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Submission by Evie Networks

To

The Economic Regulation Authority

In Response To

Revised Tariff Structures

Prepared by

Western Power and Synergy

Evie Networks was founded in 2017 by the St Baker Energy Innovation Fund with the aim of building Australia's largest Electric Vehicle fast and ultra-fast charging network across all Australian States and Territories as part of a strategy that recognised the need for, and societal benefits of, the electrification of the Australian Transport Sector and the associated need to address concerns about "Range Anxiety" with EVs. Evie therefore has a strong focus on building quality charging stations, located on sites that are convenient for customers and underpinned by the Evie team's relentless pursuit of reliability and customer satisfaction. Its initial rollout was on national highways and is now being expanded into major metropolitan areas and regional centres. Evie currently has over 85 sites in operation and expects to have over 200 sites by July 2023.

Evie Networks is backed by funding from the St Baker Energy Innovation Fund, which is accompanied by significant grants from the Australian Renewable Energy Agency (ARENA) and the Federal Government's Future Fuels Fund. Evie Networks has also been successful in being selected to help rollout EV charging sites under a number of State Government and Local Government EV infrastructure programs. This makes Evie Networks the most well-funded EV charging operator in Australia, providing confidence that it will continue to grow and support its network across all Australian States and Territories.

1 November, 2022

Introduction

Evie Networks (Evie) acknowledges the actions by both Western Power and Synergy to amend the original, and subsequent, tariff designs presented by Western Power in relation to their application to publicly available fast, and ultra fast, EV charging sites. These changes were designed to ameliorate the adverse impact of the relevant tariff structures on electricity costs for these public charging sites. However, as these tariff structures continue to contain Demand Charges, they continue to result in unnecessarily high electricity costs in the early stages of this infrastructure rollout.

It is particularly noted that in these early years of infrastructure rollout, the infrastructure is necessarily being built ahead of demand, with the availability of EV charging sites increasing the prospect of drivers taking a decision to purchase an EV as the availability of these sites reduces fears about Range Anxiety (ie, the fear of running out of "fuel") and gives confidence to people who would not be able to charge an EV at their residence (particularly people living in an apartment) that they will be able to charge their vehicles when driving them.

As set out in Evie's submissions to date, electricity tariffs that contain a Demand or Capacity Charge will necessarily result in high electricity costs in the early stages of the rollout of publicly available fast, and ultra fast, EV charging sites. As noted, this is because this critical infrastructure is necessarily being rolled out ahead of demand. As a result, the high Demand/Capacity Charge is amortised across a small number of users during the early years of the industry's operation.

Detailed analysis by Evie of the latest tariff structures put forward by Western Power and the amendments from Synergy continue to show high electricity cost levels compared with the price charged to customers. As highlighted, this is due to the imposition of Demand Charges.

In addition, the approach taken by Western Power in measuring "Utilisation" in its tariff proposals is flawed. During the period when EV uptake is growing, actual asset utilisation is typically half that measured by Western Power, and it can be as little as one quarter for very low utilisation. The impact of this flawed measurement approach is that it overstates real asset utilisation, and demand tariffs will be incurred much earlier than expected. This issue has been raised with Western Power on a number of occasions.

Evie maintains that any measurement of utilisation should be based on the industry standard "capacity factor", and notes that no jurisdiction in Australia uses the approach being presented by Western Power.

Evie cannot see any benefits in Western Power's proposed approach. It simply is not economical for Charge Point Operators, and is not cost reflective.

The combined impact of the latest tariffs presented by Western Power and its approach to Utilisation is that it will continue to make provision of affordable public fast charging difficult in WA because of the resultant high cost outcomes. It is noted that in its October 2022 AA5 EV Tariff Impact Analysis, Synergy continues to be critical of the adverse impacts of the latest tariff design.

The alternative presented by Synergy is designed to smooth the transitions proposed by Western Power, and we welcome the aim of Synergy to seek a better tariff design outcome. However, the alternative presented by Synergy would add high cost in the early stages of the rollout of publicly available fast, and ultra fast, EV charging sites. Additionally, it creates complexity.

Evie's analysis of the cost outcomes of the latest Western Power and Synergy proposals are set out in **Attachment 1**. The modelled results for standard DC fast charging and ultra-fast charging configurations are compared against the position for Tas Networks, which is provided as an example of a tariff that does not include Demand Charges.

The Tas Networks tariff results in substantially lower energy costs in the critical early years for development of the fledging EV charging infrastructure industry and, as a result, and is presented to illustrate how tariff designs can successfully promote EV charging uptake.

More generally, Evie continues to highlight that the tariff structures and tariff assignment policies applied by DNSPs, under which they seek to apply tariffs structures containing Demand or Capacity Charges in line with those for "traditional" small and medium businesses, fail to acknowledge the very different Load Profiles of publicly available fast, and ultra fast, EV charging sites. This position is set out in detail in **Attachment 2**.

Additionally, DNSPs do not recognise through their tariff arrangements the significant benefits EVs will deliver for the electricity grid (network benefits) over time; these benefits will accrue to the DNSPs and all electricity consumers, not just EV owners.

Evie particularly notes the following statement by the Energy Security Board in its October 2022 Interoperability Policy for Consultation Directions paper (pages 21-22; emphasis added):

> "Various studies have highlighted the value to customers of integrated approaches to embedded generation and demand management. ARENA has estimated that flexible demand can reduce new generation and storage costs by $8-18 billion. It found that, for example, rapid EV uptake substantially increases requirements for win, solar and utility-scale storage investment. However, more flexible EV charging can deliver savings to consumers between $3-5 billion, fully mitigating increases in electricity prices on a $/MWh basis. **This means that a rapid uptake of EVs, with effectively managed charging, can reduce costs for all customers, not just those with EVs.**"

CONCLUSION

Analysis by Evie of the new tariff structure for dedicated EV charging sites presented by Western Power and the alternative prepared by Synergy continues to demonstrate they would produce unduly high electricity cost outcomes. As a result, the revised tariff structures and pricing would not support the rollout of publicly available fast and ultra fast EV charging stations across the State and, thus, would be inconsistent with the ERA's final decision on the framework and approach for Western Power's fifth access arrangement review.

As set out in Evie's submission to the ERA on its Issues Paper: Proposed revisions to the access arrangement for the Western Power Network 2022/23-2026/7, if the Government wishes to see the development and growth of a commercially viable EV charging infrastructure industry in the State as part of a strategy to promote the take up of EVs and the ERA wishes to support the rollout of this infrastructure, it will be important that:

- The cost of an EV driver charging at a publicly available charging site is not out of line with the cost of charging at home. This is because such an outcome would create an incentive to charge at home versus a publicly available site. Such an outcome would have the perverse effect of increasing pressure on the grid at Peak Times in the afternoon, with EV drivers deliberately choosing to charge when they return home from work and, therefore, not taking advantage of using a charging site that they had easy access to during the day. This risk is perhaps higher in WA than in other States as there is a far higher level of separate houses in the State (at 79.7% according to the 2021 Census) versus the national figure of 70%.
- EV owners that do not have access to on-site charging (eg, people living in apartments or without a garage) are not disadvantaged relative to an EV owner that can charge at home. This is an important equity issue.

Evie therefore submits, based on our latest assessment of Western Power's proposed new tariff structure and our original submission on the ERA Issues Paper, that the ERA should reject Western Power's revised proposed tariffs for dedicated EV charging sites on the grounds that it would not support the rollout of publicly available EV charging stations across the State and believes that the ERA should, instead:

- Require Western Power to set the tariff for publicly available fast and ultra-fast EV charging sites for the 5-year period 2022/23 – 2026/27 at a level that would produce an energy cost equivalent to that paid by an EV owner charging at home.
- Require Western Power to work with EV charging infrastructure providers to introduce appropriate arrangements during the 5-year period 2022/23 – 2026/27 to collect and analyse appropriate data from dedicated EV charging sites (including assessing the ability to dynamically reduce load on the network during peak network events) to develop, in conjunction with the EV charging infrastructure industry and engaging with both the ERA and Energy Policy WA, a specifically designed cost-reflective tariff (or tariffs) that reflects the special characteristics of electricity demand at EV charging sites and promotes the efficient use of the grid, with this tariff (or tariffs) to form part of Western Power's 2027/28 – 2031-32 access arrangement proposal.

ATTACHMENT 1:

Analysis of cost outcomes of latest Western Power and Synergy proposals

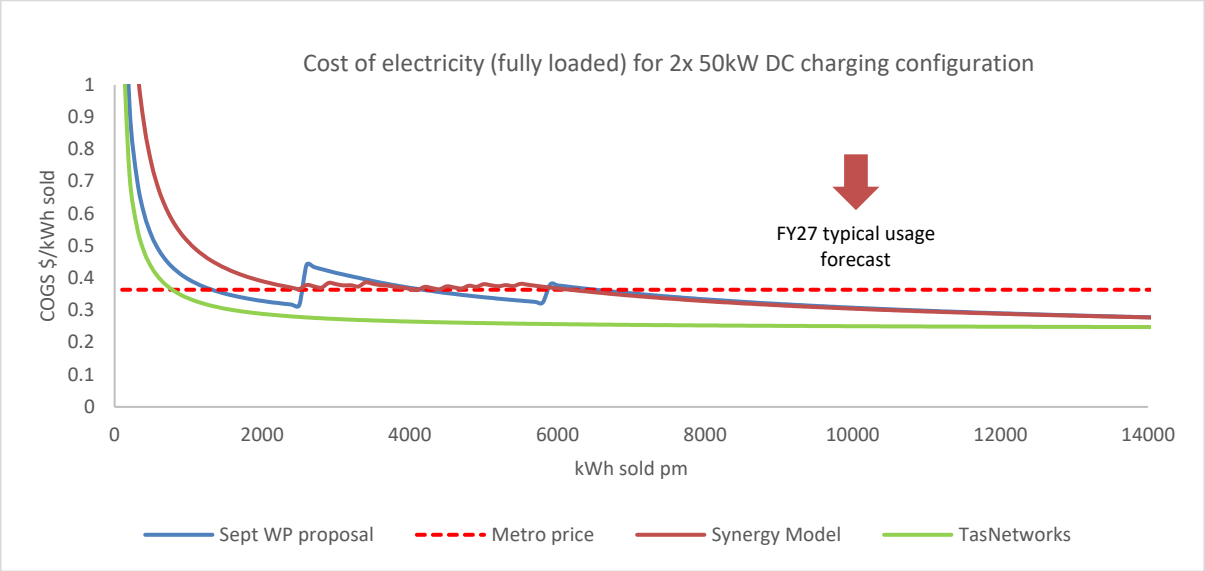


Figure 1: Fully loaded cost of electricity for a standard 2x 50kW charging configuration, compared with the current retail price of charging.

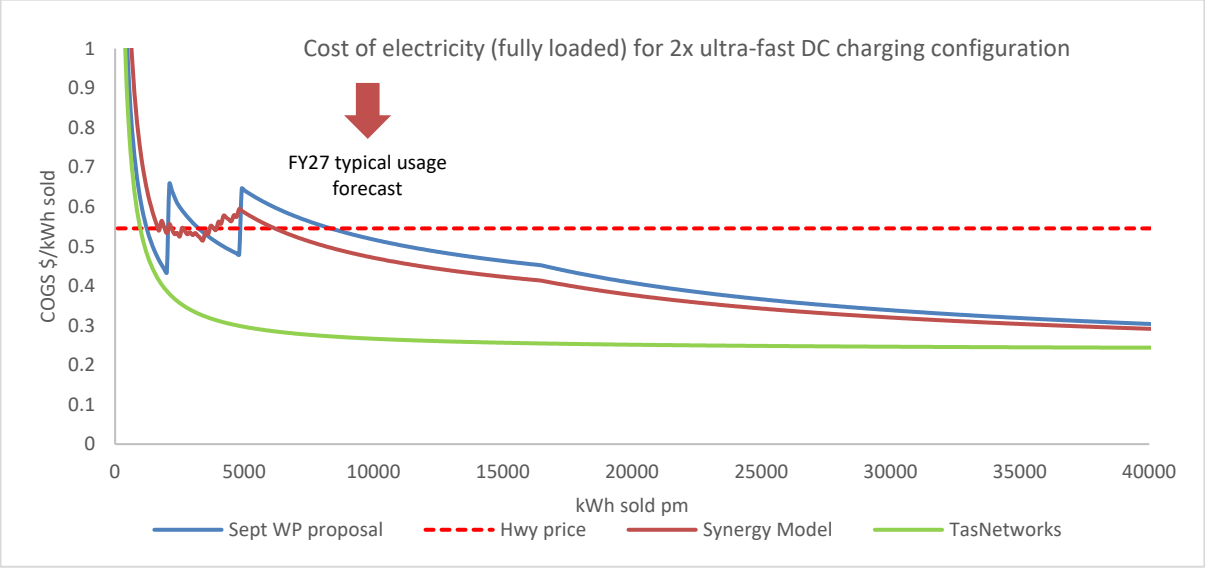


Figure 2: Fully loaded cost of electricity for a ultra-fast 2x 350kW charging configuration, compared with the current retail price of ultra-fast charging.

ATTACHMENT 2:

Why traditional business tariffs deliver very high costs for publicly available EV charging sites

The EV public fast charging infrastructure industry is still relatively new in in Australia, and because of the still low level of EVs on the road, infrastructure providers must necessarily build out their sites ahead of demand; this early provision of highly visible publicly available fast and ultra fast EV charging sites is critical to addressing concerns about Range Anxiety.

However the structure or design of "traditional" business tariffs acts as a major barrier to the development of a commercially viable business operation because the Load (or Demand) Profile of public fast charging is very different from "traditional" small and medium businesses. Because tariffs that are currently applied to small and medium businesses are not suited to this new industry, they result in very high electricity costs.

The graph below sets out the differences in the impact of a traditional business tariff containing a Demand or Capacity Charge on a small factory versus an EV charging station. The Demand or Capacity Charge is generally based on the customer's highest recorded demand in any hour or half-hour period on a rolling 12 months basis, irrespective of whether or not that peak occurred during a network peak demand event.

As EV charging load profiles do not resemble typical Commercial and Industrial (C&I) use cases, when demand or capacity tariffs are assigned, the result is very high electricity costs. This is because the demand or capacity charges are necessarily amortised over a small number of users.

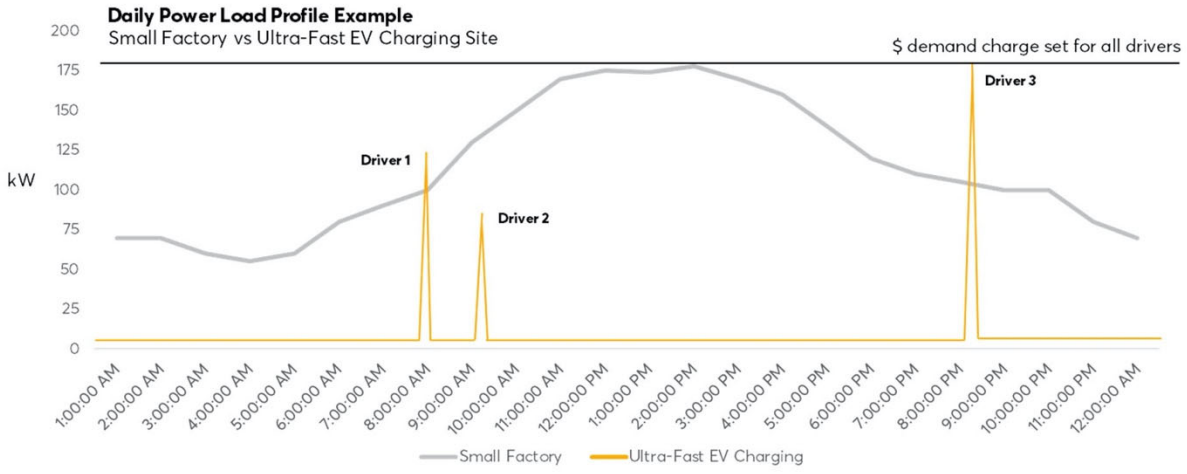


Figure 3: Illustrative example of ultra-fast profile while EV uptake is low.

Given the very different load profile of publicly available EV charging sites, Evie believes there is a strong case for the introduction of a specific tariff for this new, fledging industry.

Additionally, as the technology is highly controllable (as set out below), it is further submitted that a technology specific tariff would also be justified. To date, this position has been generally rejected by DNSPs, as well as the AER.

The general argument put in opposition to the introduction of a specific tariff for publicly available EV charging sites is that it would involve a cross-subsidy. However, the uptake of EVs, enabled by the availability of well planned, affordable public fast charging, will deliver significant long-term benefits for electricity networks and, ultimately, electricity consumers.

In summary, the benefits include:

- Long term increased utilisation of electricity networks, creating efficiency benefits.
- Avoiding network costs such as voltage control to help manage low Minimum Demand levels caused through "excess" solar generation by helping to absorb this excess solar generation, as public fast charging typically peaks in the middle of the day.
- Improved local network stability, as fast charging often requires grid augmentation that is funded by the charging network operator.
- Controllable technology, allowing peaks to be managed dynamically and at short notice.

The network efficiency benefits through greater utilisation, as well as significant avoided network costs (through minimising the costs to manage low levels of minimum demand created by excess solar energy during the day), will mean lower costs can be passed on to all electricity consumers, not just EV owners.

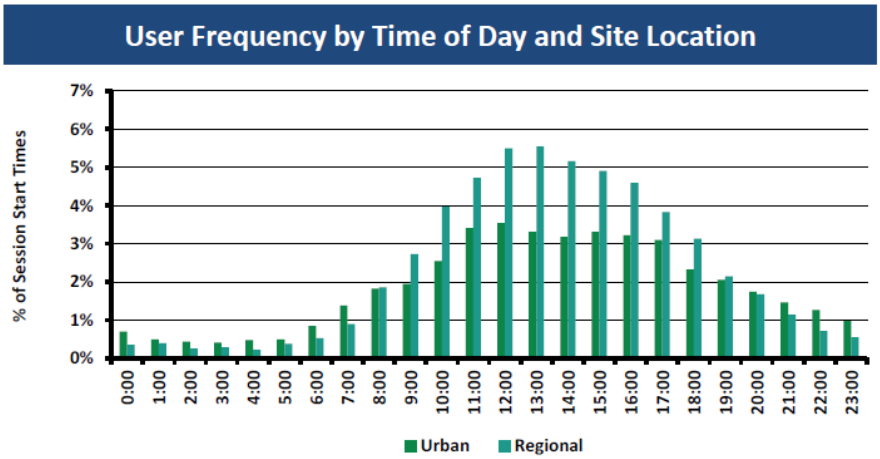
Evie therefore believes that:

- The very different usage profile of publicly available EV charging sites would justify the introduction of a specific tariff for this new industry, consistent with the National Electricity Rules (Clause 6.18.4).
- The network benefits provided through the operation of EV charging sites would mean that the introduction of a technology-specific tariff for publicly available EV charging sites would also be consistent with the NEM Rules (Clause 6.18.5 on Pricing Principles).

Concerns are also expressed that EV charging will, with an increasing number of EVs on the road, add to peak demand on networks, resulting in increased investment to address this increase in peak load. Evie considers this view to be misplaced, as EV charging can act as a "solar soak".

Specifically, usage of publicly available EV charging sites is concentrated during off-peak periods, and principally during the periods of excess solar generation. Ie, charging site utilisation is broadly co-incident with the solar peak period and, thus, as noted above, can act as a "solar soak" with consequential avoided network cost benefits.

This is highlighted in the graph below from a public ARENA workshop that explored the impact of EV charging on the electricity grid. The data demonstrates how most charging occurs at off- peak times.



Source: ChargeFox, Evie, Energeia

Figure 4: Charging frequency by time of day.

Further (and as referenced above), new technologies, including public EV charging infrastructure, are inherently more controllable than legacy technologies:

- Charging technology is easily controllable.
- Load Management Systems for publicly available charging sites are readily available that can address Peak Demand issues.
    - They can be designed to optimise network utilisation and stability, while avoiding impact during peak network events.
- Technology to control public EV charging already exists and is in operation today.

Going forward, EVs will play a major role in relation to DER, with energy stored in the EV battery being used to reduce demand during the evening peak (V2H) and/or adding energy back into the grid during the evening peak (V2G). This has the potential to result in significant additional avoided network costs, which will further benefit all electricity consumers, not just EV owners. Under the Step Change scenario in the 2022 ISP, for example, DER is expected to provide 20% of underlying demand in 2030 and 25% of underlying demand in 2050.

The introduction of a specific tariff for publicly available fast and ultra fast charging sites is critical to ensuring the viability of this fledging industry which, necessarily, must build out infrastructure ahead of demand.

The application of "traditional" tariffs that contain a Demand or Capacity Charge is not appropriate because of their very different load profile, with the resultant electricity costs being unduly high.