



## Master Electricians Australia Distributed Energy Resources (DER) Policy

### Roadblocks and Solutions

There are many moving parts to achieving emissions reduction targets set by governments. Master Electricians Australia (MEA) has identified several areas that the electrical contracting industry can and should be at the forefront of, including:

1. Digital Meter rollout – clearing the roadblock caused by Power of Choice (POC).
2. Tariff Reform – onto Flexible Demand Driven Tariffs/Time of Use (TOU) tariffs.
3. Solar PV – utilising existing and future capacity to shift daytime oversupply to storage for peak load dispatchable power.
4. Home Battery Storage – installation of home batteries to charge during the periods of oversupply on the grid, and discharge during undersupply.
5. Home Energy Management Systems (HEMS) – behind the meter (privately installed) systems that controls energy usage of manageable loads by using smart-home technologies to run them when prices are lowest.
6. Electric Vehicles (EVs) – prioritise bi-directional charging for government procurement and consumer incentives.
7. Private Asset Maintenance – as private energy assets become a more integral part of the public grid, ensuring the integrity of the network and the safety of the public by having minimum maintenance requirements on private energy assets that export to the grid.

Licensed electrical contractors are the solution to remove these roadblocks and deliver these on the ground DER solutions.

#### Digital Metering Rollout

The narrowest and most pressing bottleneck is the rollout of digital smart meters into homes and businesses.

**Power of Choice (POC)** metering reforms were designed to promote choice and efficiency in the delivery of energy to the end point consumer. While they have partly delivered on the promise of choice, more work needs to be done with tariff reform in a DER environment and recognizing the potential of smart meters. The promise of efficiency has not been achieved, and the delivery of metering services has been made considerably more complex with an overall increase in delay for new connections and metering changes.

An increase in layers of administration and stakeholders with the advent of POC has meant that connection times and changes to metering are taking longer. This bottleneck in the installation and

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replacement of meters is slowing down the transformation of the grid and provision of more consumer choice.

There is a skilled and underutilised workforce that could fill this gap rapidly. Licensed electrical contractors with minimal training could become **Authorised Service Providers (ASPs)** to replace meters. This would reduce connections 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 opportunities.

One of the key objectives of the POC reforms was to increase **Demand Side Participation (DSP)**. Following advances in technology since the POC review in 2012 plus opportunities offered by battery technology and EVs to drive DER efficiencies in the energy market, MEA believes this needs to be updated to reflect changes in technology and the nation's commitment to net zero and carbon reduction targets.

### Tariff Reform

Some states have a simplified off-peak tariff (typically between 9pm and 3 pm) that reflects peak usage times. Other states have introduced very targeted solar-sponge tariffs that concentrate incentives for usage to the middle of the day when solar over-generation is being underutilised, causing network stability problems. To combat this stability problem, most jurisdictions have enacted legislation designed to constrain (turn off) private solar assets during the day. This is not efficient and would squander available energy.

MEA believes that the best way to change consumer behaviour with DSP and drive development of technological solutions that increase energy efficiency, is to move as many consumers as possible to a single meter using **Flexible Demand Driven Tariffs**, where decisions about usage of power are made behind the meter by use of **Home Energy Management Systems (HEMS)**.

With the market sending price signals, the consumer can use existing technologies to control manageable loads. This includes EV and home batteries to soak up the excess supply on the network during the day to provide energy needed for night-time requirements, without the need for other on-call sources of generation.

MEA recognises some classes of accommodation (rental, lower socio economic, or fixed income cohorts) may need a for a community tariff for equitable access to affordable power where it is not viable for PV, batteries, or HEMS solutions. For all other consumers of electricity, there should be a move to a universal **Flexible Demand Driven Tariff**.



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### Solar PV

As Solar PV is now a mainstream part of the market, policies should aim to integrate existing and new solar installations with home batteries and EV charging requirements, targeting subsidies and incentives to drive consumer behaviour to enhance DER implementation.

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

To have Solar PV installed in homes or business, consumers should engage a licensed electrical contractor with a Cert 4 in PV and a CEC Accreditation.

### Home Batteries

To enable a diverse DER strategy that does not overly rely on large-scale solar farms, the market needs to make the best use of rooftop solar in domestic homes and businesses. Governments at a state and federal level should offer incentives to offset the costs of battery installations to assist with the replacement of dispatchable capacity as coal fired power stations are continuously taken offline.

Significant efficiencies by using available renewables can be achieved and stability improvements in the grid realised via a number of methods. This includes using soak tariffs to charge home batteries during periods of oversupply of PV. Or **Flexible Demand Drive Tariffs** that work in concert with HEMS to manage capacity of home batteries and control other manageable loads (including pools, dishwashers, hot water systems, air conditioners).

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

### Home Energy Management Systems (HEMS)

The installation of HEMS, to control appliances is a private consumer choice. If incentivised by government and adopted by a considerable proportion of homeowners and small businesses, it could have a rapid and significant impact.

It is a powerful companion to tariff reform and home battery strategies to improve energy efficiency and decrease emissions across the economy.

The attractiveness of HEMS is that it is a 'behind the meter' consumer driven solution that can make a significant difference to energy usage in a home or an installation without relying on the expensive infrastructure of multiple smart meters with different tariffs controlling fixed loads on dedicated circuits.



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There are relatively inexpensive plug and play systems 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 your solar production. These must be installed and set-up by a licensed electrical contractor.

### Electric Vehicles (EV)

The expected shift to EVs is going to 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 possibility of being dispatched during times of need.

MEA is advocating for government procurement policies and consumer incentives to preference bi-directional EVs for passenger vehicles. With bi-directional charge enabled vehicles as the standard for passenger vehicles in Australia, we would have the benefit of both a soak load for periods of daytime oversupply and a massive reservoir of dispatchable power during periods of undersupply.

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

Again, licensed and trained electrical contractors would be at the forefront of delivering this capacity.

### Private Asset Maintenance

MEA believes that if the network is going to move to more reliance on private energy assets from domestic solar and batteries, then it would be prudent to build in an obligation that anyone who is receiving a **Feed in Tariff (FIT)** ensures that their system is maintained to a minimum standard of safety and reliability.

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 consideration of mandating inspections on grid connected solar and battery systems receiving a FIT, by an appropriately licensed electrical contractor every 5 years. We suggest this could be funded by the levying of a monthly fee on the consumer's electricity bill and organised by the retailer.



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## Conclusion

MEA are supportive of Australian Government initiatives and believe that the electrical contracting industry and licensed electrical workers are at the forefront of helping deliver constructive solutions to deliver their emissions reduction targets. In summary these would be:

- Licensed electrical contractors could become **Authorised Service Providers (ASPs)** to install new meters and replace old metering. This would reduce connections 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 opportunities.
- MEA believes that the default Tariff for electricity consumers should be a flexible demand driven tariff.
- MEA also believe that as more EVs become available on the Australian market with bi-directional charging ability, they should be preferred in the payment of incentives for EVs and in government fleet procurement policies.
- Governments should consider moving subsidies towards batteries and EV infrastructure, in concert with home solar to drive consumer behaviour to the DER phase to make the most efficient use of the stocks of rooftop solar in the market.
- Governments should consider some incentives and funding for pilots to assess the effectiveness of HEMS to identify the best application of these in homes and businesses to reduce energy usage.
- MEA recommend mandating inspections on grid connected solar and battery systems receiving a FIT, by an appropriately licensed electrical contractor every 5 years.





# Master Electricians Australia Distributed Energy Resources (DER) Policy

## DER Home Solution Opportunities

**1 Smart Meter Roll Out**  
**2 Tariff Reform**  
**3 Storage & EV Incentive**  
**4 Home Energy Management Systems**  
**5 Private Asset Maintenance**

**Power Grid**   **Meter Box**   **Battery**   **Smart Inverter**   **EV Charger**   **EV Battery**   **HEMS**

Energy  
High  
Low  
Time  
5:00 8:00 11:00 14:00 17:00 20:00

In the middle of the day there is more supply than demand  
As people arrive home, electricity demand begins to increase  
Demand increase coincides with dropoff in supply from solar

Achieving emissions reduction targets through removing regulatory roadblocks and delivering on the ground DER solutions.



# Master Electricians Australia Distributed Energy Resources (DER) Policy

## Distributed Energy Resource Cycle

Achieving emissions reduction targets through removing regulatory roadblocks and delivering on the ground DER solutions.

