



Doing more. Using less.

The imperative to double Australia's energy productivity

June 17 2015

An A2SE Industry collaboration with research partners:



Who is A2SE?


- Not-for-profit established 2009 for a more energy productive Australia
- Focused on 2xEP – Doubling Australia's energy productivity by 2030 (2010 base) across all end use sectors
- Board of senior leaders in energy management
- Steering committee to drive agenda across the economy.

- Note Summer Study - Feb 2016




Doing more. Using less.

Why are we here? 2xEP by 2030




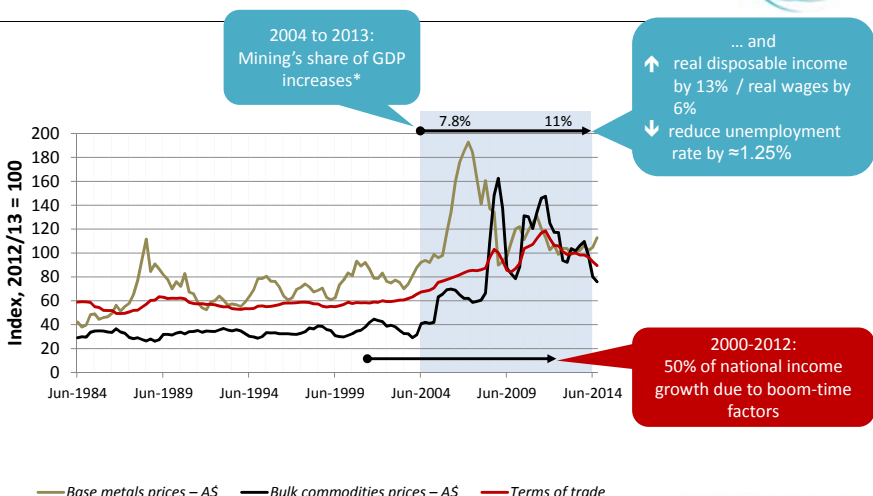
\$100 bn+ investment opportunity

- Energy cost ↓ \$30 B/year (2.5 multiplier from co-benefits)
- Emissions ↓ 25+%
- Oil imports ↓ / ↑ Energy security
- Real GDP per capita ↑ \$2000/year
- Real GDP 2.8% ↑ by 2030




The commodity price boom underpinned Australia's economic performance

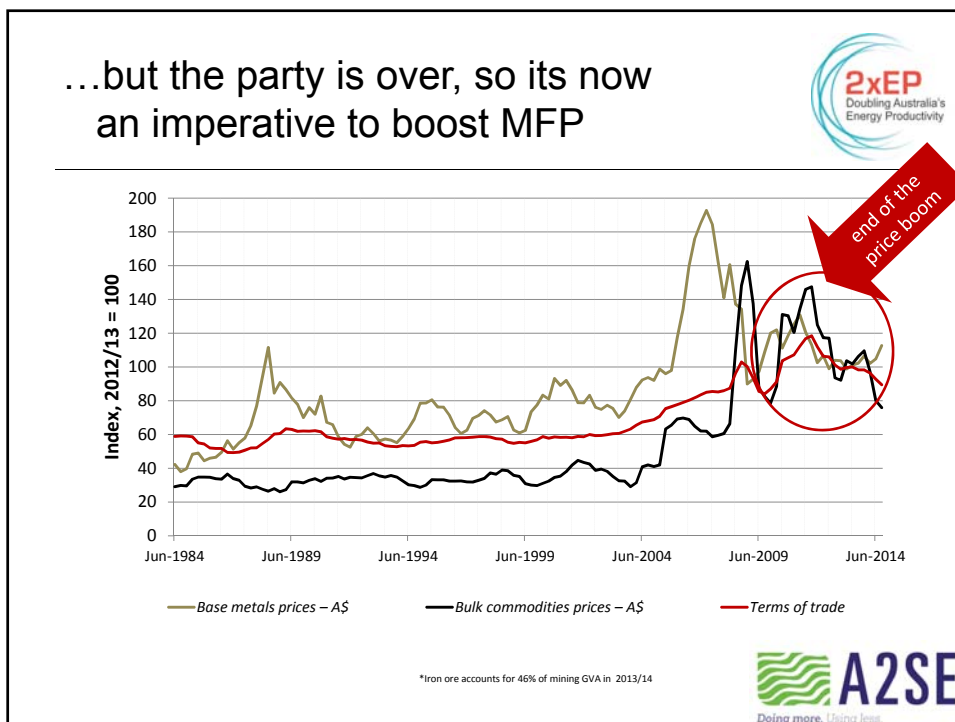
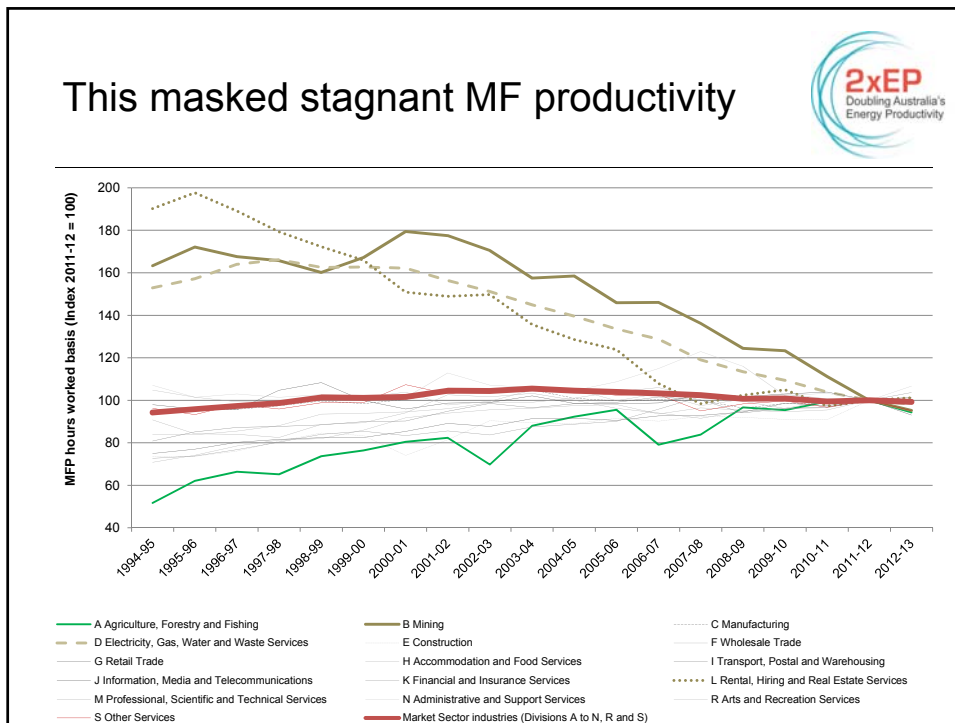





— Base metals prices – A\$ — Bulk commodities prices – A\$ — Terms of trade

*Iron ore accounts for 46% of mining GVA in 2013/14

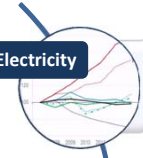




MFP is not just about labour and capital: Energy is \$111B & growing cost to users




Electricity




77+% real price increase 2007-2013, while USA/Europe stable

Natural Gas




50+% real price increase 2007-2013, forecast to double by 2017, while 30% real price drop in US


Oil supply/
security



Increasing dependency on imports, falling local refining capacity, very low stock holding



Energy Prices: rooster->feather duster in 10 years

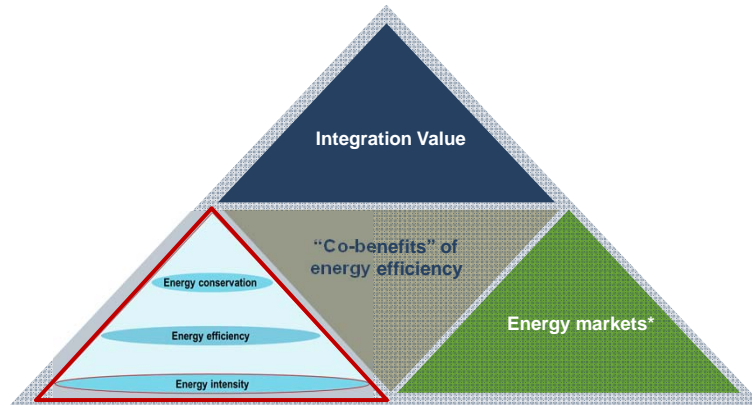


Rank	2000 PPP	2010 PPP	2013 PPP
1	Australia (\$52/MWh)	Korea	Norway
2	Norway	United States	United States
3	United States	Norway	Korea
4	Finland	Switzerland	Switzerland
5	Switzerland	Finland	Mexico
6	Mexico	France	Finland
7	United Kingdom	Mexico	Luxembourg
8	Greece	Greece	France
9	Ireland	United Kingdom	Sweden
10	Luxembourg	Sweden	United Kingdom
11	France	Luxembourg	Japan
12	Korea	Japan	Netherlands
13	Germany	Netherlands	Belgium
14	Austria	Belgium	Chile
15	Slovak Republic	Ireland	Austria
16	Czech Republic	Slovenia	Greece
17	Japan	Austria	Slovenia
18	Poland	Australia (\$252/MWh)	Ireland
19	Netherlands	Czech Republic	Denmark
20	Chile	Italy	Czech Republic
21	Belgium	Portugal	Italy
22	Hungary	Denmark	Hungary
23	Italy	Poland	Poland
24	Portugal	Chile	Portugal
25	Denmark	Germany	Slovak Republic
26	Sweden	Slovak Republic	Germany
27	Slovenia	Hungary	Australia (\$444/MWh)

Energy productivity captures the full value proposition of energy



Maximising the value of output per unit of energy or \$ of energy used



* Competitive & reliable supply



Manufacturing Example



Energy efficient plant and equipment
Metering, reporting and benchmarking
Improved maintenance practices

Traditional energy management

Systems optimisation

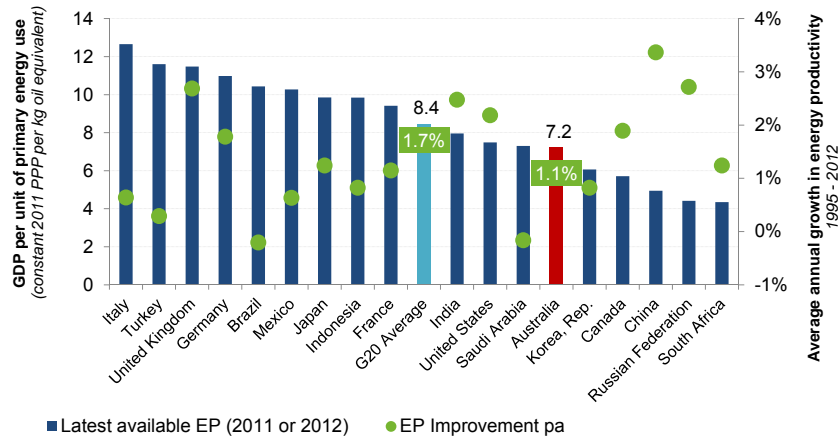
Lean manufacturing (LEP*)
Process change/optimisation
Capacity optimisation
Reduction/recovery of waste
Optimising supply chain

Additive manufacturing/3-D design
Advanced materials
Process intensification

Business model transformation








= Value

Australia's current EP is poor and increasing slower than competitors



Australia is chasing a moving target! Other countries are accelerating away.



-  Double energy productivity by 2030
-  20% reduction in energy intensity by 2020 and 27% + by 2030
-  Improved energy intensity 153% 1990-2009, and 16% 2011 -2015
-  UN 'Sustainable Energy for All: Double rate of EE improvement (to 2.8% p.a.)
-  Launch of Global Alliance for EP – 2xEP focus on China, India and Europe
-  Strengthening voluntary collaboration on EE/EP
-  Limiting 2°C increase for post 2020 action plans





ACCELERATE ENERGY PRODUCTIVITY 2030





PRESIDENT OBAMA

I'm issuing a new goal for America: let's cut in half the energy wasted by our homes and businesses over the next twenty years. –

State of the Union, February 2013











2xEP approach




- 1

Depoliticised and consistent long term policy




Contribute to National Energy Productivity Plan
Bi-(tri) partisan support for principals
- 2

Shaped by business



2xEP Roadmaps
- 3

Integrated with broader innovation and industry policy/programs



2xEP Challenge




- Voluntary
- Commitment – MOU – signed by CEO Annual reporting of progress
- Support
- Recognition








How you can engage with the 2xEP process?





A2SE Summit	Develop evidence base Burning platform for change	Business leadership Roadmaps for change Broad support base Launch 2xEP Challenge	Integration Modelling	Agreement Non-Partisan 2xEP 2030
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