MASTER ELECTRICIANS AUSTRALIA

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Greater Adelaide Regional Plan Discussion Paper

Electrifying Adelaide's Future.

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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

The *Greater Adelaide Regional Plan Discussion Paper* (the Plan) presents an opportunity for "South Australia … to be known as an ambitious and capable state that embraces technology and drives innovation"[1] through designing and implementing distributed energy resource (DER) policies. Such technologies will contribute towards a "greener, wilder and climate resilient environment"[2] and a "stronger economy built on a smarter, cleaner, regenerative future"[3].

DER are privately owned, self-generating energy assets which reduces reliance on traditional fossil-fuel transmission networks. This technology not only allow for greener energy, but also provide consumers with power of choice (PoC), thereby reducing overall energy prices and shifting the load of traditional energy times.

SA has an opportunity to mandate policies which alleviate cost pressures faced by consumers and reduce carbon emissions. Our suggestions throughout this submission support the climate and decarbonisation State Priorities and Directions (SPPs), in particular:

- SPP 1 - Integrated planning
- SPP 5 - Climate change
- SPP 12 - Energy

Throughout this submission, MEA will advocate that DER infrastructure is the key to achieving net zero emissions and 100% renewable electricity if supported by introducing the following policies:

- Mandatory new build electrification
- Secondary settlement points
- Electric vehicles
- Time of use tariffs
- Private asset maintenance
- The role of the licenced electrical industry in electrification.

We further highlight that focusing on addressing the current skills shortage is essential for enabling the Plan to be efficiently actioned. We recommend short-term solution of inter-state qualification recognition and long-term solution of vocational education training (VET) subjects built into secondary school facilities and curriculum.

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 DER.

[1] 'Greater Adelaide Regional Plan Discussion Paper' *State Planning Commission* [2023] 68
[2] *Ibid* 84
[3] *Ibid* 84

DER

What is DER?

DER are used to naturally generate, store and utilise energy, and presents a mitigating solution to climate change which saves costs and utilises excess solar. MEA strongly advocate for policies to be implemented mandating the installation of this technology.

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 are enabled to enter into trading arrangements that could 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. DER is to 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.

Rooftop Solar Photovoltaic Units (Solar PV)

Solar PV is becoming increasingly popular amongst residential and commercial buildings thereby making it easier for SA to integrate solar installation policies within the Plan. We recommend such policies are introduced in concert with home battery and EV charging requirements (this is discussed in greater detail under 'regulations').

Digital Smart Meters

Digital smart meters provide consumers with the power of choice (PoC), 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 believe these are necessary for achieving SA's commitment towards net 100% renewable energy by 2030 and net zero emissions by 2050[4].

Home Batteries

Home batteries are necessary to optimise DER'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.

[4] *Ibid* 46

We recommend government provides incentives designed to offset installation costs. EV batteries are great examples of home battery storage options which are going to be increasingly accessible as EV adoption increases.

Home Energy Management Systems (HEMS)

HEMS enable consumers to remotely control smart technology appliances. When paired with digital smart meters, consumers PoC becomes optimised. Integrating incentive polices for households and businesses to adopt HEMS could have a rapid and significant impact on SA's renewable and emissions targets. It is a powerful companion to tariff reform and home battery strategies to improve energy efficiency and decrease emissions across SA.

DER Related Regulations.

The technology for DER is here now; it is the lack of regulations that is inhibiting the full benefits of DER from being realised. The Plan presents an opportunity to implement electrification regulations and policies which we heavily encourage the SA Government to take advantage of. Below are MEA's recommendation which encourage "policies and regulatory tools to support decarbonisation"[5].

New Builds

To achieve the target of net 100 per cent renewable electricity by 2030, the Government needs to take swift action enforcing DER policies. We recommend introducing regulations mandating DER installation within new-builds thereby removing reliance on fossil fuels.

Secondary Settlement Points

We recommend implementing policies that allow 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, thereby enabling DER 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 DER flexible loads 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.

Electric Vehicles (EVs)

The "estimated 30% [of] vehicle sales [expected to be] EVs in 10-15 years"[6] highlights the need for the SA Government to ensure private and public infrastructure is designed to facilitate the increased demand on the grid. Policies to support charging stations are necessary to ensure vehicles can be charged. We believe EV's present opportunities for the energy network. Through bi-directional charging, EV batteries can be used to soak the excess supply of PV sourced during daylight hours which can be later used to charge the vehicle and supply energy for flexible loads at later points in the day as needed. Installation of EV infrastructure in homes and businesses in concert with HEMS for residential

[5] (n 1) 46
[6] *Ibid* 48

buildings and Building Management Systems (BMS) for commercial businesses would increase the stability of the network.

Time of Use Tariffs

MEA believes the best way to have consumers contribute towards reducing carbon emissions is through introducing flexible demand time of use (ToU) tariffs. These tariffs impose charges and provide rebates for DER users.

During the middle of the day, the network experiences minimum demand for energy, while DER generated energy is at its greatest. Then, during 4PM-9PM, the network experiences peak demand for energy, while DER energy is no longer generated. Implementing ToU tariffs sends prices 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.

Private Asset Maintenance

Minimum standards of safety and reliability should be the responsibility of anyone receiving Feed in Tariffs (FIT). 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.

We propose these inspections are to be performed by licenced electrical contractors every five years. Funding of inspections are to be covered by levying a monthly fee on consumers' electricity bills, organised by the retailer.

Licenced Electrical Contractors Workforce

DER related regulations, policies and legislation should recognise the role licenced electrical contractors have in being at the forefront of electrifying the Greater Adelaide Region. We recommend licenced, trained and insured electrical contractors with a Cert 4 in PV and CEC Accreditation are used to install the following in residential and commercial residences:

- Solar PV installations
- Smart meters (to replace traditional meters)
- Secondary settlement points
- Home batteries
- Comprehensive versions of BESS

Utilising the electrical industry for electrifying the Greater Adelaide Region will assist in reducing 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.

Infrastructure Utilisation

Existing Regional Development

We support the Commission's intention where development "in established areas [are to] focus growth on locations with existing infrastructure capacity[7]". DER can utilise existing transmission structures which the community has cumulatively paid for over the last century, relieving the need to invest in as many mega generation and transmission projects.

DER aligns with "the Commission's view … that general infill needs to be better targeted to areas with infrastructure capacity, and areas which would benefit from renewal and greater housing choices"[8]

New Development Areas

We agree that we "need to carefully plan new development areas as they have a higher cost"[9]. MEA advocate that DER should be central to plans regarding energy supply for new development areas as this "infrastructure can be planned and augmented in a cost effective and orderly manner"[10]. DER will not only reduce emissions, but also decrease long-term energy bills and increase grid stability. The unique benefit of DER is its ability to directly source energy at the same site it will be utilised reducing the need to spend millions building major transmission and distribution networks in newly developed areas.

Workforce

The Commission recognises that for the Grater Adelaide Region to be a "prosperous economy requires [the State to] have employment land" that attracts "a skilled workforce and environment that are attractive for talented workers"[11]. While we recognise this is essential to incentivising skilled talent to relocate to the Greater Adelaide region, MEA highlights the current skills shortages being experienced all around Australia.

Currently the STEM (Science, Technology, Engineering and Math) Trades are suffering a skills-shortage crisis. MEA stresses the importance for the SA government to provide both short-term and long-term strategies to ensure a sufficiently skilled workforce is available to transition and maintain SA's electrified future.

Short-Term Workforce: Inter-State Qualification Recognition

MEA has made several submissions regarding the current disarray of inter-state qualification recognition of licenced electrical contractors. For a licenced electrical contractor living outside of SA to

[7] (n 1) 99
[8] *Ibid* 143
[9] *Ibid* 99
[10] *Ibid 99*
[11] *Ibid* 146

work in the Greater Adelaide region, they are required to complete more qualifications under SA regimes despite having equivalent qualifications in their residential State. This is a barrier to attracting a skilled workforce. With the goal of a "greener, wilder and climate resilient environment"[12] and a "strong economy built on a smarter, cleaner regenerative future"[13], SA needs to position itself to attract licenced electrical workers to action the Plan efficiently and swiftly. We recommend SA improving national harmonisation by allowing interstate qualified licenced electrical workers to perform work in SA without having to undergo unnecessary additional qualifications.

Long-Term Workforce: Vocational Education Training (VET) Education

To truly enhance a diverse range of skills in the local community, the Plan needs to think beyond improving physical infrastructure. MEA are strong advocates that integrating and streamlining VET courses within the secondary school curriculum is the key to addressing the STEM Trades skills shortage Australia is currently facing.

Secondary school facilities need to be designed to have spaces designed for training in STEM trades. For example, schools should have spaces with switchboards, targeted at providing a space for students wanting to pursue a career in the electrical industry. Secondary schools are currently significantly focused on ATAR results therefore restricting learning space facilities to academic subjects. For SA to develop a skilled workforce in STEM trades to continue facilitating an electrified community in the greater Adelaide Region, it needs to turn its attention towards developing the labour force now. The Plan provides significant opportunity for Adelaide to develop educational spaces which encourage and foster development in STEM trades to remain "ambitious [and innovative]"[14].

[12] (n 1) 170
[13] *Ibid* 170
[14] *Ibid* 68

Conclusion

To achieve SA's targets of 100% electrification by 2030 and net zero emissions by 2050, MEA strongly advocate that polices are implemented to utilise DER infrastructure as a mitigating action against climate change.

We are expecting to see significant development in the grater Adelaide region over the coming 30 years. Policies should mandate new builds to be 'DER friendly' through rooftop solar PVs, secondary settlement points, smart meters and EV bi-directional charging infrastructure. Legislating these requirements will move the greater Adelaide region away from fossil fuel.

When utilised in combination with Time of Use tariffs, Home Battery Storage and Home Energy Maintenance Systems, consumers are incentivised to source their own energy through DER and store it until peak demand time. They are faced with the choice to utilise the energy to avoid paying high prices or send back to the grid to receive rebates. These financial incentives will alter consumer behaviour thereby inherently reducing carbon emissions.

With the anticipated uptake of EVs over the next 10-15 years, there is going to be a greater need to integrate bi-directional charging infrastructure within residential and commercial premises. Not only will this reduce demand pressures on the grid, but will also act as easily accessible home battery units. Introducing EV bi-directional policies is the sensible solution to easily foreseeable grid stability and charging capacity issues.

MEA emphasises the vital role licenced electrical contractors have within DER integration. It is an underutilised workforce with the necessary base skills to perform these functions. The industry will assist with accelerating the roll-out of DER infrastructure and should therefore be given regulatory recognition. To give SA the best chance at minimising the negative consequences of skills shortages, we urge the State to reduce inter-state qualification requirements to allow qualified licenced electrical workers from other jurisdictions to assist in electrifying SA. The Plan also needs to ensure newly built secondary schools are designed to support practical VET courses which allow engagement and training in STEM trades to be fostered, ensuring SA continues to have a skilled workforce to maintain a continuing electrified region.

MEA look forward to seeing the future of the greater Adelaide region and hopes to have provided valuable insight towards the benefits of legislating DER infrastructure to achieve 100% electrification and net zero emissions.