

Not Just a Carbon Hit on Electricity Prices

Port Jackson Partners

NOT JUST A CARBON HIT ON ELECTRICITY PRICES

Many factors will drive a doubling of electricity prices in many states by 2015. This will have a major impact on virtually all businesses.

*By Edwin O'Young**

While there is much talk of how emissions trading will increase electricity prices, a carbon price is only one of several significant factors driving electricity prices higher – gas prices are also rising, coal prices are rising, investment in network infrastructure is increasing, and the expanded renewable energy target will require more expensive generation.

There has also been much talk of how the emissions trading scheme will impact large emitters such as the steel and cement industries – there is, however, also an untold story of how normal businesses with even modest electricity usage will be dramatically impacted.

A recent study by Port Jackson Partners considered the impact of all the changes occurring in the electricity industry on typical electricity prices. The results are startling – electricity costs for businesses in some states could double by 2015, and margins for a typical company (even one with modest electricity consumption, such as a retailer) could decrease by 10%.

Australia has enjoyed some of the lowest and most stable energy prices in the OECD. This is about to change, and a collision of discontinuities will create opportunities for the agile and threats for the less nimble. This will have a major impact on companies even with a modest level of electricity consumption, and will have significant implications for electricity suppliers and for governments.

Unfavourable underlying structural dynamics of the electricity industry

Exhibit 1 provides an overview of the unfavourable structural dynamics in the electricity industry across the four components of the value chain and the potential impact each component will have on retail electricity prices. Each of the four elements is discussed below.

Wholesale electricity costs could double by 2015

The underlying wholesale energy cost, currently ~\$45/MWh, represents around 45% of the typical electricity bill faced by most businesses. This cost is likely to experience a significant increase and could double over the next 5 years (see Exhibit 2).

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Exhibit 1

INCREASE IN RETAIL ELECTRICITY PRICES

Cents/kWh

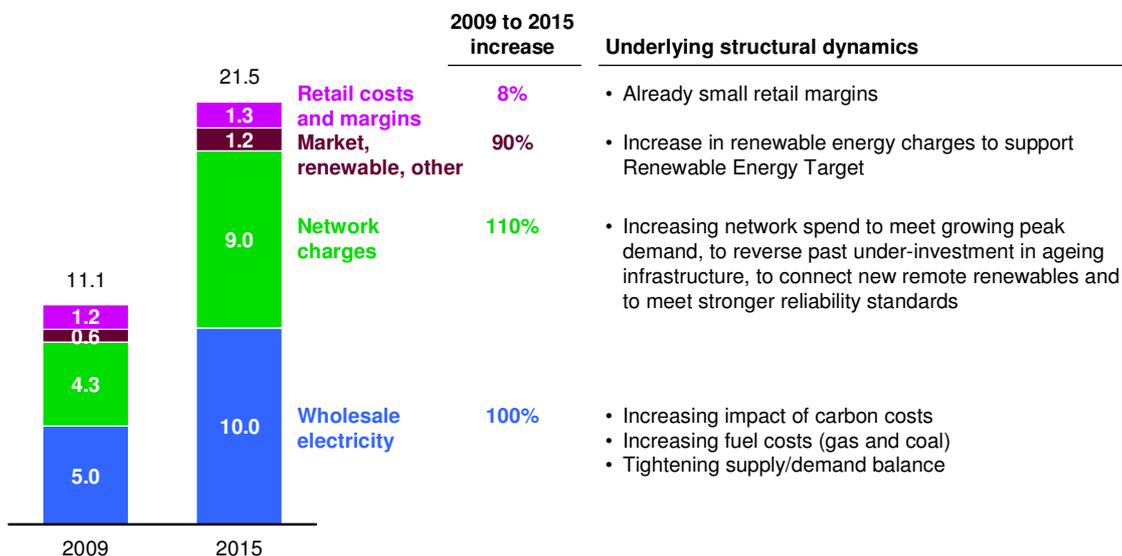
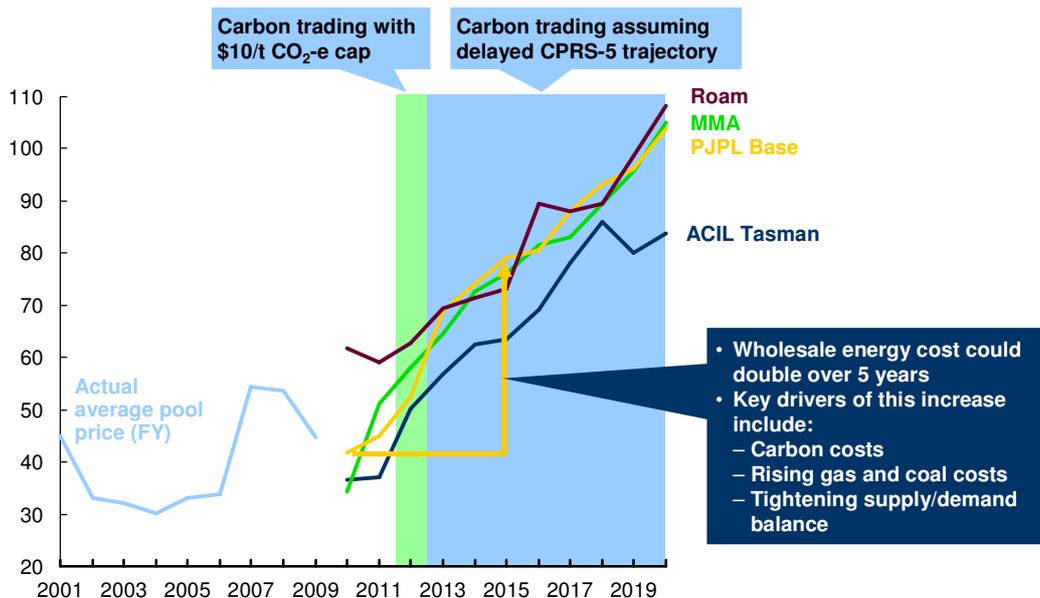


Exhibit 2

POTENTIAL FUTURE WHOLESALE ELECTRICITY PRICES

Nominal \$/MWh (flat prices), fiscal years



Source: ACIL Tasman, MMA, Roam Consulting, PJPL analysis

The increase in wholesale energy costs is driven by a number of factors.

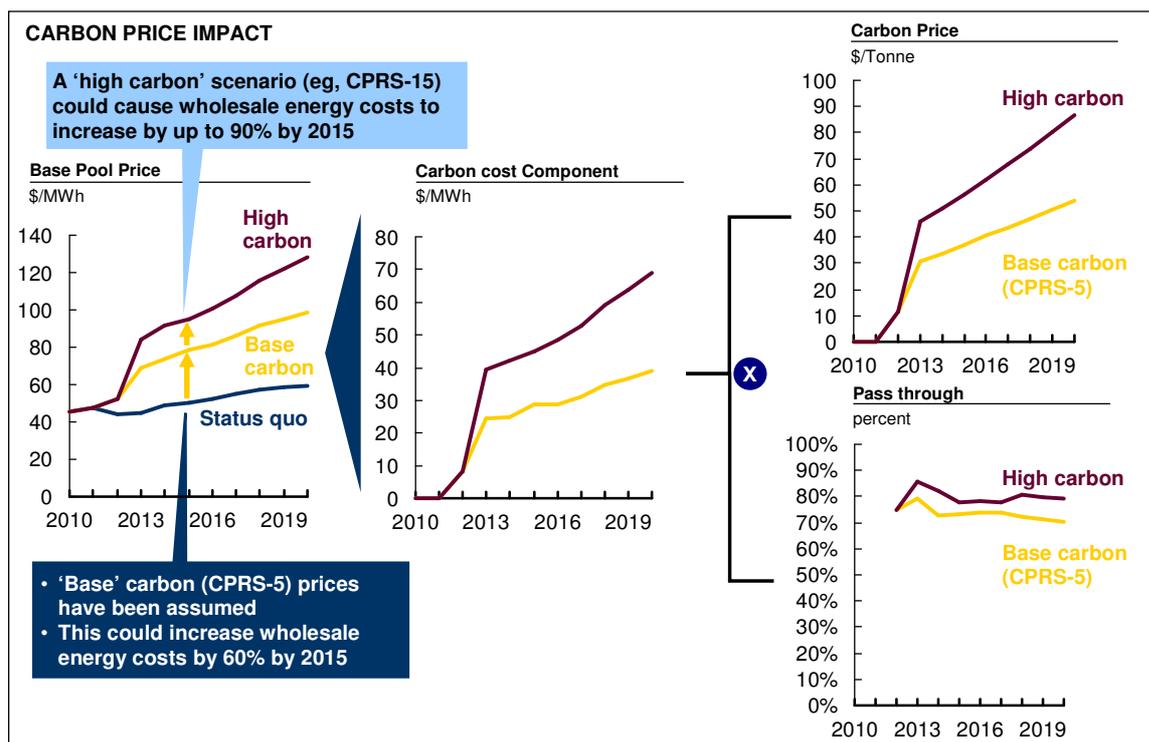
First and most significant, the emissions trading scheme, if introduced from FY2012 will put a price on carbon. Exhibit 3 shows that wholesale electricity prices could increase by ~60%, or ~\$29/MWh under the Federal Government's CPRS-5 scenario with a nominal carbon price of \$37/t CO₂-e in 2015. Power generation from coal is essentially a process that burns carbon to produce electricity and carbon dioxide. The impact of a carbon price on electricity generation is therefore the most significant of all industries, as its emissions intensity per dollar of output is the highest.

Second, gas prices will rise in eastern Australia to reflect world export parity levels as export LNG facilities are developed in Queensland. To date, eastern Australian gas prices have been kept relatively low with the lack of any linkage to world markets and with low-cost coal resources as a competitor. This will change with the development of LNG facilities in Queensland expected around 2014 and the depletion of gas reserves in south-eastern Australia. LNG facilities have the potential to increase the demand for gas in eastern Australia by at least 50%. Market gas prices in eastern Australia could increase by at least 25% by 2015 and increase the cost of new gas entrants by at least 15%.

Third, coal prices will also likely rise as world demand for coal recovers and as domestic rail and port constraints are overcome.

Fourth, further upward pressure on wholesale electricity prices will result from a tightening supply/demand balance as generators must hold back from making large commitments, given the uncertain investment environment. The ability for generation investment to keep pace with rising demand is more uncertain than ever before. Uncertainties in the carbon scheme are making both coal and gas investments difficult, there is difficulty in securing gas for power generation, particularly in Queensland given the potential Gladstone LNG projects, and there is difficulty in gaining funding in the current financial crisis.

Exhibit 3



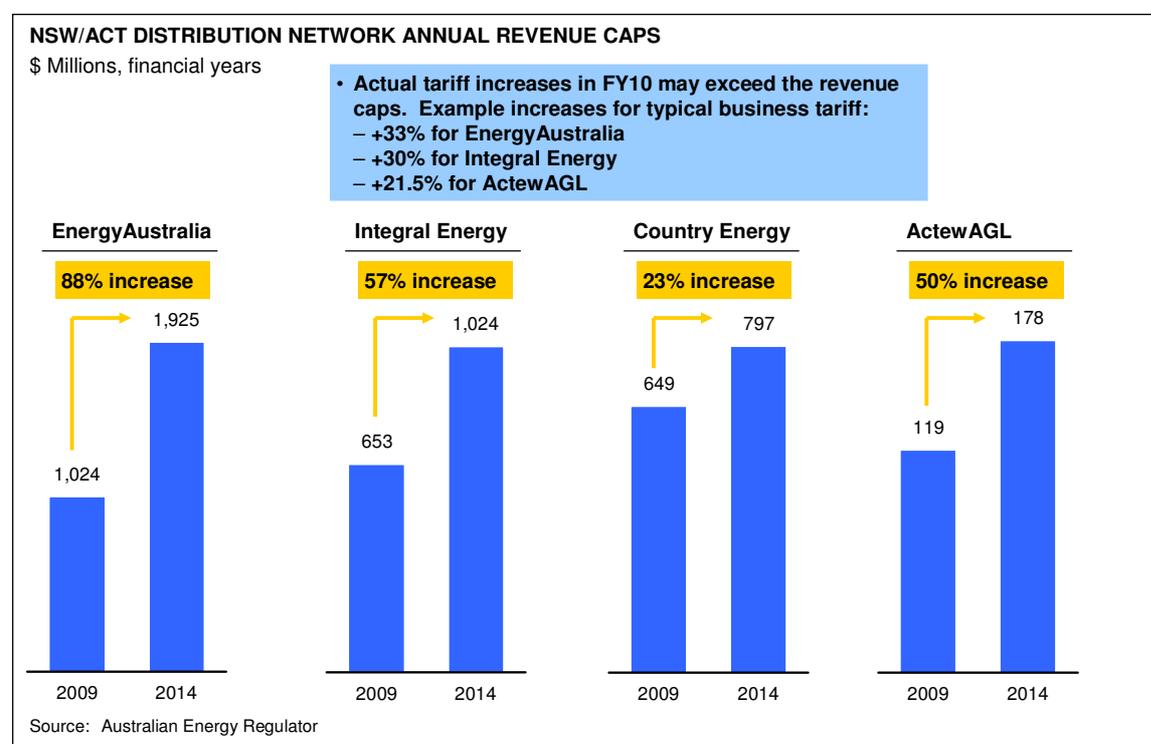
Network charges could double by 2015

Current network charges can cost ~\$40/MWh, or around 40% of the typical electricity bill. This cost could double by 2015.

Recent regulatory determinations in NSW and ACT have approved an 80% increase in capital investment in the NSW electricity distribution networks through to 2014 and an increase in the allowable revenue caps of up to 88% (see Exhibit 4) (the regulatory determinations for the other states over the next 18 months will likely see Queensland and Western Australia, at least, with similar increases). This investment reflects the rising peak demand on the network caused by the increasing use of air conditioners and the continued growth of the network, as well as the need to replace and upgrade ageing infrastructure.

In addition, there will be significant transmission costs required to connect new remote renewable technologies such as wind and geothermal.

Exhibit 4



Renewable energy charges could increase by over three times by 2015

The renewable energy charge faced by retail customers is currently ~\$1.75/MWh. While only a relatively small portion of the typical electricity bill (less than 2%), this charge is likely to increase by at least three-fold to over \$6/MWh by 2015 given the difficulty in meeting the Federal Government's 20% renewable energy target and the resulting increase in the price of Renewable Energy Certificates.

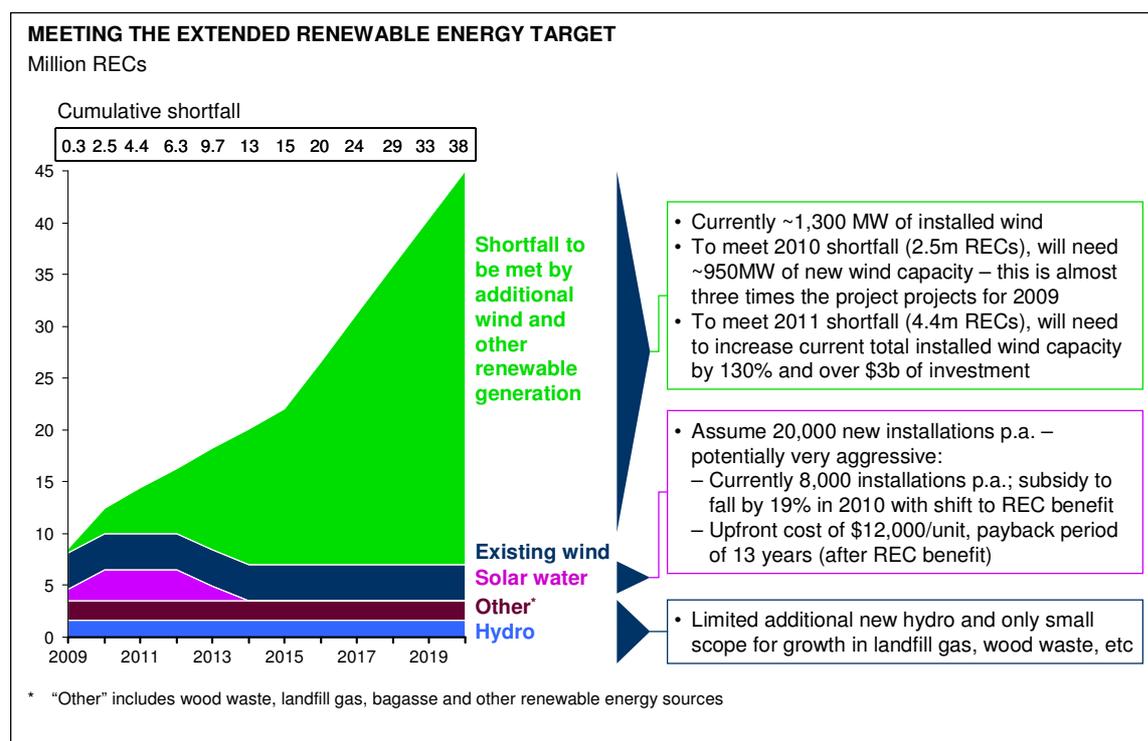
The Government has recently announced that the Renewable Energy Target is to increase from 9,500GWh to 22,000GWh in 2015 and 45,000GWh in 2020. The shortfall charge is to increase from \$57/MWh to \$93/MWh (pre-tax). Under the RET scheme, electricity retailers are required to purchase Renewable Energy Certificates (RECs) equivalent to their share of the target with the cost passed through to their retail customers. The REC price, currently

trading at around \$50/MWh, is determined by the supply and demand for renewable generation, subject to the legislated shortfall charge.

The REC price is likely to increase significantly given the difficulties in meeting the expanded renewable energy target, particularly in the early years of the extended scheme (see Exhibit 5). Many renewable energy technologies are not yet commercially viable. For example, solar thermal and solar photovoltaic technologies have long-run costs of over \$200/MWh, geothermal technologies are not yet available in Australia on a commercial scale, and there is likely to be only limited volumes of additional biomass generation available. There may be some additional RECs from small solar hot water installations, although this is unlikely to fill the shortfall in the near-term.

The most likely technology available to meet the gap, at least in the next five years, is wind generation. There is currently around 1,300MW of wind capacity in Australia generating ~3,500GWh of electricity. This will need to increase at least four-fold by 2015 to meet the Renewable Energy Target. Wind energy has numerous barriers, including the physical ability to install this enormous capacity, the transmission investment requirements to connect wind energy to the network, overcoming local community environmental concerns, continuing to find sites that are sufficiently windy, and the ability to install sufficient gas peaking generation to cover the non-firm nature of wind generation.

Exhibit 5



There is limited scope to reduce retail margins

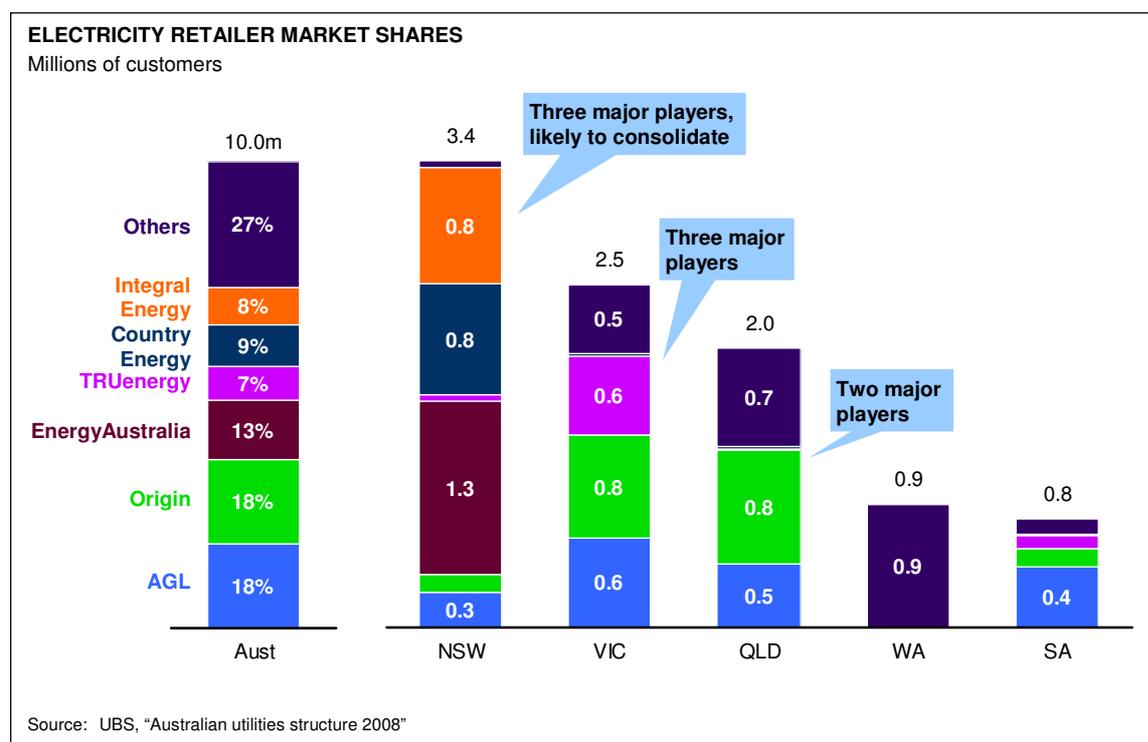
The remaining components, comprising around 10% of the electricity bill, are retail costs and retail margins. Retail margins are relatively small, at around 5%. The electricity retail industry also remains relatively concentrated despite significant deregulation in the last two decades. Exhibit 5 shows that there are only 2-3 major electricity retailers in the eastern states:

- AGL and Origin in Queensland
- AGL, Origin, and TRUenergy in Victoria
- EnergyAustralia, Integral Energy, Country Energy and AGL in NSW

Further consolidation is likely with the NSW Government seeking to sell its retailers. It is likely that the 'end-game' will see only three main electricity players in eastern Australia.

There is unlikely to be significant scope for retail margins to reduce, given they are already relatively small.

Exhibit 6



Implications for electricity suppliers

For electricity suppliers, the potential doubling of electricity prices comes with increasing costs for wholesale energy and renewable energy. The increase in retail prices will also drive household and business consumers to become much more aware of their electricity consumption and its cost, and cause them to modify their behaviour and to seek more attractive value propositions from their retailers. There are consequently significant opportunities for electricity suppliers to build a competitive advantage with the right wholesale and retail business models and the right fuel sources, such as a portfolio of low-cost gas and a wide array of renewable generation options.

Implications for governments

For governments, there is the potential for higher electricity prices to drive electricity intensive businesses offshore as Australia's underlying competitive advantage in low cost electricity erodes. There is also a need to educate both regulators and consumers of the impending price increases.

Implications for typical business electricity consumers

For virtually all business electricity users, the impact of a potential doubling in electricity prices is startling and mostly unexpected. Even in industries that are not considered energy intensive, the impact on profits can be large. Take, for instance, a typical retailing business with profit margins of around 7%, and where electricity is only 0.7% of total costs. A doubling of electricity costs could see profits fall by 10% assuming no mitigation or pass-through. Across the \$240 billion retail industry, this cost increase could be worth ~\$1.8 billion.

Such a cost increase has a number of important implications for most businesses.

First, it can be difficult to plan and budget for such increases. There can be unexpected increases in energy rates when market contracts are renewed, and there can be unexpected annual increases in network rates and renewable charges. It is important that companies understand the potential impacts on their business.

Second and more importantly, the increasing cost of electricity raises the payback from energy efficiency measures and can make such strategies a significant source of advantage versus less nimble competitors. Examples of such initiatives in traditional non-industrial environments include reducing consumption with more efficient lighting and motion sensors/timers, investment in more efficient heating/cooling systems, more intelligent systems to smooth out the load profile and to avoid large spikes in usage, and the installation of more efficient insulation. Various forms of distributed generation such as gas will also become economic. Investment to increase energy efficiency in industrial processes will also become increasingly economic, and co-generation processes will become increasingly attractive.

The increasing electricity price will also drive substitution between various industrial processes. Businesses which do not proactively shift to the most appropriate processes given the significant increase in electricity prices will lose to those that can see and pre-empt the trends.

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The potential doubling of retail electricity prices by 2015 has major implications for leaders in governments and virtually all businesses. But in particular, senior management in companies with even modest consumption will need a much greater focus on understanding the trends and taking proactive action, to ensure that their companies are not disadvantaged by Australia's transition to a higher energy cost economy.