



Sherine Al Shallah  
Australian Energy Market Commission  
PO Box A2449  
Sydney South NSW 1235

5 February 2019

Dear Ms Sherine Al Shallah,

**Review of the regulatory frameworks for stand-alone power systems – Priority 1 Draft Report**

Tesla Motors Australia, Pty Ltd (Tesla) welcomes the opportunity to provide the Australian Energy Market Commission (AEMC) with feedback on its Priority 1 draft report (Report) as part of its review of the regulatory frameworks for stand-alone power systems (SAPS). Tesla recognises the thorough review that is being undertaken, and commends the AEMC with the progress that has already been made in addressing critical SAPS issues for the transitioning of supply, service delivery, and customer protections.

Tesla supports the AEMC's overarching objective to progress the reforms required for SAPS to be used as an alternative to traditional grid supply, where efficient to do so, whilst preserving customer protections. The AEMC Report provides useful evidence of the correlations between customer density, cost to serve, and reliability – highlighting the significant benefits that SAPS can provide.

In summary, we support both network and third-party ownership of stand-alone power systems as outlined by the AEMC priority 1 and 2 work streams, recognising the AEMC's first order priority for customers currently connected to the grid to be transitioned to off-grid supply by their distribution network service provider. In both cases, this should be facilitated through a contestable framework to maximise efficiency of the market. Tesla's principal recommendation is for the integration of SAPS to be encouraged in a timely and efficient manner, particularly as network businesses continue to make grid investment and maintenance decisions today that will influence off-grid solution deployments for the next 30 plus years. Some additional feedback on the key elements of the Report is provided below.

Kind Regards

A handwritten signature in blue ink, appearing to read "Mark Twidell".

Mark Twidell  
APAC Director – Energy Products

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## Accelerating the uptake of SAPS

SAPS already offer an attractive alternative for networks to supply particular customers, and with continued advancements in renewable and storage technologies, these systems can ensure security of supply and improve service to these customers, whilst simultaneously reducing network costs for all customers. As such, these benefits should be unlocked and implementation should be pursued as quickly as possible. As the AEMC recognises in its latest Report:

"SAPS solutions may increasingly represent a more economic alternative to replacing existing network assets in areas that are costly to serve. To the extent that DNSPs are able to reduce costs, the benefits would flow through, over time, to all of a DNSP's customers by reducing the overall amount of revenue that would be required by the DNSP. The customers moving to SAPS supply would also likely experience benefits directly in terms of improved service reliability."

Prompt resolution of this issue is supported by the Finkel Review<sup>1</sup>, with the ACCC also recommending through its retail electricity pricing inquiry<sup>2</sup> that "immediate work be undertaken" to implement the changes required.

A criterion based around ease and speed of implementation should be included in the framework to facilitate the uptake of SAPS given the immediate benefits that can be realised by all stakeholders once an appropriate framework is in place.

To progress this, a trial based approach may be useful to initiate in the short term, to prove out technical capability and refine vendor requirements, whilst ensuring security of supply and customer protections are maintained. However, any framework outlining technical requirements should aim to strike a balance between consistency at the national level, whilst allowing for regional flexibility. It would be sub-optimal to have each network or jurisdiction around Australia have completely separate or contradictory sets of requirements. Tesla would be happy to continue working with the AEMC and jurisdictional policy makers to assist in defining a suitable scope.

As SAPS comprise an emerging sector in Australia, the AEMC should also consider how additional funding and policy incentives outside of traditional regulatory return models can promote innovative non-network solutions to build initial consumer and network confidence. Aligned incentives would not only simplify the decision making framework, but drive additional private investment in new forms of energy supply, creating further benefit for the off-grid market segment.

## Transition to SAPS supply

In general, Tesla supports the proposed additions to the regulatory framework to enable the SAPS transition. Some specific comments are outlined below:

- **Pre-conditions:** We agree with the AEMC's 'efficiency pre-condition' – but assume this would also include some form of reliability/security improvement pre-condition – to recognise it is not all about cost, and customers should receive at least the same, if not significantly better quality, safety and security of supply (aligning with the national electricity objective). We note Western

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<sup>1</sup>Independent Review into the Future Security of the National Electricity Market, Blueprint for the Future, June 2017, p. 154

<sup>2</sup>ACCC, Restoring electricity affordability and Australia's competitive advantage, Retail Electricity Pricing Inquiry, June 2018, p. 221

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Power's trial criteria included this broader range of pre-conditions as part of its initial participant screening<sup>3</sup>.

- **RIT-D amendments:** this may also require additional incentives to encourage DNSPs to pursue more cost effective and targeted reliability improvements through SAPS (even though they may contribute less to the total regulated asset base). This could build on or ensure the existing efficiency benefit sharing scheme supports SAPS.

Effective governance is vital to managing not just the decisions around asset ownership, but also closely monitoring network service provider's deployment models to support expedient uptake of non-network alternatives. This may require the AER lowering regulatory investment test thresholds or creating specific classifications for stand-alone system considerations, and ensuring ring-fencing guidelines are appropriate for both individual and microgrid contexts.

- **Evaluation requirements:** we support the recommendation for establishing SAPS evaluation requirements. However, the devil will be in the details for applying 'minimal SAPS project evaluation requirements' as this process, like the RIT-D, will be the gatekeeper for projects to progress and ensure that DNSPs appropriately engage with system proponents to seek the most efficient SAPS through competitive tender. This should be light touch, but also be broad enough to consider (and not create a barrier for) future off-grid solutions that combine demand management, customer behaviour change and independent power systems provided as an integrated solution from third-parties. Requirements should therefore be flexible to recognise that as system costs come down, there may be increased appetite for customers to revoke their relationship with network service providers and retailers completely. As this also presents a total cost benefit to all customers, this should be incentivised not stymied by regulatory requirements.
- **Facilitating efficient service:** Tesla strongly recommends ensuring a robust competitive tendering process is in place from the outset of Priority 1 implementation, which also aligns with moving to contestable frameworks as soon as practical. For example, there are a range of existing capabilities and services that the market can already provide and network businesses should be required (or have the right incentives in place) to fully investigate these solutions where they represent more efficient service provision – particular in relation to operations and generation systems outside of a network's core business.

We strongly support the AEMC recommendation of SAPS connections supplied through competitive process, which will lead to more effective outcomes for customers. Even if this process is DNSP led (i.e. subsidised), this should involve a competitive process for vendors to supply the DNSP with appropriate design, manufacturing, engineering and commissioning of appropriate SAPS. This also aligns with the ACCC's recommendation to adopt consistent SAPS arrangements under a contestable framework.

- **Jurisdictional uptake:** Aligning with comments above on expediency, jurisdictional participation should be encouraged and accelerated where possible. Should an opt-in process be pursued, consideration should be given to the back-stop date at which all jurisdictions would have to have adapted relevant local instruments by – to ensure further delays to a nationally consistent framework do not occur. This also recognises the long lead time that States will have before the AEMC SAPS review leads to rule changes that take effect.

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<sup>3</sup> <https://westernpower.com.au/energy-solutions/projects-and-trials/stand-alone-power-systems-stage-2/>

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## **Customer Engagement**

The AEMC report provides a useful overview of a potential SAPS customer engagement strategy – recognising that explicit versus implicit customer consent is a particularly sensitive and highly contentious issue. As a starting point, the customer engagement framework should be built on the premise that the SAPS regulatory design provides for an effective price, reliability and customer protection framework. At a minimum, affected parties must be thoroughly consulted throughout a SAPS transition.

It should be noted that even when all customers stand to benefit, transitioning to a SAPS should never be a change that is ‘done to’ a customer, without providing and maintaining customer choice. Many customers in fringe of grid locations still hold strong attachments and associate tangible and intangible benefits with being grid connected (e.g. ability to export electricity to the grid), and with many waiting years for grid connection in the first place, they may now be unlikely to give up their grid safety net lightly. Customers are also unlikely to view electricity supply through the same cost-efficiency lens as DNSPs or regulators. Highlighting the real and immediate benefits of SAPS will be key (e.g. reliability and bushfire safety), as will providing customers with true choice, for example allowing customers to participate in some of the aspects of the design of their system or having a choice in vendor (as they already do with solar PV and battery storage). This will need to be managed through robust customer engagement and education.

A related issue for the AEMC to consider relates to rights and responsibilities in upgrading systems. If a customer’s load drastically changes (e.g. through the purchase of an electric vehicle), who should pay for the upgrades required to the existing SAPS? Under a standard grid connection, in most load change circumstances customers would simply be faced with additional usage charges, however if they transition to an off-grid individual power system, there will be a step change in the system’s capacity requirements.

We agree that no additional rights of connection are required under the proposed definition, which relies on comprehensive and appropriate customer engagement and explicit information provision throughout a SAPS transition. However, the AEMC must give further consideration to the grid-connection scenarios being used to explore whether new (non-grid-connected customers) should be provided with a DNSP-led SAPS. The first example in the Report assumes a customer would be willing to pay the full capital cost of the SAPS, but unwilling to procure a SAPS from the competitive market. Under a fully functioning and effective contestable framework, this should be the same cost (and likely the same system provider). It would then be reliant on the DNSP to provide adequate information and engagement with the customer to achieve the most efficient outcome (i.e. the provision of a SAPS instead of a new grid connection / augmentation).

## **Service classification and delivery**

Whilst several different operating models can be implemented and achieve SAPS deployment, as a primary focus, the objective of this review should remain centred on improved customer outcomes – for all energy customers.

As outlined above, we agree with the AEMC’s initial view of the role of the DNSP being to contract or procure SAPS services and assets (in particular individual power systems) from the contestable market. This can be achieved and should be pursued irrespective of the delivery model that is progressed and will result in the greatest benefits for all customers.

Specifically, while the ultimate service classification may determine SAPS as front of meter assets – allowing DNSPs to procure SAPS services from third-parties (or from their own ring-fenced affiliates) as

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well as own and control the assets directly - this should not create a situation where the supply of the systems themselves (design, manufacturing, integration) is also undertaken by the DNSPs. This would be counter to competitive market principles and remove many of the efficiency benefits for customers.

However, Tesla does support an approach that ensures DNSPs can continue to cross-subsidise the provision of SAPS services through regulated revenue earned from the provision of distribution services – a subsidy (or substitute incentive) is a necessary catalyst for what would otherwise be a market with too high costs and access difficulties.

The argument referenced in the Report that the market for ‘utility-grade SAPS offerings’ lacks depth and maturity ignores the existing and extensive integration of SAPS across Australia and the Asia Pacific region more broadly that has been occurring over recent years. Whilst the DNSP-led SAPS market in Australia is still emerging as regulatory barriers are identified and addressed, there is already a growing market for renewable energy microgrids combining with battery energy storage systems to offset diesel consumption across many regional and remote areas around the world.

For example, with over 1000 megawatt-hours (MWh) of stationary energy storage systems installed and operating, Tesla has extensive experience in both manufacturing and deploying commercial energy storage systems for both off-grid and grid-tied solutions. In total, Tesla has over 20 operational SAPS ('microgrids') around the world - from remote communities, commercial and industrial facilities to utility substations, military bases and mining operations. These systems are modular and fully scalable using Tesla's battery storage technology – ranging in size from 13kWh at the household level, to between 210kWh to 6MWh for microgrids. Many of these grids would be defined as ‘utility-grade’ and are successfully operated by local power authorities as cheaper, safer and more reliable solutions than the traditional grid.

Given the increasing importance of energy storage across a range of grid forming applications, Tesla would be happy to provide the AEMC and other interested stakeholders any additional information on the technical capabilities of these solutions, specific to SAPS operations for the Australian context.

## **Service Delivery**

Tesla notes the considerations presented by the AEMC in the Priority 1 Report as an opportunity to initiate ongoing stakeholder engagement across the various service delivery options for network-led SAPS.

In general, we support a first-principles based approach to determine the most appropriate framework for service delivery: seamless transition for customers; low implementation costs; retain full customer protections; and continued retail competition. Provided service delivery follows a contestable framework, we remain largely agnostic to the ultimate model chosen.

Under the NEM consistency model, any exposure to spot prices should be minimal and for a small amount of customers relative to total trading books, particularly as SAPS predominantly rely on embedded solar and storage for generation. Alternatively, a ‘deemed wholesale price’, or specific SAPS tariff model could be implemented for appropriate customers if this is of particular concern. We note that much of the initial uptake of these systems (i.e. regional WA and Queensland) are likely to maintain existing price regulation for customers and in practice, these regions have a portfolio of isolated microgrids, with limited spot market participation.

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We note that a NEM consistency model also avoids the complexity of creating additional price regulation and the perception that customer's choices, flexibilities and rights are being impacted – which could cause significant difficulties if explicit consent processes are not undertaken.

Whichever model is pursued should also align with the criteria identified by the AEMC for regulatory arrangements to be 'clear, consistent and transparent'; and 'proportional to the risks they seek to mitigate':

"Where arrangements are complex to administer, difficult to understand, or impose unnecessary risks, they are less likely to achieve their intended ends, or will do so at higher cost."

### **Consumer protections**

Tesla supports the approach taken by the AEMC on customer protections in the Report - customers who are transitioned to SAPS supply should not be any worse off than if they were supplied by the interconnected grid.

It is vital that customer protections are maintained (along with all rights, privileges and concessions), especially during the initial phase of deployment where consumers may be reluctant to transition away from grid-connection based on anecdotal or historic experiences of poor and expensive stand-alone solutions.

We fully support all principles of retail price and consumer protections outlined, including DNSP responsibility to at least maintain reliability, security and quality standards equivalent to grid-connected customers, if not significantly improve the experience. At a minimum, this will also need to include additional consumer consultation requirements for DNSPs seeking to transition customers to SAPS.

This is one of the significant advantages that can be realised by transitioning towards localised, more sustainable solutions that leverage new technologies such as inverter-connected storage supplementing solar generation and should not be bound by a lowest-common denominator approach that places customer reliability subservient to cost efficiency outcomes.

### **Transition to third party SAPS**

Tesla keenly awaits Priority 2 of this review, which should complement DNSP-led SAPS provision, particularly as customer expectations and requirements change going forward, and as new products and services offer scope for additional benefits to customers.

As the AEMC notes in its Report, the drivers for the decision by a third party to establish a SAPS can be broader than simply financial returns, and could also include a combination of: regional development policy; innovation initiatives; environmental considerations; and self-sufficiency initiatives. Indeed these multi-factor benefits have underpinned the development of many of the microgrid projects that Tesla has developed across APAC to date.

### **Conclusion**

Tesla looks forward to continuing to work with the AEMC throughout this consultation process and in unlocking the opportunities for stand-alone power systems across Australia. We are happy to provide further information on any of the projects or policy feedback discussed in the submission above.

If you have any further questions please contact Dev Tayal at [atayal@tesla.com](mailto:atayal@tesla.com).