



EVC response to NSW government RFI:

Single interoperable and roaming Electric Vehicle (EV) charging payment solution - RFI-00211525

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With reference to:

<http://www.tenders.nsw.gov.au/?c=4B764952>

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Preamble:

The EVC is the national peak body for the EV industry. Our membership base includes organisations from across the value and supply chain – vehicle OEMS, energy network operators, fleet managers, charging equipment manufacturers, vehicle rental businesses, public charging network operators, and more. We are well placed to comment and provide insight to this question, from a variety of perspectives.

It should be noted that industry does not have a unified position around this proposition, and that the global approaches to delivering roaming outcomes at scale are relatively nascent. Substantial work is being done in overseas jurisdictions, particularly with respect to standards and regulatory requirements, but it's not a 'solved problem'.

The objective from the EVC's position is acceleration of EV uptake. The existence of seamless roaming would be nice to have in this respect, but it's not presently holding up EV uptake. The risk of poorly introduced roaming is that it can create challenges and increase costs for the organisations selling the cars and deploying charging equipment, which may hold up EV uptake.

EVC response to the RFI:

Outline:

The objective laid out in the RFI addresses driver frustration, framing it in a manner that could be read as applying to the general public. It also addresses fleet operation, framed specifically for the use of NSW government fleet vehicles.

We'll consider these separately. The fleet operator has different considerations and motivations to the private vehicle operator. NSW fleet operations will have some similarities to the vehicle rental sector, and corporate vehicle fleets, for example.

We exclude consideration of Tesla vehicles using Tesla Superchargers from this response. Tesla's solution works very well within its vertically integrated limits, but where non-Tesla vehicles are served at Tesla superchargers, authentication is app-based, much like any other charge point operator (CPO).

For private vehicle operators:

The operator of a private electric vehicle, using public charging equipment today, will typically use either the app provided by the CPO, or a credit card. The usage of physical RFID fobs as the sole means for authentication at EV charging stations has largely been bypassed in Australia – it was tried in Canberra, and it was common in Europe for a time, but it was identified as delivering poor consumer outcomes, and has given way to app/credit card approaches. This does not mean it should not be permitted as an option for the CPO to include if they wish – merely that it should not be the only option.

NSW government grants for high power public charging have mandated for some time the inclusion of universal payment methods, such that a driver need not download an app for authentication and payment at these locations. These methods include credit card readers and the Opal public transport card.

This effectively delivers a level of payment universality exceeding what would be possible with a roaming solution – to engage with a roaming solution, the consumer will need to have a relationship with that organisation. To use their credit card for payment, they require nothing beyond their existing banking arrangements – and credit card payment terminals are a 100% proven technology in market, we've been using them on parking meters for years.

The perception that having multiple apps is actually a problem would be worth testing with a large cohort of drivers by way of a survey. Inevitably there will be a certain amount of noise along the lines of 'wouldn't it be nice if', but the provision of roaming services of this nature co-ordinating payment and shared asset use between competitors via dedicated financial clearing house arrangements is the exception, rather than the rule, in most of the rest of the economy. We see it in telecommunications in the mobile phone network, and in ATMs, but we don't require it of petrol station operators, supermarkets, or retailing businesses in general.

In the event that it can be shown that apps managed by each CPO for this purpose are demonstrably inadequate, consideration could be given to requiring (potentially by way of regulations relating to the licencing of sale of electricity for EV charging in each state) credit card payment facilities at all

public EV charging locations above a certain power threshold, for example 50kW DC. As noted, this is already a commonly deployed feature, because it's a requirement for government co-funding at time of deployment. If taking this direction, consultation with industry about timeframes for compliance and specific technical details of any new requirements would be necessary – basic questions such as 'do we need multiple credit card readers at a single location' would need to be addressed consultatively. The EVC would be happy to support government in that process.

The reason we suggest leaving the lower power level sites out of a requirement of this nature is that adding credit card readers to sites is not without cost. At high power locations with multiple ultrafast chargers, adding a single credit card reader would be a small proportion of total site cost, and hence unlikely to meaningfully drive up the cost of energy to the consumers, while definitively solving the universality of payment question. At lower power sites, the credit card reader may cost more than the charging equipment, which would predictably have a significant impact on cost of delivered electricity at those locations where the CPO passes the costs through.

In the absence of a market failure leading to bad outcomes for consumers, the free market should be left to solve for this. If it turns out that consumers place a high value on being able to use a credit card to pay for EV charging, it can be expected that CPOs competing with each other for market share will deploy that capability more broadly.

Fleet operator considerations

For the driver of a private vehicle, payment for refuelling today is typically done as a transaction in a petrol retailing location, with cash or card. A future where the private vehicle driver is able to pay by app or card at unmanned locations is roughly comparable in terms of universality of payment method – we don't really need a future where payment at an unmanned EV charging station can be done with cash.

For fleet vehicles and car rental vehicles, the payment is not necessarily made in a manner attributable to the driver's finances. It's very common for the vehicle to have a fuel card, which is presented by the driver at the petrol retailing location. This fuel card serves (in effect) as authentication and enables the financial back end that results in the payment by the fleet operator or vehicle owner to the petrol retailer, without the driver's personal finances actually being involved in the transaction.

This is an important consideration for fleet operators. The status quo does not involve the fleet vehicle driver's personal finances when refuelling in public. A future state that *does* involve the driver's personal finances when recharging in public will reasonably be considered a headwind to EV uptake, and not every organisation will want to issue a company credit card to everyone who might potentially use a fleet vehicle, or rent a vehicle while on government travel. A capability like roaming is one potential way forward, whereby the vehicle plugs into the EV charger, and authentication is achieved, inclusive of the financial back end.

Other potential ways to address this include:

- Replace the existing fuel card with a debit card that can be used on the payment terminal at the charging location.
 - This could be a physical card per vehicle, which lives in the glove box, or is attached to the keys – much like the existing fuel card.
 - Management of these cards could be done by a variety of parties.

- Provide credit card details to be entered into the app, installed on the driver's phone, for usage when charging a fleet vehicle.
 - This could be a virtual card (one set of card details covering many vehicles) or a physical card (one per vehicle)
 - This is comparable to the manner in which the Uber app allows for a 'business' payment method to be included alongside a 'personal' payment method, with different card details stored for each.
- Replace the existing fuel card with a low-end smart phone that lives in the car, that can be used either:
 - for app-based payment (ie, preloaded with all the relevant apps in the area), and/or
 - tap-and-go payment on the credit card reader, using the NFC capabilities in the phone.

This is not intended to be an exhaustive list of 'how to address the challenge'. It's intended to illustrate that a variety of approaches to solve the fundamental (and acknowledged) challenges are possible, which do not require significant disruption to the existing market structure in which CPOs operate.

Risks associated with roaming models:

Public EV charging stations that include payment capabilities typically include communications back to a software platform, generally using the OCPP protocol. It's possible for payment for EV charging to be managed without this in some instances – for example, a motel operator allowing guests to use an EV charger for a fixed price that's included at checkout, without any communication from the EV charger to any external system or platform – but locations managing payment without a communications connection to an external system are out of scope from the point of view of participating in roaming arrangements.

Today, each CPO either runs their own software platform, or contracts with a software platform provider to manage this aspect of the operation. CPOs by their nature are competitors, so while they come together under the auspices of peak bodies like the EVC to address industry concerns within an appropriate governance framework, they don't readily collaborate on real time operational matters.

To bring about a solution aligned with the description provided in the RFI, a central party would need exist as an intermediary platform between the CPOs and the drivers, managing the financial transactions and the certificate issuing to vehicles (or vehicle OEMs) and EV charging equipment (or CPOs). If brought into being by way of a NSW government RFT in alignment with the description provided in the RFI, participation by the CPOs and the vehicle OEMs would not be optional. This would effectively create a new, mandated 'middle-layer', which would add operating costs, which would naturally be passed through to drivers.

Global experience to this point, where this model has rolled out, is that the player that occupies this niche has a strong commercial motivation to monetise their position. They're also in effect a monopoly – everyone in the vehicle supply and EV charging ecosystem has to work with them, so if they're inadequately regulated, the cost of their existence can be expected to be high.

This is not fundamentally a technology question. At a technical level, EV chargers communicating to a software backend over OCPP can be included in a roaming solution, if one is stood up. The new

technology layer is communication between the CPO's software platforms and a trusted third party that provides the roaming solution.

This is a market structure / monopoly regulation question. If a roaming platform is stood up, preventing the operators of that roaming platform from becoming parasitic, through appropriate and effective regulation, is a key consideration. As an example of how we regulate monopolies like this today in Australia, one can look at the energy distribution businesses. The reason such significant oversight and regulation is used in that setting is that **without** it, consumers lose out in favour of the shareholders in the monopoly.

The view of the EVC in this matter is that we have not yet seen a good, real world example of roaming for EV charging done across all vehicle manufacturers and CPOs at a scale comparable to Australia, which hasn't had unintended consequences. We have seen Hubeject's work in Europe, which has spawned competition from players like Charin, due to dis-satisfaction among market participants with the outcomes.... In Europe we are currently seeing the emergence of a new middle layer of competing aggregators, adding to cost, but not adding much value.

In terms of costs - a quick desktop review undertaken in June this year by the EVC shows that typical DC charging prices from CPOs in Australia are currently significantly lower than costs in other markets. The average price per kWh at a sample of DC charging sites in Sydney was about AUD\$0.55, compared to AUD\$1.02 in London, AUD\$0.72 in Los Angeles, and AUD\$1.05 in Berlin. Australian drivers currently enjoy relatively low cost high power public charging, which is a tailwind for EV adoption – this may change over time as business models mature and government funding pulls back, but at present, there's a significant cost advantage to petrol there, which the introduction of roaming capabilities would potentially compromise.

The smart move in the near term will be to maintain a watching brief of overseas efforts to introduce roaming in their markets, and once another jurisdiction has done it robustly and successfully at scale, without bringing about any significant negative outcomes for any stakeholders, we should consider copying the market structure and regulatory approach that enabled the outcome, not just the technology layer that an RFT issued today would predictably elicit from the market.

In the interim, where there are desirable identified outcomes that a well-deployed, well-run, and well-regulated roaming solution could **potentially** deliver in future, and we want those desirable identified outcomes today, we should map out and trial the various ways they could be achieved.

Small scale trials of Visa debit cards in lieu of fuel cards, for example, would not be difficult to practically test. This is not an area where there is a pressing need to rearrange the operation of the market.