



network focus

Our core focus is to implement and consolidate an accelerated network investment program to build the platform necessary for ENERGEX to meet the demands of Australia's fastest growing region.



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During the year ENERGEX worked towards delivering the recommendations set out in the *Electricity Distribution and Service Delivery for the 21st Century Report (EDSD)* prepared by the Queensland Government's Independent Panel in 2004.

The recommendations focused on increasing capacity and improving our reliability in the face of uniquely challenging conditions, which include high population growth, rapid take-up of domestic air-conditioning which has shifted peak demand from winter to summer and a sub-tropical climate prone to severe summer storms and periods of high summer day temperatures.

Following the EDSD Report, ENERGEX developed a comprehensive Strategic Plan for Summer 2004/2005 which outlined detailed strategies to maintain electricity supply and improve our emergency response capability during the summer storm period. This strategy was underpinned by a \$638 million expenditure program in 2004/2005 to upgrade and improve our electricity and gas networks. The result has seen significant improvement in network capacity, response capability and reliability of performance.

A detailed performance review completed in April 2005 reported that ENERGEX dramatically reduced disruptions to customers due to loss of electricity supply during the 2004/2005 summer storm season. When wild storms brought down more than 200 powerlines across Brisbane on 13 December 2004, affecting around 89,000 customers, ENERGEX was able to completely restore power within 16 hours, 40 per cent faster than for previous storms of this magnitude. When high temperatures caused a record peak demand of 4008 MW on 8 February this year, our network handled the load without significant disruption.

Our five-year Network Asset Management Plan – the blueprint for our ongoing commitment to strengthen our network, improve our service to customers and manage future growth – is publicly available on the ENERGEX website at www.energex.com.au.

Reliability of electricity supply

ENERGEX invested \$638 million in updating improvements to the electricity network in 2004/2005, including an additional \$85 million on an accelerated capital works program to increase maximum summer peak demand capacity to about 16 per cent above last year's peak summer demand. Total network capacity was boosted by 600 MW with the installation of new power transformers at 23 substations across south-east Queensland. Other sub-transmission works included the installation and upgrade of new 33 kV feeders, the installation of cooling fans on power transformers at 17 sites and the completion of 13 capacitor bank projects. ENERGEX also completed an extensive overhaul of the 11,000 volt feeder network with a total of 92 feeder upgrade projects. Further work included the upgrade of 467 distribution transformers and associated low voltage circuits.

During the year ENERGEX invested in upgrading our rural and regional network, as well as substantially boosting capacity in areas of high population growth. Our \$76 million Gold Coast capital works program included commissioning of the first stage of Coomera bulk supply substation at a cost of \$12.6 million, installing a second transformer at Hollywell at a cost of \$3.1 million, and an additional transformer at the Burleigh Heads substation at a cost of \$2.6 million.



Network performance was monitored and considerable reductions in supply interruptions were achieved.

ENERGEX spent a further \$46 million on network improvements on the Sunshine Coast, including a new \$3.6 million substation at Mooloolaba, upgrade at Nambour substation at a cost of \$1.5 million and the upgrade of the Tin Can Bay river crossing at a cost of \$1.5 million.

Additionally, projects completed in the area west of Brisbane included the rebuild of Postmans Ridge substation for \$9.5 million, a new substation at Bundamba for \$5.4 million and an additional transformer at Booval for \$1.3 million.

Projects completed in the Brisbane metropolitan area included the replacement of six sub-transmission

underground feeders at a cost of \$27.9 million, transformer upgrades at 13 substations at a cost of \$25.1 million and the installation of 150MVar of 11kV capacitor banks at a cost of \$5.7 million.

While every electricity network experiences interruptions to supply due to storms, vehicles hitting poles or wildlife activity, our capital works program will attempt to keep pace with the record breaking demand of the fast growing south-east and improve reliability of supply by giving greater flexibility during network faults. However, we are some years off achieving expected levels of asset utilisation and reliability that the community and shareholders expect of us.

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Vegetation management

One of our key aims this year was to improve the network's ability to withstand the impact of severe weather. Trees falling on powerlines and blown into powerlines during storms are a major cause of interruptions to electricity supply. In 2004/2005 direct expenditure on vegetation management increased to more than \$35 million, up from about \$21 million on 2003/2004 and the 18-month program to clear vegetation from all urban high-voltage lines was completed, resulting in more than a 50 per cent improvement in our urban vegetation SAIDI performance from July 2004 to June 2005.

Our ongoing vegetation management program will focus on rural areas in 2005/2006, and the entire network will be checked and vegetation trimmed back again within two and a half years. To facilitate this process, ENERGEX has streamlined our contracting arrangements and, in future, will allocate larger areas to a core group of contractors, resulting in substantial productivity and efficiency gains. We are now trimming vegetation along more than 800 kilometres of powerline a month on average, up from 500 kilometres a month previously.

ENERGEX has also entered into a Memorandum of Understanding with 17 local councils in our electricity distribution area regarding our shared responsibility for vegetation management, and sets out guidelines to ensure appropriate tree species are planted in the vicinity of powerlines on Council-controlled land.

In October 2004, ENERGEX worked with local councils to stage the *Get Set for Summer* weekend. During the weekend, residents trimming trees and vegetation in preparation for the upcoming storm season could dump garden waste free of charge at Council transfer stations around south-east Queensland. The weekend, part of an ongoing public education campaign leading into summer to alert homeowners to the need to prepare their homes for the storm season, attracted an excellent community response. ENERGEX will undertake a similar public education campaign in 2005/2006.

Our **safetree** vegetation management program continues to strike a sustainable balance between the environment and our need for safety and reliability of service in accordance with our Environmental Management System. All our tree-pruning operations are conducted by quality-assured service providers trained in internationally approved techniques, and all work is conducted to the Australian Standard AS4373 Pruning of Amenity Trees.

In keeping with our goal of responsible and sustainable environmental management, the **safetree** education program includes the provision of a householder's guide to 'powerline friendly' planting on our website (www.energex.com.au), including information on the mature height and width of various tree varieties and their ideal growing conditions. The website also provides information about our pruning practices, and why we need to trim and sometimes remove trees from public spaces, streets and residential property.

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Operations and maintenance

As part of our commitment to improved network reliability, ENERGEX introduced an innovative, systems-based approach to maintenance and repair in 2004/2005, and increased expenditure on operations and maintenance from \$145 million to \$168 million. A number of network inspection and repair activities were consolidated into a 'single pass' approach, resulting in a substantial improvement to the effectiveness of our inspection program and the speed and efficiency of repairs.

ENERGEX introduced annual pre-storm helicopter patrols of the rural network to identify and fix potential faults, and completed thermographic inspection of targeted 11 kV and 33 kV overhead feeders. Helicopter patrols halve the time needed to survey most areas, and are up to 20 times quicker in mountainous terrain. The current round of helicopter patrols commenced in May, and will survey more than 13,000 kilometres of overhead powerlines by the start of the 2005/2006 summer storm season.

During the year, ENERGEX replaced more than 350 poorly-performing switchgear units, with a further 300 to be replaced by June 2006. In addition, we are pleased to report that our poles continue to outperform industry targets, with an average in-service pole reliability of 99.99 per cent. Nonetheless, we will work towards further improvements to pole reliability and longevity.

In recent years ENERGEX has implemented a program to identify and target areas worst affected by interruptions to supply. In addition to our routine maintenance program, in 2004/2005 ENERGEX specifically targeted the locations worst affected by the severe summer storms of 2003/2004.

The Suburban Sensitive Area Project targeted south-western suburbs out to Moggill, bayside areas including Wynnum and Raby Bay, and the inner city suburbs of Ascot, Hamilton, Toowong and Milton. This program included tree lopping, visual inspection of high-voltage powerlines, installation of line-spacers and line-fault indicators, wildlife proofing, installation of pole-mounted circuit breakers and thermal imaging patrols of high-voltage powerlines to locate potential conductor, bridge and clamp faults. Where necessary, ENERGEX has increased its use of qualified contractors to accelerate the maintenance and repair program.

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Network capacity

In response to the recommendations flowing from the EDSR Report, ENERGEX significantly boosted our network planning resources from 16 to 40 staff during the year. An independent expert commissioned to review ENERGEX's network planning resources reported that our network planning capability is now comparable with Industry Standards for our relative size, climate, geography and growth in demand, and is compliant with the EDSR Report recommendations.

New planning guidelines were also adopted as a result of the EDSR Report, to ensure adequate network capacity to cope with severe weather events and the high growth in demand. ENERGEX developed a five-year Network Development Plan based on these guidelines, to ensure that we meet the standards for reliability targets outlined in the Electricity Industry Code and deliver sustainable, long-term improvement in network security and reliability.

ENERGEX spent more than \$470 million on regulated electricity network capital programs in 2004/2005, including the acceleration of some longer term projects. Following a strategic review of our existing staff and skill base, and the resources needed to deliver our planned \$3 billion works program within five years, ENERGEX has adopted a design and construction alliance approach to allow us to work more effectively with contractors on major capital works projects. This innovative approach will enable us to accelerate our network investment program.

Brisbane CBD power grid upgrade

In July 2004 work commenced on the \$139.1 million CityGrid project, ENERGEX's single largest major capital works project to date for the year. The project is scheduled for completion by late 2006.

The project combines new construction and upgrades to substations and the high-voltage electricity network, to boost supply and meet strong forecast growth in demand in Brisbane's CBD and inner suburbs. The project will provide a fourth source of supply to the city from Powerlink's high-voltage network, increasing the options for redirection of electricity in the event of a technical or supply fault in the network.

Key activities achieved to date are:

- \$16.5 million expansion of ENERGEX's existing high voltage bulk supply substation at Newstead
- \$27.9 million expansion of McLachlan Street substation and installation of underground high voltage cable between Newstead and McLachlan Street substations.

The following work is scheduled for completion by late 2006:

- \$6.6 million upgrade to the Charlotte Street substation
- \$18.9 million Wellington Road substation upgrade from 33/11kV to 110/11kV
- \$19 million new substation in Ann Street
- \$49.9 million underground cabling between ENERGEX's Charlotte Street and Belmont Bulk Supply substations.



ENERGEX's single largest major capital works project to date, CityGrid, commenced in July 2004.

Regulatory determination

ENERGEX's electricity distribution network is a regulated monopoly business, and therefore the regulated revenue for the electricity network is determined for a five-year period by the Queensland Competition Authority (QCA), within a framework of principles outlined in the National Electricity Rules. In April 2005, the QCA delivered its Final Determination on the Regulation of Electricity Distribution which set the total amount of revenue ENERGEX is allowed to earn in providing regulated network services for the 2005/2006 to 2009/2010 regulatory period.

In preparation, the QCA undertook an updated valuation of electricity assets and conducted an analysis of an appropriate rate of return for investments in ENERGEX's electricity network.

ENERGEX's proposed capital expenditure, operating expenditure, and demand forecasts for the five years commencing 1 July 2005 were assessed, and service quality issues and possible targets were also examined.

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The QCA decision provides ENERGEX with the regulated revenue to support the record levels of capital investment and maintenance expenditure required to meet the challenges inherent in being the fastest growing region of Australia.

The QCA decision provides for capital expenditure of \$2.71 billion, with the flexibility to increase to \$3.43 billion if necessary and operating and maintenance expenditure of \$1.27 billion during the next five years.

We are committed to record capital and operating expenditures for the next five years to provide cost-effective and reliable electricity service in the fast-growing south-east Queensland region, focusing on:

- a long-term vision for the electricity network
- prudent capital investment to cater for expected ongoing growth in demand
- the needs of customers, including building capability to offer network services to meet different customer segment requirements
- a service reliability improvement program, backed by minimum service standards and guaranteed service levels defined by the Queensland Government
- a comprehensive operating and maintenance approach to address electricity network performance and safety.

The QCA's Final Determination on the Regulation of Electricity Distribution can be downloaded from www.qca.org.au.

Asset sharing initiatives

ENERGEX is increasingly providing opportunities to reduce community costs and make better use of public infrastructure by sharing our network assets with government authorities. While local government has historically used our electricity assets for traffic management cabling and signs, our shared assets business now enables us to co-locate additional infrastructure including:

- Sharing of ENERGEX underground and overhead networks with government bodies for the installation of non-commercial optical fibre cable systems
- Co-located local government support, charity, local event and community benefit promotional banners and community festive season decorations
- Use of ENERGEX poles to mount Council-owned community safety surveillance cameras.

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Supporting the network

The SPARQ Solutions business was launched on 1 July 2004 as a joint information technology venture between ENERGEX and Ergon Energy, to realise cost savings through the sharing of hardware, software, applications and telecommunications needs.

Key milestones for 2004/2005 exceeded our target results with significant cost savings of \$7.9 million, \$1.7 million better than the target for the year. This places the project on track to meet target savings of \$80–100 million for five years through improved economies of scale and avoided or reduced capital spend.

Additionally, ENERGEX and Ergon Energy are working on a plan to combine telecommunications functions servicing customers, providing an additional \$9 million in savings over the next three years. The transition commenced in early July 2005.

Key milestones achieved for ENERGEX include:

- Upgraded contact centre systems and capacity enhancements to support storm response
- New system implemented to improve retail data accuracy
- Mainframe replacements to support customer information systems
- New Geographic Identification System (GIS) implemented for the Gas Business
- Implementation of up-to-date Windows XP software
- Customer management system enhancements
- Contestable billing tender system replacement.

Importantly, the project has ensured the continued delivery of service to meet pre-existing service standards. Critical core applications have performed at 98 per cent, exceeding the 95 per cent target service level agreement. The total information technology service level agreement items performed at 93.5 per cent, slightly below the 95 per cent target.

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Gas networks

ENERGEX's commitment to supporting community growth and development throughout south-east Queensland has led to improvements and extensions to the natural gas distribution network.

During 2004/2005 \$6.3 million was invested in augmentation projects at South Gold Coast (stage 2), Carole Park and Wacol, and Murarrie and renewal projects in Toowoomba, South Brisbane and West End.

The ENERGEX natural gas network is also growing significantly with the signing of more customers from new developments in south-east Queensland.

During 2004/2005, 2,371 new customers and 96 km of new main were connected to the network compared to 2,258 new customers and 80 km of main in 2003/2004. Gas Network Development has more than 80 residential developments throughout south-east Queensland and northern New South Wales with a total of 26,000 connections to come on line during the next 15-year period.

The negotiation and signing of 100 per cent penetration agreements with developers has laid the foundation for growth of natural gas in south-east Queensland.

Major new developments include:

1. Delfin Lend Lease at Springfield – 1,500 to 3,000 homes
2. Heritage Pacific at Coomera – 800 to 1,000 homes
3. Seachange, Southport – large high rise development
4. Stockland developments at Coomera, Heathwood, Brookwater and the ENERGEX Natural Gas QMBA Display Village at Jacobs Ridge, Ormeau – more than 3,000 homes.



ENERGEX's gas business continued to expand its customer base.

In conjunction with Stocklands and Queensland Master Builders Association, the Jacobs Ridge development is a showpiece of natural gas display homes which support this 1000 plus lot estate.

Local government and councils are now heading towards promotion of the environmental benefits of natural gas. Councils have indicated that by 2005/2006 the new environmental/efficiency policy and/or Sustainable Energy Code will be introduced. Mandates on high efficiency hot water systems for all new homes, such as gas, solar and heat pump could be adopted to support the additional growth.