Energy Metrics Consulting

IPART NSW - Draft Report – Embedded Networks

The future of embedded networks in NSW

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1. Overview

The Independent Pricing and Regulatory Tribunal of NSW is conducting a review into embedded networks in NSW, as announced on 15th June, 2023.

IPART is responding to concern from the NSW Government about a lack of consumer protections and pricing controls supporting residential embedded energy networks, and whether or not banning embedded thermal energy networks is appropriate.

Energy Metrics Consulting believes that embedded energy products, including thermal and sustainability focused systems, have the potential to benefit all parties involved when implemented effectively.

Embedded energy supply agreements can support lowering construction and development costs, reducing annual energy costs to residents, facilitate the implementation of renewable energy and environmentally friendly technologies, and increase the buying power of energy retailers. When effectively implemented, these benefits can be equally balanced between all stakeholders.

Currently, the lack of regulatory oversight or framework permits the potential for embedded energy agreements to assign benefits disproportionally amongst the parties involved, which in those circumstances, can lead to higher or non-competitive tariffs for end users.

The draft report from IPART, in our view, represents one of the best efforts to regulate the embedded network industry's pricing mechanisms, both in NSW and nationally. We expect that with revisions to some of the methodologies, particularly in regard to thermal energy supplies, and continual assessment of the methodologies both pre and post implementation, IPART will achieve the intended outcomes of the review.

2. Energy Metrics Consulting's Role in Embedded Networks

Energy Metrics Consulting is an energy consulting firm that was established in 2019 to offer expert commercial and technical advice and support for embedded energy networks. We are engaged by developers, builders, building committees and strata managers to assist with all matters relating to embedded networks. While we currently offer a range of energy related services to the market, our core business is still assisting with the establishment and implementation of embedded networks.

We routinely conduct supply tenders, feasibility studies, agreement reviews, tariff benchmarking, technical analysis and supplier change overs on behalf of our clients.

It is our view, that all potential customers of embedded networks, from establishment to operation, should have access to unbiased, specialist and expert knowledge and advice to make informed decisions regarding their embedded network agreements and systems.

3. Seeking Comment – Energy Metrics Consulting's Submission

The below paragraphs from Energy Metrics Consulting are to address the areas the draft report specifically requested commentary from industry.

A. Are embedded network sellers currently using time-of-use tariffs, demand tariffs, or any other innovative tariff designs?

In our experience, embedded networks applied to residential dwellings will utilise flat rate tariffs exclusively.

While we understand time-of-use (TOU) tariffs could work within embedded networks, we at Energy Metrics Consulting have not seen these applied to residential dwellings or retail tenancies.

We have encountered numerous examples of large market style tariffs (unbundled, time-of-use and demand charges) being applied to common property accounts in embedded networks. This is often done under the phrasing of a "passthrough" tariff, where the Embedded Network Operator (ENO) claims to charge the common property at the same arrangement and rates as the gate meter. Energy Metrics Consulting will generally discourage "passthrough" tariffs for common property (when offered in a tender process) as by nature, their actual costs are not known, and are only estimates until the ENO takes control of the gate meter (in our experience, a quoted flat tariff for common property will be significantly more definitive than a pass-through offer, when assessed from initial proposal compared to actual charges post implementation).

Regarding innovative tariff designs, we have negotiated offers that have included a "solar rate", a reduced consumption tariff during the daylight hours, where an ENO has provided PV solar generation that is connected between the gate meter and billing meters (i.e. solar generation benefits only the ENO, not the residents or common property.

As an example of the flexibility that embedded networks provide, Energy Metrics Consulting recently worked on a commercial project that contained a number of powered storage units. Multiple ENOs offered a specialised tariff for the storage units (reduced fixed and consumption charges) as these units would likely be very low consumption. If that site were to install on-market (NEM connected) meters, those accounts would likely be offered typical residential tariffs that are far less appropriate.

B. How are embedded network sellers charging for electric vehicle charging at the site? What are the prices?

With some notable exceptions, the majority of ENOs will offer funding for EV Chargers, but leave the operation, maintenance and billing of the chargers to a 3rd party EV charging operator. It is our view that this is the ideal scenario, as 3rd party operator will have fixed charges for operation, maintenance and billing, and negotiate the EV charging tariff with the building (Owners Corporation, Strata, Stratum or Building Management Committee) based on their fixed charges and the building's supply tariff (whether from an embedded supply or not).

When an energy retailer maintains control and price setting authority of EV charging infrastructure, particularly in an embedded network, it presents a risk to the owners of electric vehicles in the building. This is because, as noted in the October 2013 *"Regulation of alternative energy sellers under the National Energy Retail Law: Issues Paper*" published by the Australian Energy Regulator (AER) and various other sources, there is an acknowledgement that EV charging is not considered "energy sold for use at premises" as per s. 88 of the National Energy Retail Law (NERL). This means that EV charging tariffs fall outside of the NERL and the typical price protections afforded to energy sold for use at premises.

To date, Energy Metrics Consulting has only seen ENOs offer EV charging tariffs at or equal to their residential tariff offered to the building (or similar reasonable EV charging tariff setting mechanism). We still would note that this arrangement presents a risk to the consumers in the broader embedded network industry, and whether be design or incidentally, could allow for significant price gouging by ENOs of a captive audience.

C. Would a complaints-based compliance system deliver the right level of consumer protection?

Yes, but only if significant enforcement penalties are levied for non-compliance.

We feel that a complaints-based compliance system is the only one feasible for the compliance management of new and existing embedded networks, as alternative systems would place undue requirements on either the regulator, the ENOs, or both.

We note, however, that a typical capital investment from an ENO can be upwards of $1,000 per customer, and that the ENOs return on investment can be achieved in under 5 years (in certain circumstances). With this in mind, if enforcement penalties are not significant, then ENOs would not be incentivised to maintain compliance.

D. Should embedded networks using gas hot water systems be prohibited in new developments to assist in addressing cost of living pressures and assist in the NSW Government meeting its net-zero policy?

No. Energy Metrics Consulting sees no evidence that a ban of gas hot water systems in new developments will reduce or positively affect current cost of living pressures.

Regarding assisting the NSW Government's net zero policy, a ban of gas connections and usage in general (not just embedded hot water systems) to new developments (both residential, commercial and mixed use) may have a positive impact, but could also create an obstacle for future innovations in the renewable gas sector (i.e. hydrogen injection, renewably generated synthetic gas, etc).

Energy Metrics Consulting would suggest that better sustainability and net-zero outcomes could be achieved by supporting and subsidising the currently underutilised capabilities of embedded networks, like grid-integration, energy and demand management, and high efficiency alternative heat sources (i.e. waste heat recovery, solar thermal, geo-thermal, etc).

4. Draft Report – Energy Metrics Consulting's General Commentary

A. Draft decisions

Energy Metrics Consulting agrees with the draft decisions noted in the report.

B. Maximum price methodology for electricity

Energy Metrics Consulting agrees with IPART's methodology in part. While the methodology selected differs from those used by us with our clients, we note that the draft examples sit approximately 2% lower than our own methods.

Energy Metrics Consulting's typical advice to a client is a reasonable embedded electricity tariff is 5 – 10% lower than our on-market benchmarks, and we have not encountered a situation where that was not achievable. Given IPART's methodology is above those expected embedded tariffs, we feel that IPART's electricity maximum price methodology is appropriate and achievable.

Our concern is with the definition of "active retailers". IPART notes that "*to only include retailers with more than 1000 customers … provides a safeguard against retailers setting up subsidiary retail operations intended to influence the price cap*". It is our view that defining active retailers as 1,000 customer or more does not provide that protection, and that consideration to raising the minimum customer number of an active retailer is required to meet that objective.

C. Maximum price methodology for hot water

It is the view of Energy Metrics Consulting that IPART's methodology for hot water, while broadly appropriate, requires the most revision to ensure it achieves the intended objective while supporting continued operation and innovation of embedded hot water systems.

Energy Metrics Consulting supports the methodology of "*Maximum hot water price (cents/L)* = *gas common factor (MJ/L)* × *benchmarked gas price (cents/MJ)*" and the selection of 0.4 as the gas common factor to be used.

We, however, disagree with IPARTs assessment of the gas declining block structure and how it is used to set the benchmarked gas price. At typical embedded customer consumption levels, most customers would equivalent gas consumption would be almost entirely within the first step or block of the gas tariff.

As per NSW gas retailer tariff structures (which align with the Jemena Gas Networks Access Arrangement) the first block of the tariff covers the first 20.71 MJ used per day (or 0.63 GL per month). At a common factor of 0.4 this equates to ~52 Litres per day. The second step covers usage from 20.71 – 41.1 MJ per day. This covers usage from ~52 – 103 Litres per day. Given average consumption of an embedded hot water customer generally falls between 60 – 90 Litres per day, a benchmarked gas price that considers more than the first two blocks of gas tariffs is not appropriate.

Energy Metrics Consulting would suggest that the benchmarked gas price should be calculated using a weighted average of the first two tariff blocks of the median of the lowest tariffs from active retailers. The weighting of the average should be skewed towards the first block to reflect the equivalent charges that a customer would be exposed to in an on-market situation. While as noted in our previous submission, this can result in a high volume (i.e. above average or excessive consumption) customer paying more than an equivalent gas consumer, we feel that in the interest of environmentally conscious behaviours, IPART should not introduce protections for a minority of those with excessive consumption.

We also do not agree with any consideration of controlled load electricity pricing in respect to hot water pricing, as almost all embedded hot water networks are utilised in medium and high density residential developments, where controlled load electricity is either not available, or not fit for purpose (as is the case with centralised systems).

D. Inefficient systems are likely the leading cause of high bills (hot water)

Section 5.2.1 of the draft report suggests that inefficient systems are the cause of high hot water bills in embedded networks.

While we agree that inefficient systems have caused high bills in traditional Jemena metered (on-market) centralised hot water systems, we do not see any evidence of this in embedded networks. This is largely due to volumetric (i.e. per litre) billing of hot water in embedded networks that does not inherently reconcile system fuel consumption with charged tariffs.

We suggest that high hot water bills in embedded networks are due to one or a combination of the following:

- Excessive consumption (due to either poor pipework design / installation or removal of water saving tapware)
- ENOs setting hot water prices based on gas standing offers rather than discounted gas tariffs.
- Meter and meter reading issues.

E. Additional charges in gas or hot water

In our discussions with IPART and industry stakeholders, a major point of confusion regarding the hot water maximum price methodology was the notes regarding the banning of additional charges (notably in section 5.3.4). While we agree with the banning of additional charges (like capital recovery charges), we feel that the report needs to directly call out and clarify what is permissible and what is not.

We understand that hot water accounts will still be permitted to charge a daily supply charge, and that unmetered gas charges (like the unmetered appliance charges currently used for gas cooktops of gas heating points) will also still be permitted. These points, however, were not easily understandable from a reading off the draft report. We suggest that the methodologies for price setting of these charges be included with the hot water methodology, and that clauses around the banning of additional charges refer back to that section as to what constitutes an additional charge.

5. Additional Comments

A. Finding 3, NSW Parliamentary Inquiry, Embedded Networks in New South Wales, 2022

Energy Metrics Consulting has noted IPART's use of *Finding 3, NSW Parliamentary Inquiry, Embedded Networks in New South Wales, 2022* in the draft report section 1.2 and 5.2. This refers to an alleged case involving a $9,700 hot water bill over a 14-month period, which has widely been repeated in various publications and media.

We suggest removal of this reference, as at best it is misleading, and at worst is a gross misrepresentation of the facts and context of that case. A bill of that magnitude over a 14-month period equates to a minimum consumption of over 1,000 Litres of hot water per day (whereas the draft report table 5.1 notes 104 Litres per day as an average, and our own review of empirical data shows averages even lower). The case is a clear example of excessive consumption and shows no evidence of unreasonable price gouging if assessed at typical consumption levels.

B. Execution of Embedded Contracts

In the draft report section 3.5.2 the report notes "*Contributions are provided in exchange for the establishment of a contract with the owners corporation that is then executed at the inaugural annual general meeting*". This is not correct.

All embedded network operators use their own variation of agreements, deeds, licenses and / or contracts. The similarity of all operators is that on a new development, a contractual commitment of some form will be entered into by the developer during design or construction, and that contractual commitment is not transferred or novated to the Owners Corporation until the First Annual General Meeting (FAGM), not the Inaugural General Meeting (IGM).

6. Summary

Energy Metrics Consulting believes the modern application of embedded energy networks has supported and has the potential to further support consumer cost reduction, property and utility infrastructure innovation and development, affordable housing, and sustainable development.

As it concerns utilities and essential services, the growth of this industry should be supported by policy and regulatory oversight to maintain consumer protections and support minimum operational standards to ensure the benefits of embedded networks are evenly distributed amongst the providers, developers, and consumers.

Energy Metrics Consulting acknowledges the efforts and progress made by IPART in their draft report, and we are hopeful that with the right revisions, IPART can produce a regulatory framework that will benefit all consumers, stakeholders and the embedded energy network industry.