

Technological change and the move to renewable energy is creating a series of challenges to the electricity sector in Australia. Here are three of them.

Managing the generation transition

In November this year, the UK [faced a power crunch](#) . The lights were kept on. Just.

The problem is that the UK gets most of its power from ageing coal-fired generators. These generators are becoming increasingly unreliable.

Renewable energy sources have taken up part of the slack but they cannot be ‘ramped up’ at short notice if the coal plants stop producing. Gas fired plants can be quickly brought into use. But these plants are expensive and are [not economic to build](#) if they are just used when coal plants fail the system.

In contrast, diesel generation is cheap and can quickly start up if needed. It is becoming the ‘[back up power of choice](#)’ . But it is also the worst polluter.

So the transition to cleaner fuel in the long term in the UK may lead to more polluting power being used in the short term.

Ooooooppppps.

The UK is not alone. We face exactly the same types of problem here in Australia. How do we provide cheap, reliable, base load generation and flexible generation to deal with peak loads as we transition from current energy sources based on coal to cleaner sources in the future?

Pricing of networks and the death spiral

Three of many: problems for the evolving electricity industry in Australia

Written by The Conversation

The NSW government just sold its main electricity transmission business. [It got a good price.](#) . This is a problem.

The transmission networks face a regulatory death spiral. Local generation (such as roof top solar) and battery storage reduces the amount of power being transported on the transmission network. But regulators set the revenues for the networks by dividing their 'regulated asset base' (RAB) by the volume of power. So as demand drops, the price rises. This pushes more people towards local solutions to avoid network charges, lowering volumes further and creating a vicious cycle.

We know how to start to fix this problem. [Change the prices](#) . The transmission network is a big asset with a fixed capacity. The efficient prices set a fixed fee for most consumers, with an extra charge for power used at the peak.

[Western Australia is starting to move in this direction](#)

and the rest of Australia needs to follow. While people who have invested in roof-top solar to lower their power bills will be upset, the alternative is to make our network prices look like Australia Post - falling demand, higher prices, more falling demand, more higher prices,

Pricing alone cannot fix the issue long term. Local generation and storage may mean that there is less need for long distance transmission in the future. If that happens then the transmission networks will face more competition and have less value. Governments will either have to continue regulation, but with a much reduced RAB, or deregulate and allow competition between local and long distance sources of power to determine network prices.

So why is the Transgrid price a problem? [As the SMH notes](#) :

"Stripping out the stamp duty and the non-regulated businesses, indicates the winning consortium paid around 1.55 times the regulated asset base for Transgrid."

Good news in the short term for NSW taxpayers. But a worrying long term signal.

If network regulation is effective then the assets should be worth about the same as the RAB.

Ratios of 0.8 to 1.2 times the RAB are common. But 1.5 times the RAB?

It appears that the buyers are betting that the New South Wales government will not address the long term viability of the transmission network anytime soon. And they must believe that the Australian Energy Regulator is being (and will continue to be) very generous (i.e. consumers are paying too much).

Or they just paid too much!

Smart pricing and products for consumers

The electricity market is unusual. For most consumers the retail price they pay for power is disconnected from the wholesale price. On a hot summer's day, the wholesale price of power in eastern Australia can soar to [above \\$12 per kWh](#) . Consumers pay 'averaged' prices and never see these peaks. So they have little incentive to conserve power at times of peak demand.

However, the whole system is geared to meet these peaks and avoid blackouts on hot summer days. Because consumers have no incentive to conserve power when the wholesale price is high, we have to build bigger networks and more power stations.

The solution is to allow consumers to both see the high prices and to respond to those prices. Smart meters were meant to do this. They would allow retailers to design products to save consumers money while managing peak loads. But [Victoria bungled its smart meter roll out](#) and other states are lagging behind.

The annoying thing here is that smart meters can be driven by retailers and consumers so long as the market rules allow them. While there is progress in this area, it is slow.

We need a debate

These are only three of the problems. There are a range of others. These problems will only be solved by governments, regulators, relevant businesses and the public engaging in robust debate. But, with a few exceptions, such as the work of the [Grattan institute](#) and the moves by

Three of many: problems for the evolving electricity industry in Australia

Written by The Conversation

Synergy in WA, there seems to be little debate or action.

Disclosure

Stephen King is a member of the Economic Regulation Authority of WA. The views in this article are (as always) his own, and not those of the Authority.

Read more <http://theconversation.com/three-of-many-problems-for-the-evolving-electricity-industry-in-australia-51647>