gas pass through of carbon tax costs for indirect emissions
  - Fixed price (tax of $23/t year 1, $24.15/t year 2 and $25.40/t year 3, based on a 2.5% rise with 2.5% inflation) transitioning through to permit trading scheme from 1 July 2015
  - Diesel fuel rebate reductions not expected to have a significant impact on AWAC
- Until we see the Regulations we are not able to reasonably determine the impact on AWAC

# Appendix 1 - GHG emissions (AWC's 40% interest in AWAC)**

| | | 2010 | 2009 |
|---|---|---|---|
| **Location** | **Activity** | **$CO_2$ equivalent (million tonnes)** | **$CO_2$ equivalent (million tonnes)** |
| Australia | Smelting | 2.9 | 3.0 |
| Australia | Refining and mining | 2.0 | 2.0 |
| **Australia Total** | | **4.9** | **5.0** |
| **Atlantic Total** | | **1.6** | **1.2** |
| **Global Total** | | **6.5** | **6.2** |
| Alumina production (tonnes) | | 6,070,000 | 5,400,000 |
| Aluminium production (tonnes) | | 142,300 | 147,200 |

** All figures based on calendar year and AWAC holding 55% interest in Portland and not including Alcoa's Australian rolling mills. Anglesea emissions treated as indirect.