The Pricing Review

Preamble

Thank you for the opportunity to contribute to a very important topic for the electricity sector.

The cost of distribution augmentation has been overlooked by our industry, as it is potentially 5 times higher than the transmission costs that are so often complained about.
We are expecting significant electrification in homes and businesses. Poorly managed load growth could be disastrous to network augmentation costs. Luckily, many of the new loads expected to connect have some degree of flexibility. It is important we tell customers ahead of time how best to manage their new loads, and the way we do this is through network tariff reform.
The prize for getting this correct is higher utilisation of the network, modest augmentations, and much lower total energy costs for households and businesses.

Transmission

The review should at least refer to transmission tariffs in comparison to distribution tariffs. There are customers who straddle both and harmonisation has benefits (or the lack of harmonisation can cause inefficiencies). For example, we would not want a new load to try and connect to transmission because of tariff differences, when it would be cheaper and more efficient to connect to the distribution network.
TNSPs have different approaches to cost recovery, some of which can inform DNSP tariffs.
This submission will explore the inefficiency of energy-based tariffs in networks. If this issue is rectified for distribution, but not transmission it is only solving five-sixths of the problem.

What do networks provide?

Networks don't provide energy. They provide access to power.capacity.

Therefore, network tariffs should not contain any energy component. This gives retailers the maximum flexibility to design energy tariffs and makes network tariffs cost reflective.

Energy-based network tariffs confuse customers who see they are paid much less for solar exports, than what they pay for imports. Many customers believe that daily charges are how they pay for networks and do not have visibility of the energy based network tariffs.

Time-of-use tariffs do not in any way solve the issues with energy-based network tariffs. Experience has shown minimal improvements to peak demand with TOU. The cost of running at the coincident peak demand is very low compared to the marginal cost of delivery, so customers still have high demand at the wrong time, and gain benefits from avoiding peaks when it doesn't matter.

Networks must cost recover accurately, and this is given greater importance than incentive optimisation.

Most of the cost of networks is in old assets. But we also want to discourage behaviour that would lead to new asset investment if it can be avoided.

Many new network tariffs have included demand charges. This is a useful metric when we look at avoiding augmentation, but in most cases the demand charges do not avoid any augmentation. For network zones not close to reaching peak capacity, recovering cost through demand charges does not drive any efficiency. For these areas costs should predominantly be recovered through fixed charges.

On the other hand, zones which are expected to breach their peak capacity should have cost recovery weighted towards peak demand charges in order to incentivise peak demand reduction.

Note that anytime, or maximum demand charges are totally inefficient and should never be used. Likewise, monthly peak demand charges tell the customer little about what is expected of them and leads to highly volatile bills and disgruntled customers. Monthly peaks do not represent long term capacity needs.

“Subscription model”

Combining fixed charges and peak demand charges into a subscription model gives the ability for stable predictable cashflows (for customer and NSP), and the ability to move incentives if needed. This would take the form of a fixed charge for a certain capacity, e.g. $1500 p.a. for the subscription, and $100/kW above X kW. The annual fee can be reduced and the free capacity as well for zones that need to avoid augmentation.
This model is widely used in telecommunications and is easy to understand for consumers. Minimum charges also exist in other services that are not capacity related in order to make sure everyone pays a fair share. For example, council rates on high rise apartments.

Electrification

Substantial demand growth is expected in the coming years due to electrification of transport and heat, for both households and businesses.

The incentive to electrify is currently suppressed by energy-based network tariffs which increase the marginal cost of electricity consumption. This discourages, for example, switching from gas to electricity, or from petrol to electricity.

Much of this new electricity demand can be flexible (notably EVs and thermal storage).

Electrification is both an opportunity and a threat to consumer energy costs. Unrestricted growth in peak demand would massively increase the need for network augmentation and could actually reduce network utilisation. On the other hand, with demand management it would increase network utilisation and lower aggregate energy costs.

For those who are already electrifying, energy based tariffs again do not encourage efficient behaviour and there have been several studies showing that EVs were adding to peak demand.

Impact.on.rooftop.solar.

The immediate impacts of removing energy-based network tariffs would be a detriment to the business case of rooftop solar. These network "savings" have been a mirage and the electricity industry will need to explain that rooftop solar did not replace historical investments in network capacity.

However, with these flexible new loads, rooftop solar provides an effective increase in local network capacity. This is indeed a viable alternative to network augmentation.

An additional benefit of rooftop solar as a substitute for network capacity is that the customer will have visibility of their own production, which is a proxy for spare network capacity. Their smart EV charger could work within their network limit, minus house load, plus solar production.

Sophisticated customers

Sophisticated customers are taking more responsibility in exchange for a reward.

- Could write longer term contracts with break fees. Just like large consumers do.
- Could be more exposed to peak prices, network or energy market.
- Could be expected to have reduced service under particular circumstances or have additional responsibilities.

Longer.contracts?.break.fees.™.the.»loyalty.tax‹ ¡

The prior ruling that customers could break contracts without penalty has led to the current situation of short term contracts and "loyalty taxes".

Retailers have no incentive to offer longer term contracts with sustained discounts because the contract can be broken when it is convenient to the customer. The incentives for retailers are to acquire customers with discounts, and then later make margins on customers who have not put in the effort to switch away.

A no break penalty contract is explicitly short term because there is no upside for the retailer in offering longer tenure. This structure is still attractive for most customers because it grants flexibility. However, to be able to mitigate the "loyalty taxes", loyalty has to be demonstrated to the retailers. That means sophisticated customers who want to lock in longer term discounts must also be able to waive their right to break the contract without penalty. A break penalty is a common clause for large scale customers.

Exposure.to.peaks

Already possible - customers willing to take the exposure can take on more risk in return for paying lower average prices.

Reduced.service.or.additional.responsibilities

Controlled loads are a good example of this. The flexible load is separately metered or sub-metered and given a preferential tariff with the window of operation being externally limited. This was historically very successful, but unfortunately controlled load tariffs have remained static when market conditions did not. With solar export tariffs multiple times cheaper than controlled load network tariffs, many customers have moved to controlling loads themselves.

The lesson again is that energy-based network tariffs do not work.

This is especially important for industrial decarbonisation. With my recent employer Rondo Energy, I witnessed business cases for thermal energy storage be destroyed by legacy network tariff designs. Wholesale electricity can beat industrial gas prices, but only for short periods of time, so storage is necessary to economically decarbonise industrial heat. However, if the network tariff has a substantial energy-based component it can be more expensive than gas by itself.

Good examples are out there, for instance Powercor's proposed Flexible Load Tariff. This tariff has effectively a large, fixed charge (for access), and zero energy charges outside of peaks. This is a good structure because the effective cost of charging thermal storage from the grid is low, but it still contributes to networks, without contributing to network costs.

Flexible loads such as EVs or thermal storage should be allowed to pay less than other customers if they are using latent network capacity and not driving any augmentation (or paying for it themselves). The other customers benefit if these flexible loads pay even $1 into the pool of network fees.

The charges for flexible loads should primarily be made up of fixed charges, which must still be low on an effective $/MWh basis. The actual energy-based network tariff should be zero, there is no marginal cost to having a load run during offpeak, besides the wholesale costs. The peak demand charges should be punitive – we expect these loads to be using spare capacity and not adding to peak demand at a later date.

Additional responsibilities such loads can take are:

- Interruptibility – disconnection without notice in emergencies such as voltage issues or loss of network elements. N-0 reliability could be acceptable.
- Voltage control – trimming consumption to improve conditions in the local area.
- Dynamic Operating Envelopes, or Constraints – running under externally provided limits.

Regular consumer load is non-discretionary and not able to meet such requirements. This justifies much lower tariffs for sophisticated loads.

Choice is overrated

Preservation of legacy, energy-based network tariffs is of no value just because people are familiar with them. Having a multitude of possible tariffs encourages exploitation by customers to the detriment of other customers.

For example, someone with a holiday home could choose an energy-based tariff and avoid paying for the infrastructure that connects their asset, simply because their imports from the wholesale market are small. The cost of network infrastructure to provide them access is equal to other households.

The bookends concept from the AEMC is a good one, but this should not allow for too many possible network tariffs which will add to confusion and not solve fair attribution of cost.

The basic tariff concept should be the subscription model as mentioned previously. It is up to the retailer to propose something more sophisticated than that in terms of wholesale energy, and the subscription model does not restrict them from offering control load, EV windows, or TOU as suggested in the middle zone of the spectrum.
The other bookend can be a very different tariff design for the sophisticated load, but this explicitly comes with greater responsibility.

Communication is lacking

As an industry we have not properly communicated the drivers of bill cost and how that is converted into a tariff design. Customers have been bamboozled by demand charges or TOU when forced to take them, and without having any education about what they mean for them and society, and without training on how to manage their costs.

An important outcome of this process must be education for the customers.

Please feel free to contact me about this submission.

Kind regards,

Tom Geiser