Low emission technology landscape: It ain't pretty

National CCS Conference

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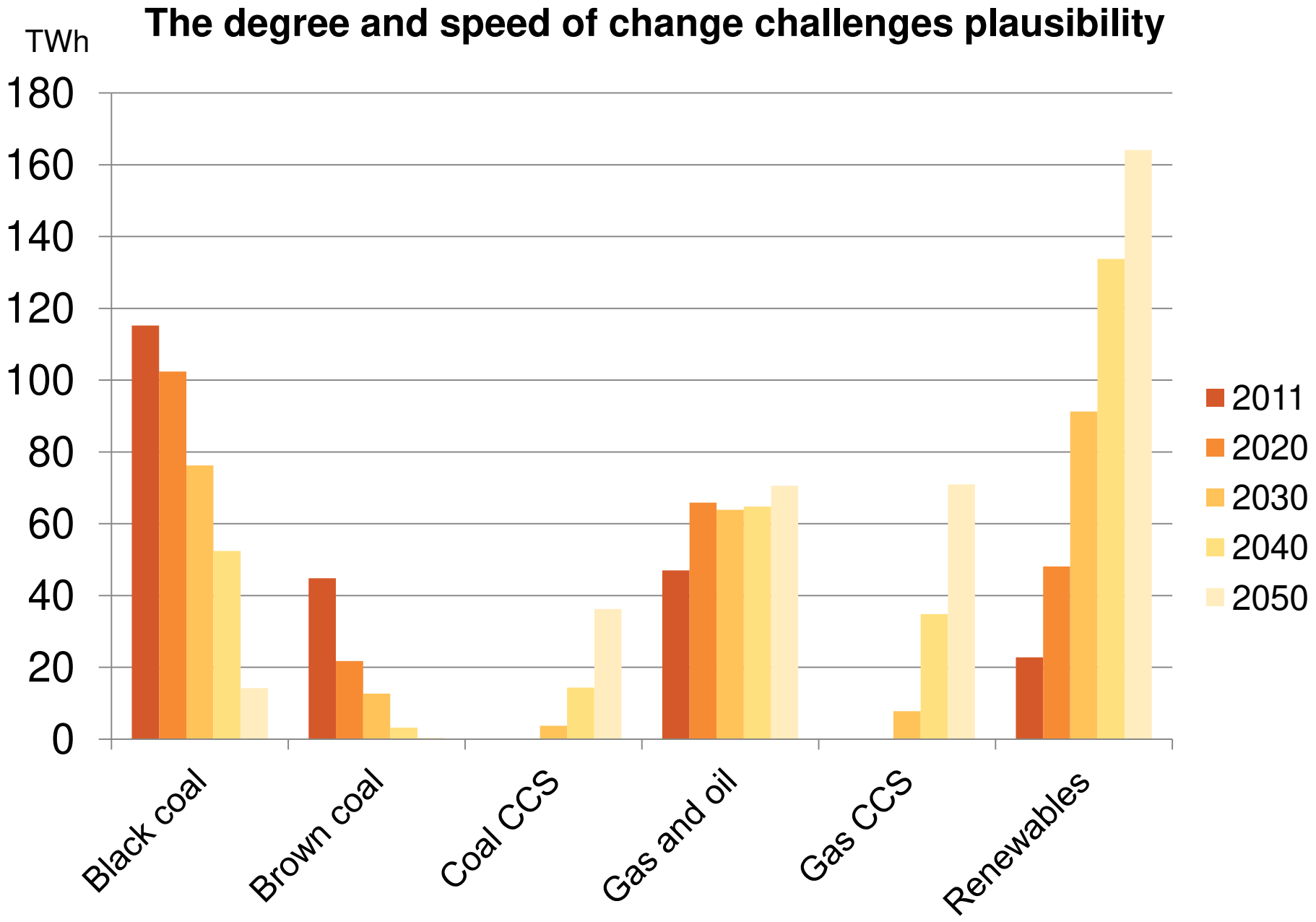
Outline

- The role of low-emission technologies in addressing climate change
- Specific challenges and barriers
- Why and how governments should intervene
- Discussion


The degree and speed of change challenges plausibility
TWh
180
160
140
120
100
80
60
40
20
0
Black coal
Brown coal
Coal CCS
Gas and oil
Gas CCS
Renewables
2011
2020
2030
2040
2050

There is a lot of uncertainty about how much technologies cost – now –

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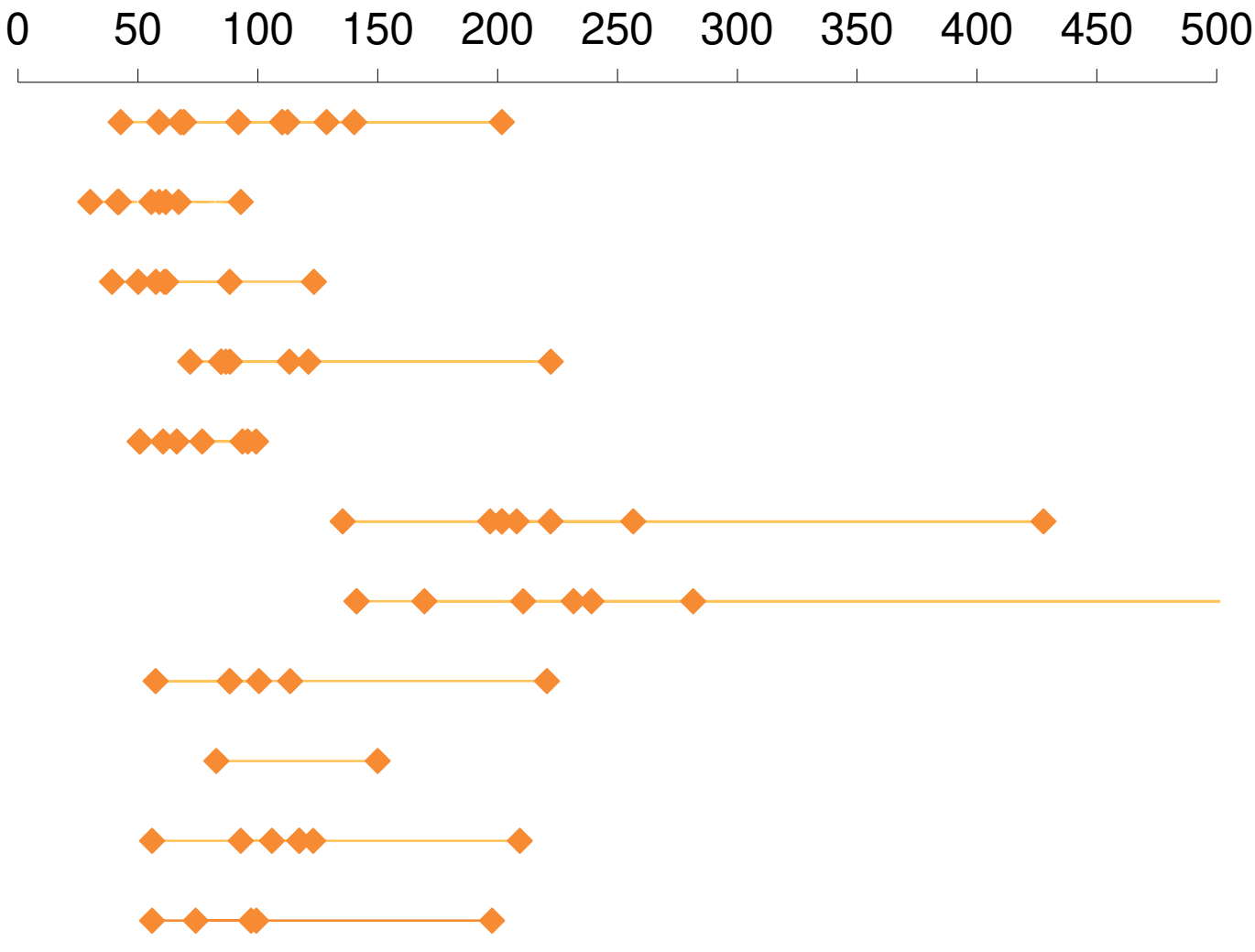
Estimates of electricity generation costs prior to 2015

2008$ / MWh

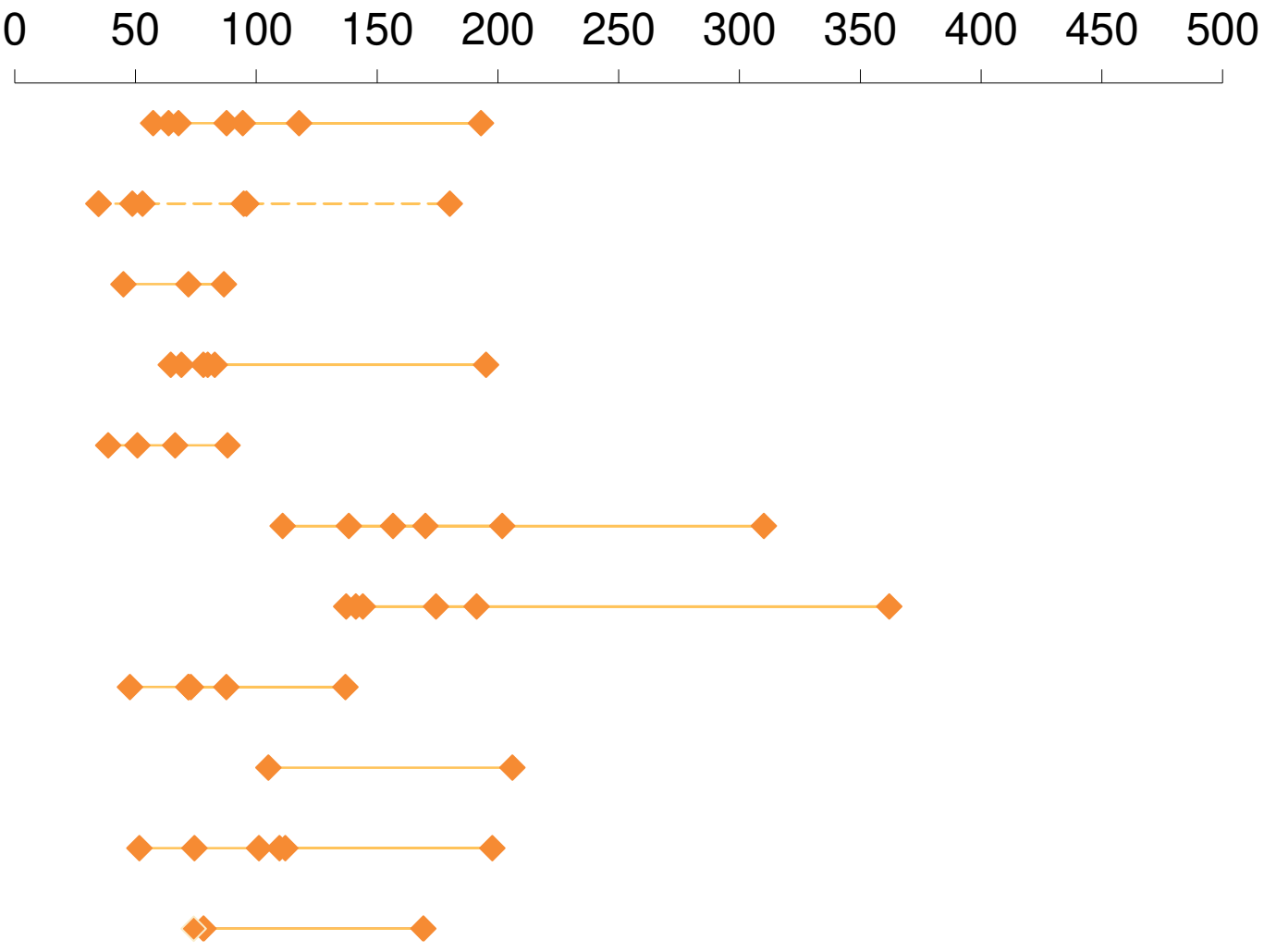


Source: ABARE (2010); ACIL Tasman (2009); EPRI (2009); IEA (2010); MMA (2008); Uranium Mining, Processing and Nuclear Energy Review Taskforce (2006).

– and in the future

Estimates of electricity generation costs 2030

2008$ / MWh



Source: ABARE (2010); ACIL Tasman (2009); EPRI (2009); IEA (2010); MMA (2008); Uranium Mining, Processing and Nuclear Energy Review Taskforce (2006).

What are the key barriers?

- Great climate policy uncertainty remains.

- Market approaches are poorly understood and badly communicated

- Governments and their people are more concerned about cost and security than about sustainability.

- There seems to be a general, if messy, retreat from policies that have delivered renewable energy.

Specific technology challenges and barriers

- Wind: Intermittency; community resistance
- Solar PV: Grid integration; “grid parity”; over-supply
- CSP: Relative costs and scale;
- Geothermal: Technology development; needs to over-deliver
- Nuclear: Illegal; cost uncertainty; post-Fukushima resistance; lead-time
- Bioenergy: Transport logistics

And CCS has them all in spades

- Technology costs are still high
- Integration risks are substantial
- Scale economies are daunting
  - Bet-the-company territory
  - Learning by doing takes a lot of doing
  - Winner takes all is not popular
- Storage characterization is underdeveloped
  - Challenging for the private sector
- Community concerns have yet to be galvanized

- THIS IS NOT A POPULAR CONTESTANT
  - Not when vested interests are at stake (c.f., the RET Review)
  - Not when a deal has to be done (e.g., the CEFC)

Why is there a need for intervention?

- The challenge is to decarbonise Australia's electricity sector within forty years, whilst maintaining security of supply and affordability

- Despite current projections, none of the assessed technologies can produce power at a scale and at costs similar to today's electricity

- The ETS is a good start , but will not be enough, due to:

    - Government regulatory barriers, including transmission, existing technology lock-in and lack of public support

    - High costs and low returns:

        - Finance, minimum scale, resource data and regulation

        - No premium, carbon price discounting

        - Systemic under-pricing of carbon

How should government intervene?

- Promote an efficient market
  - Structure the emissions cap and trading scheme to minimise uncertainty
  - Map resources
  - Reduce existing subsidies
  - Reform network regulation
- Support low emission technologies
  - Research and development – national interest and comparative advantage
  - Demonstration and early deployment – support a portfolio of options

Closing remarks

•There is great uncertainty regarding policy drivers for low emission demand and technology developments for supply.

•Much of the current policy framework is a “dog’s breakfast. Maybe the CoAG review will clean up parts of this mess.

•Certainty is an illusion: the requirements of policy are credibility, flexibility and predictability.

•Clarity of objective is the first step and the rest of the policy framework should be based on addressing market failures once an emissions constraint has been introduced. Continual change is lethal.

•An effective response to climate change is not about technology. It is about politics and finance and how they frame an effective and efficient policy

•When it comes to policy, vested interests and politics trump evidence and facts every time. The priority should be to work with this reality.

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