Adapting to a changing energy sector: Australia's new regulatory sandbox framework

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Contents

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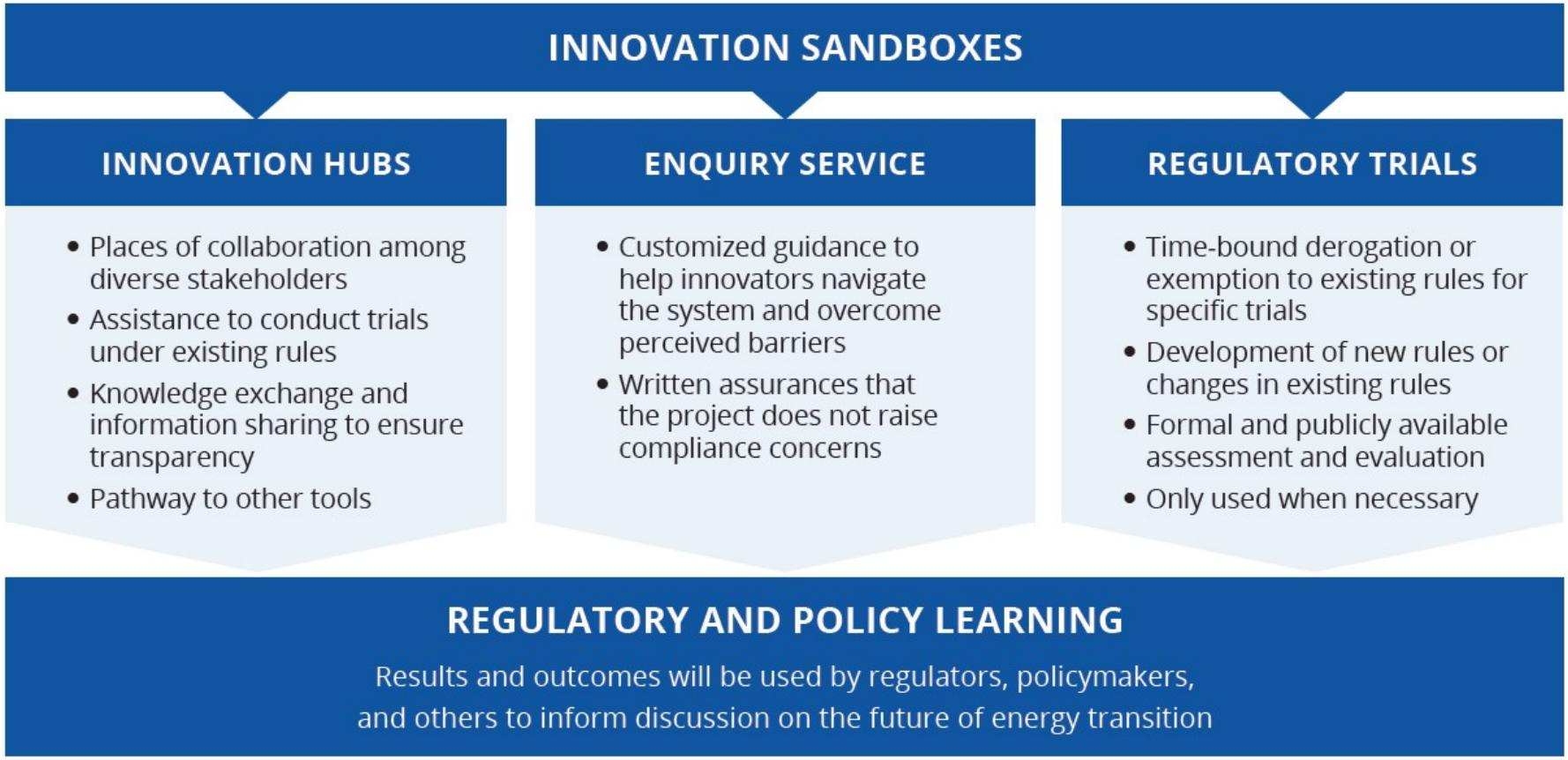
  - To inform long-term regulatory change

Objectives of regulatory sandbox frameworks

- Objectives are typically to support innovation in the long-term interests of consumers served by the regulated industry
- Many aims wrapped up in regulatory sandboxing across different international jurisdictions, e.g.:
  - removing non-technological barriers to innovation
  - removing perceived barriers and fostering innovation within the existing regulatory framework
  - protecting consumers in the short- and long-term
  - promoting collaboration to identify problems and frame solutions
  - demonstrating and testing alternatives to existing regulatory arrangements through specific trials
  - creating a better approach to identifying and designing long-term regulatory reforms in the context of rapid industry change.

Lots of objectives and tools across international regulatory regimes for sandboxing

The four tools of Innovation Sandboxes



Source: Quest and Pollution Probe

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- Who has implemented regulatory sandboxing so far and what has it achieved?
- What will regulatory sandboxing look like in Australia's National Electricity Market?
- What areas should be the focus for sandboxing in the NEM?

The origins of regulatory sandboxing in the financial sector

- Pioneered by UK's Financial Control Authority in 2016.
- Adopted by other financial regulators to support fintech start ups. For example, ASIC's sandboxing mechanism:
  - provides informal guidance
  - allows for a 12 month delay of financial services licence and credit license requirements
  - allows for tailored licence conditions

Adapting sandboxing to energy challenges: Ofgem's experience

- Ofgem's Innovation Link has evolved over time
  - Innovation Link 1.0: 'Fast, frank feedback' service for innovators to seek guidance. Opportunity for innovators to competitively apply to receive derogations from existing licence code requirements under time-limited 'sandbox windows'.
  - Derogations for projects on peer-to-peer local energy trading, tariff design for home energy management, community energy
  - Innovation Link 2.0: Broader scope to offer sandboxed derogations, greater focus on industry-level guidance
- Insights from running the sandbox windows
  - Many sandboxed trials did not proceed due to non-regulatory reasons
  - Many innovators thought they needed derogations, but actually just needed advice
  - Regulators need to think creatively about how they provide guidance and inform broader 'communities of innovators'

Other international examples

- **Belgium** – developed by consortium of transmission and distribution system operators (Elia, Fluvius, Ores, Resa, Sibelga). No exemptions from rules, just a platform for industry collaboration and information exchange.
  - Focus on grid integration of DER
- **France** – administered by CRE, the French energy regulator, launched in June 2020. Grants exemptions from rules for sandboxed trials.
- **Italy** – administered by ARERA (Italian energy regulatory), including funding and limited rules exemptions. Thematic/challenge-based application rounds for trials.
  - Focus on 'local energy' (EV charging and storage) and 'system wide' (smart home integration, grid flexibility services) challenges.
- **Germany** – "Smart Energy Showcases — Digital Agenda for the Energy Transition" program (SINTEG). Administered by govt. department. Provides both funding and limited rules exemptions. Thematic/challenge-based approach.
  - Focus on digitisation, smart grid technologies
- **Netherlands** – administered by govt dept and regulators together. Provides limited rules exemptions, open only to homeowners cooperatives and energy cooperatives
  - Focus on DER orchestration, smart-grid, peer-to-peer trading, CHP
- **Ontario** – administered by Ontario Energy Board, provides limited regulatory exemptions. Launched in 2019 with no applicants yet requiring an exemption (just guidance).
- **Singapore** – administered by Energy Market Authority, provide regulatory exemptions. Designed to support broader market liberalisation reform agenda.

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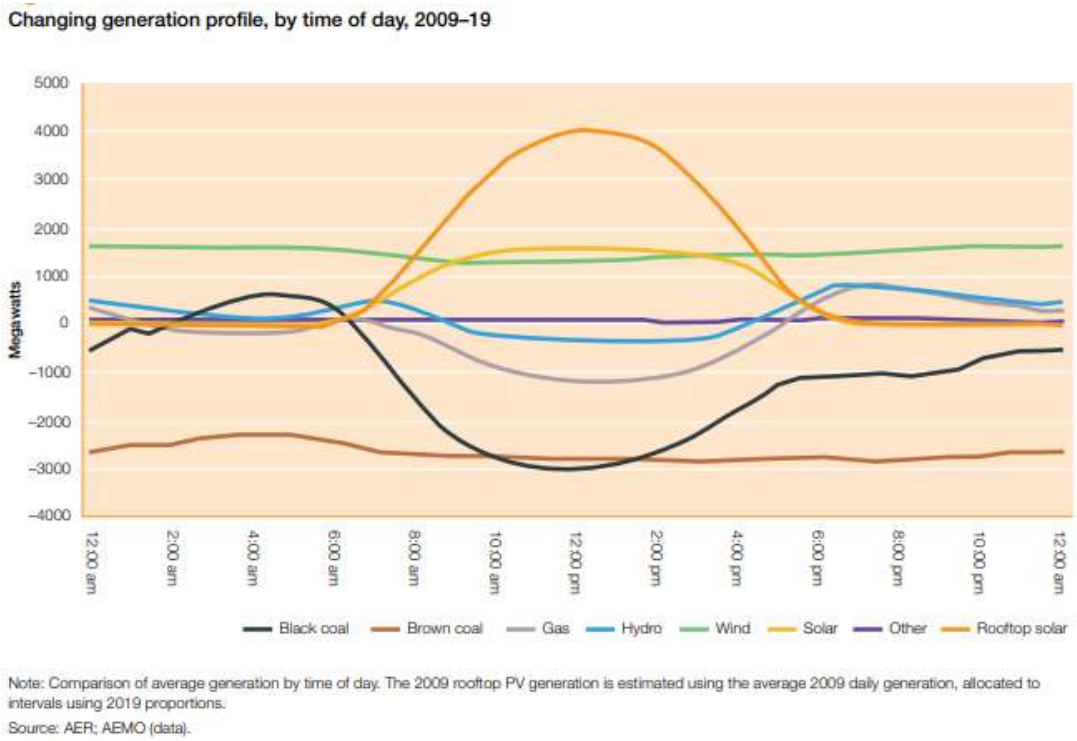
An energy market in transition

- Rapid growth of large scale renewable energy (wind and solar PV) in recent years, starting to bring out major grid challenges (e.g. curtailment, connection times, system security issues)
- One of the most decentralised grids in the world
- Coming out of a period of historically high prices and customer dissatisfaction with the performance of the market



Source: AER State of the Energy Market Report 2020

Regulatory environment

Council of Australian Governments (COAG) Energy Council
Composed of the federal and state governments

Makes national energy laws

Australian Energy Market Commission
Rule maker, market developer and expert adviser to governments

Makes energy rules that sit under the laws according to the National Electricity Objective, balancing consumer outcomes, efficiency, security and other objectives

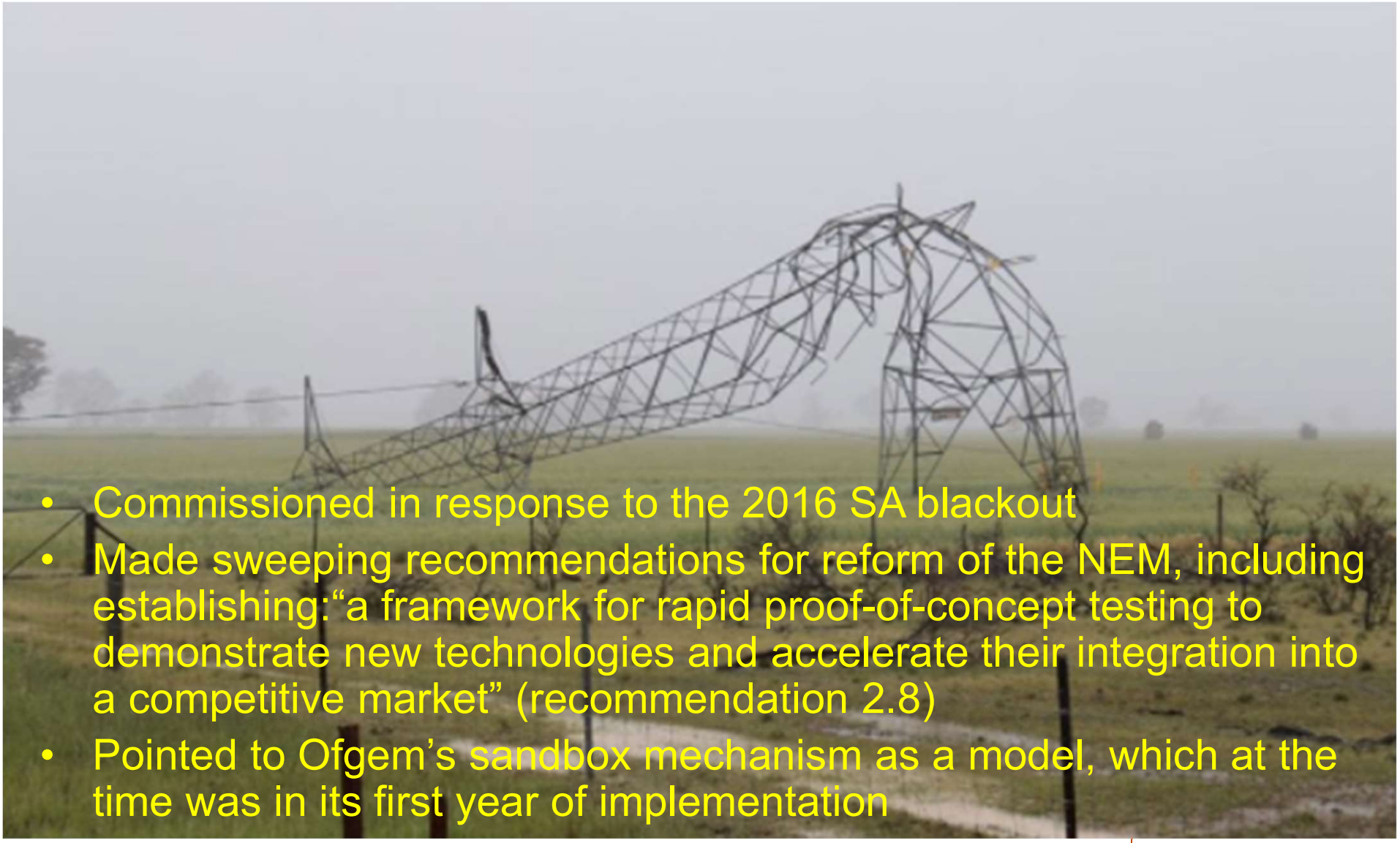
Australian Energy Regulator
Economic regulation and rules compliance

- *Enforces the rules and monitors the performance of the market*
- *Sets regulated revenues for monopoly networks*
- *Makes guidelines and other regulations that sit under the energy rules*

Australian Energy Market Operator
Electricity and gas systems and market operator

- *Operates the physical electricity and gas (independent system operator) to ensure safe and reliable energy supply*
- *Administers and settles the wholesale markets*

The Finkel Review 2017



- Commissioned in response to the 2016 SA blackout
- Made sweeping recommendations for reform of the NEM, including establishing:“a framework for rapid proof-of-concept testing to demonstrate new technologies and accelerate their integration into a competitive market” (recommendation 2.8)
- Pointed to Ofgem’s sandbox mechanism as a model, which at the time was in its first year of implementation

Collapsed pylon near Melrose, SA, Source: ABC News, 2016, *SA weather: Worsening conditions cause more blackouts as BOM warns of more storms*

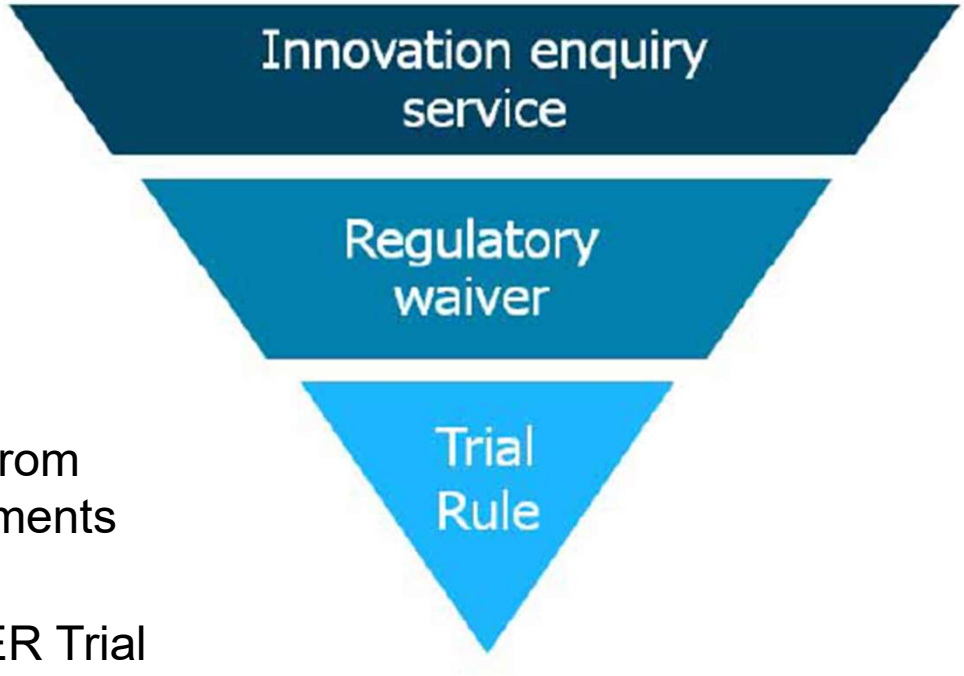
AEMC review

- In 2019 COAG Energy Council directed the AEMC to undertake sandbox review
- AER argued in favour of a formal sandbox mechanism that was specifically focused on facilitating regulatory innovation in the NEM
- AEMC recommended establishing a sandbox ‘toolkit’ in their September 2019 final report

Overview of the sandbox toolkit

Innovation enquiry service

- Provides guidance and feedback for innovators
- Refers for trial waivers and trial rule changes where appropriate



Regulatory waiver power

- Temporary exemption for trials from existing obligations and requirements under the energy rules
- To be administered under an AER Trial Projects Guideline

Source: *Final report on regulatory sandbox arrangements to support proof-of-concept trials*, AEMC, September 2019

Trial rule change process

- Function delivered by the AEMC to temporarily change or introduce rules. For more complex trials that need new rules, not just exemptions from existing rules.

What lessons can we learn from our international peers?

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- Not all regulatory barriers (or solutions) will lend themselves to regulatory experiments
- Resourced-constrained regulators need to be smart about supporting innovation

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Internationally the focus has broadly been:

- **Development of distributed energy and community energy through DERs and smart grids**, and the involvement of prosumers, connected energy consumers, and community actors such as energy and housing cooperatives, building owners, and municipalities, among others.
- **Development of grid stabilization and orchestration systems** to integrate increasing renewable energy from large and distributed generation through digitization of the grid (e.g. experimentation of new consumer-centric applications), new energy services such as valuation of DERs through a user-centric application, or aggregation, and grid optimization.
- **Integration of new entrants and non-traditional energy players** such as community energy groups, innovators, digital companies, research organizations, and academia.
- **Rate structure and rate incentives** to encourage new low-emissions forms of energy supply through rate design, new market designs, or the more efficient use of energy.

Other things we are interested in your thoughts on

- What models of consumer/industry/government collaboration do you think could apply to regulatory sandboxing and what role could that play?
- How can we best engage with 'communities of innovators' to provide regulatory guidance?
- How can we ensure that the right knowledge is shared from these trials to support long-term regulatory change?
- …and any other questions/suggestions you have!

Selected further reading

- AEMC: Electricity network economic framework review 2019 (sandbox theme and final report)
- Quest Canada and Pollution Probe: Energy the sandbox: Developing innovation sandboxes for the energy sector
- IEA-ISGAN Casebook on Innovative Regulatory Approaches with Focus on Experimental Sandboxes

Thank you!

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