SUBMISSION

COAG Energy Council

Stand-alone energy systems in the Electricity Market

Consultation on regulatory implications

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The Electrical Trades Union (ETU) is the Electrical, Energy and Services Division of the Communications, Electrical, Electronic, Energy, Information, Postal, Plumbing and Allied Services Union of Australia (CEPU). The ETU represents approximately 65,000 workers electrical and electronics workers around the country and the CEPU as a whole represents approximately 100,000 workers nationally, making us one of the largest trade unions in Australia.

We welcome the opportunity to submit to the Council of Australian Governments (COAG) Energy Council in relation to regulatory impacts of existing and future stand-alone energy systems. This submission builds on ETU representations and feedback provided to the Energy Market Transformation Project Team at the 6 September 2016 Stakeholder Workshop.

There is no doubt that Australian electricity markets are entering a period of evolution from the traditional status quo of centralised electricity supply and how transmission and distribution networks are being utilised. This change is being driven by a confluence of factors that include new and developing technologies and increasing customer control over how, when and how much consumers use electricity – all within the context of ever increasing power prices.

Battery storage technologies are continuing to develop at a fast rate and become increasingly commercially viable for both consumers and business alongside ever increasing demand for clean and low emission electricity as part of efforts to de-carbonise the energy sector. Coupled with this is increasing instances of communities and areas where off-grid solutions are becoming increasingly preferable to traditional grid connection and both cost and reliability – particularly in rural and remote areas.

As stated in the consultation paper, the current legal and regulatory frameworks that apply to the National Energy Market (NEM) were predicated upon and designed for traditionally centralised power generation and distribution arrangements. Existing stand alone and off grid networks, be they for large metropolitan communities such as

Perth or Darwin, or smaller regional and remote communities such as Mt Isa or Cape York communities, are largely subjected to state jurisdictional regulations arrangements that are built upon and to a large degree follow the same design philosophy of NEM regulations. What this means is that that to date there has been no 'bespoke' arrangements for off grid or stand-alone systems that cater for the challenges and opportunities that come with those systems or provide an overall level of regulatory consistency.

The likely increased incidence of households and communities contemplating at least having the option to go off grid or stand alone, presents the additional challenge of situations where consumers will exercise the ability to effectively 'opt out' of the NEM as opposed to the historical situations where off grid communities were off grid due to circumstance and had no choice of being part of the NEM.

In our view, energy market regulators must always meet the perennial challenges presented by change that is driven by technological development. It would be reasonable to say that to date, efforts in this regard have largely been reactive rather than proactive, and any efforts to imbed flexibility in regulatory arrangements have been somewhat nascent and have met with limited success.

In acknowledging that general National Energy Objective goals must be met, we cannot reiterate the importance of safety, reliability and affordability and the specific challenges and requirements presented to stand-alone systems in meeting these objectives must be addressed in the regulatory arrangements.

Flexibility must also be a feature of the regulatory arrangements, as it is reasonable to expect continued technological developments and as yet unknown factors to reveal themselves in the short term, as stand-alone arrangements become more common and continue to develop.

The paper refers to a stand-alone system as *'A stand-alone energy system is a local energy grid with control capability, which means it can disconnect from the wider grid and operate autonomously.'* The paper then goes on to suggest that a stand-alone system could be defined as one that is not connected to the national system as defined in National Energy Law. We believe that the regulatory definition of a stand-alone system must cater for the potential of a stand-alone or micro grid community to connect to the national grid as well as those that are physically isolated with little or no prospect of ever being connected to the national grid.

For systems that are connected to the grid, a priory must be safety and ensuring quality components of stand-alone systems. These components include switches to disconnecting from NEM grid in the event of a power surge or power failure (particularly to ensure network workers are not electrocuted) and power conditioning equipment to ensure that power exactly matches the voltage and frequency of the electricity flowing through the grid.

In an attempt to address safety and power quality issues in the United States, several organisations are developing national guidelines for equipment manufacture, operation and installation.

The Institute of Electrical and Electronics Engineers (IEEE) has written a standard that addresses all grid-connected distributed generation including renewable energy systems. IEEE 1547-2003 provides technical requirements and tests for grid-connected operation. Underwriters Laboratories (UL) has developed UL 1741 to certify inverters, converters, charge controllers, and output controllers for power-producing stand-alone and grid-connected renewable energy systems. UL 1741 verifies that inverters comply with IEEE 1547 for grid-connected applications.

Standards for stand-alone systems should ultimately set and enforced by an independent regulator that is required to consult with both industry (distribution entities, installers, contractors, employee organisations) and the community (stand-

alone system operators and grid-connected customers) in make sure that standards and the enforcement regime meet public expectations. These standards can include capital expenditure for the stand-alone system, however, in cases where the stand-alone system grid connected, those systems must meet grid reliability and safety standards.

We believe that there should be a relationship between the stand-alone system owner(s) and the network distribution provider. This could be done via an interconnection agreement that could cover issues such as liabilities in the event of accidents resulting from the operation of a stand-alone system (eg power surge). Most homeowners carry liability cover through their homeowner insurance policies and it should be investigated to see if these types of cover may be sufficient.

It is imperative that any contractual frameworks be simplified and streamlined to ensure equity and balance in dealings between large corporations and individuals. This can include establishing time limits for processing paper work, and appointing representatives to handle grid-connection inquiries, as well as ensuring a good consumer protection framework around permit fees, engineering/inspection fees, metering charges. We believe that the National Energy Consumer Framework should apply to customers of stand-alone systems and that specific protections for stand-alone systems need to be investigated. Similarly, with Australian Consumer Law, specific protections to meet the unique challenges of stand-alone system usage and commerce should be established and sit on top of the general consumer law protections.

With respect to metering arrangements for grid connected systems, two common arrangements are ‘net purchase and sale’ and ‘net metering’. Under ‘net purchase and sale’ two uni-directional meters are installed: one records electricity drawn from the grid, and the other records excess electricity generated and fed back into the grid. The

consumer pays retail rates for the electricity you use, and the power provider purchases excess generation at its avoided cost (wholesale rate).

We do not support this metering and contractual arrangement as there is usually a significant difference in the distributor/generator/retailer favour between the retail rate and the wholesale price.

Under 'net metering' a single, bi-directional meter is used to record both electricity you draw from the grid and the excess electricity your system feeds back into the grid. If, at the end of the month, the consumer has used more electricity than their system has produced, they pay retail price for that extra electricity. If they have produced more than they have used, the distributor/generator/retailer generally pays you electricity at its avoided cost - essentially pays retail price for the electricity fed back into the grid. We support this type of arrangement.

With respect to the issue of equivalency "retailer of last resort" (ROLR) arrangements for stand-alone systems, we believe that the regulator could step in as a ROLR in the event that an energy services company, delivering stand-alone power solutions, becomes insolvent, and it should be a requirement that each stand-alone system owner and/or operators be required by law to have sufficient insurance arrangements to costs associated with solvency. This should include compensation to scheme participants, costs to the regulator and transitional costs associated with implementing new arrangements.