AEMC

INFORMATION

Energy market arrangements for electric and natural gas vehicles

Final advice 11 December 2012

The AEMC is providing recommendations on the energy market arrangements needed to support the economically efficient uptake of electric and natural gas vehicles. This final advice is closely linked to analysis conducted in our power of choice review.

Electric Vehicles

A study by AECOM found that between 2015 and 2020, each electric vehicle (EV) could contribute up to a total of $10,000 in additional generation and network costs in the absence of appropriate signals. Of this amount, approximately $3,500 would be paid for by the EV consumer. The remainder ($6,500) would be borne by all consumers. Over a five year period this equates to just over an extra $1000 per EV per year of additional generation and network costs that would be recovered from all consumers.

To promote efficient investment in generation and networks, it is necessary to provide appropriate signals that reflect the underlying costs of supplying electricity.

Our key recommendations to benefit consumers

An EV has a number of implications for the electricity market in terms of both how the EV is supplied with electricity and where the EV is charged. Our final recommendations seek to manage these interactions in the most effective way that minimises costs to all consumers.

We consider that this is best achieved through pricing signals that reflect the underlying cost of supplying electricity. This will allow consumers to make informed decisions about charging by providing opportunities for consumers to reduce their bills in the short term and would facilitate efficient investment to serve rising demand over time. Consistent with our power of choice review, we propose adopting consumption bands (set by jurisdictions) where those households with high electricity consumption would be subject to efficient and flexible tariffs.

An EV is an example of an appliance that creates a large electricity load (2 to 4 MWh per year). Our overarching approach was to propose changes to the energy market arrangements that apply to all large loads – with electric vehicles as just one example. We have tried to avoid specific energy market arrangements to only cover electric vehicles.

In general, we found that the existing energy market arrangements are capable of incorporating changes to address the uptake of EVs. However, we identified a number of areas where amendments are appropriate. We consider that it is important to put in place measures at these early stages of the EV market to facilitate efficient investment decisions for both consumers and providers going forward. We also assessed whether there were appropriate consumer protections in place for residential consumers.

Our final recommendations facilitate consumer choice with respect to the location and the timing required to charge an EV and enhance the availability of alternative commercial offers by service providers. Our recommendations achieve this by:

- Introducing new metering arrangements that enable consumers to separate their EV consumption from their household consumption. This will enable them to source the most appropriate mixture of retail deals to best reflect their preferences.
- Devising new metering arrangements that enable third parties to install EV charging infrastructure in commercial properties (eg. shopping centres and business parks).
- Specifying principles and further work for load management to help consumers engage in controlled EV charging.
- Suggesting that the SCER review the National Energy Retail Law (NERL) to remove ambiguity in relation to the sale of electricity.

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- Advising that the AER review its exemptions framework to cater for commercial EV charging.

Natural gas vehicles

No significant changes need to be made

We found that no significant changes need to be made to the energy market arrangements to cater for the uptake of Natural Gas Vehicles (NGVs).

About this final advice

Context

EVs and NGVs may play a greater role in providing Australia's transport solutions in the future. The development of low emissions vehicles in international markets signals the likely emergence of these vehicles in Australia as the economic viability of these vehicles improves due to technological progress.

This is an opportune time to assess whether Australia's energy markets can facilitate the efficient uptake of EVs and NGVs.

On 28 July 2011, the Standing Council on Energy and Resources (SCER) asked the AEMC to provide advice on the appropriate energy market arrangements. This review includes the National Electricity Market, the Western Australian electricity market and the nation's natural gas markets.

This final advice sets out our recommendations on the measures with the energy market necessary to facilitate the efficient uptake of EVs and NGVs.

AECOM report on uptake and costs of EVs and NGVs

We commissioned AECOM to estimate the likely uptake of EVs and NGVs and the costs (in terms of generation and network upgrades) that EVs could impose on the electricity system. For EVs, we examined both battery electric vehicles (BEVs) and plug-in hybrid electric vehicles (PHEVs). For NGVs, we considered NGVs using compressed natural gas (CNG) and liquefied natural gas (LNG) in both passenger and commercial contexts. Our Information Sheet on AECOM's findings summarises their results.

Next steps?

SCER will consider our recommendations and may propose Rule changes to be assessed by the AEMC.

On 30 November 2012 we published our Power of choice review final report and some of the recommendations in that review are relevant to EVs. The SCER will consider the Power of choice review recommendations.

For information contact:
AEMC Senior Director: **Rory Campbell** (02) 8296 7800

Media: Communication Manager, Prudence Anderson 0404 821 935 or (02) 8296 7817

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AUSTRALIAN ENERGY MARKET COMMISSION LEVEL 5, 201 ELIZABETH STREET SYDNEY NSW 2000
T: 02 8296 7800 E: AEMC@AEMC.GOV.AU W: WWW.AEMC.GOV.AU