



Achieving mitigation Energy and technology

**Four degrees or more
July 2011**

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Can we change?

“Surely there never was such fragile china-ware as that of which the millers of Coketown were made... They were ruined, when they were required to send labouring children to school; they were ruined, when inspectors were appointed to look into their works; they were ruined, when such inspectors considered it doubtful whether they were quite justified in chopping people up with their machinery; they were utterly undone, when it was hinted that perhaps they need not always make quite so much smoke.”...

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*“Whenever a Coketowner felt he was ill-used - that is to say, whenever he was not left entirely alone, and it was proposed to hold him accountable for the consequences of any of his acts - he was sure to come out with the awful menace, that he would ‘sooner pitch his property into the Atlantic.’ This had terrified the Home Secretary within an inch of his life, on several occasions. **However, the Coketowners were so patriotic after all, that they never had pitched their property into the Atlantic yet, but, on the contrary, had been kind enough to take mighty good care of it.**”*

Charles Dickens, 1853, “Hard Times”

Implications of four degrees

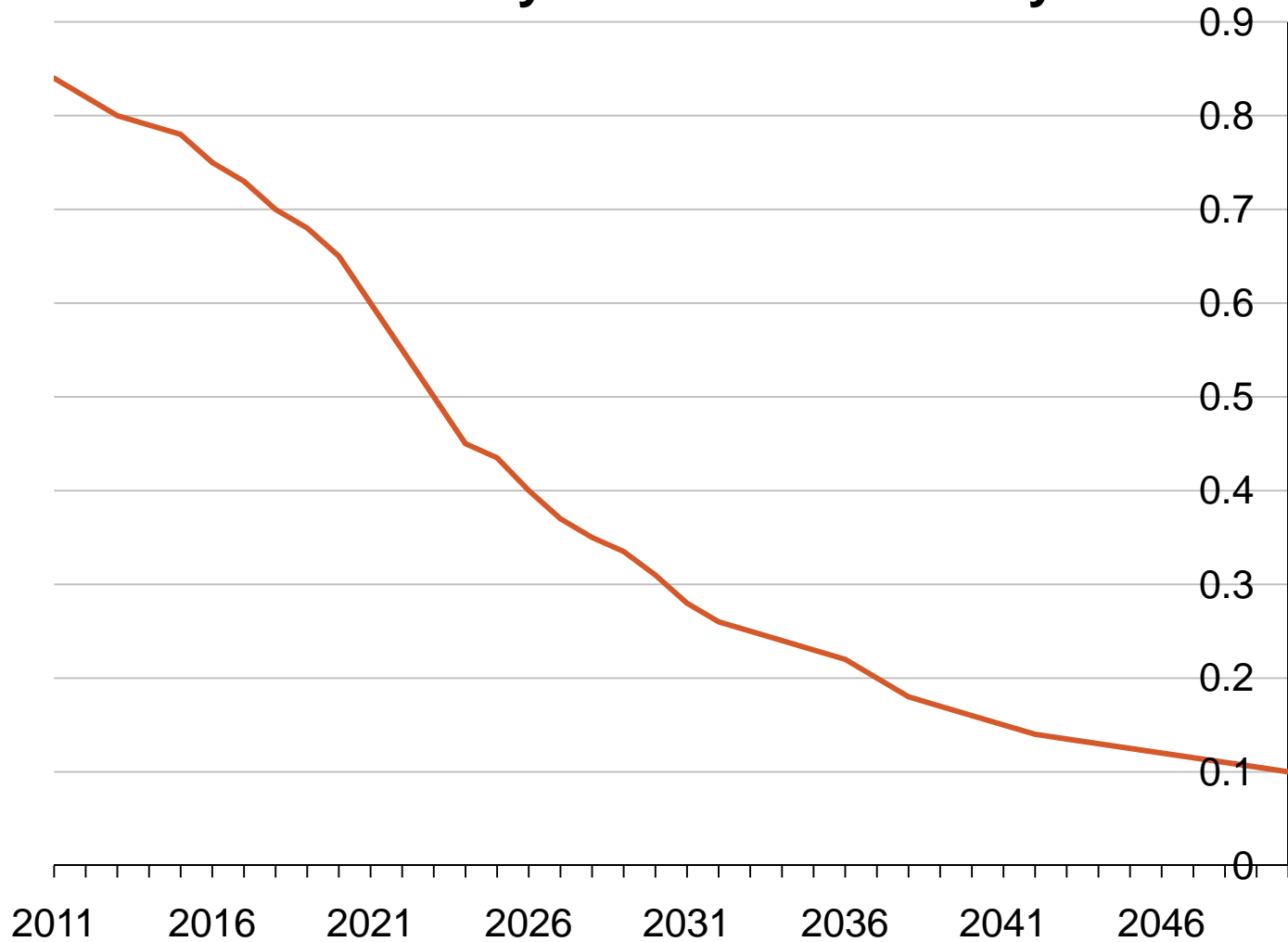
Scenarios:

- Commitment to 450ppm from now
- Politics continue to dominate from all sides
- Oh shit!

The electricity sector must be decarbonised

tT CO₂-e/MWh

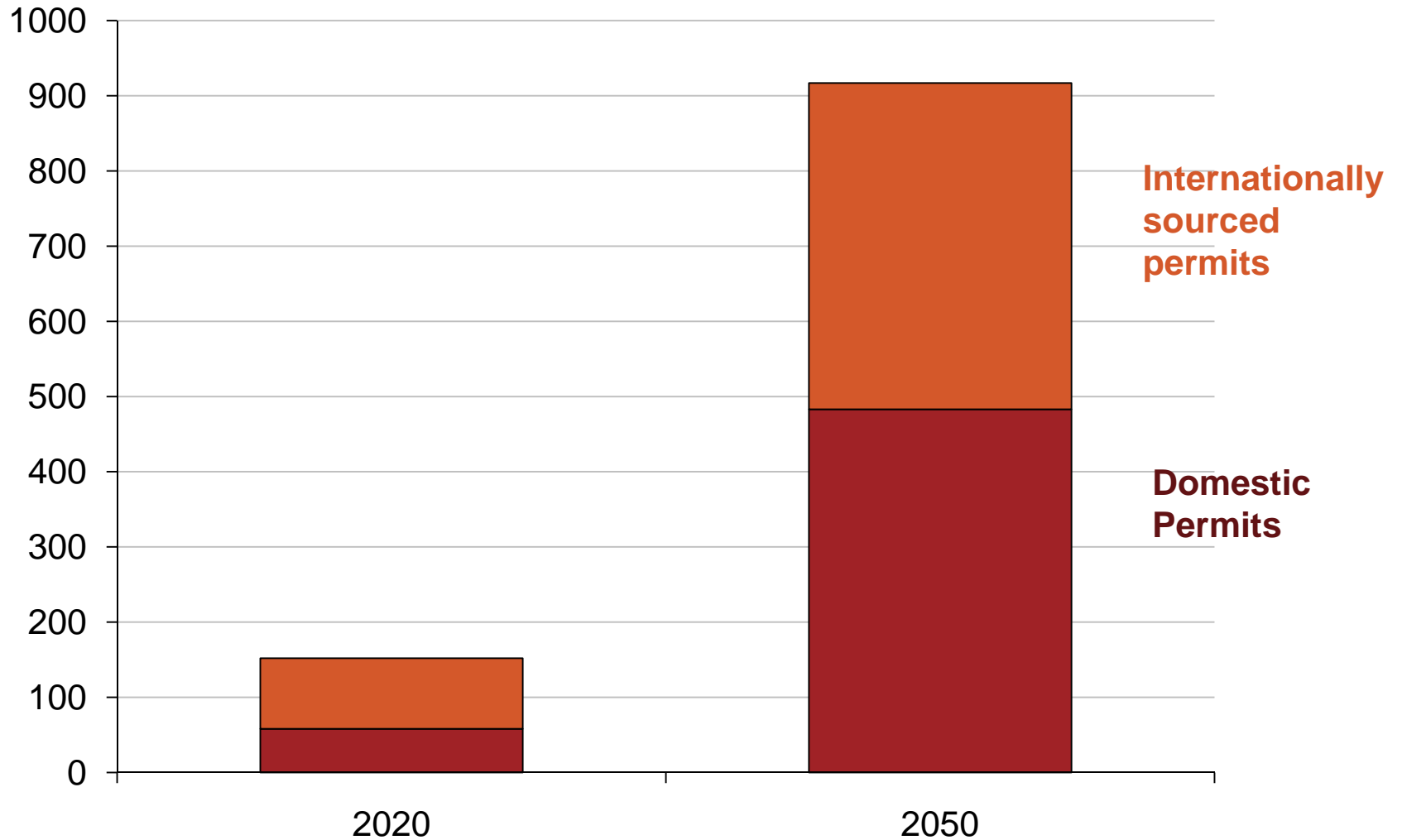
Electricity emissions intensity



Source: Australian Government Treasury: Strong Growth, Low Pollution

International trading counts

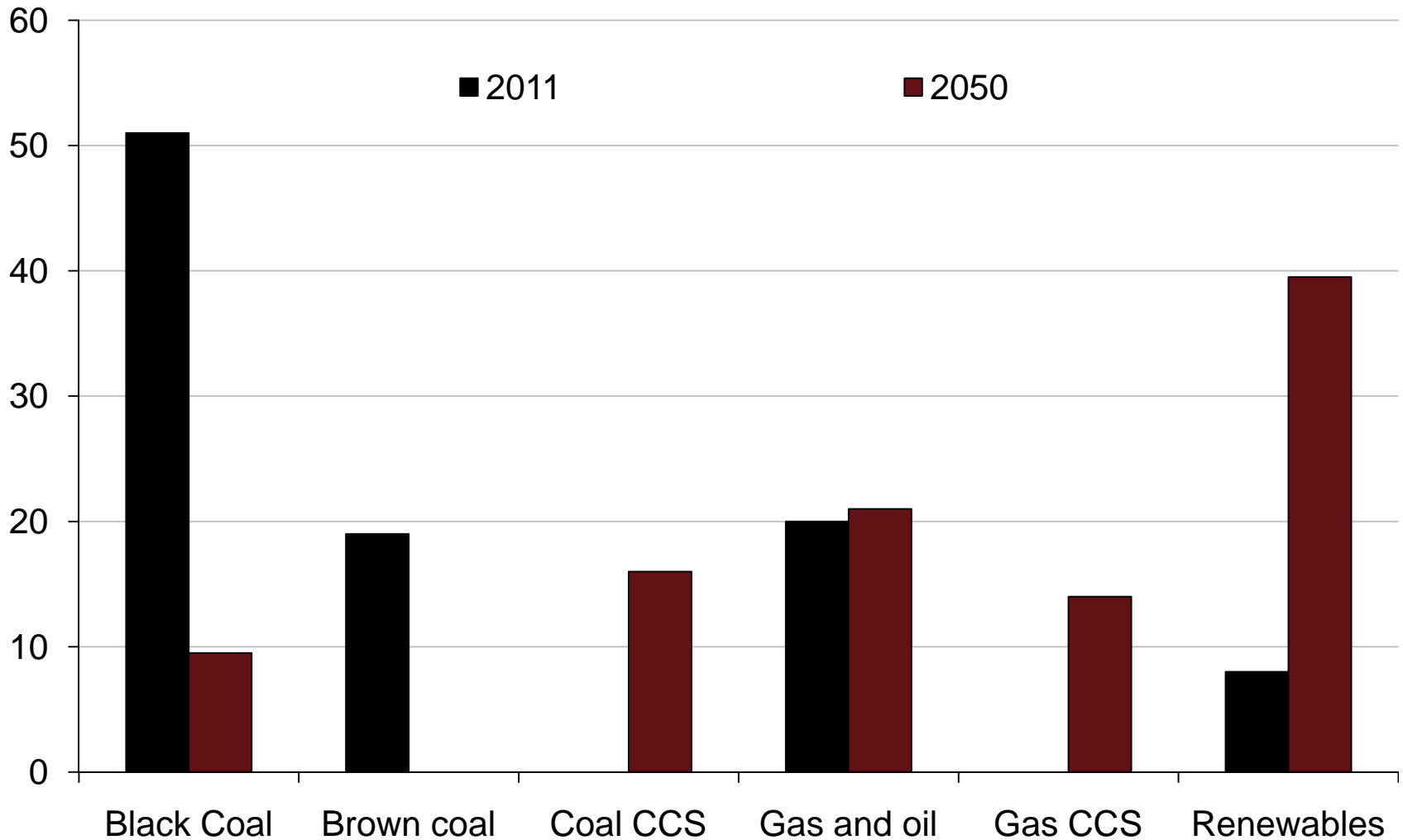
Australia's abatement target



Source: Australian Government Treasury: Strong Growth, Low Pollution

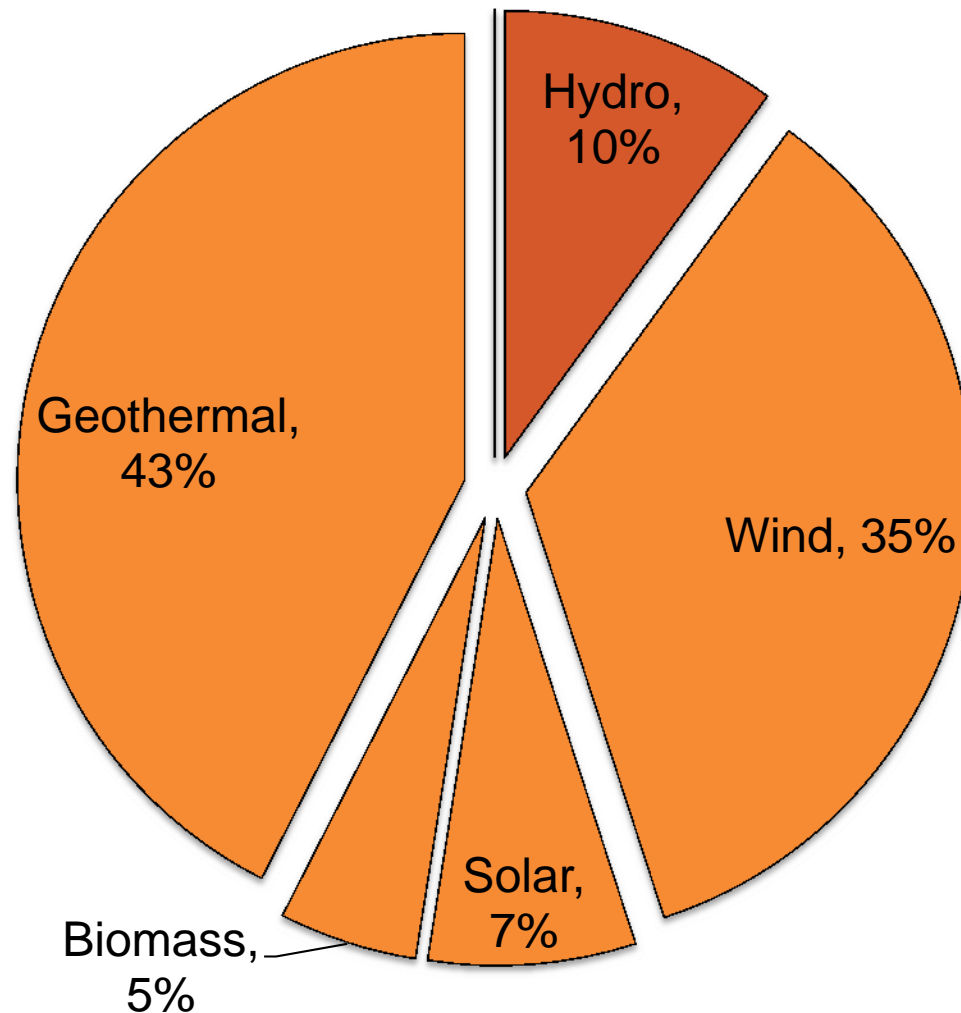
There are not many plausible future states

Electricity mix must change – the portfolio



Wind and geothermal dominate this scenario

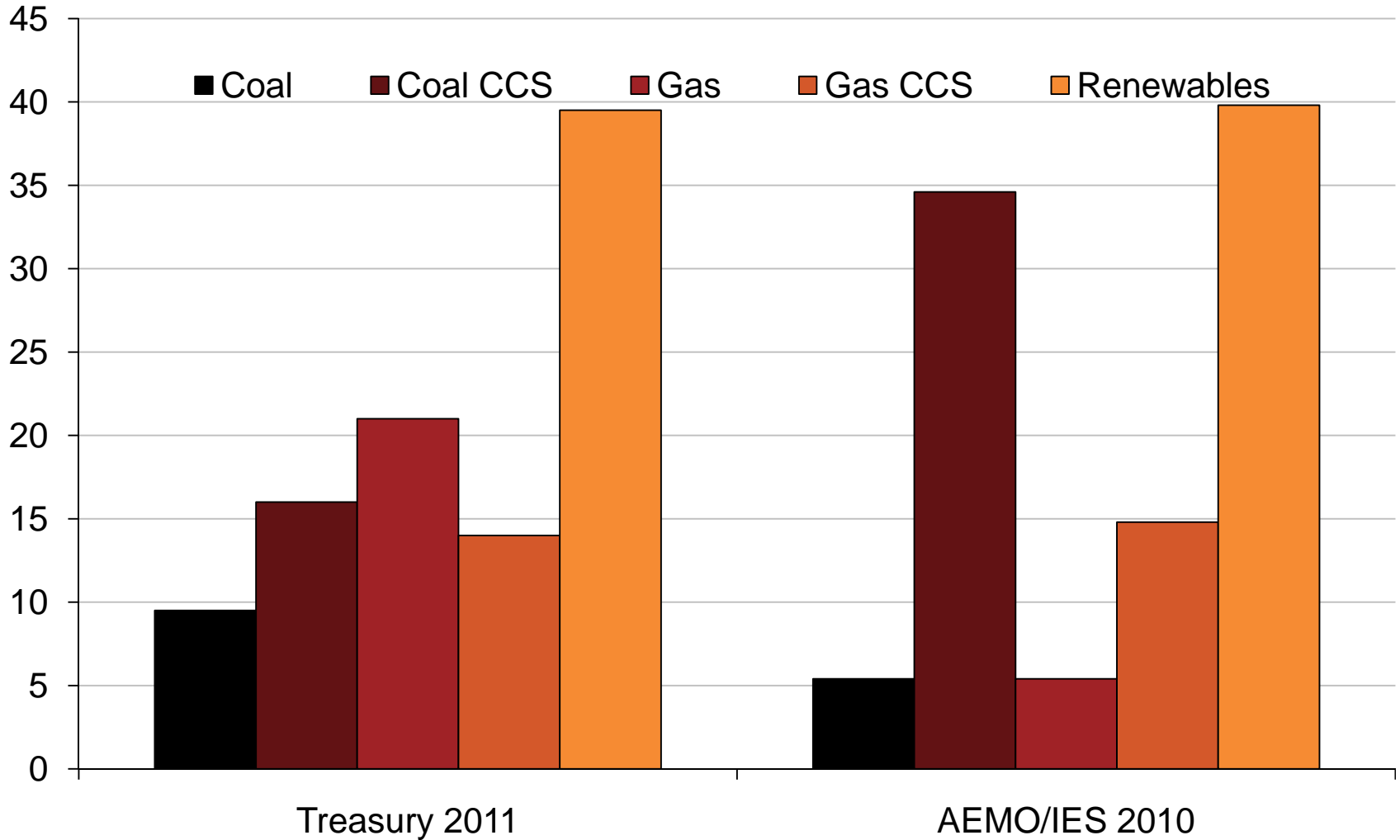
Australia's renewables mix, 2050



Source: Australian Government Treasury: Strong Growth, Low Pollution

It's models at 30 paces

Australia's electricity mix at 2050



International perspective

- **Nuclear is likely to grow strongly, driven by China, Russia and Korea, despite the post-Fukushima developments in Germany, Japan and the USA**
- **CCS is, and remains, a fundamental policy conundrum**
- **Most countries have fewer options than does Australia**
- **A mix of other issues dominate in different regions**
 - Energy security
 - Economic development
 - Energy prices
- **We can certainly learn from the policy choices of others**
 - The law of unintended consequences is powerful

Key issues

- **The challenge is not really about technology**
- **It's about economics and public policy**
 - Lowest cost would seem like a good idea
 - Governments are not good at picking winners or losers
 - Today's favourable position acts against the best actions
- **Can we start from here?**
- **The challenge is to create a policy framework that opens options**



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