



Pricing carbon – the money and the myths

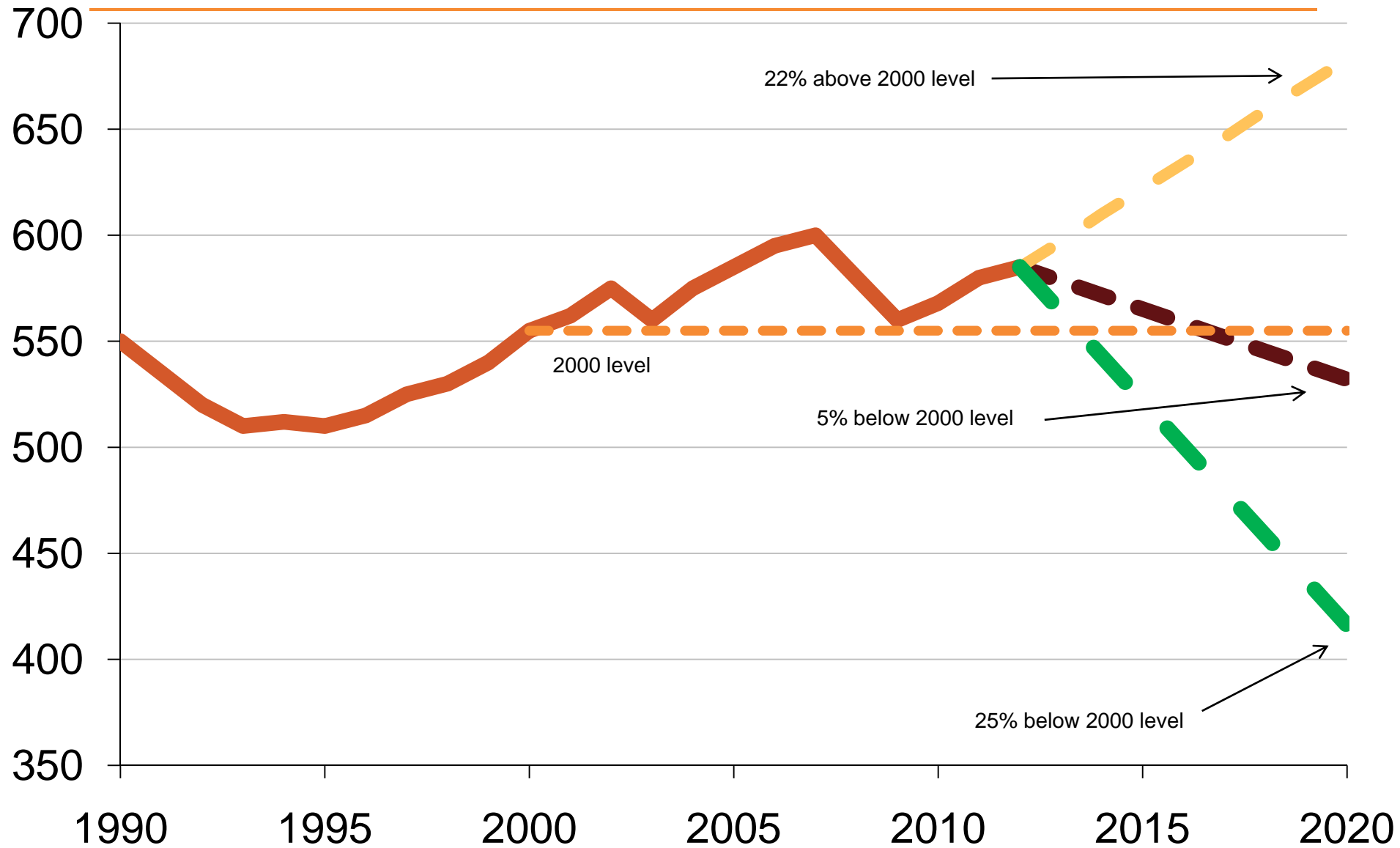
**aiaa High Tech Low Carbon Forum
1 September, 2011**

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Outline

- **The nature of the challenge**
- **How did we get from avoiding dangerous climate change to pricing carbon?**
- **How does the proposed carbon pricing system actually work?**
 - What happens next?
 - What will consumers see?
 - What will small business see?
- **What does this all mean for electricity?**
- **The public debate is crowded with well-worn myths**
- **Summary observations**

Australia's emissions (Mt)

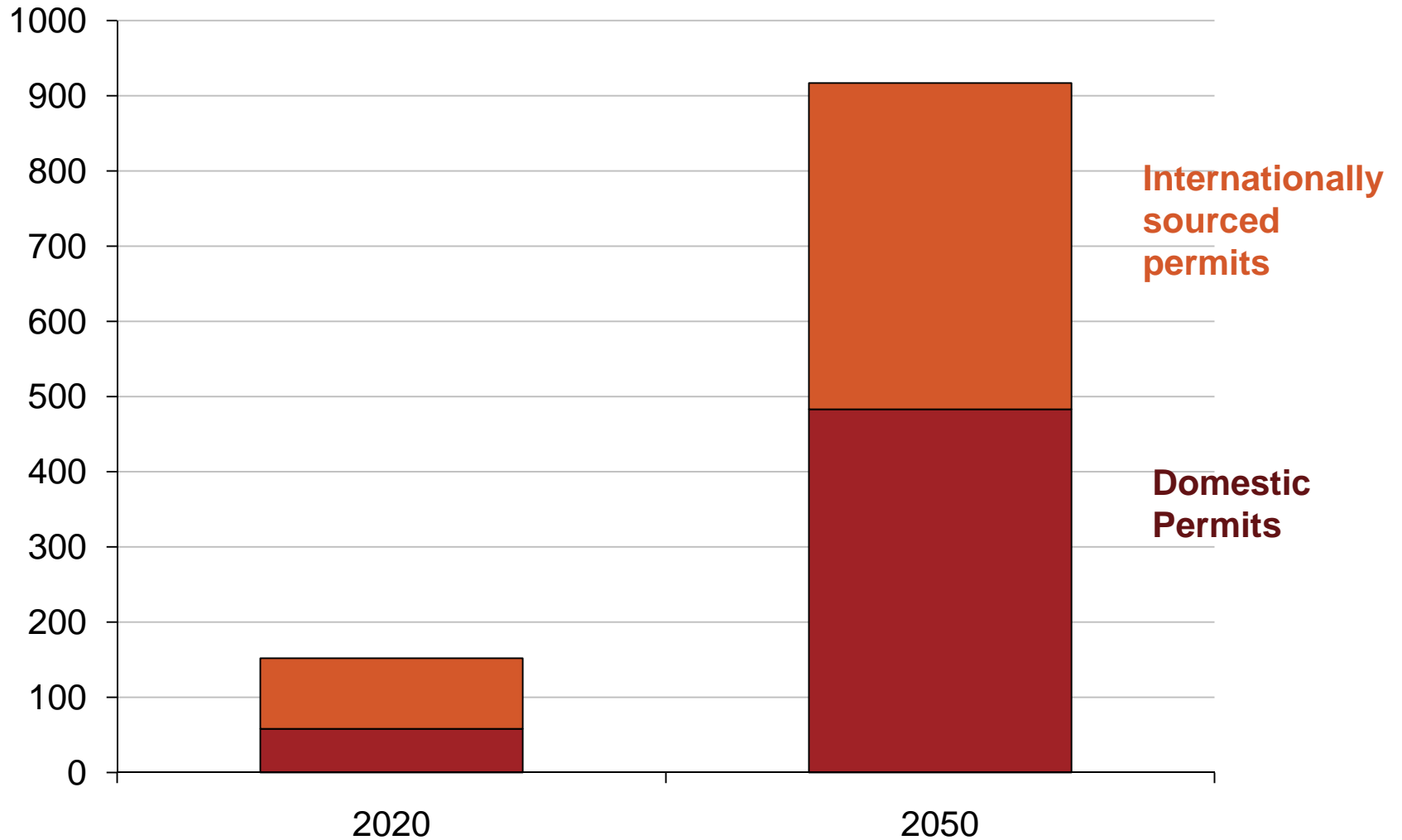


Why is pricing carbon the best way to act?

- The objective is to reduce global greenhouse gas emissions
 - There has to be a global solution and that is why this is a “diabolical” problem
 - It does not matter environmentally where the reductions occur, provided they do occur
 - Australia should do its fair share
 - We have committed to a minimum of 5% below 2000 levels by 2020. The Government has proposed that this commitment would increase as the rest of the world commits. Its long term target is 80% by 2050.
- Our objective should then be to do our fair share at lowest cost to our economy
- There are several basic approaches:
 - Regulate
 - Carbon tax
 - Market-based system such as the proposed “cap-and-trade” scheme
- The market-based approach is generally accepted as being the lowest cost

International trading counts

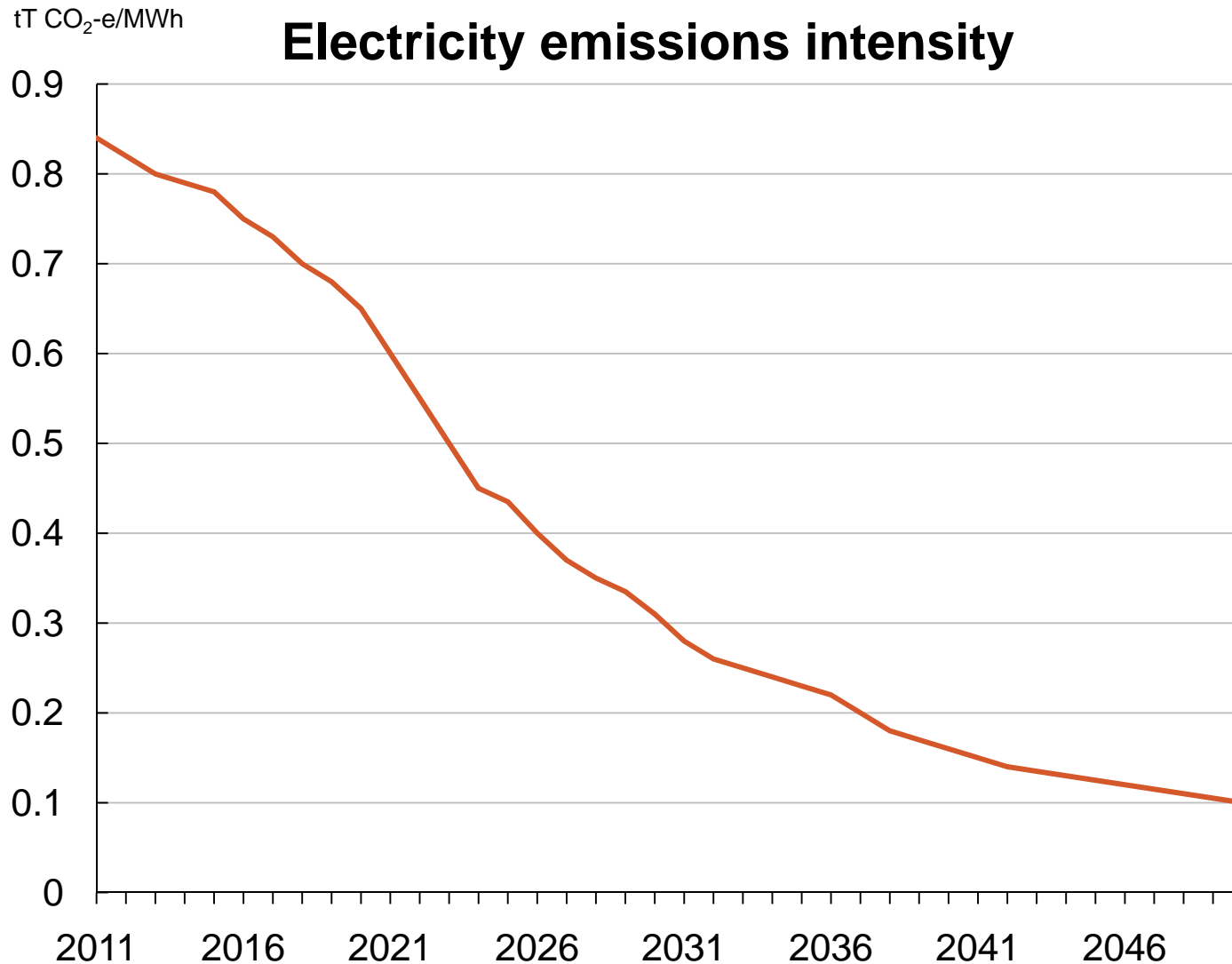
Australia's abatement target



How will it work?

- **A cap is applied on emissions covering most of the largest emitters**
 - Emitters have to purchase permits from the cap, so the market sets the price
 - Changes occur to keep emissions below the cap (less coal and more gas, energy efficiency in industry and business). Permits can be traded, so that the market finds the lowest cost solutions.
 - The revenue is used to support households and certain industries
- **What happens next?**
 - We start with a fixed price of \$23/t in 2012
 - Move to a market-based system from 2015 with caps set for five years
- **What will consumers see?**
 - There is no direct obligation; assistance through tax cuts
- **What will small business see?**
 - No direct obligation, but no compensation
- **Everything get re-priced according to the carbon intensity of its supply chain**
- **Industry and consumers act on these prices**

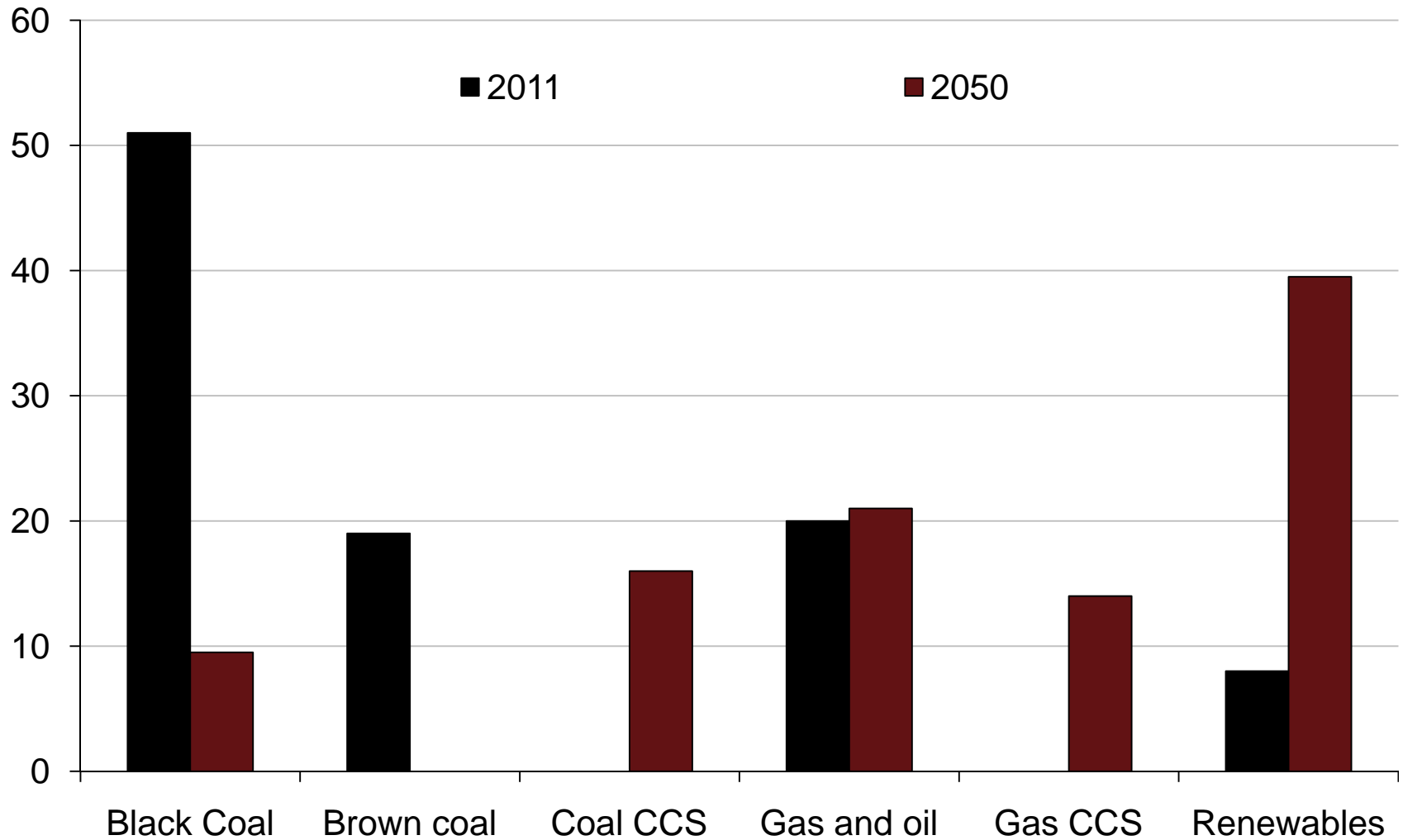
The electricity sector must be decarbonised



Source: Australian Government Treasury: Strong Growth, Low Pollution

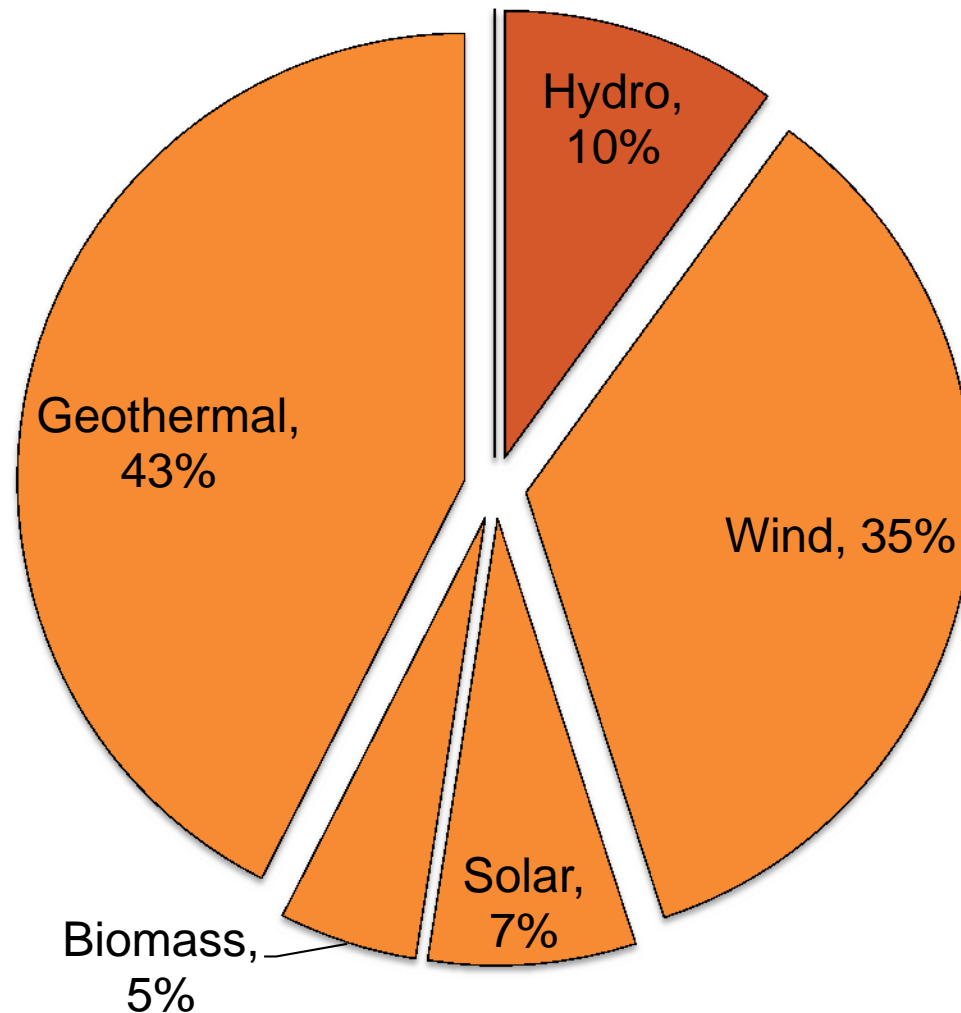
What could electricity look like?

Electricity mix must change – the portfolio



Wind and geothermal dominate this scenario

Australia's renewables mix, 2050



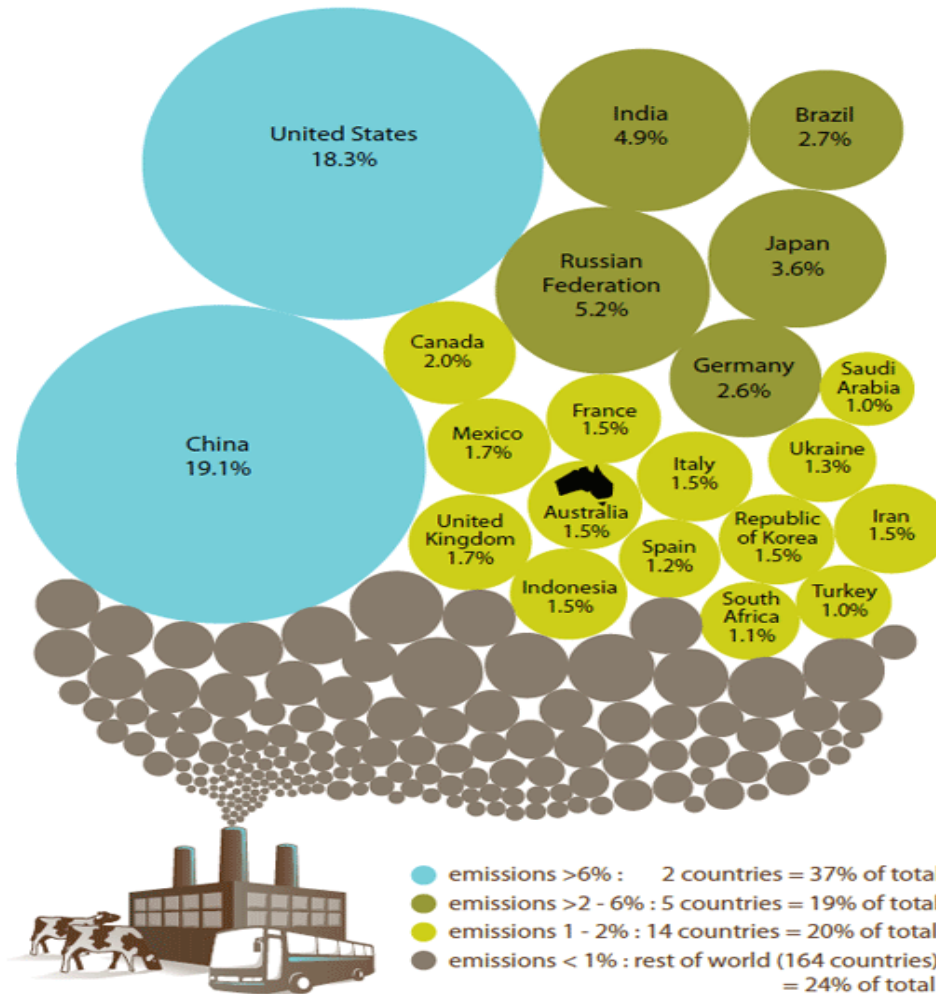
Source: Australian Government Treasury: Strong Growth, Low Pollution

Some climate change policy myths

- **Australia should not move ahead of other countries**
- **Compensation for households removes the incentive for change**
- **Compensation for industry**
 - Loss of asset value requires compensation
 - There should be a transition to protect jobs
 - Emissions-intensive trade-exposed industries deserve a level playing field
- **We should pay brown coal generators to shut down**
- **Buying overseas permits is bad because we get off easy**
- **We need complementary policies**
 - Renewable energy targets
 - Feed-in tariffs
- **What about nuclear energy?**

Australia should not move ahead of other countries

Global share of major emitters



The sky will fall

“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.”...

The sky will fall - maybe not

“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.”...

*“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”

Nuclear Outlook post Fukushima – the positive

Nett Nuclear Capacity (GW)

	2010	2015	2020
USA	101	104	109
France	63	65	66
Japan	47	45	45
Russia	23	30	41
Germany	21	12	9
South Korea	19	24	28
Ukraine	13	13	16
Canada	13	13	15
UK	11	10	13
China	10	37	63
TOTAL	320	351	405

Source: *The Economist*, 2011

Nuclear Outlook - challenges

- Absence of low-emission demand drivers (policies to price emissions)
- Financing is more challenging than likely energy costs
- There is, as yet, no long term waste storage
- Resource constraints may emerge
- Safety and security has been heightened post-Fukushima
- Supply chain and people availability

- Risk exposures are difficult to manage for the private sector
 - The economics say not in the West
 - Governments take control
 - Successful projects, on time and on budget, will address construction and operational risks
 - Governments take the price risk

Summary observations

- **The next issue will be the integrity of the emissions cap**
- **Unpredictability is the biggest killer to investment**
- **We will need to avoid a plethora of “complementary policies”**
- **The sky will not fall, jobs will be created and incomes will continue to rise**
- **The first priority of any journey is to begin**



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