TIAC
Technology and Industry Advisory Council

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11 April 2018

Jessica Shaw MLA
Chair of the Economics and Industry Standing Committee
Parliament House
Level 1, 11 Harvest Terrace
WEST PERTH WA 6005

Dear Ms Shaw

ECONOMICS AND INDUSTRY STANDING COMMITTEE – INQUIRY INTO MICROGRIDS AND ASSOCIATED TECHNOLOGIES

The Technology and Industry Advisory Council (TIAC)'s primary objective is to make a significant and valued contribution towards achieving sustainable and economic growth in Western Australia. The Council provides strategic links between innovative approaches to development by industry using science, technology, research and sector know-how for Western Australia's long-term prosperity.

Energy was the foundation enabler of the industrial revolution, and energy is central to the digital revolution. The current energy system in Western Australia is based on nineteenth century concepts and large traditional generation equipment (energy factories). This is a hub and spoke model. It is now apparent that energy can be generated and increasingly stored and utilised in a distributed system that is cheaper than traditional centralised generation. In the 21st century the major expense in delivering energy is the supporting infrastructure. Industry, businesses and the community have become captives to the network grid, which accounts for roughly two thirds of our energy costs.

TIAC recently produced an advisory report[1] regarding the opportunity presented by new energy technologies to reduce the pressure of rising energy prices to Western Australian businesses.   Two opportunities exist: 1) to create new business opportunities through the deployment and development of new technologies; 2) the potential for wider economic growth by tapping un-constrained[2] energy pricing and improved productivity.

During this study, TIAC explored whether current energy regulations rewarded the development of the most cost-effective solution – eg: would a network operator deploy a micro-grid as an alternative to poles and wires? TIAC surmised that:

- public and/or private micro grid investment on the fringe of grid should be encouraged and form a vital part of future investment analysis frameworks and decisions;
- selected regional micro grids should be established as technology testing sites for generation technology, integration and storage where the results can be applied widely to improve energy security;
- there were potential savings in reducing hard wired services, particularly to parts of the network more susceptible to environmental impacts such as bushfires; and for supply to non-economic customers.

There are numerous examples of innovative approaches to delivering fair priced, sustainable, reliable electricity being developed across Australia. For example, following bushfires in the south-east, four landowners in the fire-affected town of Esperance chose to go off-grid, using a stand-alone dedicated renewable energy system that was provided by their network operator, Horizon Power.

Horizon identified that this innovative approach made better investment and service delivery sense for some of the more susceptible parts of its network. Likewise, in Victoria there are a number of community energy projects in the regional towns of Lismore, Daylesford and Yackandandah that also use this model. Community energy is based on community partnership and/or ownership of the energy supply and/or governance systems. The Totally Renewable Yackandandah project has seen a solar power mini-grid system installed for a group of households within the town. The group functions as a unified energy community through individual energy generation (solar panels) and storage

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[1] "New Technology Opportunities Driving Economic Growth – Reducing the impact of energy prices for Western Australian businesses." http://www.tiac.wa.gov.au/Files/TIAC-Advisory-Energy-Report---New-Tecnology-Oppurt.aspx

[2] Work is currently being undertaken by the Public Utilities Office

capability (battery) supported by wireless communications, cloud-base software platforms and home energy management systems that manages usage and billing.

One of the fastest energy technologies in development is battery storage. The battery market, with decreasing prices will expand and new business and delivery models will evolve. As the price of batteries decreases there will be a growing rate at which batteries are adopted. With a substantially larger market, battery production will increase and there will be more opportunities to develop fit-for-purpose batteries that use a range of chemistry and minerals that consider attributes such as energy density, weight, charge/discharge speed, safety, lifespan and other critical factors. It is important to recognise that the growing battery market is not a 'one size fits all' economic and service delivery opportunity.

Noting these developments, there needs to be awareness and planning by Government for new 'disruptors' coming into the energy sector. TIAC applauds the effort of the current Government announcing new legislation to adopt a framework of constrained access to the electricity network be introduced; and the Public Utilities Office developing three consultation papers relating to the implementation of a constrained network access regime for Western Power's network.

Whilst capital investment is shifting towards developing more efficient decentralised energy generation using a range of sources as well as storage technology, this same effort needs to be encouraged and applied to network technology. This will drive down both capital and recurrent costs. The energy microgrid networks, use of diverse energy sources and the addition of more efficient battery storage are each competitive advantages of the state and there are now WA companies developing and delivering new generation and management solutions successfully. The State's access to low cost reliable energy has a big role to play to truly unlock the economic potential of this decentralised model, drive job creation and diversify industry within Western Australia.

Yours sincerely

Mr Alan Bansemer
CHAIR