



Centre for Energy and
Environmental Markets

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THE UNIVERSITY OF NEW SOUTH WALES
SYDNEY • AUSTRALIA



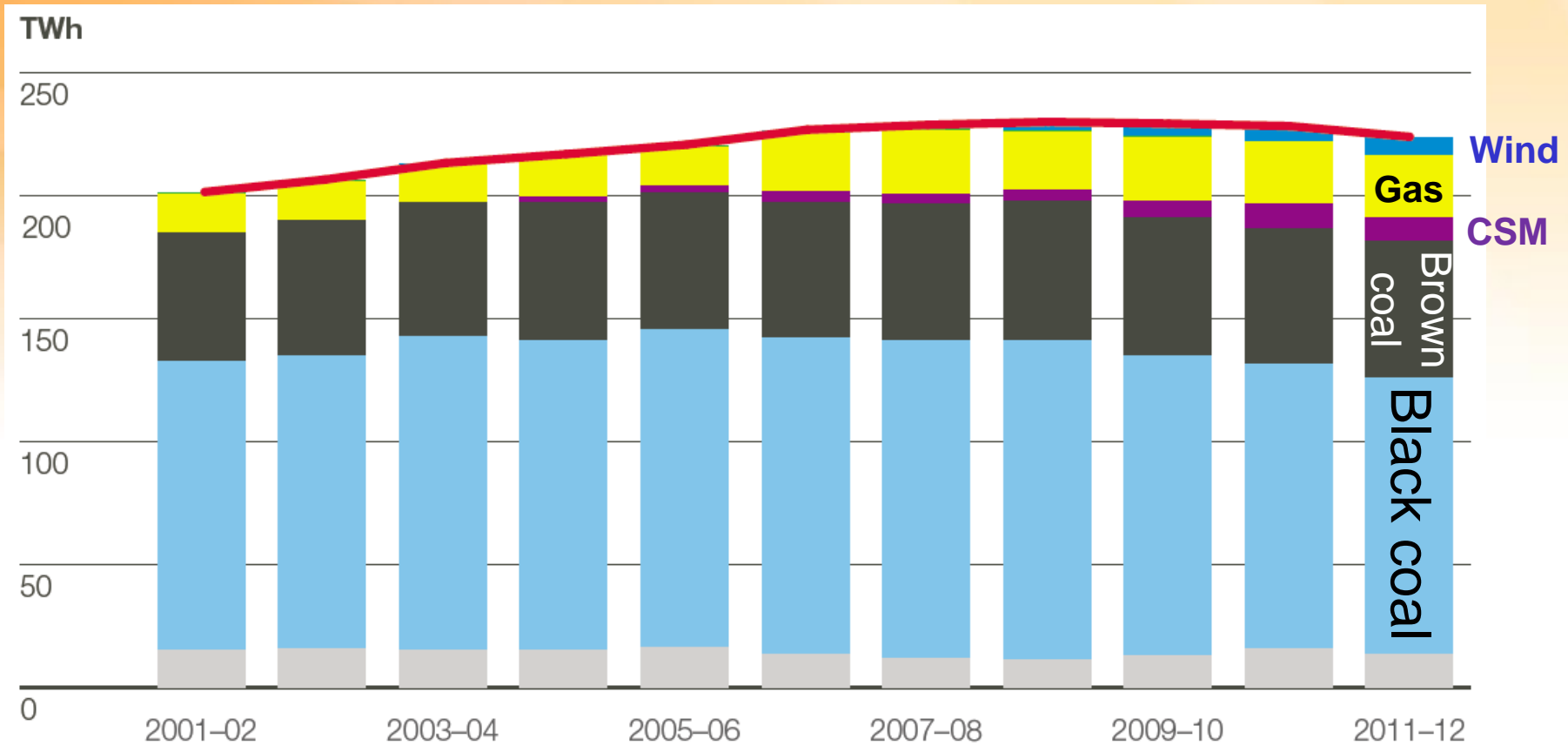
100% Renewable Energy

A feasible option for Australia?

Dr Jenny Riesz

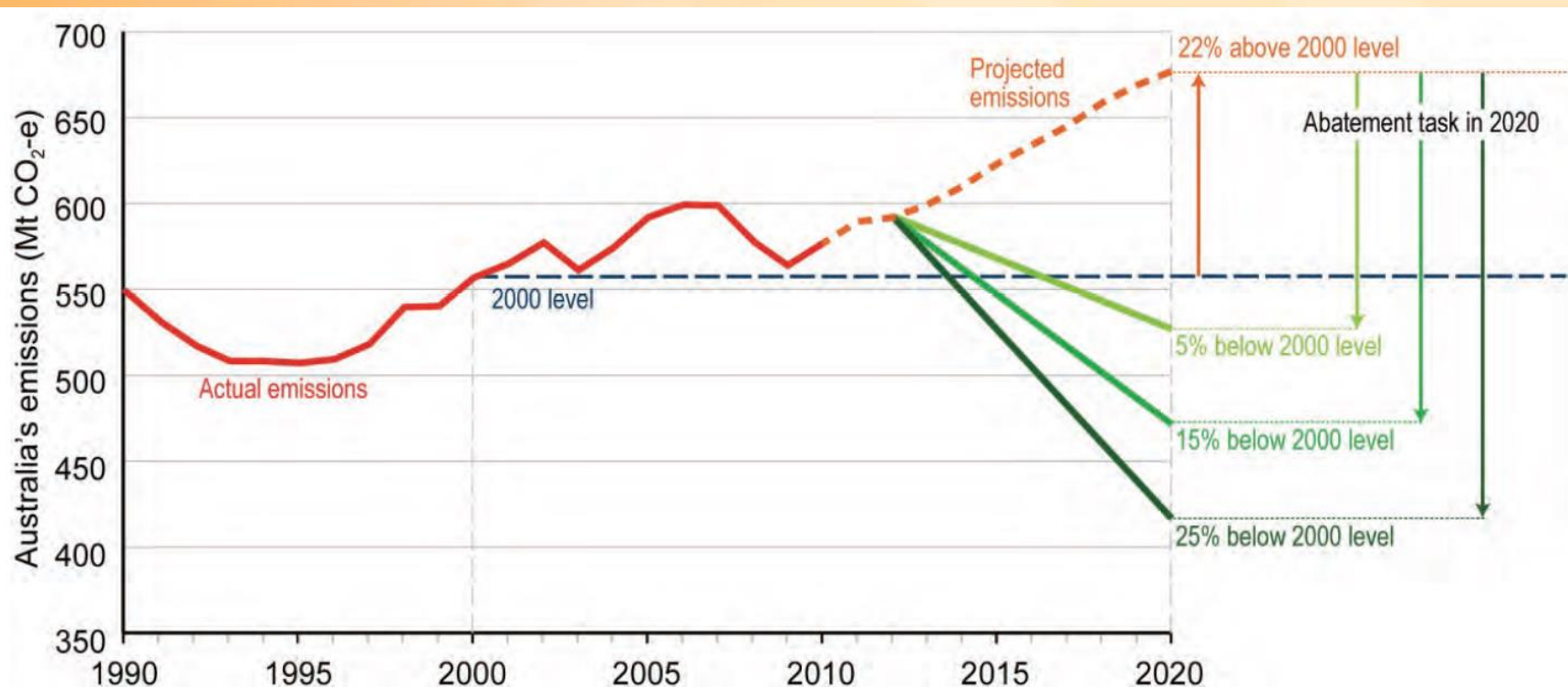
Progressing Renewable Energy Industry Symposium – 16 August 2013

Energy mix in Australia



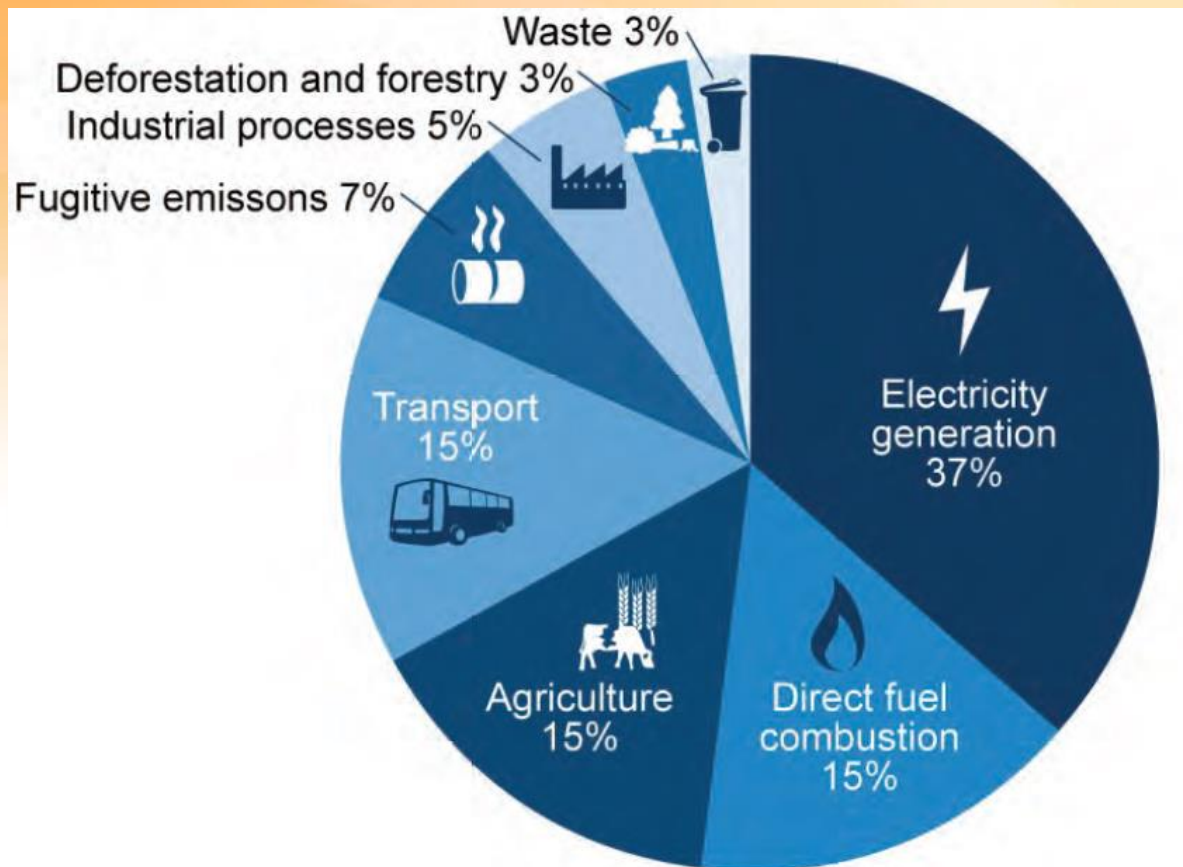
NSW: 90% of electricity from black coal

Growing pressure to reduce emissions



Source: Treasury modelling, 2011 (medium global action scenario).

The electricity sector will be key



Australia's carbon profile

Source: 2009 emissions from the National Greenhouse Gas Inventory 2011, DCCEE analysis.

- Studies indicate 100% renewables is technically feasible and reasonably affordable

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*Elliston, MacGill, Diesendorf (2013)
Least cost 100% renewable electricity
scenarios in the Australian National
Electricity Market. Energy Policy (in
press)*

AEMO

*Australian Energy Market Operator (April
2013) 100 per cent renewables study –
draft modelling outcomes*

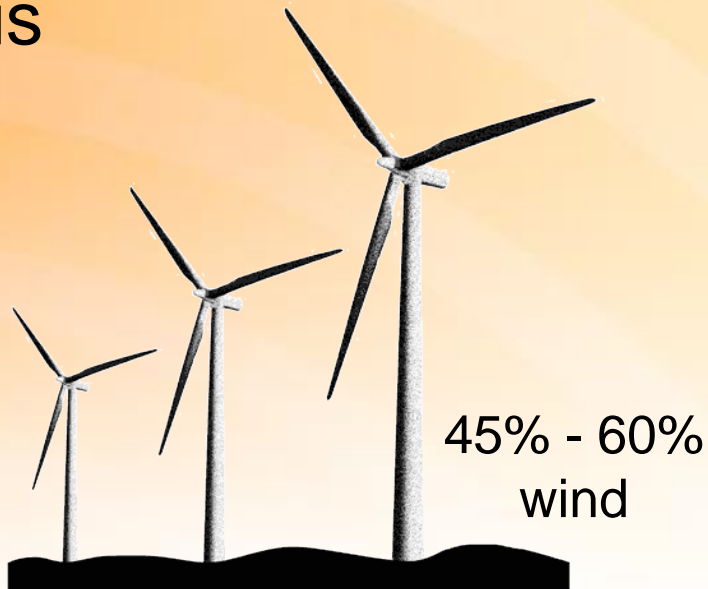
Renewable technologies

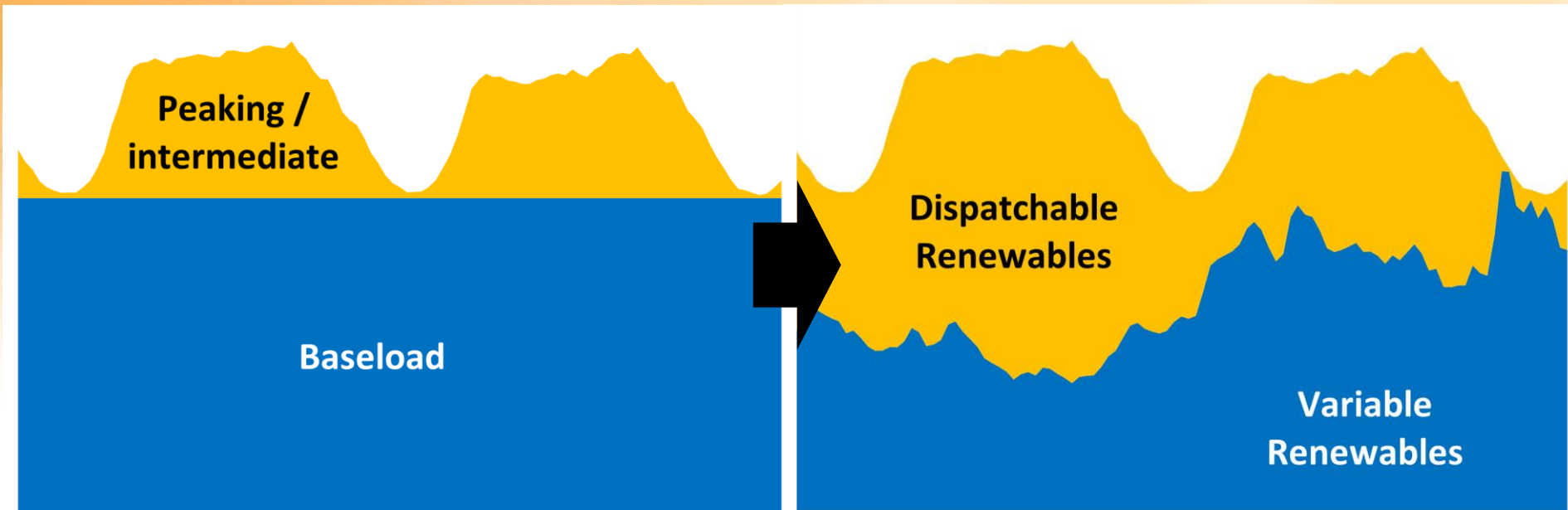


Variable technologies

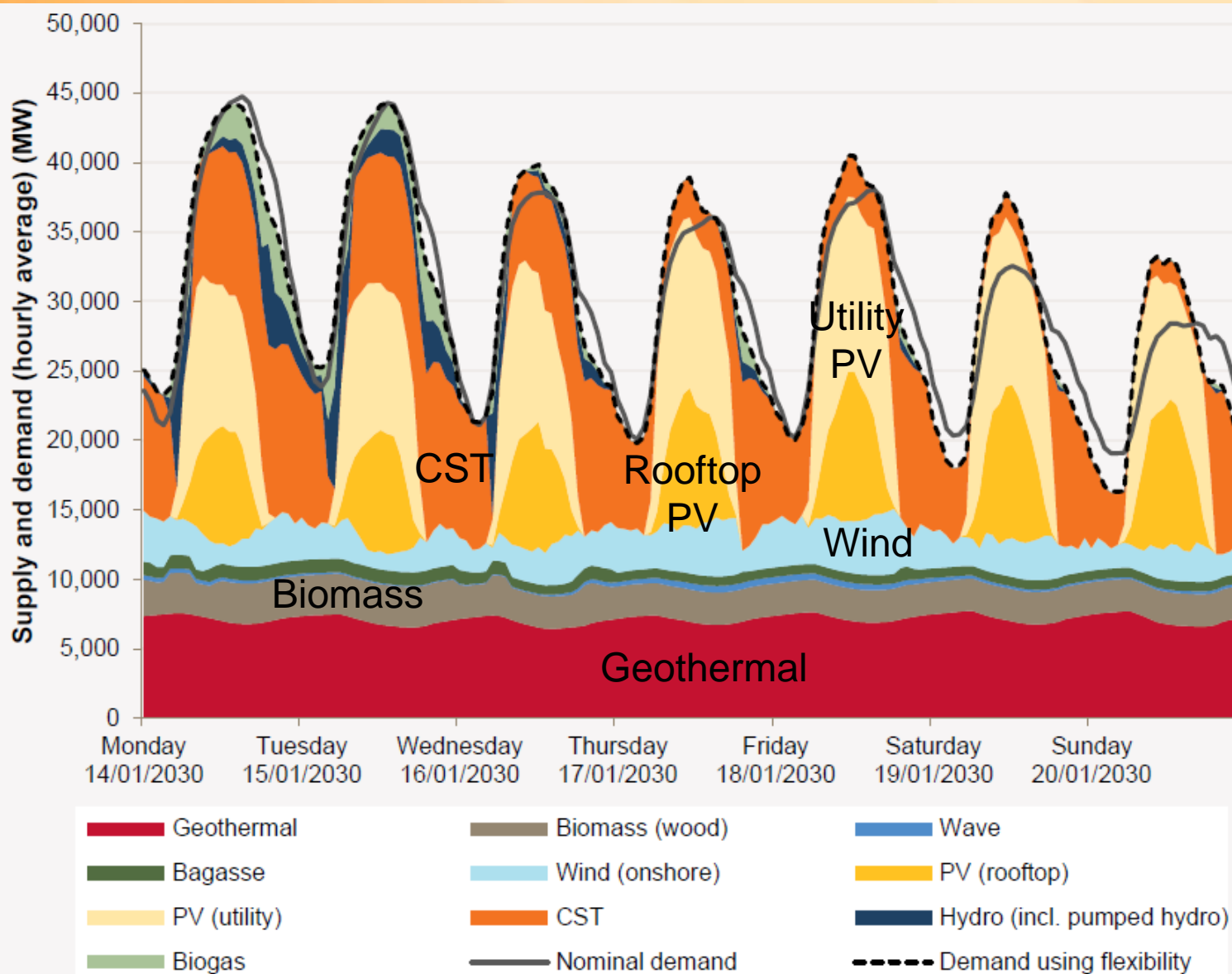


Diversity is key





A new power system paradigm





- Costs are projected to be reasonably affordable

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Average cost:
\$104 - \$173 /MWh

AEMO

Average cost:
\$111 - \$133 /MWh

Present average wholesale price: \$55
/MWh

2 - 3 times increase in
wholesale prices

Components of retail prices

\$300 /quarter

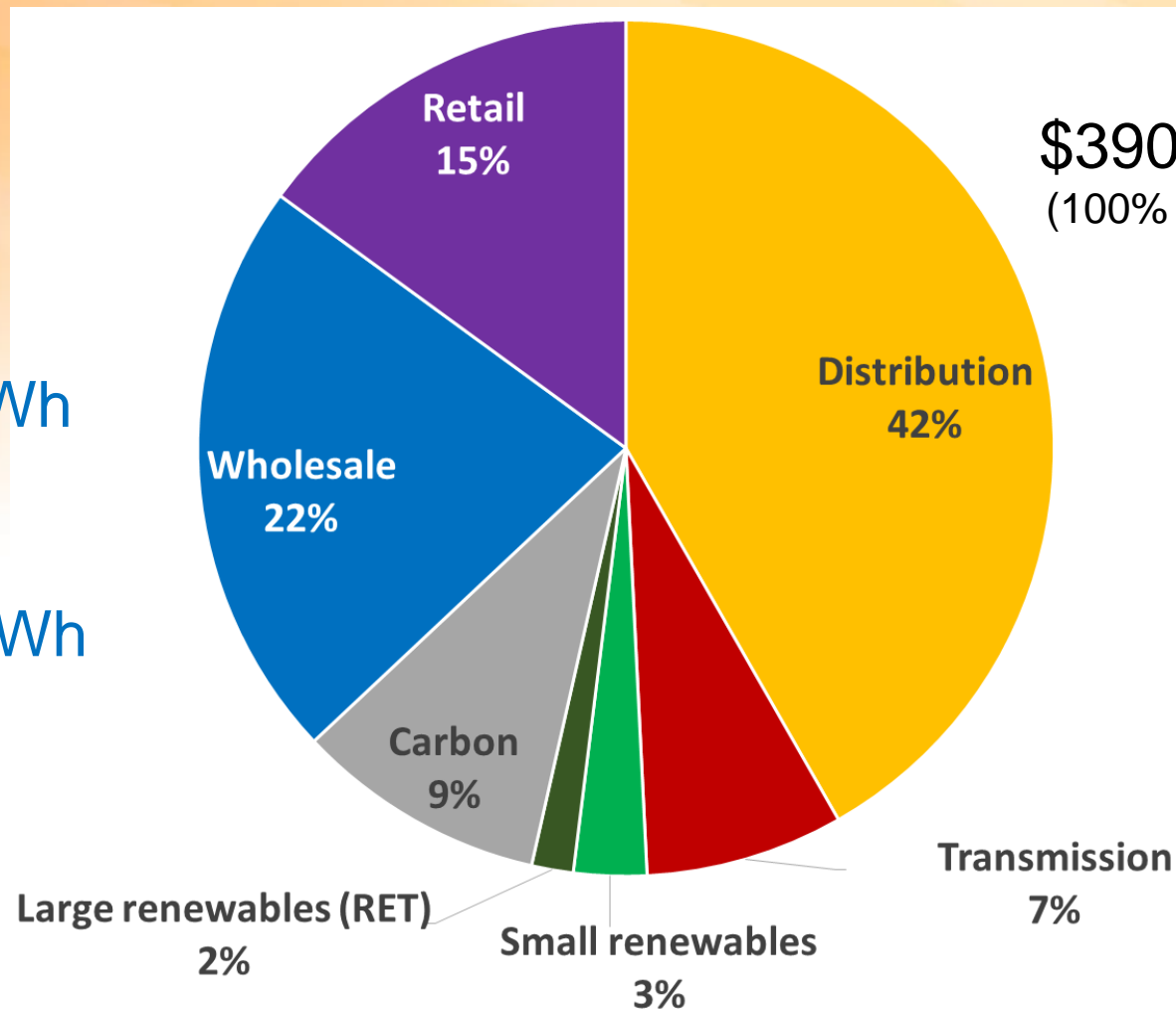


\$390 /quarter
(100% renewables)

\$55 /MWh



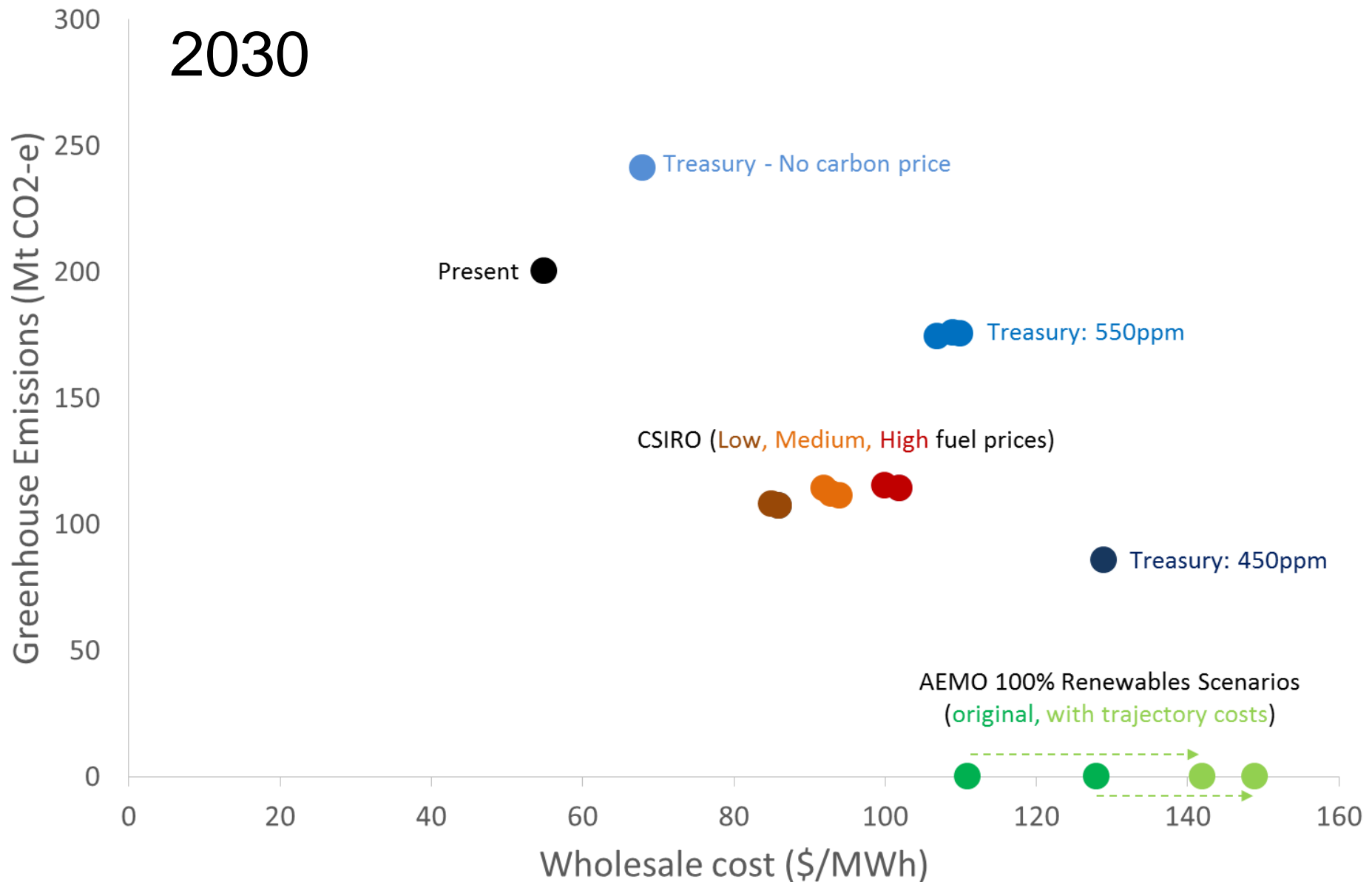
\$110 /MWh



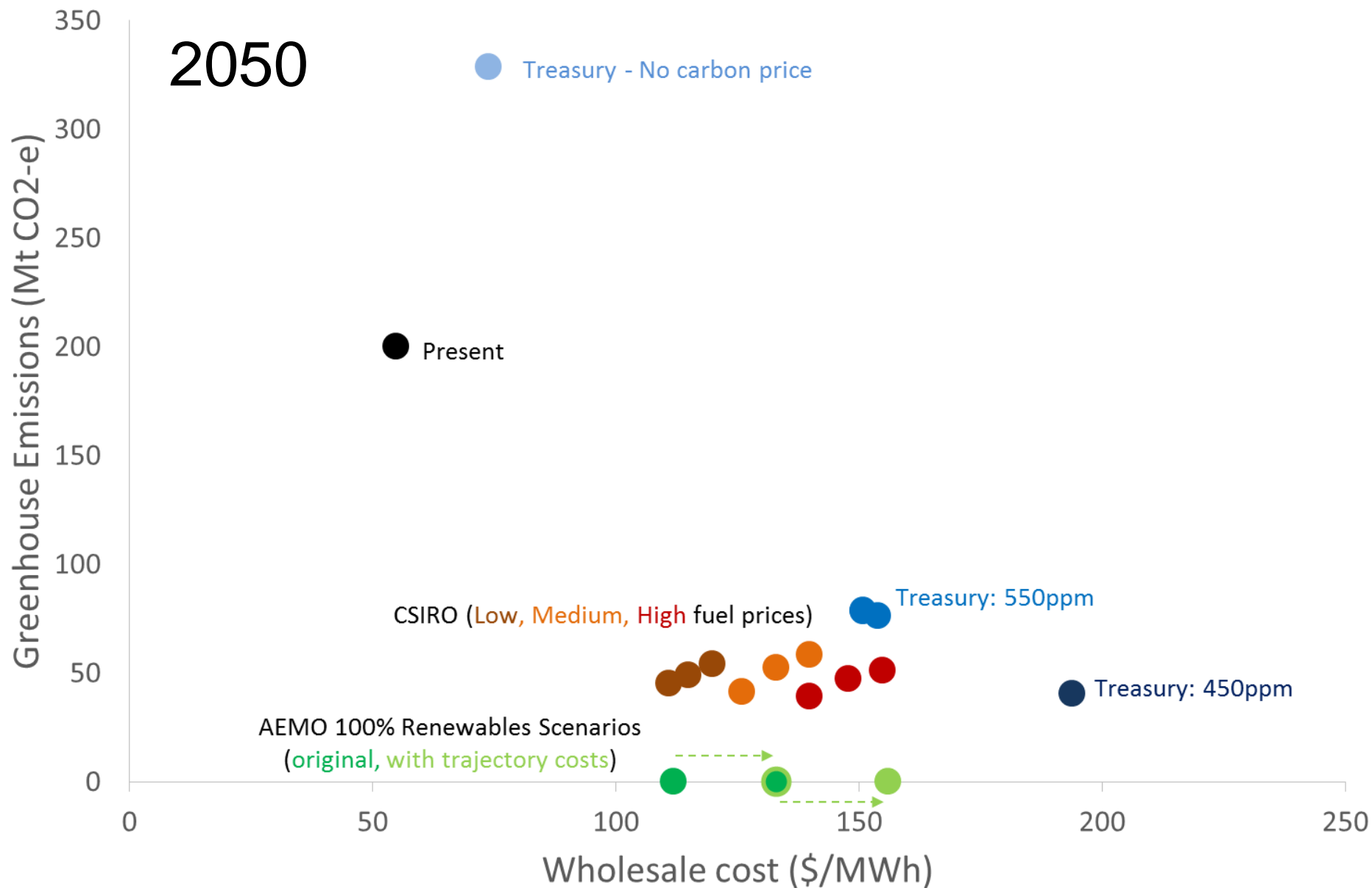
- 100% GreenPower only costs 20-30% more than normal electricity



2030



2050



100% renewables is:

- Technically feasible
- Similar in cost to other power systems in the future
- Much lower risk
 - Exposure to gas/carbon prices
 - Costs of establishing a nuclear industry
 - CCS technology risk



OPPORTUNITIES FOR THE HUNTER

Promote renewable development



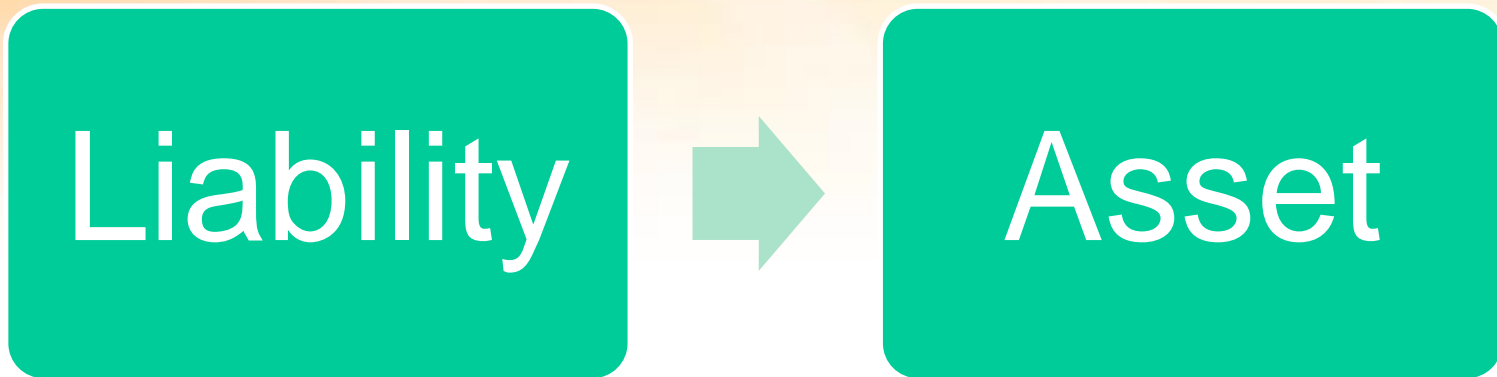
All Australians are contributing to the RET

- Mandatory % on all household electricity bills

Regions that host renewables benefit the most

- SA is already experiencing lower and more stable electricity prices (26% wind)

Re-think coal-fired power stations



ARENA is particularly interested in hybridisation projects

Solar hybridisation



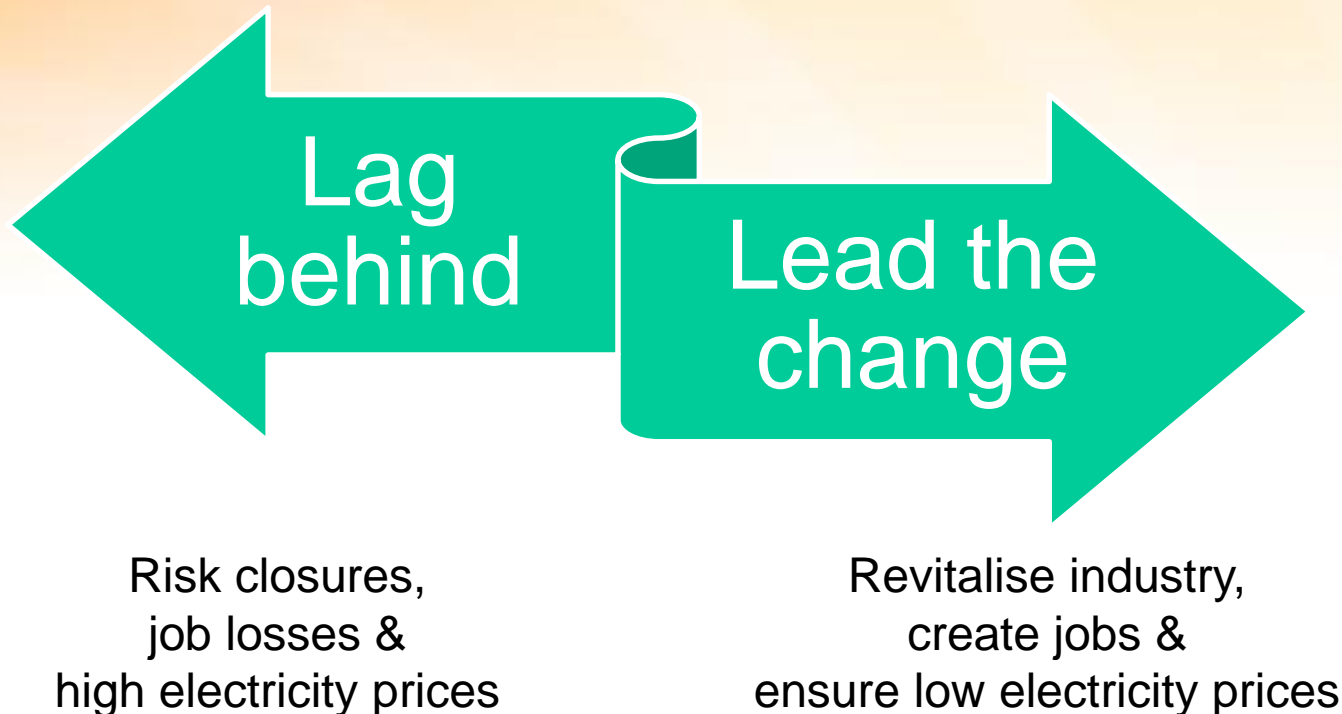
Biomass co-firing



Vales Point
Power Station
(Delta)

Summary

- The world is moving to renewables
- The Hunter has a choice:





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Thank you

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