THE CONVERSATION

6 May 2011, 6.53am AEST

What's really pushing up the price of power?

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Household electricity bills are rising and about half of a typical bill goes to paying network costs. Are we paying too much for network infrastructure?

Is paying for power lines pushing up bills? AAP

Electricity networks are undeniably important. They allow electricity to flow from power stations to electrical equipment in homes, shops, offices and factories. But it may be time to look at their cost.

Costs are rising

The Final Report of the NSW Electricity Network and Prices Inquiry (December 2010) states that costs associated with building and operating distribution networks presently are responsible for about 40% of the typical NSW residential electricity bill.

Transmission costs are responsible for about 8%. The report also states that the distribution-related bill fraction is expected to rise to 44% by 2012/3.

Transforming the Electricity Sector, Garnaut Update Paper 8 states "…weaknesses in the regulatory framework have led to over-investment in networks and unnecessarily high prices for consumers".

But is regulation really to blame? Or is it as much about the way we use power?

Pointing the finger at power-use peaks

Improving the regulatory framework would help – particularly to remove perverse incentives to overstate costs and appeal the regulator's decision - but other factors are also important.

These include concerns about climate change impacts from the combustion of fossil fuels in power stations and social reliance on electricity to the extent that it is regarded as an "essential service".

There are also lifestyle and technology changes that increase electricity use in homes, offices and industry.

For example, growing use of air-conditioning in Australian homes drives up summer peak demand, which in turn drives network investment.

There may well be room to improve cost-effectiveness in network operation and investment as Garnaut suggests but network cost increases flow predominantly from these trends.

Reworking the grid: a smart solution

Internationally and in Australia, one response has been to promote the concept of a "smart grid".

Smart grids use advanced measurement, communication and control techniques to coordinate operation and investment decisions. Electricity generators, network service providers and electricity consumers work together to improve power delivery.

The Smart Grid Australia Consortium reports various initiatives that are underway. These include the federal government's Smart Grid Smart City project.

The trend is towards complexity (Flickr/Marcel Oosterwijk)

Things will only get more complicated

While the future is uncertain, one clear trend is towards even greater complexity and rapidity of change in an already complex industry.

The electricity industry operates by means of a complex technological system that involves industry participants, regulators, government policy makers and the designers, manufacturers and retailers of electrical equipment and buildings.

Achieving coherent, sound decision-making and successful innovation can be very difficult.

One difficulty is that unintended consequences may only emerge after long periods of time. We are still coming to grips with the effect of air conditioning on network costs, the climate change impacts of fossil fuel combustion and current problems with Japan's Fukushima nuclear power station.

So how do we reform the system to improve decision making and reduce costs to the consumer?

The Australian Energy Market Commission recommends three ways forward:

investing in generation capacity to secure supply and to meet peak demand

expanding consumer choices

funding the network to help minimise the costs of transmission and generation.

These priorities are important but they are not sufficient.

There is no specific mention of distribution networks, nor is it clear that these priorities address the complexity of the electricity industry. This complexity constrains options and creates inter-dependencies between them.

There are no simple answers – priorities must be set and trade-offs made – but who should do that?

Solving this problem needs community input

The Commission rightly points out that this review has implications for the whole community but it is not clear how it intends to draw the community into this important conversation.

Will the outcomes merely reflect the preferences of influential industry participants?

Will the community "take ownership" of the outcomes or will we see never-ending divisive political argument as seems to be the case with climate change policy and also electricity restructuring in New South Wales?

If we want cheaper power bills and more sensible investment in future, the community will have to be involved.

What factors do you think are pushing up the price of power? How could the community be more involved in restructuring the way we get our electricity?