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## Energy, Water & Climate Adaptation Initiatives

### Energy and Electricity

Electricity, like Water and Transport, is a major driver of regional economic development. The public provision of equitable pricing for electricity is a major cost of up to \$600m annually to the Queensland Government. Other state Governments across Australia have similar price support structure in place. A future direction for electricity generation in Australia is steered largely by the imposition or withdrawal of incentives or taxes, as well as the development of climate change mitigation legislation, policies or project strategies. Generation in Australia is also exposed to limitations on carbon emissions and influenced increasingly by international treaty and protocol agreements as adopted or rejected by any Commonwealth Government of the day. Large generation facilities in Australia historically use a range of natural resources from Hydro to Brown Coal and have traditionally been situated close to large population and industrial centres in order to meet increasing demand and support further growth. These facilities then rely on long transmission lines and extensive distribution networks to supply electricity to industrial, business and private consumers over increasing distances throughout the remainder of Queensland.

The development of new electricity generation in Northern Queensland, it is suggested, will deliver electricity more cost efficiently and therefore not only reduce the need for public financial support, but better meet the growth projections of the region. In Northern Queensland the pricing of electricity to industry in particular is a major inhibitor to growth as this tariff is not supported by public funding. Should major generation not be considered in Northern Queensland in the future, there is then a clear need to address the pricing of electricity to industry not only to sustain existing industries, but to attract new investment. There appears however to be a number of opportunities to develop new generation based on large and already identified renewable energy assets in the region, as well as gas and coal.

Whilst most of the coastal parts of the Northern Queensland region are connected to the national electricity grid, and therefore the National Electricity Market (NEM), rural-remote communities often have patchy distribution systems and several still operate on stand-alone systems as the most viable option. Transmission costs from base-load generation in central and southern Queensland to northern customers discourage industrial investment and put existing heavy-energy using industries at risk of closure. Electricity and energy demands are set to increase with projected growth in the minerals and resources sector across the region as well as continued population growth. In order for the region to reduce dependency and mitigate its risks, it is imperative that regional base-load solutions, greater efficiency and a transition to sustainable energy sources are developed through adoption of new policies and strategies that open up energy investment opportunities in the north.

### Queensland perspective

The electricity industry is made up of four distinct, yet interconnected, sectors involved in producing electricity and delivering it to homes and businesses - generation, retail, transmission and distribution. The Queensland generation sector has a mixture of public and private ownership. The monopoly transmission and distribution assets are owned and operated by Government-owned corporations, while the competitive retail sector is mostly privately owned. The State owns a "safety net" retailer (Ergon Energy Qld) through which the State subsidises some regional retail supply that is not profitable for the private sector retailers. The Queensland Government owns electricity assets worth about \$8 billion in generation, more than \$3.9 billion in transmission and more than \$13 billion in distribution.

<sup>1</sup>Source: <http://www.business.qld.gov.au/industry/energy/electricity-industry/electricity-queensland>; 17.4.13





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## Northern Queensland perspective

Significant electricity is generated in Central Queensland, however, from Mackay to the north and north-west, there is only limited generation and as a result of significant distances from power generation in Central and South-East Queensland to the energy users in the north, industrial users of energy are directly exposed to higher electricity costs associated with transmission costs (Transmission Use of System – TUOS charges) and energy losses (Marginal Loss Factors of up to 7%). This issue is accentuated the further north the energy user is located. Mount Isa and other remote parts of Northern Queensland region are not connected to the National Electricity Market and have a different set of problems driven mainly by a lack of competition for generation, and a fixed pricing mechanism based solely on the price of Gas via the Ballera Pipeline. The West and Mid-west both suffer from a lack of access to a strong network. Residential and small business consumers in some parts of the region also suffer unreliable supply of electricity due to aging distribution infrastructure. Localised Diesel generation also remains a reality for some as the only means of 240v supply.

The consideration and potential development of new base load generation for Northern Queensland is a complex matter, which also must by necessity take into account the accessibility and tradability within the NEM itself as a consideration for viability. It is however by nature one of the more classic chicken and egg scenarios Queensland currently faces in its efforts to decentralise and deregulate. The opening of areas for agriculture and mining will by necessity be restricted by the current generation and supply network. The absence of reliable supply in the face of projected demand will be itself a restrictive factor upon the State's desire for growth and decentralisation. While who builds future generation, transmission and distribution will depend largely upon a clear ability to retail the commodity regionally and within a national market, other emerging generation areas of Australia will also influence this determination.

## Where to from here

While there are many worthwhile initiatives, the following are considered the most urgent and important to make a wide scale positive impact and benefit across Northern Queensland's energy agenda:

ELECTRICITY		
Action	What's needed	Benefits to our communities and regional economies
<p><b>Action is required to face a number of challenges:</b></p> <ul style="list-style-type: none"> <li>Increasing costs of electricity are negatively impacting the viability of industries and businesses in the region</li> <li>Security of supply is an issue in some remote areas</li> <li>Carbon emissions are high in diesel generated areas</li> </ul>	<ul style="list-style-type: none"> <li>Strategic analysis of the 10-30 year demand and supply of energy in Northern Queensland to develop a pathway to secure competitively priced electricity to enable future growth</li> <li>To seek Federal and State Government support for renewable energy generation and transmission (there is an existing agreement to support the connection of renewable energy to transmission in the north-west Queensland area)</li> <li>To develop renewable energy solutions for remote locations</li> <li>To attract private sector investment into energy infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Local industry will remain viable</li> <li>New industries can be attracted</li> <li>Economic diversification opportunities can be developed</li> <li>Employment opportunities; standard of living improvements</li> <li>Reduction in carbon emissions through development of renewable generation</li> </ul>





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## Water

Northern Queensland usually benefits from high annual rainfall and some of the largest water catchments in Australia including the Burdekin Dam which has a high capacity of 1,860,000 ML (approximately four times the capacity of Sydney Harbour). However, as can be seen from seasons and years of droughts and floods, water can be anything from an abundant to a rare commodity in our region.

With new water resource plans being implemented, indicating major water use constraints, strategic efficiency in water use is needed to secure the region's 'food bowl' agenda. A joint State/Federal Water Use Efficiency Program is considered by many to be the solution. However, in order to achieve this aim, better water use data and management data is required at a sub-regional level, requiring a re-think of local area management approaches in areas of considerable water stress.

The region also needs to consider improved infrastructure planning, greater efficiency measures and innovation in water use to maximize productivity in the agricultural sector and protect industries from increasing constraints in the region's water resources. Agricultural productivity will be significantly constrained if urgent industry-driven reforms in water use efficiency falter. Future agricultural development opportunities hinge on improved water availability. Strategic opportunities for targeted greenfield development and expanded boutique agricultural developments consistent with North Australian Taskforce recommendations are also needed. This requires stronger links between strategic water assessment and new agricultural district planning and local planning/development facilitation.

## Where to from here

While there are many worthwhile initiatives, the following are considered the most urgent and important to make a wide scale positive impact and benefit across Northern Queensland's water agenda:

WATER		
Action	What's needed	Benefits to our communities and regional economies
<ul style="list-style-type: none"> <li>• Seek productive uses of water</li> <li>• Local Government authorities are facing ever increasing demand and costs for quality water and waste water management</li> <li>• Need ongoing management of water quality in coastal areas</li> <li>• Federal and State Departments of Agriculture to understand the potential for water use for agriculture in the region and apply to future opportunities</li> </ul>	<ul style="list-style-type: none"> <li>• Funding of Reef Rescue II (\$200m over five years based on the existing regional/ industry model)</li> <li>• Water quality improvement fund for access by all shires that have sub-standard quality</li> <li>• Water and sewerage fund for access by relevant local Government areas</li> <li>• Identify new potential water storage infrastructure – several projects across the region to be costed and prioritised</li> <li>• To develop future funding models for water infrastructure</li> <li>• Commitment to water use efficiency across the Northern Queensland Region</li> </ul>	<ul style="list-style-type: none"> <li>• Economic benefits through growth of industry and businesses</li> <li>• Local employment</li> <li>• High quality of water standards for consumption</li> <li>• High quality of water for environmental sustainability</li> <li>• Sustainable agriculture</li> </ul>

<sup>2</sup> Source: www.sunwater.com.au; 17.4.13





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Examples of projects that would support the strategic water initiatives include:

- **Fitzroy River Water Quality monitoring and study**

- **Gracemere Industrial Area Water Supply**

Duplication of the water supply pipeline from Rockhampton to Gracemere and upgrading of Mawdsley Hill and Lucas Street pump station to increase supply capacity and reliability of the Gracemere's rapidly growing population and to support development of the Gracemere Industrial Area.

- **Implementing Missing Links in Water Infrastructure**

This project will utilise previous investment to reinstate a sustainable water and wastewater management system to Woorabinda, to benefit the community of approximately 1,000 residents.

- **Water efficiency**

A regional water use efficiency program is needed including regionally-partnered triple bottom line assessment and second tier planning, assessment and project facilitation in priority development zones in Far North Queensland.

### Climate Adaptation

The impacts of natural disaster across North Queensland are well known and whilst current assessments suggests that there is likely to be a no increase in the frequency of tropical cyclones, there is likely to be an increase in the wind speed and amount of heavy rainfall associated with tropical cyclones<sup>3</sup>. High intensity events are likely to continue to pose a major threat to life, property and infrastructure. This increased intensity combined with sea-level rises and a growth in the population and its assets in harm's way, suggests that there is likely to be an increase in the cost of tropical cyclones (Hallegatte 2012; Mendelsohn et al. 2012). The economic and social costs of adjusting to new conditions, damage to eco-systems and harm caused by extreme events to the population of Northern Queensland requires more strategic adaptation and mitigation.

Given the quantum of funds expended in preparing for and responding to tropical cyclones, sound policy is required to better understand the economic impact of cyclones so as to ensure that current Government expenditures and policy are optimal for the future. Northern Queensland is the only place in the world where two World Heritage Listed sites converge – these natural assets must continue to be managed adequately and protected in the face of increased climatic events.<sup>4</sup>

Two real climate change risks face the region. The first relates to rapidly escalating insurance costs and even red-lining of insurance cover in some sectors and areas. The second relates to the need for radical reform in the current Natural Disaster Relief Arrangements.

<sup>3</sup> Field, Climate Change Risks to Australia's Coast 2009, 2012

<sup>4</sup> Voyce & Lockwood Consulting, NQRDI Final Report, August 2012





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NORTHERN QUEENSLAND

### Where to from here

While there are many worthwhile initiatives, the following are considered the most urgent and important to make a wide scale positive impact and benefit across Northern Queensland's climate adaptation agenda:

CLIMATE ADAPTION		
Action	What's needed	Benefits to our communities and regional economies
<ul style="list-style-type: none"> <li>• There is a need to build greater resilience against disasters in local communities.</li> <li>• Infrastructure that is damaged through disasters can only be rebuilt to the same standard</li> <li>• Disaster and emergency management</li> </ul>	<ul style="list-style-type: none"> <li>• Increased funding for Natural Disaster Resilience Programs (NDRP)</li> <li>• Disaster mitigation planning and funding</li> <li>• Support for RDAs to broker a long term partnership with the national insurance industry to offset rising premiums</li> </ul>	<ul style="list-style-type: none"> <li>• Building of resilience through targeted projects that are tailored to each community</li> <li>• More productive infrastructure</li> <li>• Lesser impacts on businesses and communities and local employment in future disasters</li> <li>• Faster and more efficient and effective recovery from events</li> </ul>

### Examples of projects that would support the strategic climate adaptation initiatives include:

- **Flood Mitigation in Central Highlands**  
Building flood resilience and mitigation through building and raising critical infrastructure to reduce the impact of floodwater to commercial and residential assets
- **Far North Queensland Climate Resilience – Natural Disaster Relief Recovery Arrangements (NDRRA)**  
Reform in the current NDRRA to allow for betterment of infrastructure and locally managed responses. A major proactive package for high-risk natural disaster mitigation similar to recent SEQ investment deal. Mitigation against rising insurance costs for businesses and households through industry reform.

### WHO WE ARE

The role of Regional Development Australia Committees is to work across all three levels of Government, local industry and their regional communities to enhance the growth and development of regions across Australia. This includes the identification and advocacy of agreed regional priorities; and working in collaboration with regional partners to strengthen each region's long-term sustainability for the long-term benefit of future generations.

[www.rda.gov.au](http://www.rda.gov.au)

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An Australian Government Initiative



Queensland Government