A better way on electricity

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Australia's households and industrial users of energy are paying the price as we continue to struggle to implement a coherent and durable national energy and climate policy.

Governments at all levels and of all stripes abuse each other, look for scapegoats or push tangential and at times dangerous announceables – including the excesses of the latest 'big stick" legislation. In the meantime, comprehensive reforms sit half-finished or are scrapped entirely. As they bicker, investors are closing the spigot on new projects. Assets are crumbling. Prices remain high. Concerns about summer reliability are escalating. A cheap, clean, reliable electricity system is possible, but we can't get there if we go on like this.

Australia's mobile networks provide a stark contrast to our energy and climate debacle. Providers are shutting down their 3G networks in favour of current 4G and new 5G technology. Nobody is urging them to squeeze every possible year of service out of their existing kit because as we know, better tech gives better results. They're just getting on with it with minimal political interference.

There is no fundamental reason that energy can't be like this. The technologies are different, and their cultural significance even more so – nobody has yet built a love of 3G or 5G into their tribal identity. But good engineering, efficient markets and sound public policy can deliver an electricity system with competitive costs, good reliability and lower emissions.

What would that look like?

There are sure to be surprises. Carbon capture and storage may give fossil fuels a second wind. The more flexible gas and coal plants may linger as reserve capacity long after their regular usage tails off. Hydrogen could emerge from the pack as a significant energy source. Small modular nuclear reactors may finally fulfil their promise (and we could overcome the barriers that currently rule them out of court).

What we can be much more certain about is that there will be plenty of ever-cheaper wind and solar. But they are variable, so we need flexible generation, storage and demand-side responses too. Renewables may completely dominate, or instead level off if the cost of complements exceeds the value of the renewables they unlock.

There will be big pumped hydro storage projects like Snowy 2.0 and Tasmania's Battery of the Nation; synchronous condensers like those soon to stabilise South Australia's grid; and lots of participation by energy users of all sizes through demand response, distributed generation and storage, and virtual power plants. Transmission and distribution network upgrades will tie it all together.

How do we get there?

Working together is a start. The National Electricity Market (NEM) is a joint creation of many governments and depends on public and private players to function. Reform needs all hands on deck, not fighting for the tiller or jumping overboard.

Establishing calm is step two. Broken generators make Victorian supply very tight this summer, and some load shedding is a very live possibility despite the repairs, backup generation and demand response under way. But reliability is forecast to meet the standard in Victoria and everywhere else for the rest of the decade, even without the many likely projects not yet included in that forecast – like the transmission that will connect Snowy 2.0's storage to market. More change will come. It can be managed watchfully, without hysteria or emergency intervention.

Step three is to commit to electricity market rules and policies that support efficient investment and reward valuable services, whoever provides them. Evolutionary changes like the Retailer Reliability Obligation, the Wholesale Demand Response Rule, and the Coordination of Generation and Transmission Investment reforms may be enough. The NEM25 review now underway may lead to more fundamental rewrites. What matters most is that governments pick a system and stick with it. Today's market depends on private response to price signals, but it is being pummelled by interventions from governments – some of which threaten the working of a market approach. Again, the over-reach in the current 'big stick' Bill is a case in point. Yet governments also shy from the financial and operational responsibility of full central planning. Planned, market-led or hybrid, the electricity system needs a coherent and consistent approach.

Step four is to deal much more definitively with emissions and with an eye to the long term. The Commonwealth committed to a net zero emissions future through the Paris Agreement and all States have now targeted 2050 for that goal. Uncertainty about timing and mechanisms is hamstringing electricity investment and planning. For instance, Tasmania's Battery of the Nation hinges on substantial retirement of mainland coal – with enough warning to be ready. We need a durable, scalable and technology neutral mechanism to value electricity sector emissions or abatement over the long term transition to net zero. And we need to acknowledge the reality of closures to anticipate and manage their impacts on the electricity system, communities, supply chains and employees.

None of this is simple. But the alternative is disappointment and decline. We have the tools to do so much more.