

QUEENSLAND BUDGET 2023-24

Tackling the cost of living

Leveraging CER to Combat Cost-of-Living Pressures

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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

MEA is supportive of ‘the Big Build’ \$89B investment in principle, and its allocation towards “the State’s ongoing decarbonisation agenda”¹ to provide a “strong, resilient, sustainable”² future, we believe that this agenda could be delivered more cheaply through a greater commitment to Consumer Energy Resources (CER). While we support energy bill rebates for households to alleviate cost-of-living pressures, we point out that this is essentially a ‘bandage’ on a long term problem; a solution to which we believe is the implementation and integration of CER.

Throughout this submission, we will advocate the benefits of CER, including:

- Clean energy production
- Resilience to climate change events
- Lower electricity prices
- Increasing market competition
- Providing consumer control over their energy usage
- Reducing taxpayer expenditure

We recommend rebates be provided to households and businesses to encourage installation of CER, Home Energy Management Systems (HEMS) and Battery Energy Storage Systems (BESS). These CER assets coupled with educating consumers how to utilise these in response to time of use (ToU) tariffs, will become powerful tools in creating long-term sustainable energy prices, removing the need to provide energy bill rebates. MEA advise that the Government provide \$5,000 Home Battery rebates for consumers with a greater than 5KW solar PV capacity. This will be a significant contributor towards “transforming the energy system over the next 10 to 15 years to deliver clean, reliable and affordable power, creating a platform for strong economic growth and continued investment”³.

MEA also highlight the need to allocate budget towards our future workforce to enable continued implementation of electrifying QLD, and to “support growth and development of a skilled and flexible workforce”⁴.

CER

[What is CER?](#)

CER are numerous privately owned assets used to naturally generate, store and utilise energy as close to the point of generation as possible at individual consumer locations making them a resilient solution to power outages which occur from climate related events such as bushfires and storms. 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 CER include:

- Rooftop solar photovoltaic units (Solar PV)
- Wind generating units
- Battery storage
- Electric vehicle (EV) batteries

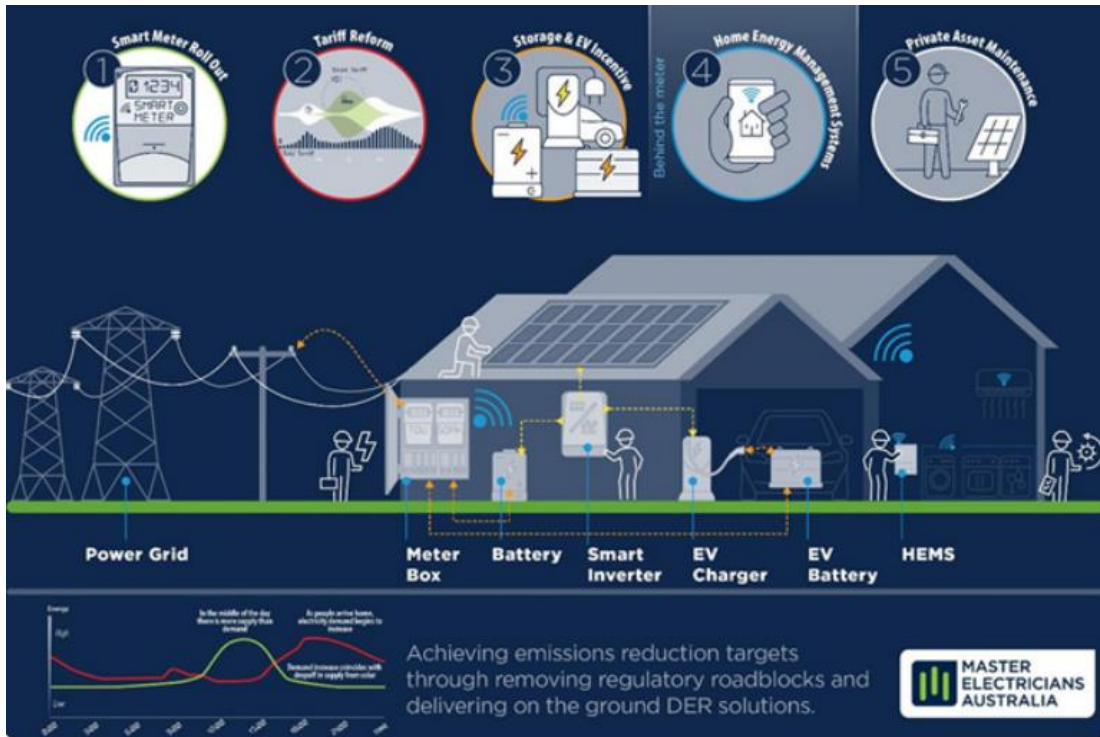
¹ ‘QUEENSLAND BUDGET 2023-24 Tackling the cost of living’ *Queensland Government* (2023), 9.

² *Ibid.*

³ (n1), 54.

⁴ (n1), 20

Below is a diagram of how CER operates.



We believe CER will be a key solution to achieving the “Queensland Energy and Jobs Plan and supporting investments across renewables, storage and network infrastructure to achieve renewable energy targets of 50 per cent by 2030, 70 per cent by 2032 and 80 per cent by 2035 and deliver clean, reliable and affordable power for generations”⁵.

Time of Use (ToU) Tariffs

MEA believes the best way of incentivising the most efficient use of solar PV currently being wasted is through implementing flexible demand and generation TOU tariffs, giving consumers control of their power bills and living up to the promise of the Power of Choice electricity market reforms. 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 being generated.

Implementing ToU tariffs sends price signals to consumers when to store excess energy and when to utilise and/or send excess energy back to the grid. During the minimum demand window, ToU charges 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.

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,

⁵ (n1), 54.

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). This assists in providing sustainable economic growth as energy bills will be reduced thereby increasing household disposable income.

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 if we make some rational, sensible decisions. The technology is here now, regulations and policies just need to catch up, and the workforce of electrical businesses across QLD stand ready to make it happen.

Investment will be necessary to upgrade distribution and transmission infrastructure to reflect the changing energy supply chain, modifying from a one-way system to a two-way system, allowing consumers to not only receive energy but also transfer energy they have privately generated back to the grid.

In the same way the distributed, market-based architecture of the share market provides resilience and long-term stability for share pricing, we could adopt this approach for CER. The share market is regulated by ASIC and the ACCC and traded on the ASX. We already have a “share market” for electricity pricing in the National Electricity Market (NEM) and this is regulated using the National Electricity Rules created by the AEMC, enforced by the AEMO, we currently exclude the ‘Mum and Dad’ investors from fully participating in this market.

Solar PV

Solar PV is becoming increasingly popular amongst residential and commercial buildings thereby making it easier for QLD to implement solar installation. We recommend such policies are introduced in concert with HEMS 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 IV in PV and CEC Accreditation are used to provide homes and businesses with Solar PV installations and battery installs.

Battery Energy Storage Systems (BESS)

It is widely accepted that we need to increase the amount of energy storage available to the NEM to make renewables work as a reliable energy source. We strongly promote significant household and business implementation of BESS to achieve this. These enable consumers to store self-generated energy (from Solar PVs) and either soak or send back to the grid during peak demand times. MEA advocate for the QLD budget to allocate \$5,000 home battery rebate for consumers with a greater than 5KW solar PV capacity.

Rather than relying on large, centralised storage that needs long runs of HV transmission lines to transfer the energy to our cities and towns, many BESS located in private homes and businesses are installed throughout towns and cities utilising the existing distribution infrastructure. This removes the single points of failure, and increases network resilience, whilst at the same time incrementally and progressively increasing system storage capacity with each individual system installed.

Using the Pioneer Burdekin Pumped Hydro Project as a comparison, with a projected cost of \$12 Billion to deliver 5GW of storage capacity, this equates to \$2400/KW of installed capacity. There are nearly 1 million scale rooftop PV systems in Qld, if the government gave a consumer BESS rebate of \$5000 to 500,000 consumers over 10 years, (based on a 10KW battery with 8KW discharge depth) it would cost them \$2.5B for 4GW of storage capacity, this equates to \$1600/KW of storage capacity. The 10-year time frame is the same time frame to deliver the pumped hydro solution.

This does not factor in the likely cost blow-out of the pumped hydro project (as seen with Snowy 2.0 and the 600% cost over-runs), nor the \$1 Million/km for HV transmission line costs on top of the \$12 Billion budgeted figure. The \$5000 per consumer figure for BESS is a known finite quantity and would deliver a reliable amount of peak demand reduction for the outlaid expenditure.

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 QLD's renewable energy targets. It is a powerful companion to tariff reform and home battery strategies to improve energy efficiency, time shift energy, and decrease emissions across QLD. We should incentivise the use of existing technology to install HEMS in our homes to monitor our energy usage and electricity demand on the grid, and speak to each other and adjust our generation, usage, and storage to the most efficient levels possible, without relying on us to make conscious choices.

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. QLD electrification policies should give recognition that the more comprehensive options must be installed and set-up by a licensed electrical contractor.

[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 recommends that licensed 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 CER policies.

[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 as EVs typically have a battery of around 70KW adding up to seven times the capacity of a static home battery in addition to being a clean productive transport option.

We recommend introducing bi-directional charge enabled vehicles as an option for consumers which will provide the benefits of soaking load for periods of daytime oversupply and be a dispatchable reservoir of power during periods of undersupply. Currently DNSPs are seeing EVs as primarily a threat to the grid, but if policy and regulation caught up to the rapid uptake of EVs they would become an invaluable asset to the grid.

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 become reliant on CER, then minimum standards of safety and reliability on anyone receiving Feed in Tariffs (FIT) should be considered. 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 licensed 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.

Workforce

A skilled labour pool is essential to maintain a sustainable long-term electrified economy. The prospect of creating 58 000 new jobs⁶ through 'the Big Build' budget priority is gratifying; however, Australia is currently facing a skill-shortage crisis which requires immediate attention to meet our current and future increasing labour demand. MEA strongly advocate that investing into our future workforce now is the solution.

Integrating and streamlining Vocational Education Training (VET) courses into the secondary school curriculum is essential in exposing and encouraging interaction and advancement in the Science, Technology, Engineering and Match (STEM) trade sector. Perception of entering trades for both females and males will be altered, and students will become better equipped when entering STEM trades. It will also allow for better aptitude and competency screening ensuring the right skills are matched with the right trades, thereby improving commencement and retention rates in STEM.

Ensuring secondary schools are designed to facilitate this through not only streamlining the subjects, but also providing facilities to enable practical learning (e.g. designated zones for testing electrical switchboards) will stimulate interest and development in STEM trades, securing a future skilled workforce to continue developing and maintaining a cleaner economy. This will ensure QLD has the workforce available to fulfil "Government's economic strategy to create more jobs in more industries"⁷.

⁶ (n1),53.

⁷ (n1), 20

Conclusion

To achieve QLD's goal of achieving "renewable energy targets of 50 per cent by 2030, 70 per cent by 2032 and 80 percent by 2035"⁸, MEA strongly advocate for the Queensland Budget 2023-24 to allocate finances towards CER policy implementation and asset installation through provision of BESS rebates. We recommend \$5,000 home battery rebate for consumers with a greater 5KW solar PV capacity. Not only will this provide a sustainable solution to tackling energy costs, but also "deliver clean, reliable and affordable power for generations"⁹.

A combination of CER, ToU tariffs, HEMS and BESS create a powerful tool in:

- Providing consumers control over their energy usage
- Reducing electricity prices
- Stabilising the energy grid
- Providing clean, resilient and reliable energy.

We strongly recommend the QLD Government delivers BESS implementation rebates which will provide a more sustainable cost-saving solution to energy costs than a one-off energy Bill rebate that does not address or improve the core issues driving energy prices. Our calculations show that this will provide cost savings in the billions, and almost half the cost/KW, when compared to the Pioneer Burdekin Pumped Hydro Project. By encouraging consumers to install and maximise the benefits of solar PV by educating them how to respond to ToU price signals through BESS and HEMS, we can expect long term consumer energy costs to trend down.

With the anticipated population growth and increased uptake of EVs, the grid is expected to experience significant demand pressures jeopardising its stability and integrity. CER and HEMS will combat these problems by creating greater solar energy storage opportunities which consumers can either utilise or provide back to the grid.

Introducing ToU tariffs and educating consumers how to take advantage of them through BESS and HEMS will foster community acceptance and therefore action towards transitioning to CER clean energy. The technology to achieve CER implementation is here now, it is the policies and public infrastructure that needs to catch up. The traditional one-way network system needs to be modernised to enable a two-way network system where consumers not only receive DNSP generated energy but also give back privately generated energy to the grid. QLD's network infrastructure further needs to enable bi-directional EV charging, alleviating grid demand pressures and addressing private and public charging facility capacity problems.

MEA stresses the vital role licenced electrical contractors play within installing and maintaining the private CER infrastructure market. We encourage QLD to integrate the private electrical sector into its electrification policies to cohesively dedicate private functions to this industry. Ensuring licenced electrical contractors with Cert IV qualifications occupy the private arena of CER will enable efficient and effective private CER rollout and create a competitive market driving down consumer prices. It further leaves more capacity to DNSPs to integrate CER with the network and monitoring functions.

A pipeline of skilled labour is crucial for the implementation and maintenance of electrifying QLD. Investment into QLD's future pool of skilled labour to facilitate the future needs of CER needs to

⁸ (n1), 54

⁹ *Ibid*

happen now through a streamlined & integrated VET secondary school curriculum with equal weighting to ATAR subjects. This will foster interest and early training in STEM trades and allow for better aptitude and competency screening to better match the right skills with the right trade, overall enhancing QLD's trade commencement and attraction rates.

MEA looks forward to QLD's electrified future and hopes to have provided useful insight towards the benefits of prioritising CER and BESS within the Queensland Budget 2023-24. We would appreciate the opportunity to be a part of future discussions regarding CER, ToU, HEMS and BESS.

