

# Network Management Plan 2009/2014

## SUMMARY OVERVIEW

Ergon Energy's Network Management Plan is focused on the delivery of an affordable, dependable and smart electricity supply to regional Queensland.

The Plan is essentially a five-year blueprint, based on our asset management strategies and operational plans, which details our intentions relating to network reliability, capacity, security and quality of supply.

The key features of the Plan include:

- a continued focus on network performance improvement
- a significant increase in available capacity to meet the continuing strong customer demand, and
- the final stages of the \$4 billion capital investment program, as part of the current five-year regulatory control period ending in 2009/10.

The commitments made to regional Queensland through this Plan will, I believe, continue to move Ergon Energy towards its vision to be 'a world-class, customer-driven energy business'.



everything in our power



## Ergon Energy in Profile

Ergon Energy is acutely aware of how important a high standard of electricity supply is to the continued growth and prosperity of regional Queensland. The Corporation manages over \$6.7 billion worth of regulated and non-regulated electricity distribution assets over one million square kilometres of regional Queensland.

This vast territory, which effectively covers 97% of the state, is a critical difference between Ergon Energy and other Distribution Network Service Providers. Together with the low load densities, the geographical spread means much of the subtransmission and distribution network is characterised by long radial lines.

Ergon Energy also manages 33 isolated generation stations and stand-alone distribution networks in the remote areas of western and northern Queensland.

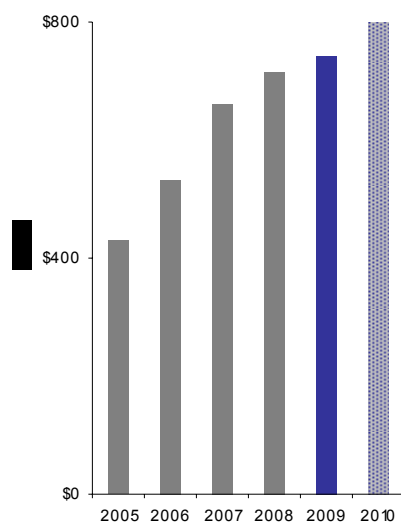
## Our Blueprint for the Future

Our Network Management Plan focuses on ensuring the delivery of a safe, high quality, reliable and economic supply of electricity to our customers. It has been developed within the framework of Ergon Energy's current corporate priorities, as well as a comprehensive 20-year network vision, and builds on the progress made against the 2008/09 Network Management Plan.

The plan is driving the ongoing record levels of spending being undertaken by Ergon Energy – following a \$741.1 million 'system' investment for the network in 2008/09. For the current five year regulatory period to June 2010, we anticipate the capital investment for our electricity network will be around \$4 billion, together with a \$1.3 billion spend on maintenance, vegetation management and asset inspection programs.

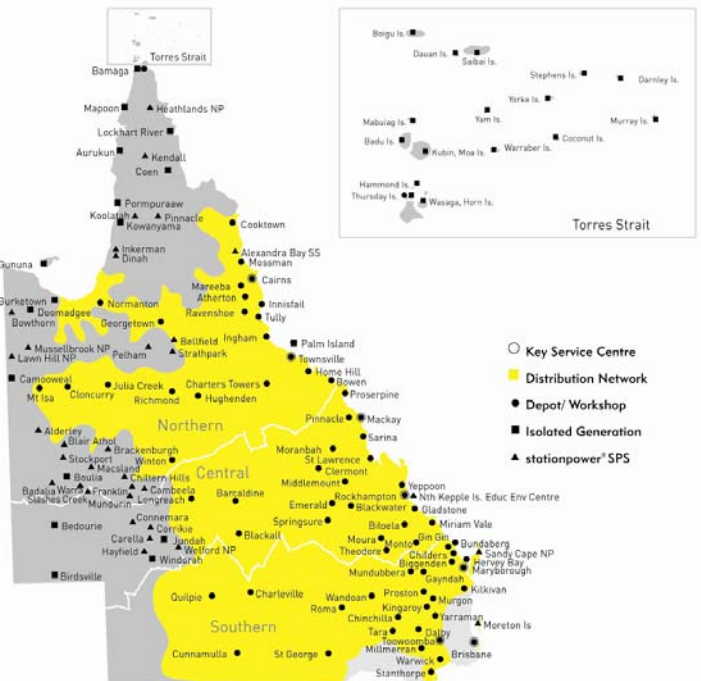
This investment is in response to the need to renew an ageing network, develop infrastructure appropriate to the needs of a growing and technologically sophisticated community and support the continued economic growth and prosperity of regional Queensland.

**Investment in Strengthening the Network Continuing**



*The escalating levels of investment over the past five years – including a \$741.1 million 'system' investment in 2008/09 – have been injected into the network to meet demand and improve the resilience of the network.*

## OUR SERVICE AREA



The plan is published in two parts, Part A and Part B.

Part A provides details of our operating environment including load growth, an outline of the policies and strategies underpinning our asset management, the challenges around demand-side management, an overview of the network reliability improvement program, as well as a summary of the progress made in relation to the previous plan.

Additional information is also provided on the challenges around demand side management and climate change and what initiatives are being undertaken in response.

Part B details the specifics of our network capability and works planning. It also facilitates a process for public consultation and stakeholder feedback on network constraints, supply issues and proposed solutions.

In this overview we have summarised the highlights of our progress, along with the focus of the current plan, according to the following key challenges currently being faced:

- meeting reliability performance expectations
- ensuring security of supply
- demand management and responding to climate change.

## Improving Reliability of Supply

Ergon Energy's vast network over a very large geographical area presents significant reliability challenges. However, we are committed to providing a network that delivers quality and reliability of supply consistent with reasonable customer expectations of service and cost.

In response, Ergon Energy has deployed record capital (as shown across) and maintenance programs over recent years to address the quality and reliability of supply across regional Queensland. Over \$1 billion was invested in 2008/09 into capital works, maintenance and operations programs to deliver substantial network improvements.

This network improvement program is continuing, and is detailed in the full Network Management Plan.

Considering the challenges nature sent our way during 2008/09, our network stood up extremely well.

Not only were there widespread seasonal storm impacts across all of our regions from November onwards, there was also a prolonged stretch of hot and humid conditions in the peak of the holiday season, widespread flooding across 60% of the state, and three tropical cyclones.

The high level of resilience shown across the network, however, did not translate into strong performance results and, regrettably, mandated performance standards were not met across all categories. The primary reason was the significant impact of our decision to temporarily suspend our live line works program following a major safety incident, and to put in place other operational restrictions – all part of our strong commitment to safety.

Moving forward, as well as reinstating our full live line capability, the broader reliability improvement strategy is to understand customer expectations, identify the gaps between these and current performance, and develop appropriate solutions.

In addition to meeting our Minimum Service Standards, we are committed to the Guaranteed Service Levels (GSLs) under the Electricity Industry Code which are applicable to the reliability experienced by individual customers.

In the current plan, network reliability improvement is being targeted through the following programs:

- extending our remote control capability further into the distribution system. Our ultimate vision is to have the entire backbone of the network controlled by the state-of-the-art SCADA system.
- the Feeder Improvement Program, which targets our consistently poor performing feeder lines. This is particularly important step in developing the preventive maintenance program.
- an annual Summer Preparedness Plan that reviews, prioritises and undertakes preparatory works, such as vegetation management and contingency planning, to minimise the risks of outages to customers during the high demand, summer storm period.
- using best-practice asset inspection and defect management systems to support Ergon Energy's augmentation, accelerated maintenance and asset life-cycle replacement programs. These programs are improving reliability by increasing the inherent resilience of the network, resulting in a reduction in asset in-service failures.
- an action plan involving capital investment and maintenance activities to deliver Single Wire Earth Return (SWER) scheme performance improvement in western Queensland.

NETWORK RELIABILITY PERFORMANCE	2008/09 Result	2008/09 MSS	2009/10 MSS
Duration Index (SAIDI)			
– Urban Distribution	217 *	≤180	≤150
– Short Rural Distribution	609 *	≤500	≤430
– Long Rural Distribution	1,108 *	≤1,040	≤980
Frequency Index (SAIFI)			
– Urban Distribution	2.33 *	≤2.3	≤2.0
– Short Rural Distribution	4.93 *	≤4.5	≤4.0
– Long Rural Distribution	7.73 ✓	≤7.8	≤7.5

\*Reporting based on the Minimum Service Standard (MSS) exclusion criteria outlined in the Electricity Industry Code.

## Ensuring Security of Supply

In addition to reliability, security of supply has also been a key focus of Ergon Energy's network improvement planning.

The planning criteria, which are outlined in detail in the plan, will ensure that N-1 security levels are maintained at all bulk supply substations, major zone substations and subtransmission feeders. This is a higher standard of security than what was previously applied, ensuring supply can be maintained in the event that a single element of the system fails.

The majority of Ergon Energy's network assets already comply with the planning criteria and we are committed to lifting security levels for the assets outside of desired targets. During 2008/09, we lifted overall security of supply of our bulk supply substations with 15 of the networks 21 bulk supply substations now having N-1 level of security. To continue this progress a risk management approach has been adopted, and augmentation projects programmed around the planning criteria.

During the past 12 months, the combination of a new bulk supply point, three new substations and augmentation at existing substations has resulted in an increase in installed capacity at Bulk Supply Substations and Zone Substations of 168MVA and 231MVA respectively.

## Meeting the Demands for Electricity

The importance of having supply capacity available to meet the growth requirements of our service area in a manner consistent with best-practice management is seen as a major priority. The growth in demand is the primary driver for our massive annual augmentation investment.

Peak coincident demand on Ergon Energy's distribution system has been steadily increasing due to strong economic conditions and ongoing population growth. It is now a major consideration in our asset management task.

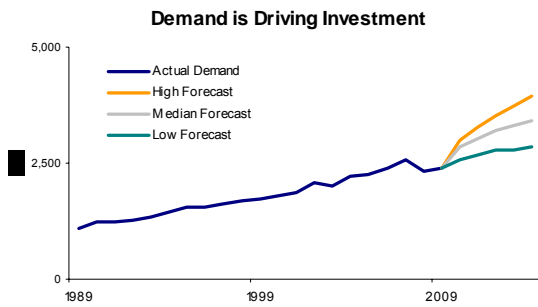
Lasting for only short intervals – predominately over the summer months – and fluctuating year to year, this demand is being driven by the penetration of air conditioning and other lifestyle appliances, as well as industry growth.

This year's summer demand was 2,427MW, representing an increase of 4.4% over the previous summer, but still 6.0% less than the 2006/07 peak of 2,570MW. However, despite not exceeding peak demand for the network as a whole, four of Ergon Energy's six regions did exceed the 2006/07 summer peak.

In the current economic environment, and with uncertainty around climate change impacts, Ergon Energy's challenge is to accurately forecast infrastructure requirements and to deliver solutions in a timely, cost effective manner with full consideration given to world-class environmental and safety practices.

Our growth forecasts remain strong despite the economic slowdown, which saw the rate of growth in overall customer numbers slowing marginally in 2008/09 – falling from an average over the past five years of 2.3% to 1.7% in the coastal zone. We anticipate the strong rate of growth in new connections to return once an end to the current global financial situation is in sight, albeit to a lesser extent in some regions.

Effective network planning is now being delivered by improvements to load forecasting, better asset data and the ability to simulate and analyse future growth scenarios. This is being supported by extensive stakeholder engagement and more in-depth demographic studies.



*Ergon Energy's network management planning has to incorporate the potential impact of changing economic forecasts, as well as fluctuating peak demand from year to year and region to region. Peak or maximum demand, shown here, is currently forecast to grow around 5% a year, despite the economic downturn.*

Over the past year Ergon Energy has also committed significant resources to developing its capability in non-network alternatives. These efforts have been predominantly around the following four projects:

**Townsville Network Demand Management (NDM) Commercial and Industrial Pilot Project** – This has involved Ergon Energy entering into contracts with commercial and industrial customers to contribute financially to the customer's capital works program in return for the opportunity to implement technical and commercial NDM arrangements.

**Townsville: Queensland Solar City** – The project is part of the Australian Government's Solar City program trialling sustainable business models for the concentrated deployment of distributed generation (solar photovoltaic) and demand management through energy efficiency, load management, smart meters and new tariffs, along with innovative community engagement techniques promoting sustainable behavioural change.

**Townsville and Magnetic Island Residential Air Conditioning Direct Load Control** – This ongoing pilot has involved homes across Townsville and Magnetic Island operating with controls on their air conditioning compressors.

**Cloncurry North SWER NDM Trials** – This trial reduced demand by putting timers on hot water pumps and air conditioners, as well as installing ceiling insulation and solar hot water systems on the Cloncurry North Single Wire Earth Return (SWER) system.



*Reducing peak demand – between 6pm and 9pm in residential areas – and energy conservation more generally, is a smarter way to manage the network. It also helps reduce customer energy bills, and is good for the environment.*

These demand management initiatives discussed also play a role in supporting our climate change response, one of Ergon Energy's key corporate priorities. Ergon Energy's climate change response takes a proactive approach to energy conservation initiatives, whilst partnering with external organisations to plan future initiatives and programs.

As well as the demand management projects, the planned initiatives and programs cover a range of areas including energy conservation for our customers, as well as internal strategies on environmental stewardship and carbon neutrality.

### Towards Our Vision

To deliver on these key challenges we recognise our people, along with an investment in world-class systems, as being vital. Together, the elements of this plan will take Ergon Energy towards its vision to be 'a world-class, customer-driven energy business'.

Ergon Energy invites stakeholder feedback on the plan and the strategies adopted. This feedback is vital to ensuring future versions and our stakeholder communications more generally meet the information needs of our stakeholders and assist Ergon Energy to better target the needs of regional Queenslanders.

This document is a summary of Ergon Energy's full Network Management Plan, available online at [www.ergon.com.au](http://www.ergon.com.au)

For further information, contact us on 13 10 46

