



**Building the bridge: a practical plan for a
low-cost, low-emissions energy future**

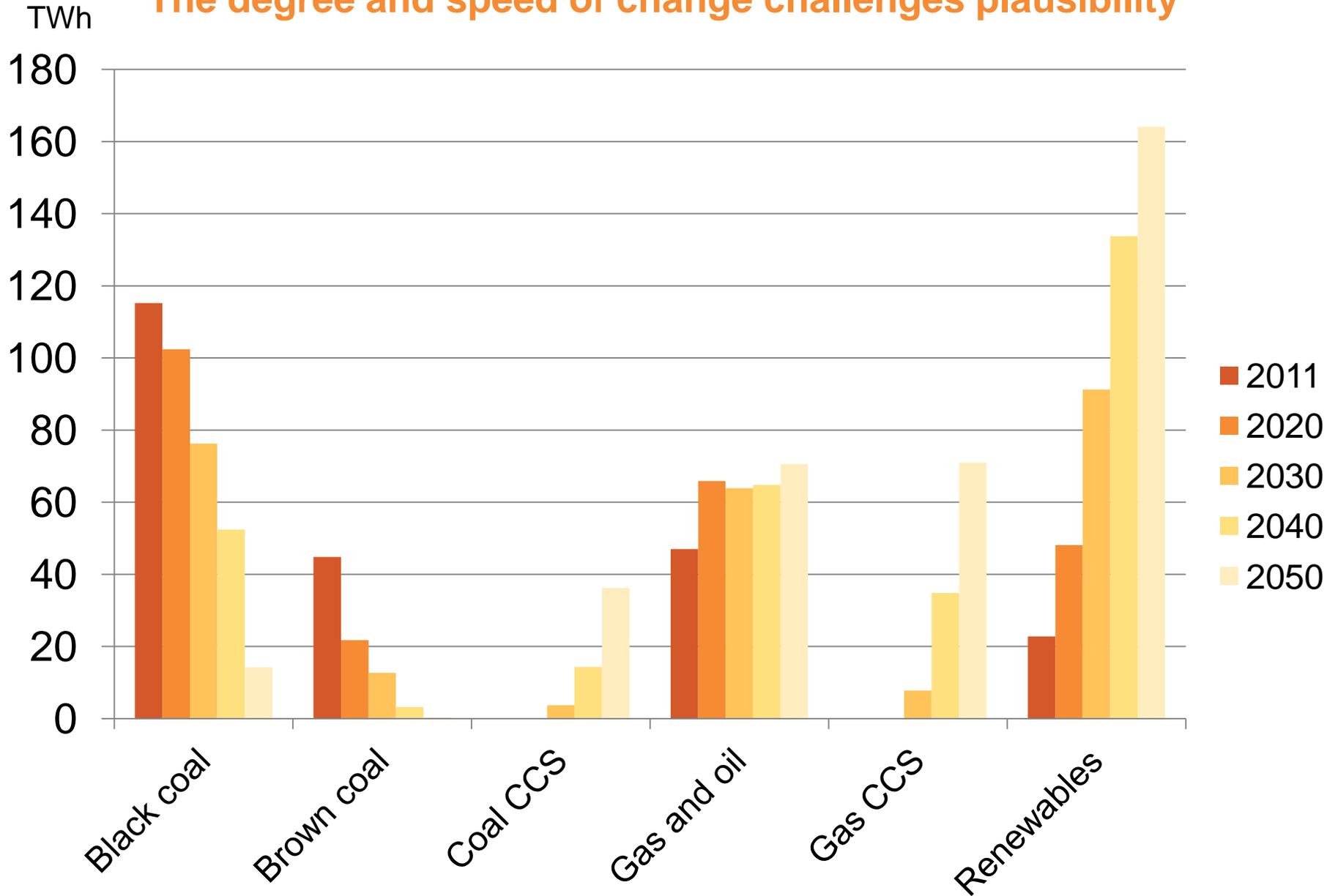
Solar Cities Conference

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Outline

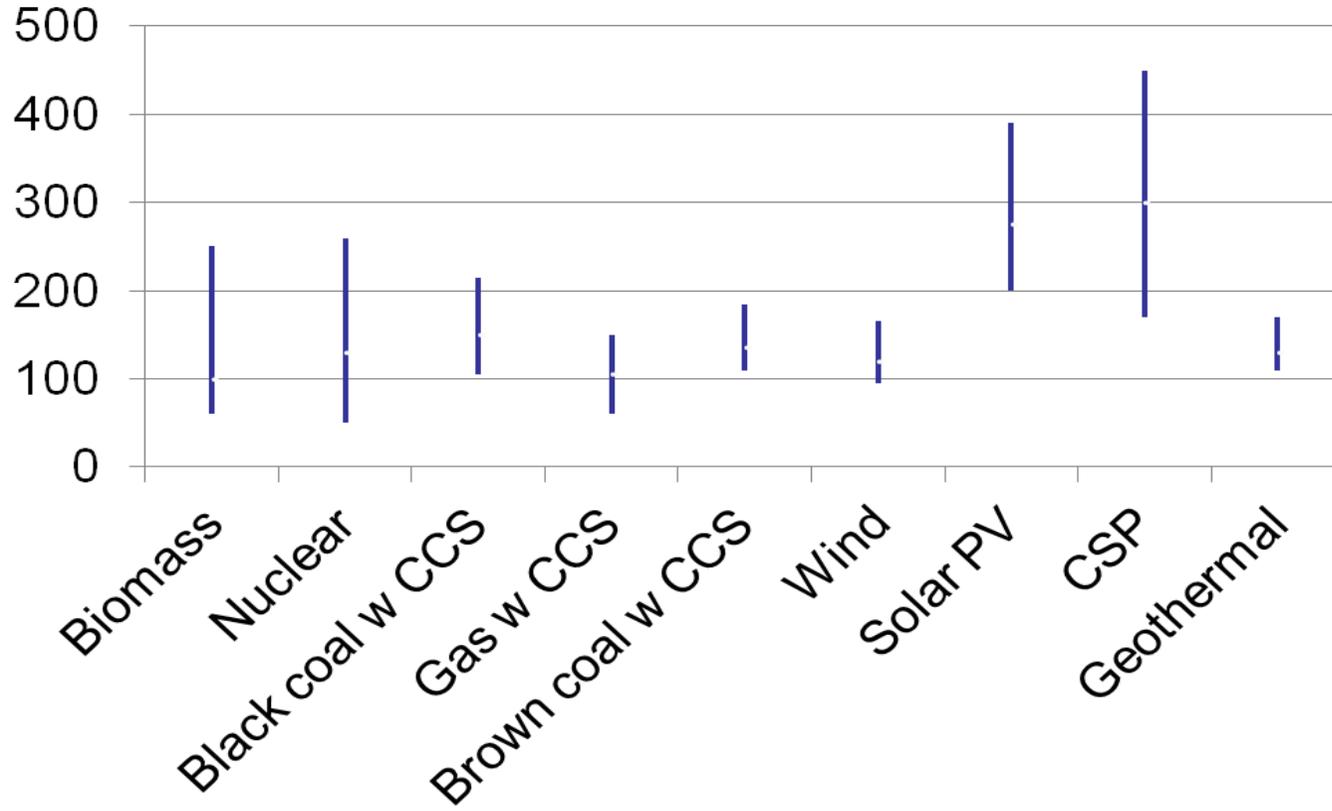
- The fundamental transformation
- Why government should intervene
- Principles for intervention
- Contracting for low-cost, low-emissions electricity
- Implications in the political context

The degree and speed of change challenges plausibility



Cost estimates are illuminating and unhelpful in 2015

NEM LCOE – A2009\$/MWh



Source: Grattan Institute from industry estimates

Summary of technology challenges and barriers

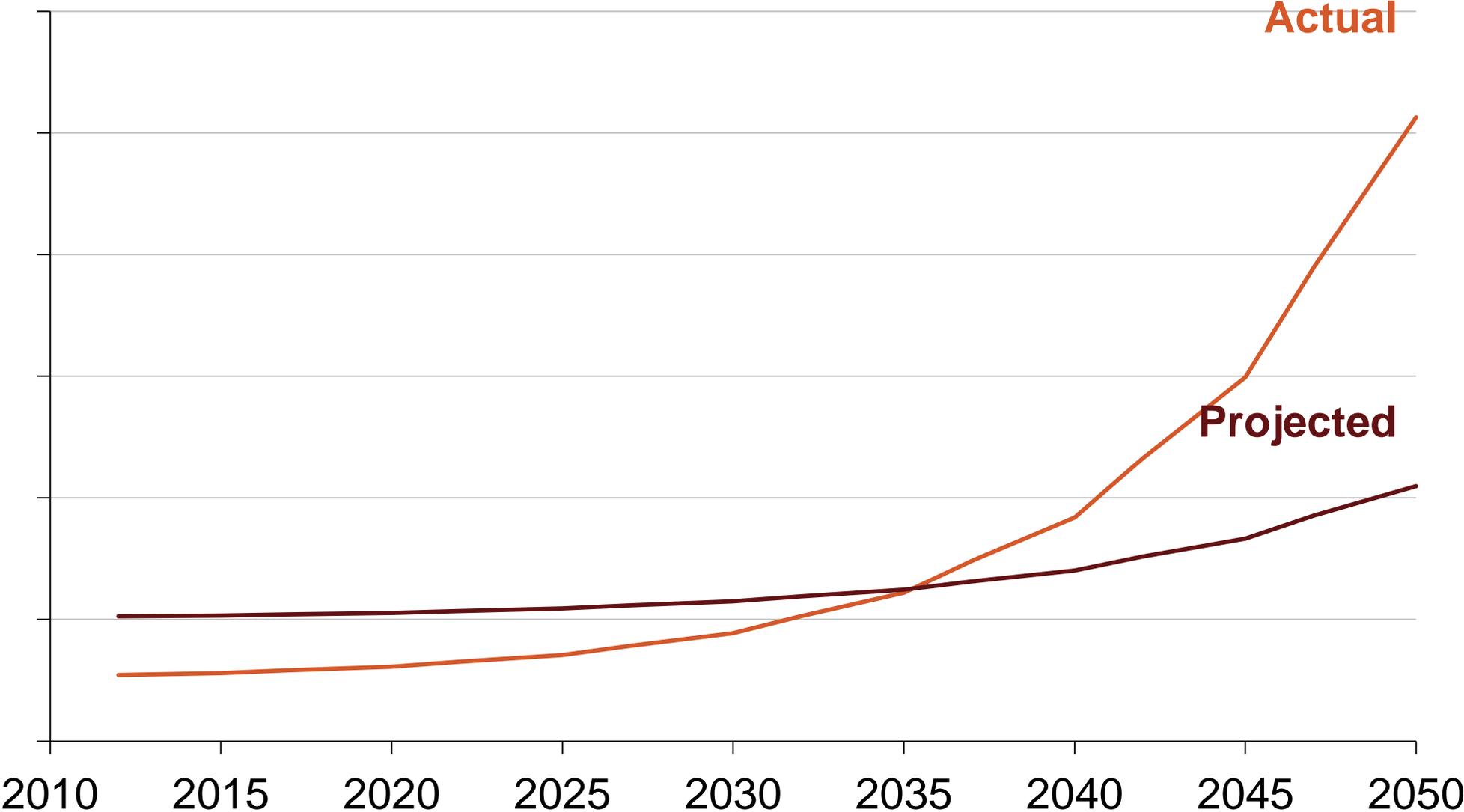
- Grid infrastructure: wind, solar, geothermal, bioenergy
- Grid integration: wind, solar
- Resource data: solar thermal, geothermal, CCS
- Regulatory framework: geothermal, CCS, nuclear
- Scale and finance: CCS, nuclear, possibly solar thermal

The 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, subsidies for existing technologies 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

The result: under-pricing of carbon and under-investment in technology

Carbon price \$/t



How government should 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 variety of options

•Address both carbon market and early mover technology risks

Contracting for low-cost, low-emissions electricity

The core proposal:

- A series of auctions held every 6 months for 10 years
- Developers bid to provide power, and the lowest bid succeeds in securing a contract for delivered energy through a contracted strike price.
- Technology categories are initiated by government. Subsequently, success delivers more success as costs are reduced.
- The contract delivers two payments: one a guaranteed forward carbon price as a CfD, and the second as a premium on the wholesale price.

Why reverse auctions?

- Long-term contracts and forward market with price discovery.
- Developers must present with projects capable of being financed and minimal conditions precedent.

Assessment of the proposal

Effectiveness and efficiency

- Contract structure addresses both carbon market and technology spillover risk
- Frequent, competitive auctions deliver cost discovery
- Multiple safeguards against late or non-delivery

Portfolio of options

- Multiple categories
- Pre-defined rules that govern the categories over multiple rounds
- Developers incentivised to deliver projects viable in the market

Feasibility

- Complements the ETS
- Would also complement Direct Action

Predictability and flexibility

- Projects not selected ahead of delivery
- 10-year timeframe provides a stable, credible investment environment

The policy/political context

The emissions trading scheme

- Once emissions are capped through an ETS, there is no case for supporting technologies beyond addressing market failures and barriers.
- The role of the Renewable Energy Target

Direct Action

- The policy will use a form of tendering to establish an effective carbon price
- The policy, as understood, does not specifically address long term climate change policy risk or technology spillover risks. The reverse auction CfD can complement the DA policy.

Closing remarks

- There is great uncertainty regarding policy drivers for low emission demand and technology developments for supply
- Most of the current policy framework is a “dog’s breakfast
- 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
- Governments need to address barriers and support R&D
- Driving innovative, low-cost technologies is a widely recognised problem.
- Governments should pay to develop a portfolio of options from which a proven set of technologies can emerge



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