Australian Energy Markets Commission
PO Box A2449
Sydney South NSW 1235

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Thank you for the opportunity to provide input into your review of the market and the operation of electric vehicle infrastructure in relation to the Energy Markets Arrangements.

The National Electricity Objective is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers with respect to a) price, quality and reliability and security of supply of electricity, and b) the reliably, safety and security of the national electricity system.

The advent of electric vehicles will offer great opportunities to assist in achieving in this objective. This in part will be through the ability to utilize the latent capacity of generation during the off peak cycle. It will be a challenge to ensure that the burgeoning demand can be supplied in a manner that is conducive to load management. However we believe that this can be achieved through the proper planning for electric vehicle recharging and the appropriate setting of standard baseline equipment requirements.

It is important that the approach to, and processes for, managing the load and customer demands for recharging electric vehicles be conducted in a manner that is cost effective and does not create new or additional layers of complexity and administration.

ChargePoint is one of the pre eminent electric vehicle infrastructure providers and network operators. ChargePoints have been installed in Brisbane, Sunshine Coast, Sydney, Canberra, Melbourne, Adelaide and New Zealand, with further installations to be commissioned shortly in Perth, Canberra and Melbourne.

Through our experience, drawn from the widespread utilization of our smart networked chargers, the average recharge by our domestic customers is approximately 9.8 kWh per day. This consumption is consistent day to day.

In these early days we have also seen that the load drawn to recharge electric vehicles has fallen predominantly over the shoulder and peak periods.

We found it somewhat surprising that despite the well publicized benefits of off peak charging that only 25% of energy drawn for recharging occurs in off peak period (domestic users only). This has been attributed to the issues of range anxiety causing drivers think they need to maintain a full battery to cover their imminent driving requirements, the convenience of home recharging, and general price insensitivity.

This data has been drawn from our domestic and business customers across the ChargePoint network but excludes recharging at public locations. We believe that there will be some migration of the load to the off peak period as companies and businesses begin to provide domestic charging solutions for their employees. ChargePoint contends that the market environment, structure and regulations provides adequate framework through which the introduction of electric vehicle can be facilitated.

However we also note there are certain pre-emptive actions and structuring required to establish the necessary efficient and effective framework that will manage the imminent electric vehicle load demand.

To this end ChargePoint recommends that all electric vehicle recharging infrastructure incorporate the basic tenements for proactive load management control, analysis and forecasting. This proactive management can be achieved by ensuring that all recharging devices contain embedded meters and telecommunications capability to access the recharging information. Without these basic requirements, the situation and impact of the wholesale rollout of air conditioning units and other high energy demand appliances will again be replicated.

Experience has shown that once such appliances are installed it is extremely difficult to reverse the situation or retrofit the devices. Some of the well published angst about smart meters can be avoided and the benefits realized if the electric vehicle recharging requirements are established at the outset.

We note that whilst the underlying energy for electric vehicles will be supplied through existing retail accounts, the use of smart recharging units gives drivers have the ability to source Green Power independently.

Through the use of the embedded revenue grade meters, Green Power offsets can be purchased from any accredited supplier. This “greening” of the electric vehicle driving does not require additional regulatory meters, nor does it create the need for segregated, additional or complex customer billing.

The following responds to the questions raised by AEMC paper dated 22 September 2011.

Question 1

What are the key drivers and likely uptake of EV's in the NEM? Are there any differences in these drivers between the NEM and WA?

Response

The initial key driver underpinning the uptake of EV's will be the supply of vehicles by the OEM (Original Equipment Manufacturers).

ChargePoint through it's activity in the market notes there is a strong pent up demand for EV's amongst a niche group of consumers (covering commercial, governments and domestic purchasers). This niche is not price sensitive but driven by altruistic desires to own/operate an electric vehicle.

As the price of EV's continues to fall, demand for EV's from customers, with a higher disposal income who travel moderate distances, will rise. As the range of the electric vehicles increases and further purchase price reductions occur, mass market adoption of EV's will eventuate.

A secondary driver for the uptake of electric vehicles is the ability to extend the range and use of the vehicles by providing electric vehicle drivers with the comfort and security of public and commercial recharging facilities at destination locations.

The roll out of public and commercial infrastructure will provide the ability for electric vehicles to become more mainstream in their use. There is debate amongst some experts about the level of utilization of public and commercial recharging. Irrespective of this debate, there is agreement that without the safety net that this public infrastructure provides, the demand for electric vehicles will be impacted. Therefore the market and regulatory environment need to provide the appropriate framework to facilitate the investment required for public and commercial infrastructure.

In respect to the uptake of the EV's , ChargePoint drawing on various sources including professional reports, interviews and input from OEM's estimate the following EV's sales growth to 2020.

Percentage of EV sales to total new vehicle sales

2012	*2013*	*2014*	*2015*	*2016*	*2017*	*2018*	*2019*	*2020*
0.2%	*0.5%*	*1.3%*	*2.5%*	*5.6%*	*10. 6%*	*15.0%*	*17.4%*	*18.2%*

Question 2

What are the costs and benefits that EV's may introduce into Australia's electricity market?

Response

The benefits of introducing EV's into Australia have been well covered by various subject matter experts. These benefits range from on-shoring of transportation energy, energy security, reduction of air and noise pollution to the potential better utilization of the latent off peak generation capacity.

In ChargePoint's own experience the more granular benefits have been the up skilling of electricians. Our electricians are now required to incorporate telecommunications and commissioning skill sets into their training. This allows the electricians to install, commission and troubleshoot smart electrical devices that are networked via zigbee and a GPRS modem.

The introduction of mass market EV's into Australia will accelerate the need for replacement and upgrading of aging or inadequate infrastructure.

The ChargePoint network system has empirical data that highlights home energy consumption will rise by approximately 9 kWh per day. This increased demand will exacerbate supply issues especially if several homes in the same area commence recharging at the same time thus creating a hot spot. This issue is already occurring in Europe and the US.

Question 3

What are the appropriate electricity market regulatory arrangements necessary to facilitate the efficient uptake of EV's?

Response

The market, retail and regulatory frame works currently in place provide the appropriate arrangements to facilitate the efficient uptake of EV's.

The electric vehicle is essentially just another energy consuming appliance and is no different from any other consumer appliance (plasma screen, pool pump, air conditioning etc). There is no requirement or rationale to institute specific regulatory arrangements for one particular appliance yet ignore or exclude others.

The fact the electric vehicles are mobile and may be recharged at different places does not create a special or unique situation that requires a different arrangement. Multiple destination charging can and is easily handled and supported by network services.

We do note that given the load factors and the supply and demand issues that the recharging devices must include an embedded revenue grade meter and the appropriate communications device. In essence the recharge device must be a smart appliance capable of integration into a smart grid.

All distributors, energy retailers and electric vehicle infrastructure companies firmly agree that through these requirements, the key aspect to manage load and provide the most efficient and effective supply at the least cost can be delivered to the consumer.

The cost and complexity of segregation will rise significantly if different retailers provide different parts of the single residential load. These costs include but are not limited to additional capital required for metering, ongoing metering costs, reconciliation of power usage and costs and customer servicing costs.

Economically the separation of EV energy consumption requiring separate metering, and administration will create additional overheads as well as operational complexity. The cost of this will be passed back to the consumer.

Regulatory arrangements that create multiple responsible parties for a single customer at a single point of utilization may also create potential areas for dispute in the advent of physical servicing and maintenance issues. The question of who is responsible for maintenance and servicing and where the demarcation point of maintenance responsibility is are bound to arise.

For example if an electric vehicle causes a distribution board malfunction, who is responsible for its repair? One answer may be to provide a separate distribution board or a downstream fuse and meter which again creates more cost impost that the customer will ultimately bear.

Question 4

What are the required changes to the current electricity market regulatory arrangements and suggestion for reform to facilitate the efficient uptake of EV'S?

Response

The current electricity market regulatory arrangements are appropriate for efficient and cost effective domestic EV recharging thus no material or significant reform is required.

The uptake rate can be positively assisted through a market regulatory arrangement that is conducive to public on street or commercial recharging. Currently the arrangements are such that the energy consumed at public or commercial or on-street charge points cannot be recovered due to the retail licensing and regulatory arrangements.

As a result the public and commercial recharging is being charged to customers as a “session” which has reference to a time period as opposed to the underlying energy cost.

ChargePoint recommends that organizations offering recharging facilities are empowered to charge their customers based on their underlying energy usage. These arrangements should be viewed as another customer retail transaction, with the energy sourced from the organization’s preferred energy retailer, as and when required. The energy costs associated with electric vehicle recharging would be settled in the normal manner that occurs with current retail electricity accounts.

The organization providing the recharge service would charge the electric vehicle driver an appropriate amount based on the energy consumed, the cost to service the customer, and an amount to recover an element of the infrastructure capital cost.

ChargePoint believes that arrangements of this kind will make the area of commercial or public recharging more efficient yet still maintain the prudential and fiduciary protection that the current arrangements afford.

In closing should AEMC require further input or information, or wish to clarify aspects of this submission, please contact the undersigned.

Yours faithfully

James Brown
ChargePoint