

Climate Change Bill.

WA Climate Change Bill - 2023.

Chris Lehmann & Georgia Holmes
10 October 2023

Master Electricians Australia (MEA) is the trade association representing electrical contractors recognised by industry, government and the community as the electrical industry's leading business partner, knowledge source and advocate. Our website is www.masterelectricians.com.au

Electrification of residential and commercial buildings can significantly contribute towards WA's "target of a net zero emissions by 2050"¹ and "reducing national greenhouse gasses by 43% below 2005 levels by 2030"². Electrification can be more quickly achieved through installation of consumer energy resources (CER) amongst residential and commercial businesses. MEA supports WA's Climate Change Bill (the Bill) to implement electrification policies that require DER installation of rooftop PV and BESS (Battery Energy Storage Systems).

These privately owned, self-generating energy assets reduce reliance on traditional fossil-fuel transmission networks by generating clean renewable energy and using it closest to the source of production. These resources not only allow for greener energy, but also provide consumers with power of choice (PoC) over their own energy usage, thereby reducing overall energy prices and time shifting the daytime over generation of solar to the evening peak demand.

WA has an opportunity to mandate policies which alleviate cost pressures faced by consumers and reduce carbon emissions. We strongly recommend introducing a phased approach of electrification through implementing policies which maximise CER benefits.

Throughout this submission, MEA will advocate that CER infrastructure is the key to reducing carbon emissions supported by a range of the following policies:

- Time of use tariffs
- Digital smart meters
- Solar photovoltaic systems
- Home batteries
- Home energy management systems
- Electric vehicles
- Secondary settlement points
- Private asset maintenance.

Please note that distributed energy resources (DER) and consumer energy resources (CER) are used interchangeably. Throughout this submission, we will refer to the technology as CER.

¹ (WA) Department of Water and Environmental Regulation *Climate Change Bill Explanatory Paper* [2023] (6).

² *Ibid*

Introducing CER

What is CER?

CER are numerous privately owned assets used to naturally generate, store and utilise energy in the most efficient manner. Implementing CER relieves the need to invest in as many big generation and transmission projects, whilst utilising the existing infrastructure (existing poles and wires in our cities and towns) that the community has cumulatively paid for over the last century.

Examples of DER include:

- Rooftop solar photovoltaic units
- Wind generating units
- Battery storage
- Electric vehicle batteries.

Consumers gain the ability to take control of their energy and enables domestic and commercial and industrial (C&I) customers to enter into trading arrangements that time shift loads, using power (soaking) when it is cheapest for flexible loads (hot water, ovens, EV charging, etc) and delivering power back (sourcing) from storage sources (batteries, bi-directional EV's) when energy prices are higher, giving households and businesses the ability to pro-actively reduce their overall power costs. CER external load control should be limited to flexible loads while the traditional network should continue to be utilised for inflexible loads (i.e., fridges, life support, etc).

The dream of changing the energy demand curve (the so called “ducks back”) by taking the excess/cheap energy produced in the middle of the day, and using it during times of peak demand, thereby flattening the demand curve and stabilising electricity prices can be realised in a reasonably short time period if we make some rational, sensible decisions. The technology is here now, the regulations just need to catch up, and the workforce of electrical businesses across WA stand ready to make it happen.

Secondary Settlement Points

The Bill should consider allowing residential and commercial premises to install secondary settlement points that have their own meters. This will allow for separate identification and measurement of flexible energy loads, and export enabling CER benefits to be fully optimised.

Secondary settlement points will allow both domestic and C&I consumers to gain control over the utilisation, storage and supply of surplus flexible energy allowing cost saving benefits. It is important that secondary settlement points are to be used strictly for CER energy while necessities such as lights, fridges, general power circuits, water pumps and life-support are to remain with the primary settlement point controlling the passive load.

Tariff Reforms

MEA believes the best way to have consumers contribute towards reducing carbon emissions is through introducing flexible demand and generation time of use (ToU) tariffs. These tariffs

impose higher charges for times of network demand and provide rebates for CER users during times of network oversupply.

During the middle of the day, the network experiences minimum demand for energy, while CER generated energy is at its greatest. Then, during 4PM-9PM, the network experiences peak demand for energy, while CER energy is no longer generated. Implementing ToU tariffs sends price signals to consumers when to utilise stored energy from Home Battery Storage and when to send excess energy back to the grid.

During the minimum demand window, ToU tariffs would deter consumers from sending excess energy back to the grid, preventing an oversupply of energy on the network. Then, during the peak demand window when energy rates are at their highest, ToU tariffs would provide consumers with rebates, encouraging excess energy to be supplied to the grid thereby assisting supply to meet demand.

Consumers can react to ToU tariffs through digital smart meters and Home Energy Management Systems.

Digital Smart Meters

Digital smart meters provide consumers with the measurement infrastructure, designed to promote choice and efficiency in the delivery of energy to the end point consumer. Unlike traditional meters, smart meters allow for real time measurement and control of energy use. MEA believes these are necessary for achieving WA's commitment towards net zero carbon reduction targets.

MEA recommend that licenced electrical workers are trained and recognised as Accredited Service Providers (ASPs) and used to help rapidly replace traditional meters with smart meters. This would reduce connection times, improve consumer experience, reduce smart-meter roll out costs and help facilitate a swifter transition to a responsive electricity grid that can take advantage of DER policies.

Solar PV

Solar PV is becoming increasingly popular amongst residential and commercial buildings thereby making it easier for WA to integrate solar installation policies within the Bill. We recommend such policies are introduced in concert with home battery and EV charging requirements.

A concerted effort should be made to maximise efficient use of the large stocks of rooftop solar already in the market to shift the oversupply of generation during the day, to peak usage times in the early evening.

We recommend licenced electrical contractors with a Cert 4 in PV and CEC Accreditation are used to provide homes and businesses with Solar PV installations and battery installs.

[Home Batteries](#)

Home batteries are necessary to optimise CER's capabilities. These enable consumers to store self-generated energy (from Solar PVs) and either soak or send back to the grid during peak demand times. We recommend government provides incentives designed to offset installation costs.

Licensed, trained and insured electrical contractors are the essential workforce needed to install batteries for consumers.

[Home Energy Management Systems \(HEMS\)](#)

HEMS enable consumers to remotely control smart technology appliances. When paired with digital smart meters, consumer choice is optimised. Integrating incentive policies for households and businesses to adopt HEMS could have a rapid and significant impact on WA's emissions target. It is a powerful companion to tariff reform and home battery strategies to improve energy efficiency, time shift energy, and decrease emissions across WA.

There are relatively inexpensive plug and play system that a homeowner can install, or more comprehensive solutions that can be wired to control fixed loads such as hot-water and air conditioning and integrate their use with solar production. The Bill should give recognition that the more comprehensive options must be installed and set-up by a licensed electrical contractor.

[Electric Vehicles \(EVs\)](#)

Electric vehicle policies will assist with reducing carbon emissions. This will, however, naturally present challenges and opportunities for the electricity grid. An increase in EVs will see significantly more renewable energy production required to service energy needs. Conversely, it will also mean that existing oversupply of PV capacity during daylight hours will have the ability to be soaked and the possibility of being dispatched during times of need.

The Bill should include policies which enable bi-directional EVs for passenger vehicles. Introducing bi-directional charge enabled vehicles as an option for consumers will provide the benefits of soaking load for periods of daytime oversupply and be a dispatchable reservoir of power during periods of undersupply.

Installation of EV infrastructure in homes and businesses in concert with HEMS for residential buildings and Building Management Systems (BMS) for commercial businesses would increase the stability of the network.

Licensed and trained electrical contractors should be at the forefront of delivering this capacity.

[Private Asset Maintenance](#)

If the grid is going to be more reliable on CER, then minimum standards of safety and reliability on anyone receiving Feed in Tariffs (FIT) should be included in the Bill. An increase in the prevalence of DC isolator failures, high penetration of solar PV systems and the expected increase in the installation of home batteries and vehicle chargers makes it necessary to

ensure that these assets are safe for consumers and reliable for the stability and capacity of the grid.

MEA recommends including mandated inspections on grid connected solar and battery systems receiving FIT. Performance of these inspections should be legislatively restricted to licenced electrical contractors every five years. We suggest funding of inspections is covered by levying a monthly fee on consumers' electricity bills and administered by the retailer.

Phased Implementation

MEA has recently responded to ACT's consultation *Developing Act's Integrated Energy Plan* whereby a three-staged approach towards achieving 100 per cent electrification between 2024-2040 has been proposed³. This provides an example framework of a staged approach WA can integrate within the Bill. Achievable and measurable targets can be planned with an action plan as to how WA Government intends to achieve these. For example, the Bill could aim to achieve 50 per cent electrification amongst households and businesses between 2025-2035.

³ ACT Government *DEVELOPING ACT'S INTEGRATED ENERGY PLAN Canberra is electrifying: Towards a net zero emissions city [2023]* (12).

Conclusion

To achieve WA's emission reduction targets, MEA strongly advocates that the Climate Change Bill gives greater weight to CER under its Emissions Reduction Strategy.

CER such as Solar Photovoltaic panels (Solar PV) are becoming increasingly mainstream, providing WA with an easy opportunity to mandate their installation. This would reduce reliance on traditional fossil fuel energy. When utilised in combination with Time of Use tariffs, Home Battery Storage and Home Energy Management Systems, consumers are incentivised to source their own energy and store it until peak demand. They are then given the choice to utilise the energy to avoid paying soaring electricity prices or to export back to the grid to receive rebates. These financial incentives will alter consumer behaviour inherently reducing carbon emissions.

To encourage consumer investment and enhance societal confidence in CER, its benefits need to be fully optimised and allowing premises to be installed with secondary settlement points to separately identify and measure flexible loads would aid this.

DER is going to become increasingly necessary as electric vehicles (EVs) become more predominant. Bi-directional charging can assist with charging EVs thereby reducing demand pressures on the grid and act as easily accessible battery storage systems. We highlight that introducing DER policies within the Bill is the sensible solution to an easily foreseeable grid stability issue that will inevitably arise with the increase in EVs.

Private CER assets that have benefited from a government rebate and are receiving feed in tariffs should have mandatory inspections every five years to ensure stability and safety of the grid.

MEA emphasises the vital role licenced electrical contractors have within CER integration. It is a ready workforce with the necessary base skills to perform a wider cohort of these functions. The electrical contracting industry will assist with accelerating the roll-out of CER infrastructure and MEA stands ready to assist the WA government in addressing these challenges.

MEA looks forward to seeing the progress of WA's Climate Change Bill and hopes to have provided valuable insight towards the benefits of legislating electrification to achieve the long-term target of net zero emissions by 2050.