

It's **TIME**: Collaborating towards a
national energy vision

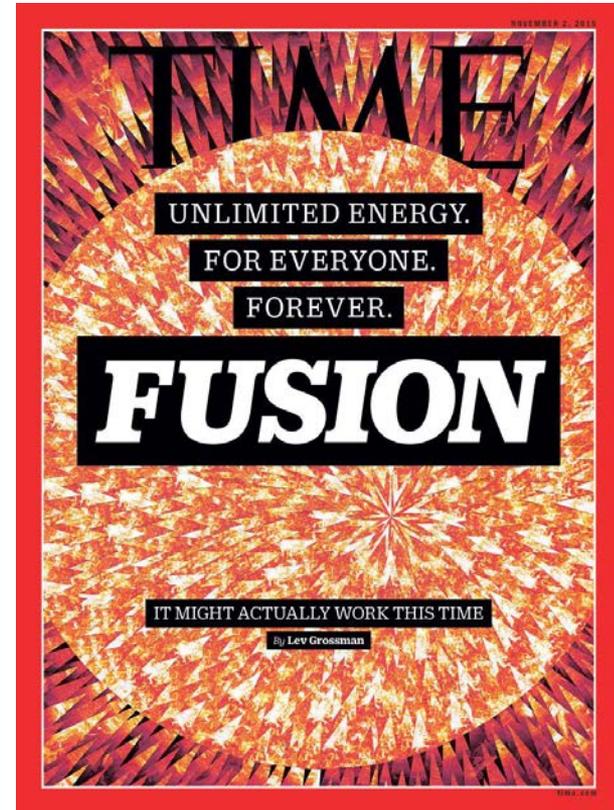
Frank Tudor



Australia continues to bounce between policy paralysis and utopian visions of the future

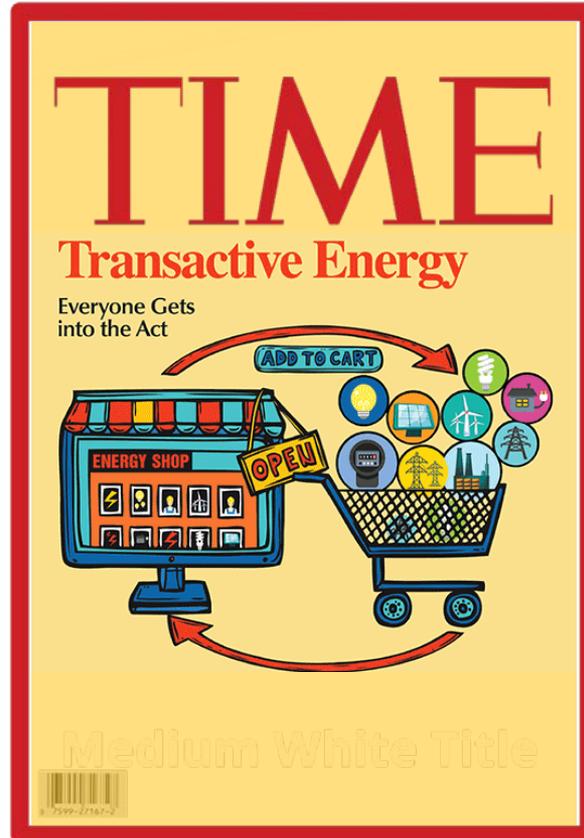


VS



Separating hype from reality

The Story of
2018?
Or
Fake News?



Competition in the age of the platform giants

NETFLIX

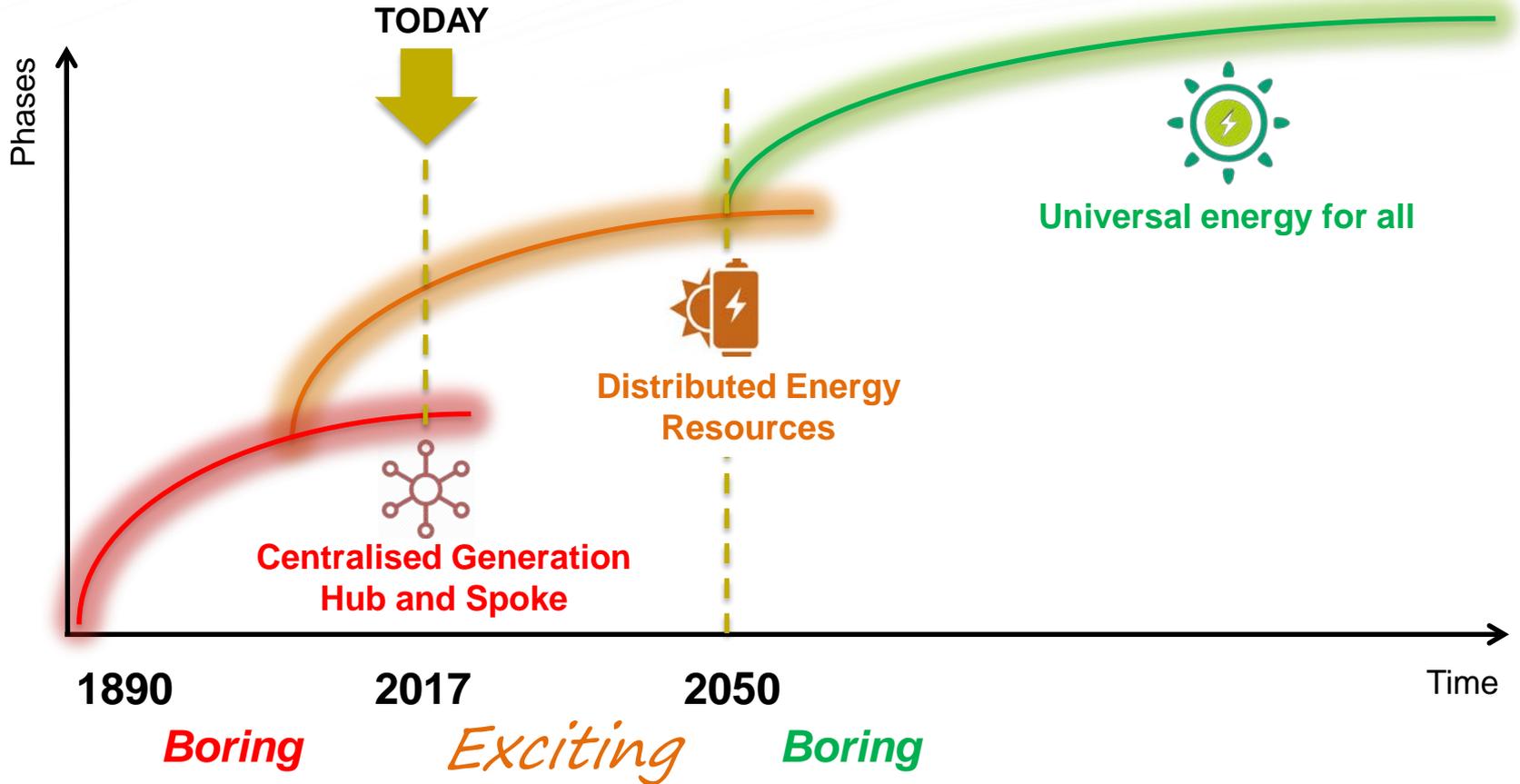
Alibaba.com



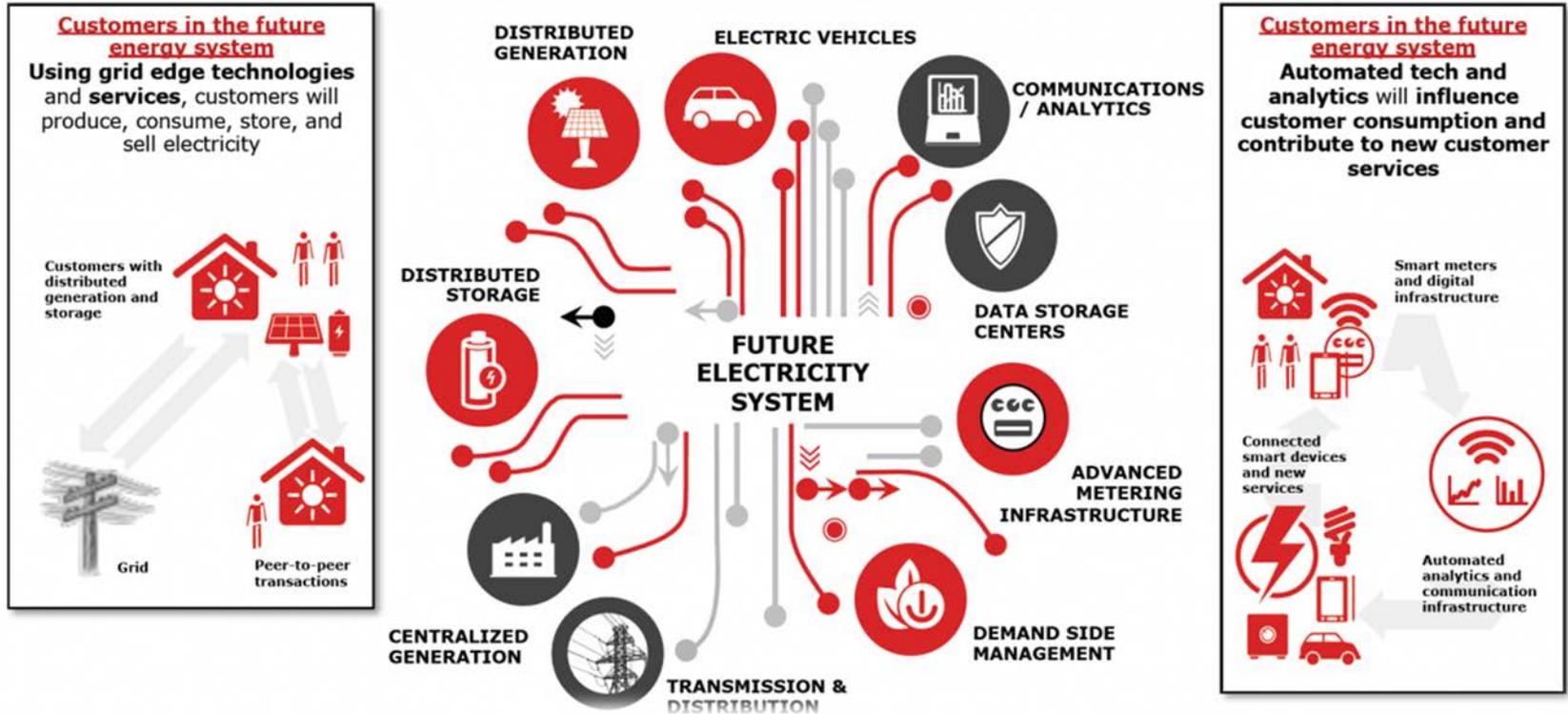
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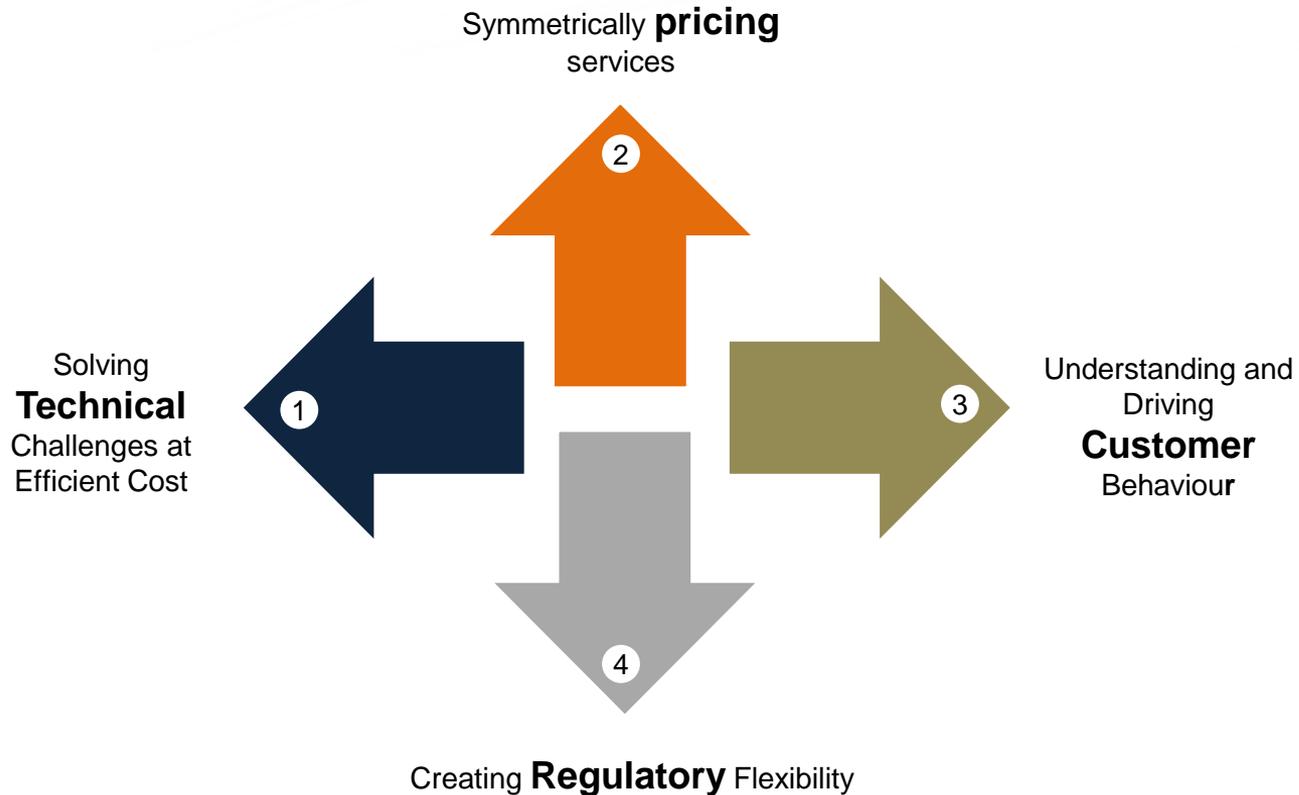
Bringing energy back to boring

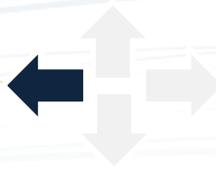


We already know what the future electricity system could look like



But there are major challenges to overcome





Orchestrating Balance in the Universe



AT EVERY NODE AT EVERY MOMENT

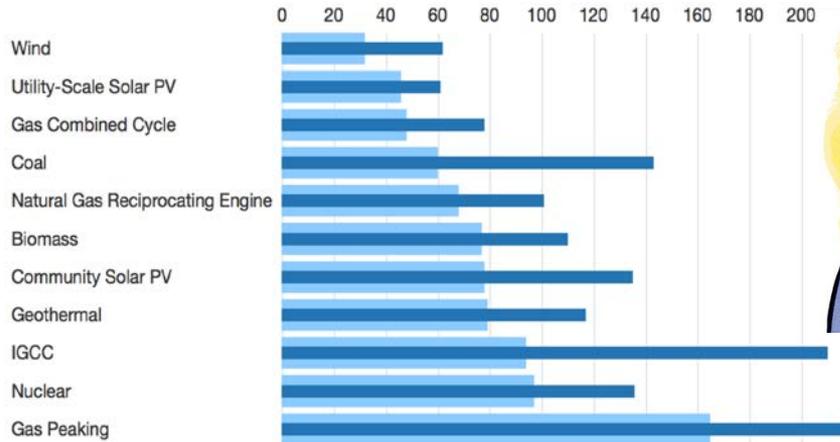
Contradictory messages are sent to consumers on the affordability of energy



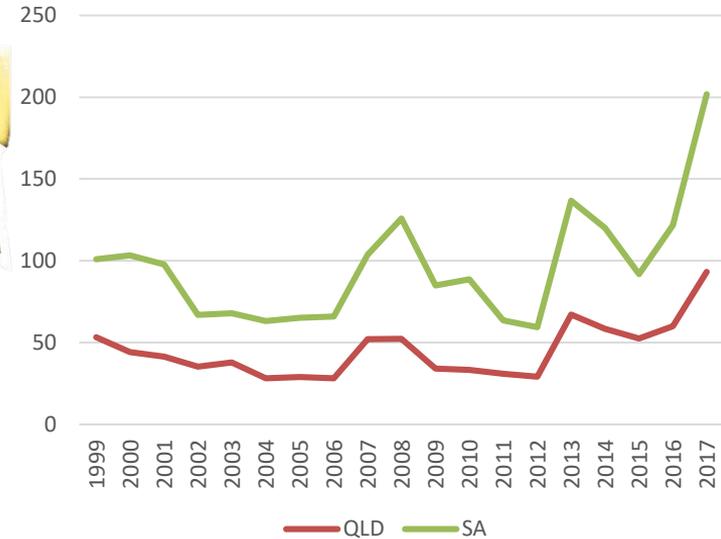
Cost of renewables continues to decline and provide an opportunity to reduce energy cost if integrated appropriately in the network...

... But retail energy cost have never been so high, hurting competitiveness of energy intensive industries

Levelised cost of energy¹ (US\$/MWh)

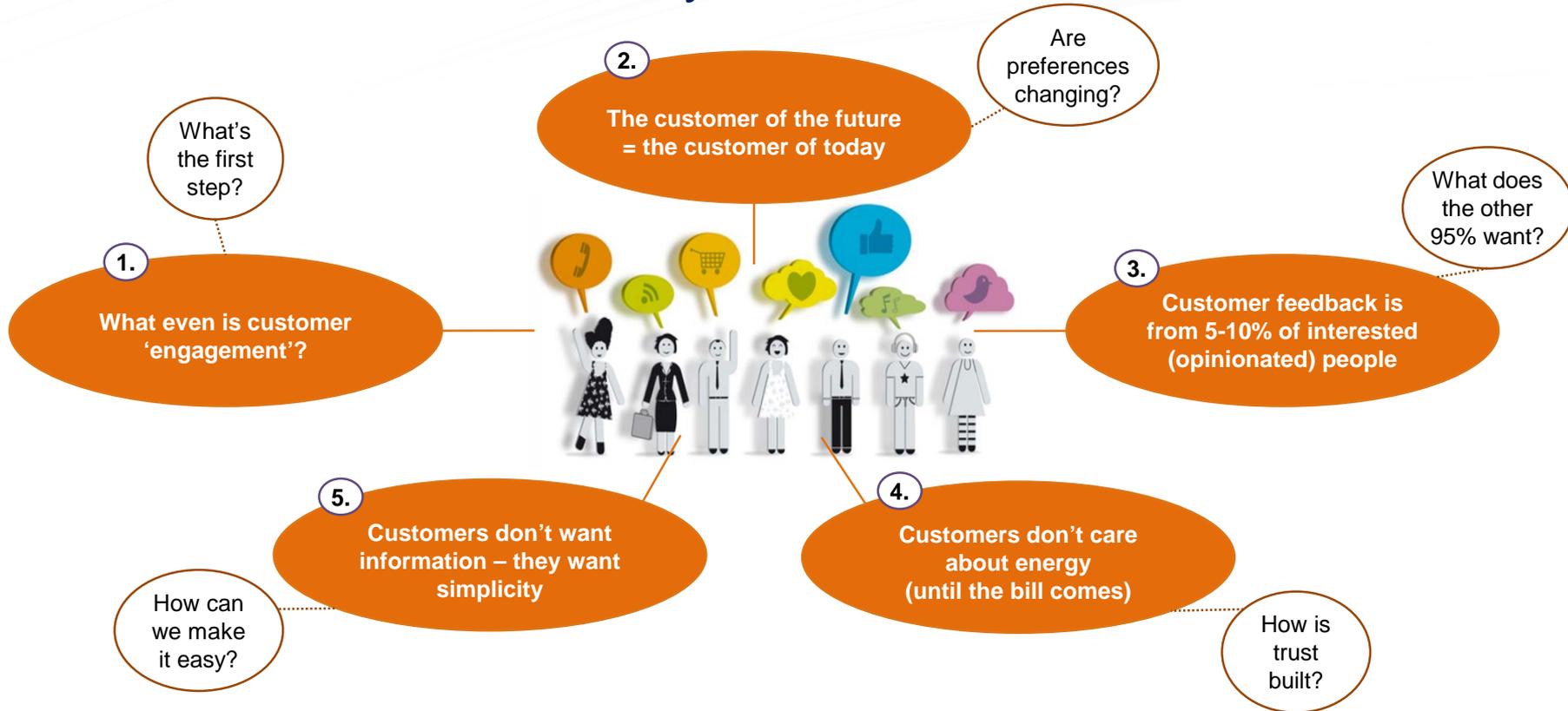
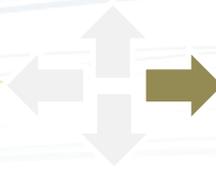


Average daily price in the NEM (\$/MWh)



Note: 1 LCOE = sum of costs over lifetime / sum of electrical energy produced over lifetime

Predicting irrationality. Understanding customers who couldn't care less about you



Regulations are like children – if you don't give them attention they are going to make you suffer



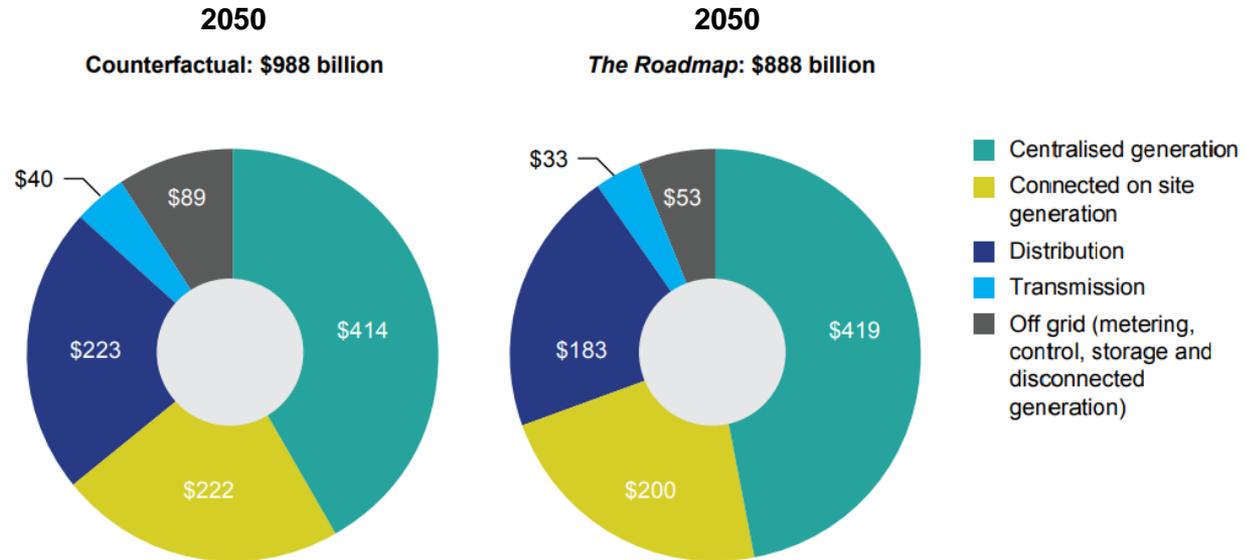
- **Regulations are the common scape-goat:**
lack of incentives, lack of flexibility, slow moving
- **How do you 'trial' new regulatory frameworks?**
- **We need a testing ground for new incentives, rules and regulations:**
as with technology, customer and business models!



Future transformation of the NEM predicts a changing but still vital role for centralised networks

ENA CSIRO Electricity Network Transformation Roadmap

Constrained by: complex regulatory barriers, competing interests across the value chain, policy uncertainty



Sharing insights from West to East

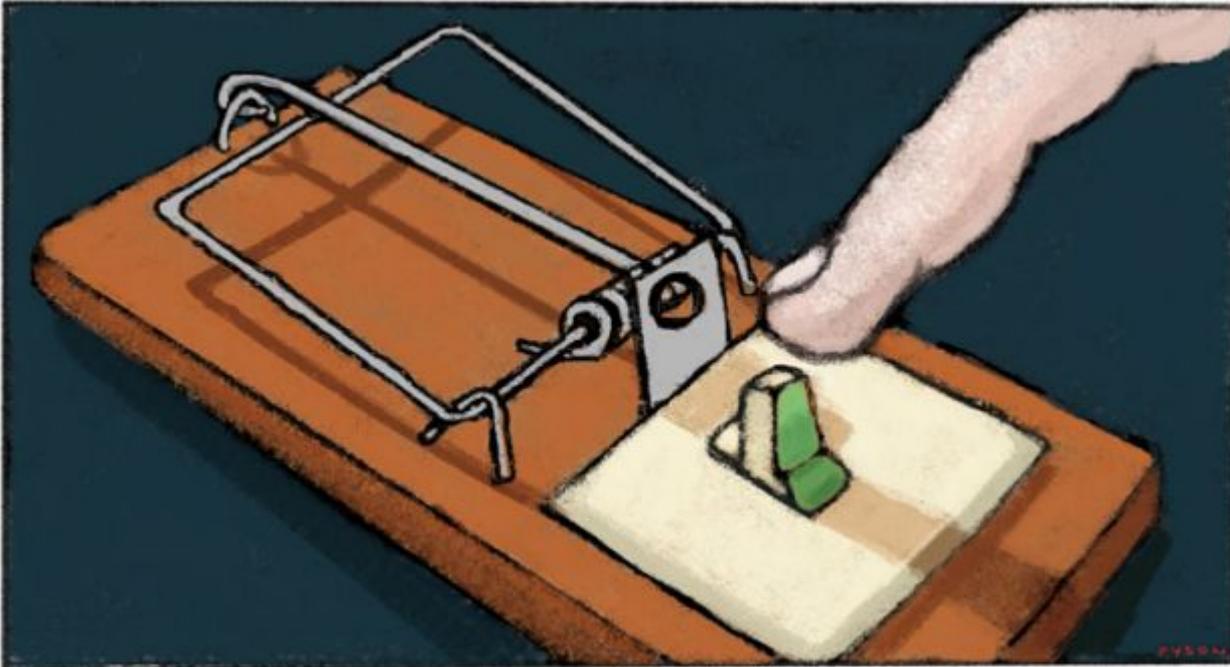


Image Credit: Sydney Morning Herald

Observations from the West:

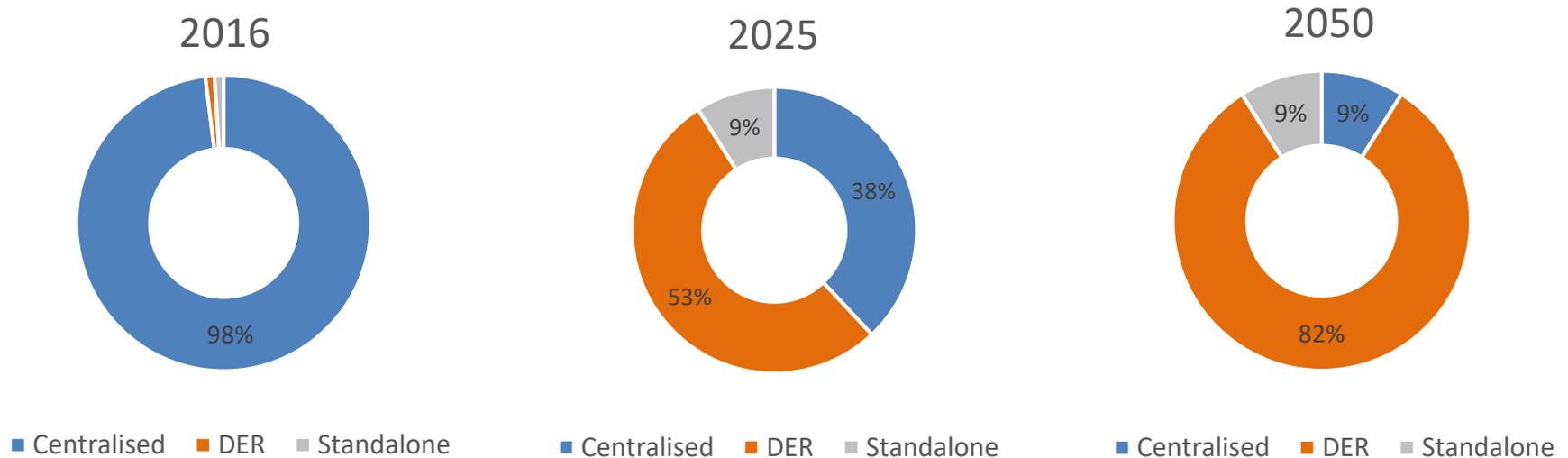
- The east-coast energy market is combative and anti-collaborative
- Network business vs Retailers vs Generators vs Regulators
- Policy makers frustrate everyone
- Meanwhile customers: at best – overloaded with information; at worst - left in the dark

How do you manage this risk?

Regional WA is leading the transition to off-grid and DER microgrids

Horizon Power Roadmap

Enabled by: minimal regulatory barriers, vertical integration, advanced meters



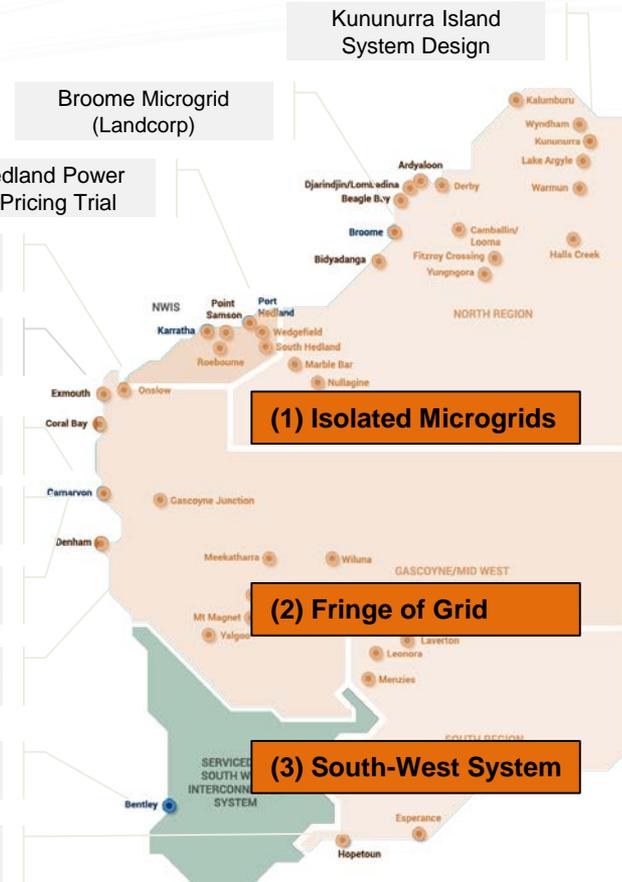
WA – Australia’s RD&D sandbox?

Why Western Australia?

- 1 **Physical separation** – independent from system security and gas price issues
- 2 **Regulatory separation** – Potential for light-handed / unique & innovative frameworks and rules
- 3 **Government owned utilities** – With vertical integration and consideration of whole value stack
- 4 **Urgency to solve on small-scale** – WA has started testing across multiple remote & fringe of grid towns

R&D underway:

- Onslow 50% DER Microgrid
- Exmouth SPS
- Carnarvon 2 MWh battery
- Carnarvon PV Project (ARENA)
- Carnarvon LV Microgrid Trial
- Microgrid Regulatory Trial
- Rottnest Multi-Utility
- Hopetoun + Esperance SPS



It's TIME – WA as Australia's test pilot

"WA outside NEM can be island of competitive energy and energy-intensive investment"

"Its policy independence from the National Electricity Market allows it to avoid legacy problems of high costs and unreliability in other states."

"Western Australia can play a vital role contributing to the national and global transition to a zero carbon energy future"

**Professor Ross Garnaut AC –
November 2017**

*"the advantage is for us in WA..."
"We've also got a lot more flexibility here"*

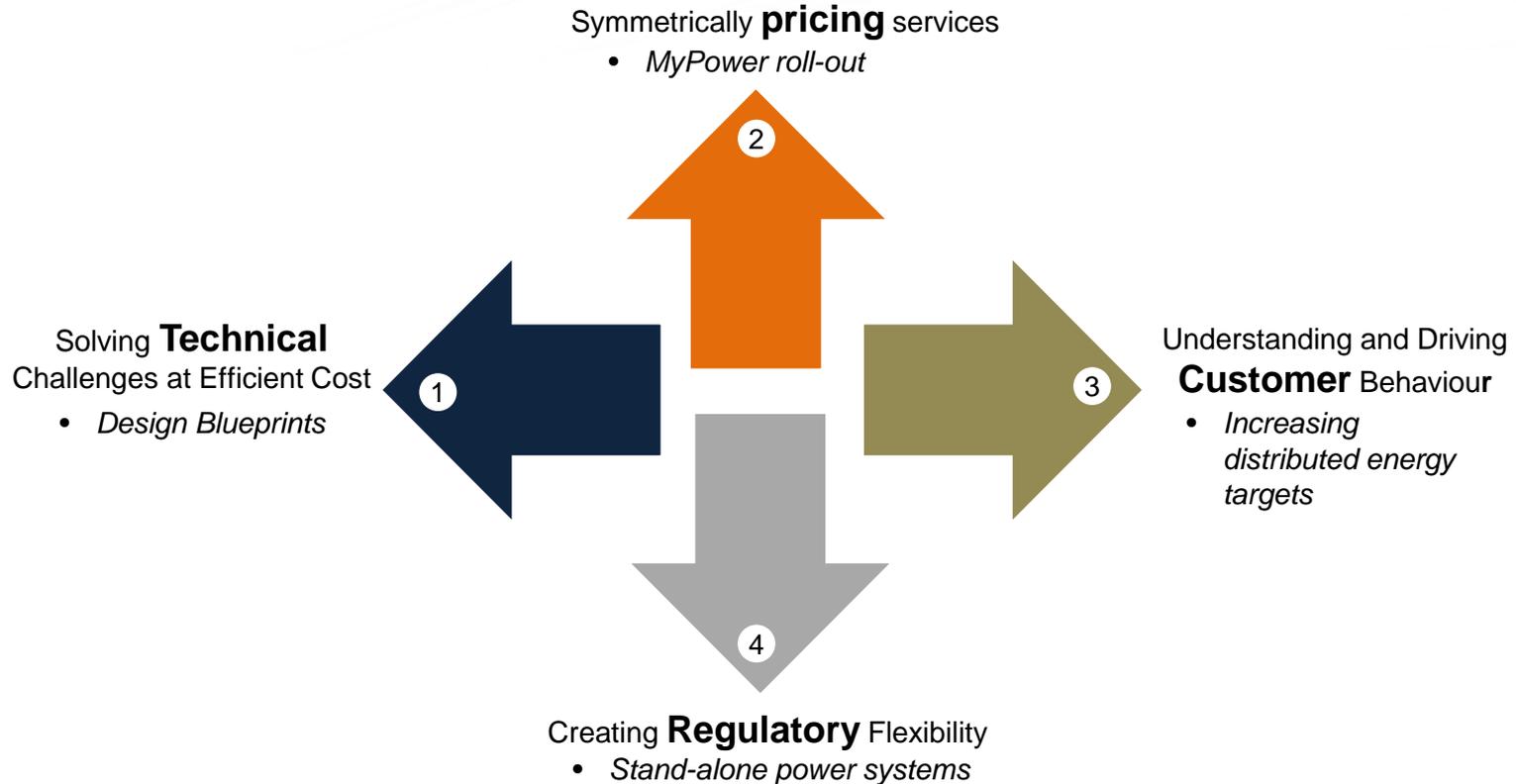
**Audrey Zibelman –
AEMO - August 2017**

"Also have a world champion at that here in WA, Horizon, who are providing resilient mini grids to remote communities. The knowledge they have on how to do that is probably the best in the world, how to deliver renewables."

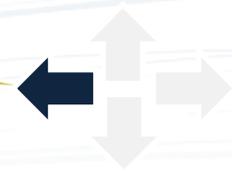
**Micael Liebreich –
Founder BNEF – Dec 2016**



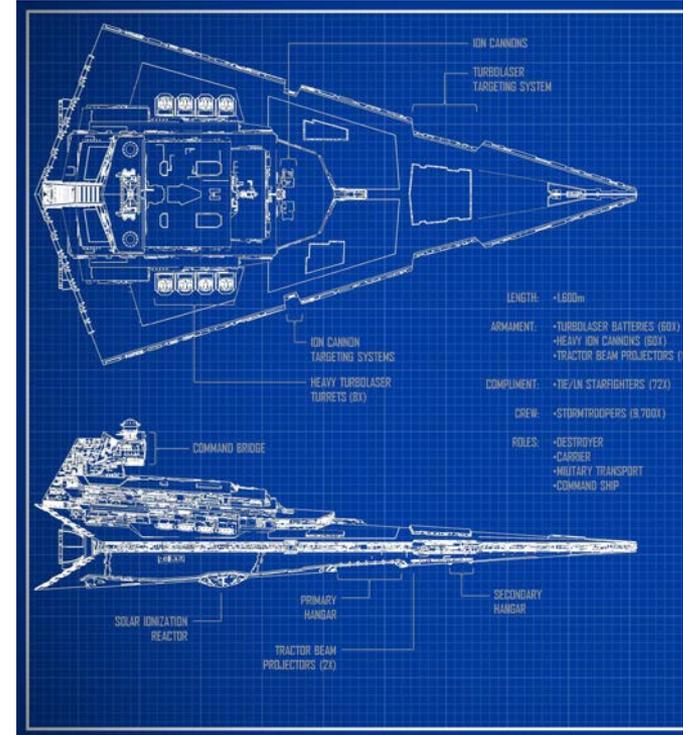
WA is getting on with it: Learning from experiments - past, present & future



Design blueprints: Do. Or do not. There is no try.



- a** Multi-dimension segmentation to cluster towns
- b** Priority areas for innovation and commercialisation
- c** Strategic partnerships with technology vendors and applied research institutes



MyPower: Introducing the future of electricity pricing

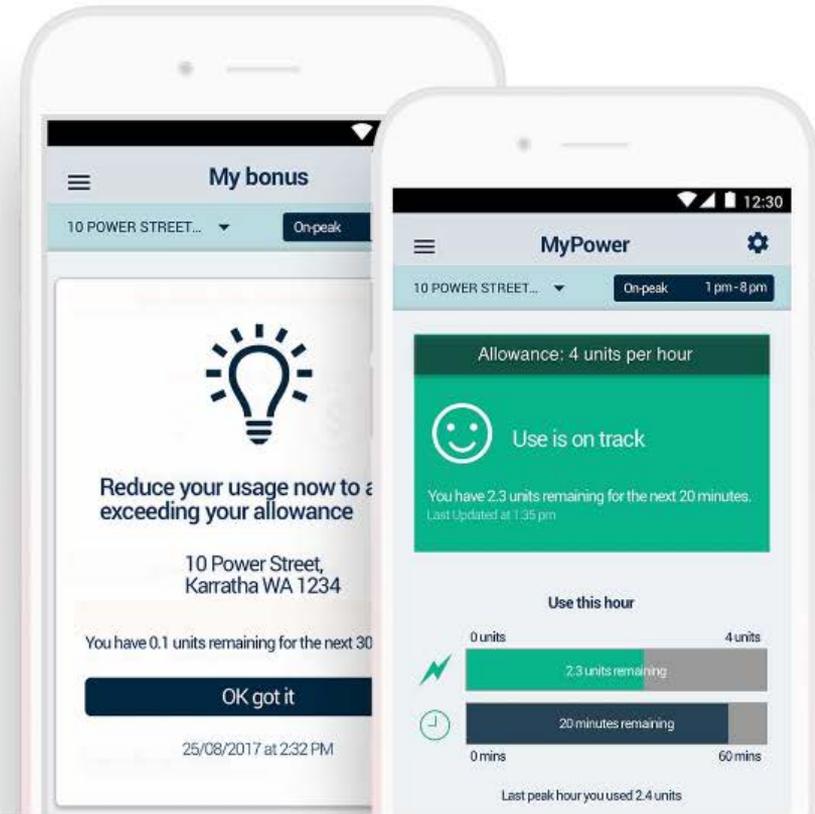


The MyPower app puts bill control in your hands

When you sign up for MyPower you get our free app, designed to help you monitor your usage and track how much you spend. No more surprises!

Advantages of MyPower:

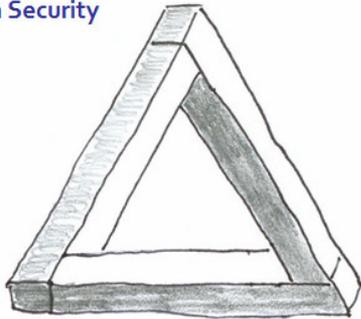
- gives customers choice and control
- reduces the subsidy paid by the State
- sends the right signals to reduce peak usage is a more equitable structure



It's stressful playing host – but the party has already started in WA

Each system in WA has been designed for economic efficiency, system security, and maximising penetration of renewables

High Security

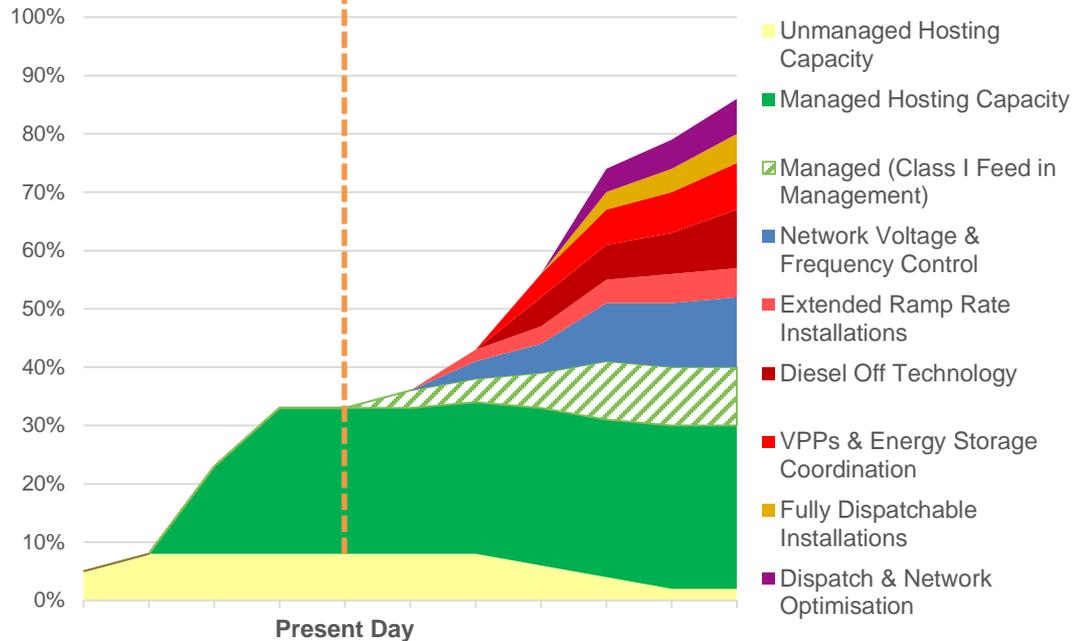


Low Carbon

Low Cost

NEG in practice?

DER Vision - Towards 100%



Stand-alone power systems show that everyone (customers, utilities, mother-nature) can win



NEWS

Just In US Election Australia World Business Sport Arts

Rural Home Horticulture Livestock

Last Cape Le Grand solar panels installed

Esperance farmers go off grid in WA

WA Country Hour By Tara De Landgreff

Posted 31 May
Five farms in Australia have year's devastating poles leading

In the aftermath offered the opportunity of standalone power properties, and last turned on.

The project is a WA company has installed batteries and a back farmer, and the prop

LETTERS TO THE EDITOR

STANDALONE POWER SYSTEM
I am one of the first customers in Western Australia to be connected to a standalone power system by my regional utility provider. I would like to congratulate Horizon Power for leading the way in renewable energy alternatives.
We are beef farmers located in Merivale, east of Esperance, adjacent to the Cape Le Grand National Park.
My son Rodney and his family live in the adjacent house on the property and they are also on a standalone power system provided by Horizon Power.
When the Esperance fires came through in November 2015, we were fortunate not to suffer serious damage to our farm.
However the power line which serviced our property and the nearby Cape Le Grand National Park was almost completely destroyed. Horizon Power supplied us with temporary gen sets as an interim measure until the next tariffs remain the



OVERJOYED: John and Val Locke say they have no regrets power system on their property.

FOR Cape Le Grand farmer Rodney Locke says having power restored goes a long way to recovering from last year's bushfire. (ABC Rural: Tara De Landgreff)

Minister visits Cape power system

REGIONAL Development and Lands Minister Terry Redman saw first-hand last week how power reliability and sustainability had improved as part of Horizon Power's innovative standalone power system project.
During a visit to Esperance, Mr Redman joined Nationals WA Candidate for the Agricultural Region Colin de Grussa and Horizon Power staff to see the new solar powered system, which is not connected to poles and wires, at the Cape Le Grand National Park. Mr Redman, a supporter of renewable

energy, wanted to see some of the five systems built in the wake of the Esperance bush fires which devastated parts of the region in late 2015. The Esperance visit coincided with the launch of the State Government Are You Bushfire Ready 2016 campaign, which is designed to raise awareness about the need to be prepared for bushfires this summer. Horizon Power lost many kilometres of power lines in last year's fires. The five stand-alone systems were developed and commissioned within

4 hours a day," she said.
"The fences don't require that much power, it's... to be on all...
Horizon Power to respond to any unplanned power interruptions.
The Minister for Energy said last week that Horizon... line to identi-

(batteries are included)

Key takeaways

- **The energy landscape is changing** – presenting challenges across technical, pricing, customer and regulatory spheres
- **Electricity systems of the future** will require the orchestration of high penetrations of distributed renewables to achieve the energy trifecta
- **Strategic partnerships will be vital**, with open, collaborative and agile environments needed to drive innovative solutions
- **WA is well-placed to assist** the country build expertise and capability to address the pressing energy issues – we are already doing it!



A satellite-style image of Western Australia at night. The landmass is dark, with city lights visible. A vibrant green glow emanates from the western coast, spreading inland and following major roads and coastlines, symbolizing a new energy horizon. The surrounding ocean is dark blue, and the sky above is a deep blue with some stars visible.

Thank You

The new horizon for electricity
starts in Western Australia.