



**Economics and Industry Standing Committee:  
Inquiry into Microgrids and Associated  
Technologies in Western Australia**

**Alinta Energy  
Submission**

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**13 April 2018**

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## 1 Introduction

Alinta Energy (**Alinta**) welcomes this timely Economics and Industry Standing Committee inquiry into the emergence and impact of electricity microgrids and associated technologies in Western Australia (**the Inquiry**).

Microgrid technologies are in use today and will increasingly have a positive impact on the provision of reliable, affordable and sustainable energy supply in Western Australia (**WA**).

However, there are barriers in WA to its efficient implementation which may prevent it positively contributing to the WA electricity market to the same extent as in east coast markets. These barriers should be a key focus of the Inquiry.

## 2 About Alinta Energy

Alinta is an active investor in energy markets across Australia and is at the forefront of investment in new technologies, including solar and small-scale geothermal technology, and battery storage. Its portfolio consists of the following:

- An electricity generation portfolio of nearly 3,000MW, consisting of owned and contracted gas, coal and renewable generation capacity.
- over 900,000 retail electricity and gas customers across Australia.
- A residential solar PV business, with the possibility of expanding its operations to include a residential battery system to allow customers to store their energy generated during the daytime, for use in the evening.
- Amongst the world's largest lithium-ion battery at Alinta's gas fired Newman Power Station in Western Australia. The installation of the 30MW battery is enhancing the quality and security of energy supplied to the Roy Hill Mine, and improve the efficiency of the Newman Power Station, thereby reducing greenhouse gas emissions.
- A financial interest in Queensland Pre-Stressing Pty Ltd (QPS) which has developed an innovative geothermal process (GeoAir), which provides an efficient, environmentally friendly and cost-effective alternative to traditional reverse cycle air conditioning units. Further information about the GeoAir technology is provided in Attachment 1.

Alinta is committed to contributing to energy market development across Australia and in all regions as it pursues its growth strategy.

Given the diversity of Alinta's portfolio, its investment strategy, product offerings, and first-hand experiences across multiple jurisdictions Alinta is well placed to input into the Inquiry.

## 3 Expanding microgrid technology in WA

Western Australia is well placed to expand the use of microgrid technologies. About one quarter of WA electricity customers already have solar PV installed and there are a number of microgrids in operation today, for example at the edge of grid (for example, Kalbarri) and in urban areas (for example, White Gum Valley energy sharing trial).

The WA Government has an important role to play in encouraging the rollout of microgrid technology, as well as removing any barriers to entry. As the owner of the three dominant

electricity companies (Western Power, Horizon Power and Synergy), it also plays an important role as an energy investor.

However, it's important to note that private sector participation will be key to expanding microgrids in WA. In addition to the three government owned entities, there are over 30 private sector retail, generation and network businesses licenced to provide energy services in WA. In addition, there are a large number of solar PV providers in WA. All of these businesses have the potential to be key innovators and suppliers of efficient microgrid technologies.

Alinta believes the Inquiry should focus its attention on encouraging the participation of the private sector in the research and implementation of microgrid technologies.

## 4 The importance of, and barriers to, private sector participation in microgrid technologies

The private sector is well placed to advance microgrid technology given their attitude to risk and their proven success in innovation, in terms of developing and rolling out new technology and providing innovative contracting solutions to customers.

The QPS geothermal heating and cooling system is an example of how new technology, funded by the private sector can revolutionise the way homes use electricity.

Alinta believes the key barrier to private sector investment in microgrid technology in WA, including the rollout of new technology like the QPS system, is the absence of retail competition at the small business and household level, for example, those customers that consume less than 50MWh per annum from the traditional electricity grid can't choose their electricity retailer. This regulatory barrier is unique to WA.

Currently, a retailer which supplies any electricity technology to residential and small businesses in WA can't also sell electricity to that customer. This precludes innovation in how customers and retailers choose to contract for distributed energy.

For example, Alinta supplies solar PV to customers and is exploring supplying battery storage systems to small customers. Alinta has found that to make an attractive offer to customers, it needs to also supply electricity for when their customer's electricity demand exceeds the supply from their distributed energy solution. However, Alinta is prevented from doing so for small customers in WA.

Retailers have successfully supplied integrated retail electricity and solar PV systems in contestable electricity markets. Alinta believes customers in WA would also see a significant benefit if such an offer were extended to them. In considering this issue, the Inquiry should recognise that an increase in the uptake of solar PV will mean more customers will be below the 50MWh contestability threshold as they will consume less energy from the traditional grid. Therefore, the adoption of distributed energy systems will only exacerbate this problem.

## 5 Addressing the barriers to entry

Alinta supports changes to the regulatory framework which allows customers that want to install microgrid technology the option to opt-out of its standard contract with Synergy or Horizon Power, allowing them to contract with retailers that can supply an integrated energy solution.

At the very least, related customers should be able to aggregate their consumption and if they exceed the current contestability threshold, participate in the competitive market. This would allow greater customer choice, for example:

- Businesses in the same location could combine their load for selling and buying electricity through microgrids, for example at business and industrial parks.
- Innovators could offer customers who reside in a particular location the ability to participate in peer to peer trading through the use of microgrid technology, with shortfalls supplied through the grid.

The above changes will have the following benefits:

- More innovators will be attracted to WA to supply distributed energy solutions;
- Customers will have greater choice regarding new technology, and how they consume and pay for energy; and
- The increase in the number of customers which can be supplied integrated distributed energy solutions will increase the amount of investment, including into research in microgrid technologies in WA.

## 6 Conclusion

WA is well placed to take advantage and benefit from microgrid technology. However, for WA to advance this technology private sector participation must be encouraged.

The key barrier to private investment is the prohibition of supplying integrated distributed energy solutions to small customers.

Alinta encourages the Inquiry to consider ways in which customers can choose how to manage their energy consumption both through technological and contracting solutions. To achieve this, Alinta supports a change to the regulatory framework to allow customers who want to install microgrid technology the option to opt-out of its standard contract with Synergy or Horizon Power.

If you have any queries about this submission, please contact Jacinda Papps on 08 9486 3009, or at [jacinda.papps@alintaenergy.com.au](mailto:jacinda.papps@alintaenergy.com.au).

Yours sincerely



Graeme Hamilton

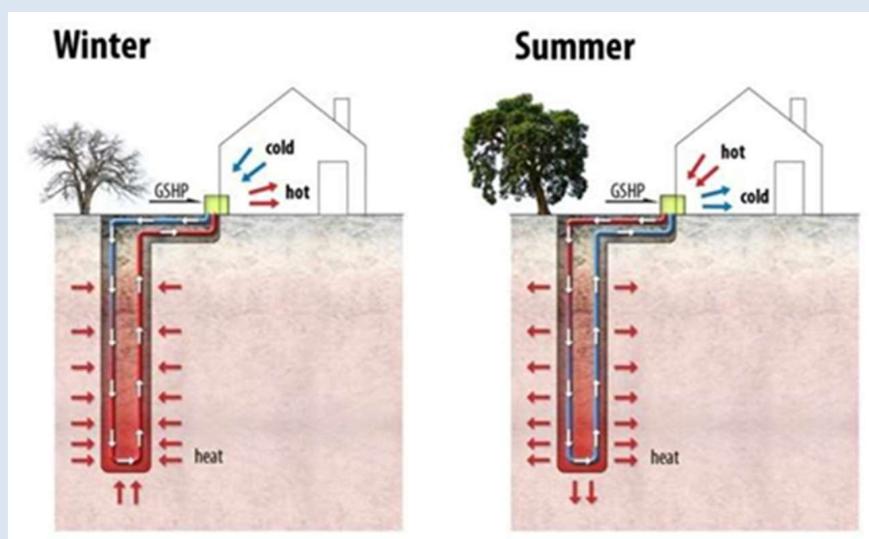
General Manager, Government & Regulatory Affairs

## Attachment 1: QPS Geothermal Heating and Cooling Systems

Alinta has a financial interest in Queensland Pre-Stressing Pty Ltd (QPS), which is a ground engineering services company founded in 1994.

QPS has developed an innovative geothermal process (GeoAir), which provides an efficient, environmentally friendly and cost-effective alternative to traditional reverse cycle air conditioning units.

The geothermal system comprises copper ground loops that extend 50m to 80m vertically into the earth encapsulated in a high conductivity grout, which circulates refrigerant through copper ground loops. The use of GeoAir's refrigerant-based coolant is more efficient than systems that circulate water below ground. GeoAir heat pumps have a logic code to maximise the efficiency of the Geothermal refrigerant based system across summer and winter months.



GeoAir Geothermal heating and cooling offers significant efficiencies in the installation, operation, and performance of residential and small commercial HVAC systems.

### **Benefits associated with geothermal heat pumps:**

- **Cost effective** – residential units could be available to households at a modest premium compared to traditional reverse cycle Heating, Ventilation and Air Conditioning (HVAC).
- **Positive Cash Flow** – the increased heating and cooling efficiency of ~60% results in financial savings and would offer households with attractive payback periods (< 6 years), and even more so if the installer could offer a government subsidy.
- **Environmental Impact** – reduced carbon footprint provides a low cost path to boosting green star rating credentials, with modelling indicating that the system will achieve a 42% of the household's peak energy demand and reduce greenhouse gas emissions by 13.5% compared to conventional air conditioning units.
- **Quiet Operation** – Removes acoustic issues associated with larger traditional air conditioning with heat pumps operating at 51db, compared to 65dB for air source heat pumps.

- **Clean and Safe** – proven technology with less moving parts compared to traditional HVAC system and smaller physical footprint.
- **Flexible application** – can be used in both Residential and Commercial situations, with some retrofit opportunities available.

**Other benefits to the community:**

- **Lower Network Infrastructure Costs** - air conditioning load is a significant contributor to peak demand, and therefore reducing demand during peak periods through more efficient HVAC systems has the potential to reduce transmission and distribution network system costs in new housing developments
  - **Peak Demand Reduction** - peak demand from air conditioning during extreme heat waves also increases market demand and increases commodity costs in the electricity market, and increases the potential for blackouts or load shedding to protect the safe operation of the market
  - **Constant performance** - Operates with more consistent performance during periods of high outdoor ambient temperature when compared to traditional systems (typically when network demand can also be highest)
  - **Makes Better Use of on-site Renewables** – lower air conditioning loads (up to 40% of a home's total energy usage) allows on-site renewable energy and storage systems to supply other loads
  - **Lower Heating and Cooling Costs** - Save households money by lowering heating and cooling energy costs (which are up to 40% of home energy needs)
  - **Affordable Sustainable Housing** - provides an affordable option to incorporate sustainability features into new housing developments, a key aspect of the Review.
  - **Creation of local employment opportunities** - QPSG has partnered with Actron Air to manufacture ground sourced heat pumps and fan coil units locally, delivering local job creation and support for innovation, industry and manufacturing sectors.
1. **Source:** Alinta analysis of available energy performance data from [www.energyrating.gov.au](http://www.energyrating.gov.au) relating to currently approved refrigeration air condition registration database – ducted systems