



the power to deiver













Mission

 Powerlink Queensland is committed to delivering transmission network and related services at world-class levels of safety, reliability and cost effectiveness.

Vision

 To be the leading Transmission Network Service Provider in Australia, and one of the best in the world.

Values

- Reasonable returns for our owners.
- Value for money services to our customers.
- The wellbeing of our employees.
- Being a good corporate citizen and community recognition of this.
- Fair, commercial and courteous dealings with our suppliers.

the power to SUCCEEC

Harnessing the capabilities of our highly skilled workforce, optimal technology and efficient processes ensures that Powerlink has the power to deliver electricity transmission services at world-class levels of safety, reliability and cost effectiveness.

Cairns Central Business District





Highlights 2009/10

- In the 2009 calendar year, our overall network performance was ahead of the reliability targets set by the Australian Energy Regulator. (see page 20)
- Our network reliably met a new statewide summer peak electricity demand record which was 3.4 per cent higher than that recorded in the previous summer. (see page 25)
- Powerlink benchmarked in the top quartile of international transmission companies in terms of network reliability and cost efficiency. (see page 25)
- We undertook \$465.5 million in capital works to ensure our network continues to meet reliability standards as electricity demand continues to grow. (see page 34)
- We completed construction of four new customer connections to the grid, including two new lower emission power generators.
 We also reached agreement for a further four new customer connections. (see page 21)
- We invested \$79.5 million in maintenance to ensure the continued reliability of the transmission network. (see page 26)

- Safety remains paramount when we undertake our work, as evidenced by our overall safety performance and the positive results of an audit of our safety management system. (see page 63)
- Powerlink contributed to the national planning activities carried out by the Australian Energy Market Operator, including the publication of the National Transmission Statement. (see page 16)
- We finalised the Regulatory Test assessment which demonstrates the need to begin developing a 500 kilovolt network to reinforce electricity supply for South West and South East Queensland. (see page 34)
- Powerlink's first mandatory report on energy and greenhouse gas emissions under the Commonwealth Government's National Greenhouse and Energy Reporting Act 2007 included our initiatives to effectively reduce our in-house greenhouse emissions. (see page 46)
- Our Community Benefits Programs provided support for almost 60 community projects in the vicinity of new transmission lines. (see page 55)
- Our seventh organisation-wide culture survey showed very positive results, with high levels of employee engagement. (see page 62)

Powerlink Queensland Annual Report 2009/10

This Annual Report is an integral part of Powerlink's corporate governance processes. It provides information about our operations and finances in 2009/10, and an overview of our plans for the immediate future. We present this report to our two shareholding Ministers, the Honourable Andrew Fraser MP, Queensland Treasurer and Minister for Employment and Economic Development, and the Honourable Stephen Robertson MP, Queensland Minister for Natural Resources, Mines and Energy and Minister for Trade. The report is also intended to give the Queensland community an insight into our operations, and to update our stakeholders in the electricity industry.

This Annual Report has been prepared in accordance with the provisions of the *Government Owned Corporations Act 1993* and the *Financial Administration Act 1977* and is presented to the Legislative Assembly of Queensland.

This Annual Report is available online at www.powerlink.com.au and further copies can be obtained from:

Manager Corporate Communications Powerlink Queensland PO Box 1193 Virginia Queensland Australia 4014

Phone +61 7 3860 2111



Powerlink profile

Powerlink owns, operates, develops and maintains Queensland's world-class high voltage electricity transmission network, which transports electricity in bulk from power generators to the regional distribution networks which supply more than 1.8 million electricity customers. Powerlink also transports electricity directly to a small number of large industrial customers.

Powerlink's \$5.6 billion network extends 1,700 kilometres from north of Cairns to the New South Wales border, where it links to the national electricity grid which underpins the National Electricity Market (NEM). Each year our network transports about 50,000 gigawatt hours of energy to consumers.

Our organisation and our people apply a wide range of management, technical and support skills that have enabled our network to consistently benchmark in the top quartile internationally, in terms of network reliability and cost efficiency, for more than a decade.

Powerlink is a Queensland Government Owned Corporation established in 1995 under the *Government Owned Corporations Act 1993*.

We are a regulated monopoly business responsible for ensuring the transmission network reliably meets Queensland's electricity needs, anticipated future growth, and also meets its responsibilities in the NEM. The major proportion of our revenue is determined by an independent national economic regulator, the Australian Energy Regulator (AER). Powerlink does not buy or sell electricity.

Our activities

Powerlink's primary business activities include:

- Operating the Queensland transmission network 24 hours a day, 365 days a year. We monitor electricity flows across our network of 112 substations and 13,569 circuit kilometres of transmission lines.
 We ensure our network operates in an efficient, secure and stable manner, and respond to any unplanned outages quickly and safely.
- Developing and extending the transmission network in a timely manner. Our planning process takes into account forecast population and economic growth, changing regional needs, energy efficiency initiatives, and other factors which affect electricity demand. We acquire strategic easements in advance of the need to construct new electricity infrastructure, to provide long-term certainty for land use planning. Our easement acquisition process involves environmental impact assessments, and stakeholder and community consultation.
- Maintaining the transmission network. We monitor the condition of network components and replace them at the optimum time to ensure high levels of reliability. We manage our maintenance schedule and processes in order to minimise impacts to customers.
- Contributing to the development of the NEM.
 We engage with Government, regulators and industry to help further the National Electricity Objective to promote an efficient, reliable and safe electricity supply for the long-term interest of Australian consumers.
- Offering customer-focused non-regulated business activities. We provide services to customers including connecting new power generators and large industrial customers directly to the transmission network, and provide transformer oil testing services for the electricity industry.

Supplying the power for Queensland

A number of different organisations and corporations are involved in electricity supply in Queensland. This diagram shows where Powerlink fits into the broader structure.



Powerlink by numbers

More than **13,000 circuit kilometres** of high voltage transmission network

Transmission lines operating at 110 kilovolts, 132 kilovolts, 275 kilovolts and 330 kilovolts

12 substations

Providing the backbone of the electricity supply chain for more than **I.8 million** electricity consumers in Queensland

Transporting about 50,000 gigawatt hours of energy per year

Connecting **23 customers** to the grid, including the distribution networks and large industrial customers

A workforce of around **1,000 employees**



Financial overview

The 12 months ended 30 June 2010 saw a continuation of buoyant demand on the transmission network. New assets were constructed and commissioned to directly connect three new power station sites to the transmission network, two in South West Queensland and the other near Townsville in North Queensland.

Several existing points of supply with electricity distribution companies were reinforced to meet increased demand, and two new connection points were commissioned to augment supply to the coal transport rail network in Central Queensland.

These new loads and an overall steady growth rate of 3.4 per cent across the State required continued reinforcement of Powerlink's core transmission network. Capital expenditure in 2009/10 totalled \$465.5 million, with over \$500 million of assets commissioned in the year.

Powerlink's property, plant and equipment totalled more than \$5.6 billion at 30 June 2010, which represents an almost fivefold increase in fixed assets since the corporation was formed on 1 January 1995.

Powerlink business performance

In 2009/10, the Earnings Before Interest and Tax (EBIT) result, a key measure of Powerlink's profitability, was \$374.7 million. With approximately 90 per cent of Powerlink's revenue derived from the provision of regulated transmission services, this continues to be the major contributor to the organisation's strong profit result. The 2009/10 period is the third year of the AER's regulatory determination for Powerlink, which covers a five-year period concluding in June 2012.

Powerlink's other revenue sources include the provision of non-regulated network transmission services, which continue to grow with new electricity generators and mining expansion loads seeking to connect to the transmission grid. Powerlink also receives returns from its investment in ElectraNet SA, the transmission entity in South Australia, the provision of technical services to external customers, and wholesale services to telecommunications carriers.

A key measure of cost efficiency adopted by Powerlink is controllable operating costs as a percentage of asset value. Controllable operating costs as a percentage of asset value have been maintained at only 1.8 per cent. This result continues to demonstrate Powerlink's ability to apply efficient business practices and processes.

Dividend

The appropriate level of after tax profits made available for the payment of dividends is considered by the Board, after taking into account the future capital requirements of the corporation and the returns shareholders expect.

Having taken these factors into consideration, the final level of 2009/10 dividends approved by the Powerlink Board was 80 per cent of After Tax Profit, excluding the Share of Net Profits/(Losses) of Associates. The 2009/10 dividend provided for is \$100.2 million.

Borrowings

Powerlink continues to maintain an investment grade credit rating. New borrowings in 2009/10 to meet the business's capital investment requirements totalled \$302.6 million. Powerlink borrowings now total approximately \$3.3 billion. With a Debt to Fixed Assets ratio of 59.3 per cent, this is consistent with the benchmark gearing for regulated electricity transmission businesses.

Powerlink borrows all new funds through the Queensland Treasury Corporation.

Financial indicators summary

The following table summarises the key financial and non-financial indicators as incorporated in Powerlink's Statement of Corporate Intent (SCI), which is used to monitor and measure our performance.

	2007/08	2008/09	2009/10 Actual	2009/10 SCI Target
Key Business Performance Targets				
Financial				
Earnings Before Interest and Tax (EBIT)	\$297.9 M	\$355.9 M	\$374.7 M	\$364.6 M
Net Profit After Tax (NPAT)	\$103.1 M	\$121.9 M	\$128.6 M	\$111.1 M
Dividend Payout Ratio	80%	80%	80%	80%
Dividend Proposed/Paid	\$84.4 M	\$98.8 M	\$100.2 M	\$88.8 M
Return on Total Assets (ROA)	6.6%	6.9%	6.5%	6.3%
Return on Average Equity – Post Tax	6.1%	6.8%	6.6%	5.7%
Controllable Opex/Replacement Asset Value	1.8%	1.8%	1.8%	1.8%
Non-Financial				
Loss of Supply Events > 0.2 System Minutes ¹	2	2	2	5
Loss of Supply Events > 1.0 System Minute ¹	I	0	Ι	I
Lost Time Calculation (LTC)	1.3	0.1	0.04	3.0
Other Business Measures				
Financial				
Revenue Grid Services	\$561.3 M	\$633.6 M	\$692.8 M	_
Total Revenue	\$611.6 M	\$682.8 M	\$735.0 M	_
Operating Expenses	\$313.7 M	\$326.9 M	\$360.3 M	_
Capital Works Expenditure	\$676.5 M	\$675.0 M	\$465.5 M	_
Debt/Debt + Equity Ratio	58.9%	62.1%	62.4%	_
Debt/Fixed Assets Ratio	54.7%	58.2%	59.3%	
Interest Cover – EBITDA (times)	3.1	2.9	2.9	_
Non-Financial				
Energy Flowing into the Grid (GWh)	48,576	49,104	49,593	
Energy Delivered to Customers (GWh)	46,125	47,303	47,825	_
Peak Maximum Demand (MW)	8,082	8,677	8,891	

^I Calendar Year

Powerlink's responsibility to develop, operate and maintain Queensland's transmission network drives us to continually deliver world's best practice and strong financial performance, while ensuring outcomes that benefit the communities and environment near our assets.

Chairman's Review

10

Consistent financial performance

Powerlink's performance in 2009/10 was again very robust, with Earnings Before Interest and Tax of \$374.7 million. This consistent performance resulted in strong profitability which delivered a solid dividend to our shareholders.

Capital investment to meet long-term growth

In order to reliably meet Queensland's long-term electricity demand growth, Powerlink is undertaking a \$3 billion, five-year capital works program, involving grid augmentations and asset replacement. In 2009/10, Powerlink invested \$465.5 million in its capital works program to upgrade and extend its network of transmission lines and substations to meet the State's growing electricity needs.

Reliable bulk electricity supply via Powerlink's transmission network supports the Queensland economy and electricity demand forecasts now indicate a return to trend growth following the recent short period of economic slowdown. This outlook drives Powerlink's capital works program in the medium and longer term, as we fulfil our responsibility to assess the capability of the network to meet forecast load growth.

Developing a higher capacity network

In preparing for the anticipated long-term requirements for electricity supply to South West and South East Queensland, Powerlink has undertaken extensive planning for the future construction of a 500 kilovolt network. By operating at a higher capacity than Powerlink's present network, the future 500 kilovolt network will enable Powerlink to meet the growing demand for electricity while reducing the overall number of new high voltage powerlines that will need to be built in the future.

The Board has approved construction of the first 500 kilovolt transmission line in Queensland, following the full regulatory assessment and consultation process undertaken by Powerlink.

Internationally recognised performance

Powerlink invests in its technology, processes and people with the aim of achieving world's best practice in the development, operation and maintenance of the transmission network. This investment has been validated by the result of the International Transmission Operations and Maintenance Study (ITOMS) 2009 which recognised Powerlink among world leaders in the operation and maintenance of transmission services, in terms of network reliability and cost efficiency.

Ш

Investing in relationships and environment

Powerlink has established a track record of innovative and sustainable community and environment programs which target strategic locations throughout Queensland. We are proud of the achievements of these programs over a number of years. As well as generating lasting environmental and community benefits, these programs also help us to strengthen our relationships with our stakeholders as we work together in a partnership arrangement.

The Powerlink GreenWorks Program is now in its second year, and has garnered support from key environmental organisations, assisting it to deliver significant and lasting environmental outcomes and enhance the visual amenity near the future 500 kilovolt powerlines. Community groups in the Dalby and Kingaroy areas have secured funding for valued community and environment projects near Powerlink's transmission infrastructure through disbursements from Powerlink's Community Environmental Program. We launched Powerlink's involvement in Borrow Pits to Rowes Bay Learnscape Project in Townsville, which will develop and promote recreational and learning spaces at environmentally significant sites in the vicinity of Powerlink's substation infrastructure. The program builds on the success of our previous Community Environment Fund in Townsville.

In all of our community and environment initiatives, Powerlink greatly values the commitment of our project partners, including regional councils, and the involvement of community and interest groups, educational bodies, landowners, and other stakeholders.

Our environmental commitment is also strongly evidenced by our continued investment in environmental research which assists the organisation to integrate land management principles and practices throughout our operations and activities.

People and culture to support our performance

Powerlink's strong performance is underpinned by our people and the corporate culture in which they operate. We have invested in developing a culture which enables our people to deliver their best possible performance, which contributes significantly to Powerlink's business success.

The Board was pleased to acknowledge the strongly positive results of Powerlink's seventh culture survey, undertaken in late 2009. We thank employees for voluntarily participating in this survey, which paints a picture of the present culture, and identifies some opportunities for further enhancement in the future.

Our people are to be applauded not only for the skills and capabilities they bring to the organisation, but also for their commitment and contribution to delivering a reliable, cost-effective transmission service for Queensland.

Acknowledging our Directors

I thank my fellow Directors who are dedicated to Powerlink's continuing success. Our Directors bring integrity, experience and insight to the table, providing strategic direction for the organisation. In particular I wish to acknowledge John Goddard, who served as a Director from 2006 to 2009, and as a member of the Board's Audit and Compliance Committee and the Board's Remuneration Committee.

I welcome Stuart Copeland who brings extensive experience to the Board. Stuart is currently the Principal Manager, Government and Community, Office of External Relations, University of Southern Queensland and has formerly served in the Queensland Parliament as Member for Cunningham.

Powerlink's future

The Board looks forward to the future with confidence as Powerlink continues to deliver world-class performance in terms of network reliability and cost effectiveness, while achieving positive outcomes for all of our stakeholders.

The Steptort

Else Shepherd AM Chairman

We have retained our sharp focus on the reliability and cost effectiveness of Powerlink's transmission network.

Chief Executive's Review

Future growth in electricity demand

12

Queensland's economic development and population growth continue to create increases in electricity demand. The summer peak electricity demand has grown considerably over the past five years and, following the brief economic slowdown, forecasts indicate sustained long-term growth in electricity demand in Queensland. This growth is influenced by a strong resurgence in the resources sector and in particular the developing electricity requirements in the Surat Basin area.

Energy consumption is also forecast to increase over the coming decade, following the trend established over the past 10 years. This growth factors in the increased uptake of energy efficiency initiatives. Energy consumption is expected to grow at a slower rate than peak demand.

These long-term forecasts, which are consistent with economic trends and Government climate change policy, continue to be the basis on which we plan and develop the transmission grid.

Developing the network

In 2009/10, Powerlink's capital works program delivered 500 kilometres of transmission lines and five new substations to ensure we continue to meet Queensland's future electricity needs reliably and cost effectively. Projects completed in 2009/10 included:

- an upgrade of the Alligator Creek Substation to ensure continued reliability of supply to the coal loading terminals of Hay Point and Dalrymple Bay and surrounding areas
- replacement of the ageing Clare Substation to ensure continued reliability of supply to the Burdekin region
- replacement of the ageing Innisfail to Edmonton transmission line to ensure continued reliability of supply to Far North Queensland
- a new substation at Yabulu South and new transmission line between the Ross and Yabulu South substations to ensure continued reliability of supply and increased capacity to meet growing demand in the Townsville area
- a new substation at Pandoin and new transmission line between Bouldercombe and Pandoin substations to ensure continued reliability of supply to the Rockhampton area

- a new substation at Larcom Creek and new transmission line between Yarwun and Larcom Creek substations to provide additional transmission capacity to the Gladstone area
- a new substation for Queensland Rail (QR) at Bolingbroke and new transmission line from QR's Bolingbroke Substation to Powerlink's Nebo Substation to provide high voltage electricity supply to the QR network servicing the Bowen Basin
- a new transmission line between Nebo and Strathmore substations to ensure continued reliability of electricity supply and increase capacity to meet growing electricity demand in North and Far North Queensland
- a new substation at Yarwun to ensure continued reliability of electricity supply and increase capacity to meet growing electricity demand in the Yarwun area
- a new transmission line between South Pine Substation and ENERGEX's Sandgate Substation to ensure continued reliability of electricity supply to the north eastern Brisbane area
- an upgrade of the Woolooga Substation to ensure continued reliability of supply in South East Queensland.

Notably, we are nearing completion of a major reinforcement of the transmission network between Central and North Queensland involving construction of almost 500 kilometres of new powerlines and associated substation works. The transmission line between Nebo and Strathmore substations, completed this year, is one component of this \$500 millionplus reinforcement.

In addition to developing our network to ensure high reliability standards, Powerlink also maintains network support contracts with power stations in North Queensland to assist in meeting peak demand.

Preparing for the future

Powerlink is presently in a period of preparing for the next stage of development in Southern Queensland. The solution to meeting the growing demand in the State's south includes development of Queensland's first 500 kilovolt transmission line.

Powerlink is also well positioned to provide reliable electricity transmission connections and network to emerging resource developments. We have been working with proponents in a number of strategic regions throughout Queensland, including liquefied natural gas and coal mining developments in the Surat Basin, coal mining developments in the northern Bowen Basin and Galilee Basin, and QR. In response to the activity in the resources sector, Powerlink is undertaking a record number of projects to acquire corridors for new transmission lines and sites for new substations.

During 2009/10, Powerlink delivered four new customer connections to the grid, which are contributing to the State's economic growth.

Optimising maintenance

Ongoing improvements to our network maintenance planning and processes continue to deliver benefits to our customers by minimising network outages. A key component is our commitment to live line and live substation maintenance, and new procedures developed this year have further increased our capabilities to undertake maintenance without requiring network outages. Our commitment extends to our planned 500 kilovolt network, which is being designed to accommodate live maintenance.

Connecting lower emission generation to the grid

Powerlink continues to engage in industry discussion on the implications of Government climate change policies and will play a vital role in planning and providing infrastructure that will facilitate the expected transition to a lower emission generation mix. In 2009/10, we completed works to connect two new lower emission power generators to the grid.

Powerlink provides non-discriminatory access to the transmission grid, and is in discussion with developers of renewable generation projects in diverse locations throughout Queensland. We also provided advice on locations which could provide economic grid connections for large scale solar thermal generation, under the Solar Flagship Program, which is part of the Commonwealth Government's Clean Energy Initiative.

Environmental commitment

Throughout our operations, Powerlink remains committed to environmentally responsible performance.

This year, we removed an aged transmission line which was located in the World Heritage Wet Tropics area in North Queensland. The removal of the line and the subsequent revegetation program will deliver substantial long-term environmental benefits. It also highlighted the significant improvements that have evolved in transmission line design, construction and maintenance techniques to reduce environmental impacts since the aged line was constructed some 50 years ago.

Thanking our people

The achievements detailed in this report are a credit to Powerlink's people, who, as our culture survey demonstrated, are very engaged in ensuring Powerlink's ongoing success. I thank our people for their continued commitment to delivering Powerlink's excellent performance.

Looking ahead

As electricity demand continues to grow, Powerlink will develop, operate and maintain the transmission network to ensure Queensland continues to enjoy cost-effective and safe electricity transmission, at high levels of reliability.

Hardine

Gordon Jardine Chief Executive

the power to form

Powerlink meets its obligations as a Transmission Network Service Provider in the National Electricity Market, and as required by its regulator, the Australian Energy Regulator.

Powerlink's Network Operations Centre manages the performance of Queensland's transmission network





Highlights

- Our overall network performance is ahead of the reliability targets set by the Australian Energy Regulator.
- Powerlink completed construction works for four new customer connections to the grid.
- We reached agreement for a further four new customer connections to the grid to be delivered by 2012.
- We held discussions with proponents of renewable generation projects, and provided advice on grid connections for proposals under the Commonwealth Government's Solar Flagships Program.
- Powerlink contributed to the national planning activities carried out by the Australian Energy Market Operator, including the publication of the National Transmission Statement.

Powerlink's role in the National Electricity Market

Powerlink is required to efficiently plan, develop, operate and maintain Queensland's high voltage transmission network, and provide National Electricity Market (NEM) participants with secure, open and non-discriminatory access to this network for the transport of electricity.

On I July 2009, the Australian Energy Market Operator (AEMO) assumed management of the operation of the NEM in accordance with the National Electricity Rules (the Rules). AEMO draws together the functions previously carried out by the National Electricity Market Management Company (NEMMCO) and a number of other energy market entities.

Under an operating agreement with AEMO, Powerlink performs several functions that assist in the secure operation of the Queensland power system.

Planning for NEM development

As the Jurisdictional Planning Body for Queensland, Powerlink assesses the capability of the network to meet forecast load growth, and works with equivalent bodies in other States and AEMO to assess the capability to transfer electricity within Queensland, and to and from other regions in the NEM.

Powerlink also contributes to the planning activities carried out by AEMO as the National Transmission Planner, including the publication of the *National Transmission Network Development Plan* (NTNDP) which focuses on the strategic and long-term development of the national electricity grid. As part of the transition to the new National Transmission Planning arrangements, AEMO published the *National Transmission Statement* in December 2009. The first NTNDP will be published in December 2010.

Where Powerlink identifies future electricity needs within Queensland, we consult with NEM participants and interested parties through a transparent process to identify potential non-network solutions and compare them with the network solutions Powerlink has identified. Information about consultation undertaken in 2009/10 is detailed on page 34 of this report.

As required by the Australian Energy Regulator's (AER) Regulatory Test, we identify and implement the solution that meets reliability standards at the lowest long-run cost to customers. The AER is a constituent part of the Australian Competition and Consumer Commission (ACCC), but operates as a separate legal entity with responsibility that includes economic regulation of electricity transmission. Powerlink is preparing for the adoption of the AER Regulatory Investment Test for Transmission, which will replace the Regulatory Test for assessment of future electricity needs from August 2010.

Contributing to the future of the NEM

Powerlink is committed to furthering the National Electricity Objective, which is to promote an efficient, reliable and safe electricity supply for the long-term interests of customers. In line with this commitment, we continue to take an active role in initiatives to define and guide the future development of the NEM.

Powerlink undertakes much of its engagement in this area through its membership of Grid Australia, the organisation representing the owners of Australia's electricity transmission networks in the NEM, plus Western Australia. Powerlink's Chief Executive Gordon Jardine is presently the Chairman of Grid Australia.

Grid Australia identifies issues of interest to transmission network owners, and advocates for practical solutions that are in their common interest and further the National Electricity Objective. During 2009/10, Powerlink participated, both directly and through Grid Australia, in a number of processes for NEM development, including:

- the Australian Energy Market Commission (AEMC) Review of Energy Market Frameworks in the Light of Climate Change Policies, which explores the implications of emerging policies that will affect the mix and location of electricity generators and how these will be connected into the grid
- the AEMC Review into the Use of Total Factor Productivity

 the AER Regulatory Investment Test for Transmission, which will replace the existing Regulatory Test to provide a single economic assessment framework for all transmission investments.

Powerlink contributed to Grid Australia's development of *Network Connection Guidelines* to assist proponents wishing to connect to a transmission network in the NEM.

Powerlink is also a member of Energy Networks Association, the national body representing gas and electricity transmission and distribution network businesses in Australia.

Regulated revenue and transmission pricing

The AER determines Powerlink's allowable revenue for regulated services to enable the electricity transmission network to be developed, operated and maintained efficiently, while meeting Queensland's electricity demand growth.

Powerlink's allowable regulated revenue is specified in the AER's Final Decision of June 2007, and applies to each financial year from 1 July 2007 to 30 June 2012. Using those allowable revenues, Powerlink applies the methodology prescribed in the Rules to calculate the transmission charges for our network customers. While electricity transmission is the backbone of the electricity supply chain, Powerlink's transmission charges represent only about 10 per cent of the average household electricity bill.

In 2009/10, Powerlink's allowable regulated revenue was \$684 million. This revenue supported essential augmentations to the network to meet increasing electricity demand, renewal of transmission assets as required, and maintenance to ensure the continued reliability of the transmission network.

Responding to rapidly growing energy needs in the Surat Basin

Queensland's residential, commercial and industrial electricity customers rely on Powerlink to ensure a reliable high voltage electricity supply to support the development of their region. At the same time, electricity generators rely on Powerlink to provide non-discriminatory access to the high voltage network.

Chief Operating Officer, Simon Bartlett, said Powerlink's network was an essential backbone of the State's economy and was vital to meeting growing electricity demand, enabling resource and industrial development, and transporting energy from new generation sources.

"We support the development of significant regions within Queensland by fulfilling our obligations to extend the shared transmission network to maintain high reliability standards," Simon said.

"During 2009/10, we have been working closely with a number of proponents of major development projects in strategic regions in Queensland.

"In the Surat Basin area in South West Queensland, we have been working with proponents of new electricity generators and new major electricity customers such as liquefied natural gas (LNG) developers and other resource industries active in the Surat Basin.

"It's well known that the Surat Basin area is developing rapidly, and that the energy needs in that area are expected to increase significantly. Forecasts indicate that within the next four years, the energy needs for the Surat Basin area will equal the energy needs of the whole of the Gold Coast.

"Our planning processes identified the need to extend our existing transmission network to enable the needs of the Surat Basin area to be met in a timely and cost-effective way, and offer various flow on benefits, including the reinforcement of electricity supply to the local service towns." Simon said Powerlink had proposed a two-stage network reinforcement for the Surat Basin area which involves construction of a new 275 kilovolt transmission line between Western Downs Substation (south-east of Chinchilla) and a proposed substation at Columboola (east of Miles), and a new 275 kilovolt transmission line between Columboola and a new substation at Woleebee (south of Wandoan).

"Our proposed network reinforcements will provide the region with the essential community infrastructure required to meet the immediate and emerging needs of the growing energy and resources sector, and will support the long-term needs of all electricity customers in the region, including residential, commercial and industrial customers," he said.

"Although the development of the area is happening at a fast pace, we will ensure that Powerlink meets all of its obligations, including the proper process for developing new transmission infrastructure.

"Just as we have an obligation to extend our network to maintain a reliable electricity supply, we also have an obligation to undertake an Environmental Impact Assessment for any proposed project, which includes full and proper consultation with landowners and stakeholders, to ensure we deliver the best outcome.

"We will continue to work cooperatively with our key stakeholders and landowners in the area to ensure we remain on track to deliver network reinforcements at the least long-run cost to consumers, while minimising the overall impacts of the project."

Andrew Owen, Senior Project Manager Network Property, and local community member and Western Downs Regional Councillor, Mick Cosgrove discuss development of the transmission network in the South West Queensland region

Our role in climate change initiatives

Both Commonwealth and State Government climate change policies impact on Queensland's energy industry, and Powerlink continues to engage in industry discussion on the implications of those policies. This participation will underpin our vital role in planning and providing infrastructure that will facilitate the expected transition to a lower emission generation mix, arising from initiatives including the Commonwealth Government's 20 per cent Mandatory Renewable Energy Target (MRET) by 2020.

Specialist independent economic modelling has shown that Government policy will result in the development of large scale, least cost renewable generators. Powerlink's transmission network already transports electricity generated from renewable resources, and will play an increasing role in the future in transporting electricity generated from those large scale renewable sources to the major population centres. Ongoing development of the transmission grid will be pivotal to facilitating the development of lower emission and renewable generation sources, and will be managed effectively within Powerlink's existing planning processes.

Under the Rules, Powerlink is obligated to provide open and non-discriminatory access to its grid to all forms of electricity generation.

New generation recently connected to the grid includes more than 1,000 megawatts of lower emission gas-fired generation, and Powerlink continues to receive a significant number of enquiries for grid connection from lower emission and renewable generation proponents. During 2009/10, Powerlink held discussions with proponents of a number of potential renewable generation projects, including wind generation proposals. We also provided advice to the Queensland Government's Office of Clean Energy on locations which could provide economic grid connections for large scale solar thermal generation, under the Solar Flagship Program, which is part of the Commonwealth Government's Clean Energy Initiative. Powerlink anticipates that increases in energy efficiency initiatives will deliver reductions in overall daily energy consumption, but will have little impact on peak summer electricity demand, which is the main driver for development of the transmission grid. Peak electricity demand continues to increase, driven by residential and industrial demand, and consumer trends.

Network performance in 2009

The AER sets network performance targets for Transmission Network Service Providers (TNSPs) which apply on a calendar-year basis. The AER performance targets first applied to Powerlink in 2007, and in each calendar year, including 2009, the overall performance of Powerlink's network has been ahead of those reliability targets.

The reliability targets include availability of transmission circuits, number of loss of supply events, and the duration of network outages. In 2008, the AER introduced a new element, the Market Impacts of Transmission Congestion (MITC) component. This new component would not normally apply to Powerlink until the beginning of the next regulatory period, from mid 2012, however a change to the Rules allows it to be applied during the current regulatory period. Powerlink has applied to the AER for this to occur, and the AER has determined targets that will apply from July 2010.

New connections to the grid

Powerlink provides access to the transmission network under an open, non-discriminatory regime. During the 2009/10 financial period, a rebound in the resources sector has increased the number of enquiries from project proponents with an interest in connecting to Powerlink's network, especially in strategic areas of development including the Surat Basin, Galilee Basin and the Gladstone region. Powerlink is working closely with Government, Queensland Rail (QR) Network and other project proponents to support Queensland's economic development. In the past year, Powerlink reached agreement for four new customer connection projects:

- construction of four new substations and transmission lines as connections for the QR Network coal rail network in Central Queensland by 2012
- connection for ERM Power (Braemar Holdings)
 600 megawatt Braemar 3 Power Station in South
 West Queensland by 2012
- connection for BHP Billiton Mitsubishi Alliance (BMA) Goonyella Riverside Expansion in Central Queensland by 2012
- connection for the Queensland Gas Company (British Gas) liquid natural gas compression station at Kumbarilla Park in South West Queensland by 2012.

During 2009/10, we completed construction and commissioning of four new connections to our network within the timeframes required by our customers:

- ERM Power and Arrow (Southern Generation)
 450 megawatt Braemar 2 Power Station (coal seam methane gas-fired) in South West Queensland
- Origin Energy 630 megawatt Darling Downs Power Station (coal seam methane gas-fired) in South West Queensland
- Origin Energy 150 megawatt Mt Stuart Power Station unit 3 (jet fuel-fired) in Townsville, North Queensland
- Rio Tinto Yarwun Alumina Refinery in Gladstone, Central Queensland.

Our future

In 2010/11 and beyond, Powerlink will:

- contribute to the AEMC Review of Transmission Frameworks
- adopt and implement the changes to the national planning arrangements
- adopt and implement the new Regulatory Investment Test for Transmission arrangements
- undertake preparations for Powerlink's regulated revenue reset proposal to the AER for the five-year period commencing
 I July 2012
- continue to provide advice and connection services to proponents of new power generation, including lower emission and renewable generation sources, in Queensland.



Simon Taylor, Network Customers Manager, with an Origin Energy representative at Darling Downs Power Station

the power to respond

Powerlink plays a crucial role in supporting Queensland's economic, residential and industrial growth by consistently meeting the State's transmission needs reliably and cost effectively.

Luma Worrall, Substation Electrical Design Engineer, at Powerlink's South Pine Substation





Highlights

- We released our 2010 Annual Planning Report, which indicates sustained long-term growth in peak electricity demand in Queensland over the next 10 years.
- International benchmarking has recognised Powerlink among world leaders in the operation and maintenance of transmission services.
- We invested \$79.5 million in maintenance of the network through our robust maintenance and refurbishment program, ensuring our network continues to operate with high reliability.
- New live line and live substation processes were implemented to maximise our ability to maintain electricity supply during construction and maintenance works.

Meeting our planning obligations

Powerlink's activities and operations are undertaken in compliance with the *Electricity Act (Queensland) 1994*, the National Electricity Rules (the Rules) and other relevant legislation.

Transmission network planning and development are integral to Powerlink meeting its obligations. In line with our obligations under the Rules, Powerlink publishes its Annual Planning Report (APR) in June each year. Powerlink's *2010 Annual Planning Report* was issued on 30 June 2010 to National Electricity Market (NEM) participants and other interested parties. The APR presented historical and forecast electricity demand, and our plans to develop the transmission network to ensure continued reliability of the high voltage network in response to forecast demand growth.

Electricity demand forecasts

The 2010 APR indicates that, on average, the summer peak electricity demand is forecast to increase at a rate of 4.2 per cent per year statewide, and 3.9 per cent per year in South East Queensland over the next 10 years. This forecast sustained long-term growth in peak demand is attributed to industrial and residential growth, and the continued installation of air conditioners. The outlook reflects the emerging trends in the Queensland economy – a return to trend growth following the recent short period of economic slowdown, and a strong resurgence in the resources sector. It also reflects in particular the developing electricity requirements in the Surat Basin area arising primarily from the proposed liquefied natural gas (LNG) upstream processing facilities.

The summer peak electricity demand (weather corrected) has grown considerably over the past five years, with a statewide growth of 18 per cent (about 3.4 per cent per year), including growth of 21 per cent (about 3.8 per cent per year) in South East Queensland.



A new statewide summer peak demand record was set in the 2009/10 summer, with the actual peak being 3.4 per cent higher than the previous summer peak.

Energy consumption is expected to increase at an average rate of 4 per cent per year statewide and 3.1 per cent per year in South East Queensland over the next 10 years, continuing the trend of energy consumption growing at a marginally slower rate than peak demand. The introduction and increased uptake of energy efficiency initiatives have been factored into this forecast.

The long-term forecast growth in peak demand is the key driver for Powerlink's investment in the transmission network.

Recognised by international benchmarking

Powerlink has been recognised among world leaders in the operation and maintenance of transmission services through the International Transmission Operation and Maintenance Study (ITOMS) 2009. The results of this benchmarking study, involving 27 international electricity transmission businesses, confirm that our network strategies are delivering world's best practice network performance.

Powerlink participates in ITOMS as a means of benchmarking our network performance and practices against other electricity transmission entities around the world. ITOMS measures the performance of the transmission network in terms of both cost efficiency and network reliability, and examines the maintenance polices and work practices adopted by each organisation.



ITOMS Overall Composite Benchmark – Weighted Average



Strathmore Substation control room

Capital works program

Powerlink continues to invest in Queensland to underpin the resurgence in the State's economic development.

Since 2004/05, Powerlink has invested almost \$3 billion in augmenting the network, replacing aged assets and maintaining the network. We currently have more than \$2 billion of capital projects approved and under way. The replacement of assets which are reaching the end of their service life represents an increasing proportion of this program.

Delivering capital works

Powerlink has consistently delivered its substantial capital works program by ensuring organisational capabilities and resources are aligned to the programmed requirements.

The current environment of growth challenges us to further refine Powerlink's processes to deliver major projects within compressed timeframes, while maintaining our focus on safety, quality and the environment. We are implementing a range of strategies to ensure we continue to improve network service delivery and provide a cost-efficient and reliable transmission service to our customers throughout Queensland.

Operating a secure network

Powerlink oversees the real-time management of the transmission system 24 hours a day, 365 days a year. In conjunction with the Australian Energy Market Operator (AEMO), our operations team ensures that the system is continually operated in a safe, secure and reliable manner, relying on a modern, computer-controlled Energy Management System (EMS) for real-time monitoring and control of the network.

A project to significantly upgrade the EMS is well progressed, and will deliver a state-of-the-art outcome to meet Powerlink's future business needs.

Our two-year program to roll out upgrades and enhancements to Operational Wide Area Network (OpsWAN) technology is further refining our network security and reliability capabilities. OpsWAN allows rapid, remote investigation of network faults and online condition monitoring of equipment, enabling faster responses and continued security of supply, safety of the public, our staff and assets.

We review Powerlink's operating procedures and systems on an ongoing basis to ensure continued network reliability and efficiency within the changing electricity supply network.

Maintaining an efficient network

Powerlink's maintenance and refurbishment program ensures our network continues to operate at the high level of reliability and efficiency expected by electricity consumers and as required by the Australian Energy Regulator. Planned network maintenance takes into account the lifecycle of different components of the network and their servicing needs. In 2009/10, \$79.5 million was invested in the maintenance of the network.

Following intense dust storms which affected Queensland in late 2009, Powerlink implemented additional insulator washing programs. Dust on insulators has the potential to cause interference to the transmission network, and we plan insulator washing within our routine maintenance program. In order to further understand the possible impact on our network posed by dust storms, and to develop mitigation strategies, Powerlink is undertaking a research project in partnership with Griffith University.

Managing network access and works to meet customer needs

At times, scheduled outages are required in order to safely undertake the construction and maintenance of the network. We schedule these outages to minimise any associated impact on customer supply and the operation of NEM.

Powerlink has a project under way to implement a new outage management program which will assist to improve coordination of maintenance and construction works over the short and long term. This new program will also ensure we continue to meet Powerlink's obligation to notify NEM participants of planned outages that may have a material impact on the operation of the NEM by publishing a 13-month outage plan, which is updated on a monthly basis.

Our capability to undertake live substation and live line work during the construction and maintenance of Powerlink's network continues to be developed and enhanced, thereby maximising our ability to maintain electricity supply.

An extensive audit of our live substation team by RTE, the transmission system operator in France and recognised world leaders in the field, reported a positive outcome that reflected the professionalism of our live substation team.

During 2009/10, we developed and introduced a number of new live working procedures and techniques to enhance our ability to construct and maintain our network, while minimising impacts on customers and the electricity market. Those processes included the replacement of v-string insulators, which enhanced our ability to refurbish transmission lines, and the use of a 'long line' technique to lift equipment from ground level to workers positioned at the top of transmission towers using a helicopter, which minimises ground disturbance and network impacts.



Managing asset performance to maintain high network reliability

An innovative maintenance asset management process applied by Powerlink in 2009/10 will ensure our network continues to perform at standards that benchmark strongly in terms of reliability and availability.

Reliability Centred Asset Management (RCAM) is a process to provide detailed and quantitative information on network and equipment reliability, cost and performance, so that we can define a successful long-term asset management strategy.

Maintenance Strategies Analyst, Lutfiye Allahmanli, said Powerlink's implementation of RCAM was a logical step in a continuous improvement process that enables the organisation to meet the performance targets set by the Australian Energy Regulator.

"RCAM is a proactive process involving an annual review of equipment, ensuring that we know and understand its reliability extremely well," Lutfiye said.

"RCAM enables us to detect lower performing equipment on our network, and to identify opportunities to make improvements. Those improvements might be achieved through modifications in design or maintenance strategies, or by replacing the equipment.

"Equally, RCAM identifies high performing equipment and allows us to take advantage of learnings in technology and maintenance practices associated with that equipment." The outputs of the RCAM process are shared with the relevant work teams within Powerlink and that data becomes an input to decision making.

"For example, our in-depth knowledge about the performance of a particular piece of equipment may be relevant to our procurement or engineering design processes, or may impact our maintenance strategies," Lutfiye said.

The RCAM process links reliability and the effect of equipment maintenance by collating and analysing data on the root cause of equipment performance.

"Armed with that detailed data, we can more effectively prioritise and manage our maintenance resources, optimising the cost and reliability for equipment," Lutfiye said.

"The implementation of RCAM was a significant milestone within the evolution of Powerlink's maintenance asset management. Initially the new process is focusing on equipment within Powerlink substations, because the physical nature of substation equipment has significant potential to impact on network reliability, so we are maximising the return on our investment."

Benchmarking undertaken to date shows that the RCAM approach has considerable merit and contributes to improving the long-term performance of our network.

Lutfiye Allahmanli. Maintenance Strategies Analyst

Supporting research and development

The outcomes of our research and development program inform our business and influence our ability to implement further improvements to many aspects of our operations. Powerlink's active research and development program supported 27 projects over the financial period, with most projects extending over more than one year. Many research projects are collaborative and Powerlink partners with various industry bodies, universities and the Australian Research Council. Powerlink is also a member of the Electric Power Research Institute (EPRI) and the Australian Strategic Technology Program.

Several Powerlink research projects were concluded in 2009/10, with two broad areas of focus: enhanced performance monitoring of substation plant, and management of the safety and environmental impact of transmission lines.



Expanding telecommunications capacity

A high capacity telecommunications network facilitates the real-time testing, monitoring and control of Powerlink's transmission network. Powerlink's telecommunications network operates mainly via high capacity Dense Wave Distributed Multiplexing (DWDM) optical fibre installed on Powerlink's transmission lines. Over the past decade, Optical Fibre Ground Wire (OPGW) has been integrated into the construction of new transmission lines, retrofitted into selected existing transmission lines, and installed within our scheduled earthwire replacement program. During the financial period, we installed OPGW on Powerlink's network between Gladstone and Gin Gin, and began works to continue the installation of a second OPGW link between Brisbane and Woolooga.

Infrastructure security

As described in Powerlink's security policy, we are committed to the safety of our people and the public, the protection of our network as critical infrastructure, and the need to ensure business continuity.

Powerlink continues as a participating member of the International Electricity Infrastructure Assurance (IEIA) Forum, which provides access to important international security information, training and workshops that ensure we remain abreast of developments in infrastructure security, and that our security strategies reflect worldwide best practice.

Powerlink has retained its involvement with Commonwealth and State Government agencies in accordance with the National Guidelines for Protecting Critical Infrastructure from Terrorism and the Queensland Government Plan for the Protection of Critical Infrastructure from Terrorism. Powerlink participates in the Energy Infrastructure Assurance Advisory Group (EIAAG) under the Commonwealth Government's Trusted Information Sharing Network (TISN).

Corporate emergency response

Powerlink's suite of well-developed, understood, and rehearsed corporate emergency response plans ensures we have the capability to quickly respond to any network or corporate emergency. Our corporate emergency response plans are reviewed regularly, and form an integral part of our strategy to deliver a secure and reliable transmission network.

Several desktop and 'live' exercises were conducted in conjunction with AEMO, ENERGEX and Ergon Energy as part of an annual process to test and improve our procedures.

Recognising the critical nature of our business, Powerlink maintains a secure business continuity site from which our business processes, information technology, and network operations can be managed in the event our normal business sites are inaccessible. In early 2010, the business continuity site was relocated to a superior location. The new site offers upgraded facilities better suited to Powerlink's contemporary business requirements. Powerlink continues to review and upgrade our available equipment and plant used to facilitate speedy restoration in the unlikely event of significant damage to the electricity network, for example, damage caused by extreme weather conditions. In 2009/10, we permanently installed diesel generators in four key substations in North Queensland. Previously, generators would have been transported to the substation site as required, making restoration more difficult if the site was inaccessible by road.

Cyclone preparedness

Powerlink monitors the potential for significant weather events which may impact our network and responds appropriately. We successfully activated Powerlink's State Disaster Emergency Management Plan in preparation for the potential impact of Tropical Cyclone Olga in January 2010 and Tropical Cyclone Ului in March 2010. Cyclone Ului crossed the Queensland coast causing significant flooding and damage within the communities in the Mackay region. Damage to Powerlink's infrastructure in the wake of Cyclone Ului was very limited, and we were able to provide uninterrupted high voltage electricity supply to the region.

Procurement initiatives

The execution of new transmission line construction contractual arrangements in March 2010 will reshape the procurement and management of new major transmission line works within Powerlink. The arrangements facilitate the tendering process for the major components of a transmission line project, according to the specific needs of the project.

This new transmission line arrangement follows the implementation of a similar agreement for the management of substation design, construction and testing implemented by Powerlink in early 2009.

As with all of Powerlink's procurement of goods and services, the new arrangement was established in accordance with the objectives of the State Procurement Policy such as Local Industry Participation Plans (LIPP) and reporting.

Securing sites for future development

Powerlink's long-term planning approach includes the securing of strategic easements for future transmission lines. Where possible, we secure easements and substation sites well ahead of construction so that we can provide certainty to local government, landowners and the community about the location of future powerlines and substations. This approach allows for better land use planning by councils, developers and Government agencies, and preserves Powerlink's ability to construct new infrastructure in increasingly urbanised areas.

However, the fast-moving external environment also requires Powerlink to acquire easements shortly before transmission line construction needs to begin. The recent resurgence of the resources industry has highlighted the need to respond quickly and efficiently to requests to acquire easements, and develop transmission assets in compressed timeframes.

While being responsive to these needs, Powerlink continues to uphold a robust process that ensures we meet all existing and evolving statutory requirements. During 2009/10, we refined our processes to ensure we comply with external changes such as the introduction of the *Sustainable Planning Act 2009* (which replaced the *Integrated Planning Act 1997*), the *Koala Conservation State Planning Regulatory Provision* under the *South East Queensland Regional Plan*, and the continued amalgamation of local government planning schemes.

As the State experiences and manages rapid development, Powerlink remains committed to working closely with Government and other stakeholders to ensure we minimise our impacts and meet our obligations.

Our future

In 2010/11 and beyond, Powerlink will:

- commission an upgraded state-of-the-art
 Energy Management System for the real-time management of the transmission system
- commission a new outage management program which enhances the coordination of maintenance and connection works
- complete the installation of a second optical fibre telecommunications link between Brisbane and Woolooga, which will facilitate enhancement of real-time testing, monitoring and control of Powerlink's transmission network
- continue to work cooperatively with
 State Government, councils, developers,
 landowners and other stakeholders in meeting
 our obligations while acquiring easements
 and sites for new transmission assets
- complete construction of a new purpose-built warehouse at Narangba which will provide improved storage capacity and some office accommodation.



David Hunter, Property Contact Officer, with a landowner near Powerlink's recently completed Innisfail to Edmonton transmission line in North Queensland

the power to provide

We are planning and developing Powerlink's network to reliably meet Queensland's long-term electricity needs.

Shaun Conlan, Quality Inspector, near Powerlink's Strathmore to Ross transmission line




Highlights

- We finalised consultation and the Australian Energy Regulator's Regulatory Test assessment for the supply of electricity to South West and South East Queensland.
- Powerlink has completed assessments which demonstrate the construction of a 500 kilovolt transmission line from Halys (near Kingaroy) to Blackwall (near Ipswich) satisfies the Australian Energy Regulator's Regulatory Test. This line will be built on existing easements, some of which were acquired strategically more than 15 years ago as a result of Powerlink's long-term planning.
- We commissioned II major projects, including new substations and lines, replacement of aged transmission lines and upgrades of existing substations on schedule to maintain a reliable supply of high voltage electricity to customers.
- Seven major projects were under construction at 30 June 2010, with construction activity occurring in regional Queensland and the South East corner.

Investing in the network

In 2009/10, Powerlink undertook \$465.5 million in construction works across Queensland to ensure our network meets reliability standards as electricity demand continues to grow. In recent years, Powerlink's capital works program has been the largest in the electricity transmission sector in Australia.

Assessing future network capacity

Powerlink is required to undertake the assessment process set out in the National Electricity Rules (the Rules). This includes applying the Australian Energy Regulator's (AER) Regulatory Test prior to constructing new transmission lines and substation developments needed to increase the capacity of the transmission network.

Where our planning process identifies that the transmission network supplying a region is approaching its limits in the next few years because of growing electricity demand, Powerlink notifies National Electricity Market (NEM) participants and interested parties of the anticipated limitation, and seeks information from those parties on feasible non-network solutions to address the anticipated constraint.

We also carry out detailed technical analysis to determine the feasible network solutions that address the identified network limitation. Having undertaken this rigorous investigation, Powerlink applies the economic analysis specified in the AER's Regulatory Test and consults with NEM participants and interested parties on feasible alternatives to identify the most economic solution.

In 2009/10, we finalised consultation and the AER's Regulatory Test assessment for the following identified need:

Identified need	Solution identified in the Regulatory Test
Supply to South West and South East Queensland	 Series of works comprising: installing capacitor banks at Millmerran, Middle Ridge, Belmont and South Pine Substations establishing new 275 kilovolt substations at Western Downs and Halys and a 275 kilovolt line between the substations rearranging an existing 275 kilovolt line between Kogan Creek Power Station and Braemar Substation, to connect Western Downs Substation splitting the 275 kilovolt bus at Braemar Substation constructing a new 500 kilovolt line between Halys and Blackwall Substations (initially operated at 275 kilovolts).



Major projects completed in 2009/10

Region	Project	Brief description	Project purpose	Milestones achieved
North Queensland	Clare Substation	Replacement of the ageing 132 kilovolt substation at Clare.	To ensure continued reliability of electricity supply to the Burdekin region.	Commissioned in December 2009.
	Innisfail to Edmonton replacement transmission line	Construction of a 132 kilovolt transmission line to replace an ageing line between Innisfail and Edmonton substations.	To ensure continued reliability of supply to Far North Queensland.	Commissioned in August 2009.
	Ross to Yabulu South transmission line and Yabulu South Substation	Construction of a 275 kilovolt transmission line between Ross Substation and Yabulu South Substation and construction of a new 132 kilovolt substation at Yabulu South.	To ensure continued reliability of electricity supply and increase capacity to meet growing electricity demand in the Townsville area.	Commissioned in October 2009.
Central Queensland	Alligator Creek Substation	Upgrade of the existing 132/33 kilovolt Alligator Creek Substation including installation of two new transformers and associated equipment.	To ensure continued reliability of supply to the coal loading terminals of Hay Point and Dalrymple Bay, and surrounding areas.	Commissioned in May 2010.
	Bouldercombe to Pandoin transmission line and Pandoin Substation	Construction of a new 132/66 kilovolt substation at Pandoin and a 132 kilovolt transmission line between Bouldercombe and Pandoin substations.	To ensure continued reliability of supply to the Rockhampton area.	Commissioned in October 2009.
	Larcom Creek Substation	Construction of a 275 kilovolt substation at Larcom Creek and a new 275 kilovolt transmission line from Larcom Creek Substation to Yarwun Substation.	To provide additional transmission capacity to the Gladstone area, including the Gladstone State Development Area.	Commissioned in October 2009.
	Nebo to QR Bolingbroke transmission line and Bolingbroke Substation	Construction of a new substation at Bolingbroke for QR, and a new I32 kilovolt transmission line from QR's Bolingbroke Substation to Powerlink's Nebo Substation.	To provide high voltage electricity supply to the QR network servicing the Bowen Basin.	Commissioned in July 2009.
	Nebo to Strathmore transmission line	Construction of a 275 kilovolt transmission line between Nebo and Strathmore substations.	To ensure continued reliability of electricity supply and increase capacity to meet growing electricity demand in North and Far North Queensland.	Commissioned in November 2009.
	Yarwun Substation	Construction of a new 132/33 kilovolt substation at Yarwun.	To ensure continued reliability of electricity supply and increase capacity to meet growing electricity demand in the Yarwun area.	Commissioned in November 2009.
South Queensland	South Pine to Sandgate transmission line	Construction of a 275 kilovolt transmission line between South Pine Substation and ENERGEX's Sandgate Substation.	To ensure continued reliability of electricity supply to the north eastern Brisbane area.	Construction completed in November 2009.
	Woolooga Substation	Upgrade of the existing 275/132 kilovolt Woolooga Substation, including installation of a Static VAr Compensator.	To ensure continued reliability of supply in South East Queensland.	Commissioned in October 2009.

Extensive planning is pivotal to substation rebuilding in South East Queensland

Rebuilding a major substation on-site in South East Queensland, while maintaining a secure electricity supply to customers, is the challenge being met by Powerlink at both South Pine and Belmont substations.

Originally built in the late 1960s, the South Pine Substation (operated at 275 kilovolts and 110 kilovolts) has been reliably meeting an ever-increasing demand for electricity in Brisbane's northern suburbs. However, the substation equipment had reached the end of its technical life and needed to be replaced in order to maintain a reliable electricity supply.

Project Manager, Tony Janas, said that in 2007 a section of Powerlink's existing land was cleared to accommodate the construction of two new substations, immediately adjacent to the ageing substation, while maintaining operations at the existing substation.

"Construction of the new section of the 275 kilovolt South Pine West Substation was completed in December 2008, with the 110 kilovolt South Pine East Substation following in April 2009," Tony said. "The 110 kilovolt South Pine West Substation was commissioned in April 2010 and is now serving the northern suburbs of Brisbane.

"This project required meticulous planning and development of detailed and complex sequencing plans in order to carry out the works. As we completed each segment of the new substations, we transferred the transmission line connections from the ageing substation to the new substation. We then decommissioned and demolished the superseded section of the ageing substation while maintaining network supply at all times.

"For the first time, helicopters were used to string the transmission lines into the substation which accelerated the work timeframes. The helicopters carried the lines across a nearby major road, minimising the need for road closures. "To ensure there was no impact on electricity supply to customers, major works were often undertaken at night or on the weekend, when electricity demand is lower."

Meanwhile, on Brisbane's southside, similar challenges are being managed in the replacement of substation equipment at Belmont Substation, which has reliably serviced southern suburbs since the early 1970s.

Due to constraints on the site, Powerlink is rebuilding the ageing substation in situ in a four-stage project expected to be completed in late 2011.

Project Manager, Joachim Kiessling, said extensive preparations were undertaken to plan the project and determine the order of the rebuild and decommissioning of ageing substation equipment.

"To ensure a secure electricity supply to customers, it was necessary to construct several 110 kilovolt provisional transmission line connections and temporary substation installations, and a 275 kilovolt transmission line across the construction site," Joachim said. "This meant installing large new steel poles in the middle of the operating substation yard. We used a 350-tonne crane to relocate one pole into position in one piece, which meant we could install the pole faster than the traditional method of installing it in sections.

"Another major milestone has been the decommissioning of the ageing transformers and installation of the new transformers. With each transformer weighing 175 tonnes, transport to site and installing the equipment required detailed logistical planning."

Both Tony and Joachim emphasised that the success of the projects has relied on effective communication, close liaison, and meticulous planning by teams within Powerlink, ENERGEX, contractors and external bodies, ensuring there were no impacts to electricity customers as a result of the project work.

Tony Janas, Project Manager for the South Pine Substation upgrade project, inspects work on site

"The success of the projects has relied on effective communication, close liaison and meticulous planning." 37

network development

Overcoming vast distance and remote locations to reinforce the network

Powerlink has almost completed reinforcing the transmission network between Central and North Queensland to ensure we can meet future demand safely and securely while maintaining a high level of reliability.

The three-stage, \$500 million-plus reinforcement involves construction of almost 500 kilometres of new powerlines from Broadsound (in Central Queensland) to Ross (Townsville), as well as associated substation works.

The first stage was completed in late 2008, and included the construction of a new 275 kilovolt transmission line between Broadsound and Nebo substations and installation of a Static VAr Compensator at Strathmore Substation.

The second stage included the development of a new 275 kilovolt transmission line between Nebo and Strathmore substations and was completed in late 2009.

Nearing completion is the third and final stage which involves construction of a new 275 kilovolt line between Strathmore and Ross substations. Construction of this project began in May 2009 and is on track to be completed in late 2010.

Lines Construction Management Team Leader, Colin Langton, said delivering this large portfolio of work was the culmination of cooperative work by many people over a number of years.

"The imminent completion of these challenging projects will be a striking display of the capabilities of our people," Colin said.

"With almost 500 kilometres of line to construct, the sheer distance and remoteness of many locations created definite challenges for the project team. "Because of the extensive distances and travel times involved, we needed multiple bases for project workers. Where possible, we used existing accommodation in communities, but in some cases we had to build remote temporary camps to house workers.

"Safety was our priority at all times. In some very remote areas we had paramedics on site and secure access to a helicopter during critical times.

"It is our role to continually monitor compliance against safety, environment and cultural heritage requirements, in addition to managing performance against the construction timetable."

Far North Queensland Project Manager, Jeffrey Foy, said the changing topography and severe weather conditions also provided many challenges.

"This lengthy transmission project crossed two major rivers and numerous existing powerlines and roads," Jeffrey said. "Our construction teams experienced a huge diversity of ground conditions, vegetation and climate.

"We also faced two cyclones and a major flood in the life of the three-stage development.

"It was very satisfying to engage local businesses as suppliers, and to be involved in the Community Benefits Programs, which provided funding for worthwhile community projects near the new lines."

The Strathmore to Ross transmission line is the final stage of the three-stage project to reinforce the transmission network between Central Queensland and North Queensland

"These challenging projects are a striking display of the capabilities of our people."

40

Major projects under construction in 2009/10

Region	Project	Brief description	Project purpose	Milestones achieved
North Queensland	Cairns Substation	Replacement of aged equipment at the Cairns Substation.	To ensure continued reliability of electricity supply to Far North Queensland.	Construction to be completed by summer 2010/11.
	Ingham to Yabulu replacement transmission line	Construction of a 132 kilovolt transmission line to replace an ageing line between Ingham and Yabulu substations.	To ensure continued reliability of supply to Far North Queensland.	Construction began in May 2010.
	Strathmore to Bowen transmission line and Bowen North Substation	Construction of the new 132/66 kilovolt Bowen North Substation and a 132 kilovolt transmission line between Strathmore Substation and Bowen North Substation.	To ensure continued reliability of electricity supply to the growing Bowen region.	Construction to be completed by summer 2010/11.
	Strathmore to Ross transmission line	Construction of a 275 kilovolt transmission line between Strathmore and Ross substations.	To ensure a continued reliability of electricity supply and increase capacity to meet growing electricity demand in North and Far North Queensland.	Construction to be completed by summer 2010/11.
South Queensland	Belmont Substation	Rebuilding and replacement of aged equipment at the existing 275/110 kilovolt Belmont Substation.	To ensure continued reliability of electricity supply to South East Queensland.	Construction to be completed in 2010/11.
	Blackstone Substation	Construction of a new 110 kilovolt substation to initially replace the ageing Swanbank A Substation, and provide for replacing much of Swanbank B Substation in the longer term.	To ensure continued reliability of electricity supply to the Ipswich and south west Brisbane region.	Construction began in December 2009 and is to be completed in 2011/12.
	South Pine Substation	Rebuilding and replacement of aged equipment at the 110 kilovolt South Pine Substation.	To ensure continued reliability of electricity supply and meet growing electricity demand in north eastern Brisbane.	Construction to be completed in 2010/11.

Planning for a 500 kilovolt network

As part of Powerlink's commitment to long-term planning, we have been planning the future construction of a 500 kilovolt network to meet the State's future electricity needs. This higher capacity network is needed to meet the growing electricity needs in South East Queensland, and will also facilitate Government climate change policies by providing connection opportunities for new large-scale renewable and lower emission generation located away from major population centres. South East Queensland represents about 60 per cent of the State's electricity consumption. Based on forecasts of electricity demand, the 275 kilovolt transmission network servicing the region is expected to approach its capacity limits within the next five years. At the same time, South East Queensland is becoming more urbanised, placing significant land use planning constraints on the 'footprint' of the future transmission network.

41

Electricity flows from generators located in South West Queensland have increased in recent years, and this trend is expected to continue, particularly with the development of new, lower CO_2 emission power stations located in the Surat Basin, using coal seam methane gas. Electricity generated in Southern Queensland must be transported by the transmission network to the population centres in South East Queensland.

Building a higher capacity 500 kilovolt transmission network will help meet the growing demand for electricity while reducing the overall number of new high voltage powerlines that will need to be built in the future. One 500 kilovolt transmission line is capable of carrying the same amount of electricity as about three 275 kilovolt lines, with a much smaller land use requirement.

The plan for the 500 kilovolt network involves the progressive development of the following sections of transmission line between:

- Halys (near Kingaroy) and Blackwall (near Ipswich)
- Halys (near Kingaroy) and Greenbank (in Logan)
- the Surat Basin (from a new substation known as Western Downs) and Halys (near Tarong).

The first section of line to be constructed will be Halys to Blackwall, and is scheduled for completion by late 2014. Powerlink has already acquired strategic easements specifically for a 500 kilovolt transmission line, with some of these easements acquired more than 15 years ago as a result of our long-term planning. Powerlink has also completed assessments which demonstrate the construction of this line satisfies the AER's Regulatory Test.

The precise timing of the construction of the second and third line sections depends on future electricity demand growth in South East Queensland, and on the location and timing of new generation developments.

Our future

In 2010/11 and beyond, Powerlink will:

- finalise the consultation and Regulatory Test assessment processes for the following network developments:
 - supply to the Surat Basin north west area
 - supply to Central Queensland
- continue construction on transmission line projects including:
 - Ingham to Yabulu replacement transmission line
 - Strathmore to Bowen transmission line
 - Strathmore to Ross transmission line
- continue construction on substation projects including:
 - Cairns Substation
 - Bowen North Substation
 - Belmont Substation
 - Blackstone Substation
 - South Pine Substation.



Connection works at Strathmore Substation

the power to sustain

Powerlink is committed to working proactively to protect, enhance and respect the environment, and manage our operations in ways that are ecologically sustainable.

Mathew Cosgrove, Environmental Coordinator, near the site of the proposed Western Downs to Halys transmission line project





Highlights

- Powerlink submitted its first mandatory report on energy and greenhouse gas emissions under the Commonwealth Government's National Greenhouse and Energy Reporting Act 2007.
- A Cultural Heritage Field Guide was produced to provide our staff and contractors with ready guidance on identifying potential cultural heritage sites and on working near identified sites of cultural significance.
- Ongoing enhancements were introduced to our environmental management systems to reflect the latest legislation and practices.
- We expanded the capabilities of the portable system used by our field-based workforce to identify and manage all plants of interest to Powerlink.

Managing environmental performance

A review of our Environmental Management System (EMS) resulted in further improvements to our structure for directing and reviewing Powerlink's environmental performance. We have identified 13 environmentally significant aspects, which provide a focus for managing our environmental performance. Those aspects are:

- erosion and sediment control
- biosecurity
- vegetation management
- waste management
- wildlife interactions
- community
- compliance with codes and plans
- water
- contaminated land
- air quality
- climate change
- sustainability
- cultural heritage.

The EMS now provides a clearer assessment of on-ground performance against those significant aspects.

During the financial year, two minor incidents were reported to the relevant authorities:

A biosecurity incident involving a shipment of electrical equipment to Belmont Substation occurred on 14 August 2009. An infestation of ants was found when a shipping container from Italy was opened. Australian Quarantine Inspection Services (AQIS) was contacted the same day and fumigated the container. The ants were identified as *Crematogaster scutellaris*, and ongoing monitoring has indicated that the fumigation resulted in successful eradication of the ants.



• On 11 June 2009, a minor oil weep was detected on a transformer at Woolooga Substation. It was estimated that one litre of oil containing low levels of polychlorinated biphenyls (PCBs) leaked to the ground. The oil was contained and cleaned up at the site. Although there was no harm to the environment outside the substation, Powerlink was required to report this incident to the Department of Environment and Resource Management (DERM). A report was provided to DERM on 3 July 2009, following an internal investigation. During 2009/10, Powerlink removed all remaining scheduled PCB contaminated equipment from service on our network, in accordance with a program agreed with DERM. Any remaining PCB contamination in our assets is very low level or in small quantities, and will be disposed of appropriately at the end of the service life of the particular asset.

Managing cultural heritage

Powerlink's commitment to proactively managing cultural heritage extends throughout the life of our assets, reaching beyond construction to the operations and maintenance phase. We work with Traditional Owners, cultural heritage professionals, and other community and heritage groups to build positive long-term working relationships.

Powerlink's cultural heritage strategy is to avoid harm to cultural heritage, and meet our statutory requirements under the cultural heritage legislation policies and guidelines. We fulfill our cultural heritage duty of care usually by developing Cultural Heritage Management Plans (CHMPs) with the relevant Aboriginal Parties. Our CHMPs are developed as an integral part of any major new transmission line or substation construction project. During 2009/10, we developed and implemented CHMPs with various Traditional Owner groups for new assets throughout Queensland. The CHMPs establish a foundation of understanding for resolving any potential issues which may arise during the construction, operation or maintenance of our network.

In 2010, we revised our processes for negotiating CHMPs in line with an amendment to the State Government's Aboriginal Cultural Heritage Act 2003.

A new Cultural Heritage Field Guide has been produced for Powerlink employees, contractors and subcontractors. The guide will be used as an induction tool, and will provide ready guidance on identifying potential cultural heritage sites and on working near identified significant cultural heritage areas and objects.

Protecting cultural heritage

Our strategies for respecting and managing both Aboriginal and historic and other cultural heritage ensure that Powerlink is compliant with the *Aboriginal Cultural Heritage Act 2003* and *Queensland Heritage Act 1992* while addressing community expectations. In 2009/10, a number of notable cultural heritage initiatives delivered positive outcomes for communities and Powerlink.

Significant rock art sites were identified in North Queensland, near a proposed new powerline route. Powerlink worked closely with the Traditional Owners to evaluate the options to best manage these significant places, while enabling this important community infrastructure to be constructed within the required timeframe.

Powerlink has worked in conjunction with North Ipswich Rotary and the Willis Haenke Foundation over a two-year period to restore the historic coke oven mounds located during works at our Abermain Substation. The coke ovens are a valuable record from the early 1900s, when a historic coalfield and power station were located at Tivoli near Ipswich. The preservation of the coke ovens has been undertaken as a community project, and has involved maintaining and restoring the brick structures and surrounds, and installing internal and external fencing to manage site visitation in the future.

World War II places were found during project investigations in North Queensland. In our review of this cultural heritage, Powerlink engaged the cultural heritage professionals to assess the heritage significance of the World War II road forming the eastern boundary of the former Kangaroo Ordnance Depot in Kurukan (near Townsville). Powerlink plans to construct a new powerline parallel to the road, and will apply the recommendations of the cultural heritage report to manage the significance of this place and its associated artifacts.

Greenhouse reporting

Since 1999, Powerlink has been a signatory to the Commonwealth Government's Greenhouse Challenge and Greenhouse Challenge Plus program, and has voluntarily reported on greenhouse gas emissions.

Powerlink prepared and submitted its first mandatory report on energy and greenhouse gas emissions in October 2009, using the factors published by the Commonwealth Government's *National Greenhouse and Energy Reporting Act 2007* (the NGER Act). An external audit was undertaken to verify the accuracy of our report. Under the NGER Act, Powerlink is required to report information annually.

In order to ensure we continue to meet the requirements of the NGER Act and continuously improve our processes, Powerlink is working cooperatively with other Transmission Network Service Providers to enhance the robustness of our reporting system.

Greenhouse commitments

Our people and processes support sustainable actions to reduce our in-house greenhouse emissions generated by everyday business activities.

Purchasing green power

In 2009/10, Powerlink purchased 4,835,000 kilowatt hours of green power, which equates to about 50 per cent of the estimated annual energy usage for our Virginia office. Our green energy purchase equated to 4,400 tonnes of carbon dioxide reduction.

Powerlink has committed to increasing our purchase of green power to 70 per cent of our estimated annual energy usage for our Virginia office for 2010/11.

We purchase green power through the Ecofund, which invests in environmental projects such as energy efficiency, methane-flaring, renewable energy and biodiverse forestry projects within Queensland.

Reducing energy use

Powerlink continues to seek opportunities to reduce energy consumption within our operations. A successful computer power-down project and the replacement of office lighting with low-energy equivalent lighting have resulted in a substantial reduction in energy use.

Reducing travel emissions

Powerlink continues to operate under a Motor Vehicle Environmental Policy, ensuring that where possible, we select vehicles that meet the minimum Green Vehicle Guide Greenhouse Ratings, in line with the Queensland Government's QFleet Climate Smart Policy.

Where operational requirements dictate vehicles that cannot meet these ratings, we offset carbon emissions through Ecofund. We also offset the emissions from all Powerlink employee air travel through Ecofund.

Improved reporting on SF₆

Sulphur hexafluroide (SF_6) is a greenhouse gas used in some high voltage switchgear. SF_6 emissions are reportable under the NGER Act requirements.

Powerlink monitors this gas using world's best practice and advanced technology including mechanical sniffers and cameras.

To continually improve the accuracy of measurements and reporting of SF_6 , Powerlink implemented new procedures in early 2010. The new procedures ensure that we capture high quality data on SF_6 emissions to allow ongoing improvements in loss prevention.

47



We aim to minimise the greenhouse emissions from our fleet while ensuring we have appropriate vehicles to undertake our operations

Recycling activities

Powerlink supports and promotes initiatives to recycle our business, construction and maintenance waste.

We have a well-established regime of recycling business-related waste including electronic equipment such as telecommunications equipment, small appliances, and rechargeable batteries.

In 2009/10, we focused on improving our capacity to recycle larger waste items, particularly scrap metal and transformer oil. We have established an agreement to ensure quantities of transformer oil, which is used as an insulating material, are regenerated and reused.

The most recent audits of our business, construction and maintenance-related waste and recycling activities were undertaken in 2009/10, with the aim of securing additional waste stream data and identifying opportunities to increase recycling.

Managing our water consumption

We continue to monitor water consumption at our Virginia office site and to realise the benefits of strategies to install water tanks and water wise appliances and practices.

Sustainable procurement

Powerlink is a member of the Sustainable Procurement Energy Committee (SPEC), formed with Queensland energy companies to develop purchasing strategies that take into account the environmental sustainability of products and suppliers, as well as whole of life cost, product quality, and financial considerations.

We are actively participating in the work undertaken by SPEC to investigate and evaluate tools which will enable Powerlink and other energy companies to make better informed procurement choices, consistent with the Queensland Government Chief Procurement Office guidelines.

Aged line removal returns the Wet Tropics environment

Powerlink's experience in building new transmission lines is extensive, but an unusual challenge was presented when we needed to remove an aged transmission line through the valued North Queensland rainforest.

The Kareeya to Innisfail transmission line was more than 50 years old and had reached the end of its economic life. It was replaced by the newly completed Tully to Innisfail transmission line, located on a different route. The old line was a total of 59 kilometres long, including 39 kilometres located in World Heritage Wet Tropics rainforest.

The project was undertaken in accordance with Powerlink's decommissioning plan which addressed removal of the line and rehabilitation of the cleared corridor, and was approved by the Commonwealth Department of Environment, Water, Heritage and the Arts. Separate approval was also granted by the State Minister for Climate Change and Sustainability.

Assistant Construction Manager, Jeff Castles, said the removal component of the project progressed smoothly to completion in late 2009, despite a number of challenges.

"The biggest challenge was getting access to the line in very difficult terrain in the Wet Tropics zone," Jeff said.

"Recognising the environmental value of the area, we didn't want to build any new access tracks or clear new areas for crane pads. Where vehicle access was impossible, workers walked in to tower sites, at times having to cross streams. In recognition also of the cultural heritage values of the area, we worked alongside the Traditional Owners.

"The first step was to remove the wires. To ensure the conductors didn't curl and cause damage to vegetation, we used a technique of securing lengths of rope to the end of the heavy wires. The wires were then pulled through in lengths and wound onto drums. "The towers were then dismantled by riggers, and removed in sections. We used helicopters to lift sections of 31 towers out of the rainforest in areas where we couldn't get crane access. With each tower weighing between three and four tonnes, it generally took six to eight helicopter lifts to remove all of the steelwork.

"The line also crossed a number of privately owned properties, most of which are cane farms. We worked hand in hand with those landowners to minimise any impacts on their operations."

Once the line was removed, Powerlink began rehabilitation initiatives which should see good native vegetation coverage on the corridor within two to three years.

Project Manager Route Acquisition, Tom Graham, said the rehabilitation program included repeated spraying of weeds on the corridor to help promote growth of native vegetation.

"We have identified sites that will be planted with native vegetation propagated from seeds that were collected in the area before and during the last wet season," Tom said.

"We expect to plant about 30,000 seedlings before the next wet season begins in late 2010. These will then be subject to a maintenance regime in the following 12 to 18 months, with additional planting undertaken if required."

David Hunter, Property Contact Officer, and contractors during rehabilitation works following the removal of the Kareeya to Innisfail transmission line in North Queensland

49

"Rehabilitation initiatives should see good native vegetation coverage on the corridor within two to three years."

6

A A





Eddie Van Der Draai, Line Construction Manager, and John Peters, Project Environmental Advisor, at a weed washdown facility near the Strathmore to Bowen transmission line project

Biosecurity

Under legislation, primarily the *Land Protection* (*Pest and Stock Route Management*) *Act 2002*, Powerlink has a duty to effectively manage and prevent environmental impacts of weeds, pathogens and animal pests. We are committed to providing our employees with appropriate training, resources and procedures to ensure they have the capacity to undertake their work while ensuring Powerlink complies with this duty of care. We also require our contractors to exercise the same duty of care. Powerlink field staff are trained to meet the Australian competency for weed washdown.

Weed management

Powerlink works cooperatively with landowners to implement weed management strategies during the construction and maintenance of our assets. Our workforce has specific procedures to identify weeds, remove declared weeds and prevent the spread of weeds through clothing, plant and vehicles.

We equip our field-based workforce with the Powerlink Lucid Information Support Tool (PLIST), a portable system which helps identify plants and choose the right management strategies. When originally adopted by Powerlink in 2008/09, PLIST contained data on weeds and weed management. In 2009/10, we expanded its capability and data to include rare and threatened plants and all plants identified in Powerlink Environmental Management Plans, making PLIST an extensive repository for identifying data and management strategies for all plants of interest to Powerlink.

Working in protected areas

The Queensland Government, Powerlink and energy distributors have finalised a Deed of Agreement for *Electricity Works on Protected Areas*, and a Code of *Practice for Maintenance of Electricity Corridors in Queensland's Parks and Forests*. This formal agreement was signed in 2010 and relates to the maintenance and operation of electricity assets in Queensland forests and parks, including the World Heritage Wet Tropics Area. The Code of Practice defines the acceptable practices and expectations of Powerlink and electricity distributors, from administrative procedures to specific standards of on-ground operation. Powerlink's procedures are consistent with the Code of Practice, and we will periodically review those procedures to ensure continued compliance.

Research and development

As part of our ongoing commitment to the integration of land management principles and practices throughout our operations and activities, Powerlink funds environmental research that enhances our environmental performance. Our focus is on investigating practical land management issues. Our partners are universities, industry and stakeholders, and other research-based entities.

Mahogany gliders

Powerlink is continuing an ongoing research project with the University of Queensland, CSIRO and DERM to investigate the movements of mahogany gliders near our easements. The mahogany glider is listed as an endangered species under both Commonwealth and State Government legislation, and its habitat is traversed by various infrastructure corridors. The investigations undertaken through this research project highlighted the importance of glider habitat connectivity and corridor crossing enhancement techniques. These findings have already been considered in the design of a future replacement transmission line.

Investigating rehabilitation techniques

Experiments to investigate the success of site preparation techniques, planting methods and maintenance regimes are being undertaken by Powerlink in cooperation with Griffith University, Greening Australia and environmental consultants. The outcomes of this research will contribute to the effectiveness of Powerlink's rehabilitation works on our easements. A complementary project with Central Queensland University is developing a matrix of suitable native, low-growing cover species for use during revegetation and maintenance works on our easements.

Effective weed seed destruction

Working with the University of Queensland, Powerlink undertook a research project to investigate the effectiveness of techniques for the destruction of weed seeds, including the use of heat and chemicals, and the practicality of using these techniques in the field. The project also examined opportunities for improvements in the washdown methods for vehicles and equipment to ensure weed control on transmission line easements. The project provided data to support further improvements to weed control processes on Powerlink easements during construction and maintenance activities.

Erosion and sediment control

Powerlink is currently assessing the use of vetiver grass to stabilise soils and prevent erosion at disturbed areas including tower sites on transmission line easements. The use of vetiver grass can avoid the need for an engineering solution to stabilise erosive areas, minimising environmental impacts and providing a cost-effective solution. In 2009/10, various new locations and situations were identified to continue to expand the use of vetiver grass as an alternative to engineering solutions.

Powerlink is working with the University of Queensland to perform ongoing research to monitor sediment and erosion on a variety of soil types. Different treatments, management practices, and site conditions were trialled during 2009/10 to assist Powerlink to determine effective management strategies for highly erosive soil types.

Our future

In 2010/11 and beyond, Powerlink will:

- continue to submit annual reports under the National Greenhouse Emission Reporting scheme
- work with industry partners to establish an environmental training framework for the electricity supply industry
- continue to invest in research and development projects which further the responsible environmental management of our construction, operation and maintenance activities
- continue to improve our environmental management systems and operational controls to effectively manage our environmental impacts.



Mahogany glider

the power to Dartner

Powerlink has a track record of working closely with communities to build positive, long-term relationships throughout the planning, development and maintenance of our infrastructure, and delivering benefits to local people, landowners and the environment.

Eddie Con Foo, Senior Lines Construction Manager, with landowner Sam Haig on a property near Jandowae





Highlights

- Four Community Benefits Programs were launched in association with the construction of new transmission lines, providing support for nearly 60 community projects in various regions of the State.
- We partnered with Townsville City Council to embark on a new community and environment program, and also progressed the programs already operating in the Western Downs and South Burnett regions in the vicinity of current and proposed transmission infrastructure.
- We continued to offer planning advice, assistance and tools to planning and development professionals, and work with proponents and assessment managers to ensure that development is undertaken in a manner that ensures public safety and is compatible with the electricity infrastructure.

Engaging with communities

Powerlink's responsibility to build and maintain a transmission network to supply Queensland's electricity gives us a continuing presence in 30 city and regional council areas in Queensland. We implement strategies to build and maintain cooperative relationships within those communities, with affected landowners, councils, interest groups and residents. We seek to establish longterm relationships that are fostered through the planning, development and maintenance of our infrastructure.

It is Powerlink's aim to return tangible and lasting benefits to local people, landowners and the local environment. At the same time, we seek community cooperation and support in accommodating Powerlink's essential service community infrastructure, which enables us to achieve positive and sustainable outcomes.

Approval to construct transmission lines and substations is regulated by statutory processes which include Environmental Impact Assessments, related community consultation and Government approval, and is governed by legislation, primarily the *Sustainable Planning Act 2009*. We aim to identify new transmission line routes that enable us to meet Powerlink's legislated reliability of electricity supply obligations at the least long-run cost to consumers, while minimising overall impacts.

Integrating communities and infrastructure

Under the Sustainable Planning Act 2009, Powerlink is a referral agency for Development Applications adjacent to existing lines and easements. We offer planning advice, assistance and tools to planning and development professionals, including mapping of transmission easements in local government planning schemes, and easement co-use guidelines. We work with proponents and assessment managers to ensure that development is undertaken in a manner that ensures public safety and is compatible with the electricity infrastructure.



Powerlink also works with landowners and asset operators to address their enquiries with regard to on-easement works, and continues to encourage early consultation to ensure landowners and operators are fully aware of our requirements and maintain public safety.

Our planned capital works projects are identified in the South East Queensland Infrastructure Plan and Program, and in Local Government Growth Management Strategies prepared by local government in South East Queensland.

Community Benefits Program

Our Community Benefits Program provides funding for community projects that contribute to the establishment of facilities and services for communities near our new transmission lines. The program, which has been operating for more than a decade, has funded projects that enhance partnerships in the community and have broad community support.

During 2009/10, we provided funding for communities through four Community Benefits Programs:

Bouldercombe to Pandoin Community Benefits Program

The Bouldercombe to Pandoin Community Benefits Program distributed funds to seven community groups from the Rockhampton Regional Council area. Projects funded included: a Greening Australia education program in local schools; purchasing VHF radios and installing GPS units in trucks used by the Bouldercombe Rural Fire Brigade; new roofing and security for the Upper Ulam Recreational Grounds; and a shade structure for Autism Queensland's Centre of Excellence.

Nebo Community Benefits Program

The Nebo Community Benefits Program distributed funds to 10 community groups from the Mackay and Isaac Regional Councils. The program was associated with our projects in the Nebo area, including the Nebo to Queensland Rail Bolingbroke and the Nebo to Strathmore transmission line projects. Projects funded included: helipad lights for the Nebo State Emergency Service; a shade structure for the Nebo Bowls Club; a mobile cold room for the Isolated Children's Parents Association; and power installation for a community Road Safe Rest Stop.

South Pine to Sandgate Community Benefits Program

The South Pine to Sandgate Community Benefits Program distributed funds to 17 community groups from the Brisbane City Council area. Projects funded included: an art studio at the Queensland Baptist Orana Youth Shelter; a new audio system for the Bracken Ridge State School hall; lighting upgrade for the Albany Creek Junior Rugby Union Club; and grandstand seating at Albany Creek Excelsior Soccer Club.



Chief Executive Gordon Jardine (left) and Member for Sandgate Vicky Darling (centre) with representatives from community groups which received funding in Powerlink's South Pine to Sandgate Community Benefits Program

Supporting positive change through the Community Environmental Program

Soil conservation is the key objective of a project managed by the Brigalow-Jimbour Floodplains Group (BJFG), and funded by our Community Environmental Program.

BJFG is one of 15 community groups across the South Burnett and Western Downs Regional Council areas to receive funding to enable projects that deliver positive and lasting environmental benefits to local communities near Powerlink assets. Projects funded through the program aim to enhance the landscape and provide improved, more environmentally friendly facilities.

BJFG Secretary, Katie Cameron, said that in association with Landcare Australia, BJFG provides education and funding to local landowners to help them manage the natural resources on their properties.

"Powerlink's funding through the Community Environmental Program is helping us to support local landowners who are improving the environment and their properties, and making a long-term commitment to the ongoing maintenance of those improvements," Katie said.

Jandowae landowner, Dave Coleman, is among the number of landowners involved with BJFG and is committed to making positive changes to the environment in the Western Downs region.

"Funding from the Community Environmental Program has helped us to modify our property's contour banks to channel and re-divert water flows, reduce soil erosion, control weeds, and maximise available land for cultivation," Dave said. "Our work on the contour banks on our property is ongoing and requires considerable maintenance, and Powerlink's support is certainly very welcome.

"There are many outstanding needs in small communities like ours, so we really value an injection of funds like this to get some important projects off the ground," he said.

Powerlink's Community Environmental Program was launched in late 2008, with first round funding distributed to six community groups in March 2009, and second round funding distributed to a further nine community groups in October 2009.

Powerlink Manager Network Development, Terry Miller, said Powerlink was committed to providing tangible environmental and community benefits to areas in the vicinity of its existing and future high voltage electricity infrastructure.

"As well as delivering community and environmental benefits, the program is enhancing Powerlink's relationships with our Program Partner, the Western Downs Regional Council, and other stakeholders and landowners in the area," Terry said.

"We're very proud to be able to support the efforts of the local community. These passionate and enthusiastic volunteers are working after hours and behind the scenes to build more sustainable landscapes and communities."

Landowner Dave Coleman, with BJFG representative Robyn Haig at his property in Jandowae

North Queensland Region Community Benefits Program

The North Queensland Region Community Benefits Program distributed funds to 25 community groups from Burdekin, Whitsunday and Townsville Regional Council areas. The program was associated with several of our projects including the Strathmore to Ross and the Strathmore to Bowen transmission lines, and the northern section of the Nebo to Strathmore transmission line. Projects funded included: electrical renovations to the Bowen Sporting Complex clubhouse; a shed for the Limehills Elliot Rural Fire Brigade; construction of a new amenities block for the Collinsville Horse and Pony Club; and our contribution to the construction of the Gudjuda Sculpture Parkway – Dancing Brolga Totem.



Community and environment programs

Powerlink's community and environment programs involve proactive, community-based initiatives that aim to build relationships with local government, communities and other key stakeholders in strategic areas traversed by existing or future Powerlink transmission infrastructure. Through the implementation of these programs, we work with local communities to reduce the visual impact of new or existing infrastructure, provide environmental outcomes and other long-term benefits to communities, and in doing so, generate lasting, positive relationships at all levels of the community.

In 2009/10, Powerlink partnered with Townsville City Council to embark on a new community and environment program, and also progressed the programs already operating in the Western Downs and South Burnett regions in the vicinity of future network extensions.

Powerlink Chairman Else Shepherd with Somerset Regional Council Mayor Cr Graeme Lehmann at the launch of on-ground works at Purga Creek Nature Reserve

Powerlink GreenWorks Program

Powerlink's five-year, \$1.6 million GreenWorks Program entered its second year in late 2009, with six initial environmental projects under way. GreenWorks is a partnership between Powerlink, Ipswich City Council and Lockyer Valley, Somerset, Toowoomba and South Burnett Regional Councils. It aims to deliver significant and lasting environmental outcomes and enhance the visual amenity near the future 500 kilovolt powerlines needed in Southern Queensland. The program is being undertaken in association with several key environmental organisations including SEQ Catchments, Greening Australia, Landcare Queensland, University of Queensland Gatton, and the Queensland Department of Environment and Resource Management.

In October 2009, the official launch of on-ground works was marked at the Purga Creek Nature Reserve in Ipswich by representatives of Powerlink, partner councils and program partners. Key project planning activities and initial on-ground works for some projects commenced in early 2010, with the projects focusing on protecting and enhancing the connectivity of native vegetation, rehabilitating wildlife corridors, managing erosion, reducing salinity in waterways, and improving downstream water quality. Significant achievements to date have involved detailed mapping of more than 1,000 instances of the endangered swamp tea-tree (*Melaleuca irbyana*) across South East Queensland and the planting of 3,000 seedlings at Purga Nature Reserve. Local landholders have shown a keen interest in participating in many of the projects, affirming the widespread opportunities for environmental enhancement in our local communities.

Funding for additional future projects will be considered by the Advisory Panel and Steering Committee during the life of the program.

Community Environmental Program

Nine community projects received funding in October 2009 as part of the second round of the Community Environmental Program, implemented by Powerlink in partnership with the Western Downs Regional Council. The program has provided \$200,000 in funding for 15 community and environment projects near Powerlink's transmission infrastructure in the Dalby and Kingaroy areas.

Local community groups were provided with the opportunity to submit project funding requests in two rounds, with the majority of first round projects and second round projects scheduled to be completed by late September 2010.

Successful round two projects included tree planting within the Jandowae and District showgrounds and the Kumbia race reserve; a shaded outdoor play area at the South Burnett Childcare Association and Jandowae Kindergarten Association; installation of solar panels at the Cooranga North Memorial Hall, Warra Public Memorial Hall, Kogan Hall and Dalby Senior Citizens Centre; and the identification of Broad Leaf Privet infestations in the Stuart River Catchment.

Learnscape Project

Launched in October 2009, the Borrow Pits to Rowes Bay Learnscape Project is a Together Townsville partnership between Powerlink and the Townsville City Council. The project will develop and promote two local environmentally significant sites as recreational and learning spaces. In these important wildlife habitats, program funding will be used to install community infrastructure and interpretive signage to enhance

59

visitors' experiences at the site and encourage public awareness of environmental matters within local catchments.

Powerlink's financial investment will help enhance the natural environment and bird habitat, particularly at the Borrow Pits site which is located next to our Ross Substation.

The program builds on the success of our previous three-year partnership with Townsville City Council, the Community Environment Fund, which funded the implementation of 27 projects at 18 sites in the greater Townsville region.

Salvation Army Christmas support

In 2009, Powerlink provided financial support to the Salvation Army Christmas Appeal, which helped the not-for-profit organisation to assist families throughout Queensland. Powerlink staff supported the Salvation Army by donating gifts, non-perishable food items and participating in fundraising activities.

Community and industry sponsorship

Consistent with our value of good corporate citizenship, Powerlink's sponsorship framework supports the strategic sponsorship of activities in the area of community, education, environmental and industry activities.

These include activities and organisations that align with our projects in both rural and urban Queensland, plus key industry and local groups. During 2009/10, our support has extended to groups including the Local Government Association of Queensland, Landcare Queensland, Queensland Planning Institute, Engineers Australia, Energy Users Association of Australia, Queensland Education Science and Technology Conference, Bremer River Forum, World Wetland Festival and the Salvation Army.

Electric and Magnetic Fields

Powerlink takes its advice about Electric and Magnetic Fields (EMF) from recognised health authorities in Australia and internationally.

Our future

In 2010/11 and beyond, Powerlink will:

- implement our Community Benefits Program in association with new transmission lines under construction
- continue to monitor the progress of our current community and environment programs, and explore opportunities to introduce projects that will deliver environmental benefits to the local communities involved in the programs
- seek opportunities to continue to build positive community relationships in the Southern Queensland and Townsville areas, where Powerlink's community and environment programs are currently active.

EMF are produced by the generation, delivery and use of electricity, and are therefore found near transmission lines and wherever electricity or electrical equipment is used, including commonly used domestic appliances and workplace equipment.

While there is no scientifically proven causal link between EMF and adverse affects on human health, Powerlink adopts an approach of 'prudent avoidance' in siting new powerlines. This includes seeking to locate powerline easements away from houses, schools and other buildings, where it is practical and cost effective to do so.

In 2009/10, Powerlink continued to proactively provide information from recognised public health authorities about EMF to communities in the vicinity of our transmission lines. We also continued our practice of carrying out EMF readings at the request of landowners. EMF readings at the boundary of a typical Powerlink easement are generally similar to those encountered by people in their daily activities at home or at work. EMF are also comprehensively addressed in the Environmental Impact Assessment undertaken for any planned new Powerlink facilities.

strengthen

Powerlink's progressive corporate culture supports our highly skilled, capable and dedicated workforce to deliver the best outcomes for our business, our customers, our stakeholders, and the community.

Heshala Devasirie, Electrical Design Engineer Lines, in the Atrium at Powerlink's Virginia office

Highlights

- Our seventh organisation-wide culture survey showed very positive results, benchmarking particularly well for employee engagement.
- A new management training course was implemented to enhance the capability of our managers.
- Our six development programs were reviewed to ensure the best possible outcomes for participants and Powerlink.

Our workforce

Powerlink employs a workforce of almost 1,000 people, within a variety of professional, technical, trade, specialist, and administrative roles. During 2009/10, our workforce numbers reached a plateau, following three years of growth in response to the requirements of our significant capital works program.

Our employee retention rate remains high, demonstrating the long-term commitment of many employees. In 2009/10, our employee turnover rate was just 3.5 per cent.

The majority of Powerlink's employees are based at our head office at Virginia in Brisbane. Throughout the year, we also operated five temporary construction site offices to accommodate staff working on projects in regional Queensland.

Organisational culture

Powerlink's workforce culture underpins our business performance and is a key aspect of our attraction and retention strategy. We seek to proactively identify opportunities for ongoing enhancements to our culture, and in 2009, we undertook Powerlink's seventh organisation-wide culture survey since 1995. Employees participated in the survey voluntarily and a high level of participation was achieved.

The survey results indicated positive increases across most criteria that are comparable to previous culture surveys, with employee engagement benchmarking extremely well compared to other Australian companies.

Whilst the survey results were very positive, Powerlink's Executive Leadership Team identified three areas which provided opportunities for improvement, and action plans have been developed to address those areas. The survey results, at both an organisational and business unit level, have also been shared with employees. Using those segmented results, individual work teams have developed detailed action plans for their own application.

Health and safety initiatives

Health and safety is integral to Powerlink's mission. We are committed to achieving operational excellence in safety through the creation and continuous improvement of a culture in which all employees regard safety as their first priority, and in which safety is systematically and actively integrated into all work.

Powerlink has comprehensive policies and procedures to monitor and report on health and safety. The Safety Steering Committee reports regularly to the Board's Audit and Compliance Committee and develops programs to improve safety awareness and safe practices. Safety is integrated into all aspects of work and is also promoted as a core life value, enhancing employees' awareness of risk and health issues in all areas of their lives.

During 2009/10, new health and safety initiatives included:

- a review of Safe Access to Electrical and Mechanical Apparatus procedures undertaken in conjunction with ENERGEX and Ergon Energy to deliver uniform practices across the electricity industry in Queensland
- release of the Powerlink Height Safety Standard which identifies and drives a uniform approach to climbing and working at heights
- development of a new training strategy which improves the way in which we inform our contractors on how to safely access and perform work near our transmission network
- development of a fatigue management plan specifically for application during emergencies or incidents, and a review of the standard to strengthen advice on the social impacts of fatigue
- updating our Pandemic Emergency Management Plan.

Health and safety performance

Powerlink's Lost Time Injury Frequency Rate for 2009/10 was 1.08, which is well below the Electricity Transmission average as reported in the Energy Networks Association report *Occupational Health* and Safety Performance 2008/2009 (October 2009).

The *Electrical Safety Act 2002* requires an approved auditor to certify Powerlink's Safety Management System annually. The audit was completed in September 2009, and our system was found to be well developed with no non-compliances recorded. The audit also noted strong commitment by management to supporting electrical safety, and found that field staff assessed during unannounced visits also showed good knowledge of, and commitment to, safety.

National training

Powerlink has continued to participate in an initiative to establish portable, recognised competencies for electricity supply industry workers throughout Australia. The protocol will enable workers to assist in the restoration of electricity supply in response to an emergency situation such as bushfire or cyclone, and in the longer term, will facilitate the mobility of workers and skills.

Live line crew members during a safety briefing at Powerlink's Rocklea training facility

Considering safety in design of new transmission towers

The thought of climbing a 60 metre tall transmission tower might be daunting or even terrifying for most people, but for Powerlink's highly skilled 'lineys', or linespersons, it's a carefully considered work procedure. Safety is paramount when climbing towers for construction, inspection or maintenance work.

Our specialist line design team is continually improving tower designs to ensure better, safer climbing access and improved construction and maintenance techniques.

As Powerlink plans to construct a 500 kilovolt network in Queensland, our preparations involve many facets of the organisation. Our Climbing and Working at Heights Committee is considering the construction, design, safety and maintenance procedures for 500 kilovolt lines, and ensures we comply with legislation and Powerlink's business standards.

Principal Consultant Transmission Lines, Brian McMahon, said the 500 kilovolt towers presented new challenges in transmission line design.

"It is essential that we consult across the organisation when we are designing the new towers to ensure we have a safe, workable product at the end of the process," Brian said.

"The new 500 kilovolt towers will be physically taller than our existing 275 kilovolt towers which means any risk of greater fatigue when climbing needs to be well managed.

"To manage that risk, we are designing work platforms within the towers and additional handrails. We are also designing platforms in several positions on the tower to allow workers to transfer onto the tower from a helicopter or an elevated work platform." Site Safety Advisor, Bernie Parker, said fatigue was a hidden danger when climbing and working at heights.

"Linespersons must be attached to the tower at all times and Powerlink has been testing new methods of attaching to towers when climbing, to reduce fatigue in climbing the taller towers," Bernie said.

"We have been consulting widely with our teams within Powerlink and our service providers to undertake practical testing of a new carrier sleeve attachment device which may make tower climbing less arduous."

Transmission Line Methods Advisor, Mike McLean, said Powerlink's highly trained live linepersons were involved in scrutinising the designs for the new 500 kilovolt towers.

"To avoid outages on the network, much of the maintenance of the 500 kilovolt network will be undertaken using live line techniques, so our team will be developing procedures to safely and efficiently undertake live inspections and maintenance," Mike said.

This comprehensive approach to planning the design of the new 500 kilovolt network ensures the best possible outcome in terms of safety of our people, contractors and the public, efficiency of maintenance, and performance of the network.

Live linespeople Clinton Elstob (front) and Jai Dalton (back), and Adam Marino (centre), Apprentice Linesperson, test the design of a 500 kilovolt tower cross arm at Powerlink's Rocklea training facility

"We are continually improving tower designs to ensure better, safer climbing access."

Powerlink has a range of development programs to ensure our staff have the right skills, knowledge and capability. Alicia Geoghegan, Personal Assistant, and Sandra Shipman, Project Support Coordinator

Leadership and management development

In recent years our management team has increased in line with the growth of Powerlink's responsibilities and workforce, with many managers promoted from within the organisation. Powerlink is committed to developing the capabilities of our managers throughout their management career, and therefore training of managers remained an important priority in 2009/10. Leadership training was targeted and delivered at three levels: Managing Self and Teams for Performance; Management to Leadership; and the Senior Leadership Development Program. All three leadership courses were reviewed and updated during the period to continue to deliver practical and beneficial outcomes for the participants and the organisation.

A new management training course, Foundations of Management, was developed and added to our suite of programs in 2010, to build the capability of our management workforce while complementing the existing management training. Foundations of Management is a mandatory program offered in modules which address the fundamental aspects of management and leadership, as well as reinforcing Powerlink's culture.

Staff training and development

Powerlink's ability to attract and retain skilled employees is assisted by our range of development programs which ensure our people have the right skills, knowledge and capabilities for their professional challenges.

All Powerlink staff members receive induction and safety training. In order to improve the efficiency of our induction process, we now offer our induction programs online. This allows new staff to complete a large component of their induction before their first day on the job, which significantly reduces their start-up time.

Our training and career planning system encourages individuals to develop their potential and prepare for roles that will meet Powerlink's future capability needs. Staff have opportunities to enhance their skills through in-house professional and personal development workshops, and can also apply for financial assistance for relevant tertiary courses and secondments.

Development programs

Powerlink offers development programs for graduate engineers, engineering officers, information technology graduates, administration trainees and apprentices. In 2009/10, 107 people participated in Powerlink's development programs, giving those participants the opportunity to gain broad experience in their field, through work experience across a variety of business units.

A review of our development programs was undertaken during the year, to ensure our programs achieve the best possible outcomes for both the participants and Powerlink in the future.

Powerlink Excellence Awards

Powerlink's annual Excellence Awards provide an opportunity to applaud those individuals and teams who have created an exceptional innovation. The event, which extends to all employees, is also a celebration of the valuable contribution of all our staff.

The 2009 Excellence Awards again featured a range of high quality innovations, resulting in the presentation of one gold, eight silver, and ten highly commended awards across four categories: technical, business, safety, and environment and community. The prestigious gold award was presented for the development of on-site partial discharge diagnostics for hybrid switch gear and transformers, a project involving a working group from Powerlink, QUT and the University of Queensland.

Health and wellbeing

Powerlink provides a number of programs to promote the health and wellbeing of our employees.

In 2009/10, 34 per cent of our employees participated in our Sun Safe Program which offers access to professional skin screening and an educational program for workers in high-risk areas. Powerlink also offers flu injections to employees.

To promote health and wellbeing within our workforce, we supported our employees' participation in the Queensland Corporate Games and undertook an upgrade of the gymnasium facility located on site at our Virginia office.

Our future

In 2010/11 and beyond, Powerlink will:

- deliver new modules of the Foundation of Management course to all Powerlink managers
- implement strategies to address the improvement opportunities identified in the review of our development programs
- implement improvement opportunities identified in the culture survey
- commence negotiations with employees and their representatives for the development of a new Workplace Agreement.

Chris Bohan, Communications and Control Engineering Officer, with Aaron Clark, Communications and Control Apprentice

the power to **guide**

Powerlink's Strathmore to Bowen transmission line




Corporate Governance in Powerlink

Powerlink Queensland is a corporation established under the *Government Owned Corporation Act 1993* (GOC Act), and is a registered public company under the *Corporations Act 2001*. The Board of Directors has the overall responsibility for corporate governance of the corporation.

Corporate governance in Powerlink is managed through the policies and practices adopted by the Board. The corporation commits to those governance policies and practices to ensure appropriate accountability and control systems are in place to achieve the business outcomes of the corporation, and to encourage and enhance sustainable business performance.

Powerlink's corporate governance framework is represented in the diagram on page 71.

Corporate Governance Guidelines

Powerlink's corporate governance processes are consistent with Corporate Governance Guidelines for Government Owned Corporations ("Guidelines") issued by the Queensland Government. The Guidelines are intended to provide a framework for GOCs to develop, implement, review and report on their corporate governance arrangements.

The Guidelines have been prepared with regard to:

- ASX Corporate Governance Council's Corporate Governance Principles and Recommendations 2nd Edition
- Auditor-General's Report No. 2 2002-2003

 Review of Corporate Governance and Risk
 Management at Government Owned Corporations
- Auditor-General's Report No. 10 2002-2003 Review of Management's Assessment of Fraud Control Risks and Associated Plans and Procedures
- OECD Principles of Corporate Governance
- Crime and Misconduct Commission (Qld) and Independent Commission Against Corruption (NSW) – Managing Conflicts of Interest in the Public Sector – Guidelines and Toolkit.

Corporate governance arrangements

Powerlink's corporate governance arrangements in reference to the Guidelines are described below.

Principle 1: Foundations of management and oversight

The Board Charter, established by the Board, describes the Board's functions and responsibilities, which are to:

- set the corporation's values and standards of conduct
- provide leadership of the corporation within a framework of prudent and effective controls
- provide guidance and set the corporation's direction, and development of strategies and objectives
- set financial objectives and ensure that all necessary resources are available for the business to meet its objectives
- monitor implementation of strategies and performance
- inform shareholders of key issues, major developments and performance
- ensure an effective system for compliance and risk management is in place.

The charter is publicly available on Powerlink's website. The Board and management work together to establish and maintain a legal and ethical environment and framework that ensures accountability.

The Powerlink Board undertakes an annual evaluation of the performance of the Chief Executive. The Chief Executive evaluates the performance of each senior executive and submits the outcomes of the evaluation to the Board for its consideration.

The Board Handbook is a key resource identifying the major reference documents that will assist the Powerlink Directors in undertaking their roles and responsibilities. The Handbook serves as both an induction and an ongoing reference guide for Directors, and is updated annually.

New Directors attend induction sessions to provide them with an overview of the operations and policies of Powerlink, and information on the Board and Committee functions. The induction process assists the Directors to understand their roles and responsibilities.



Powerlink Corporate Governance Framework

Shareholding Ministers

Our Shareholders

Powerlink has two shareholders who hold the shares on behalf of the State of Queensland. Our shareholding Ministers, as at 30 June 2010, were:

- the Honourable Andrew Fraser MP, Treasurer and Minister for Employment and Economic Development, holding 50 per cent of the A class voting shares and 100 per cent of the B class non-voting shares
- the Honourable Stephen Robertson MP, Minister for Natural Resources, Mines and Energy and Minister for Trade, holding 50 per cent of the A class voting shares

Powerlink Board

Key accountabilities of the Board

The Powerlink Board establishes the overall corporate governance of the corporation and its subsidiary companies, and is responsible for:

- setting the corporation's values and standards of conduct, and ensuring that these are observed
- providing leadership of the corporation within a framework of prudent and effective controls
- setting the corporation's direction, strategies and financial objectives and ensuring that all necessary resources are available for the business to meet its objectives
- approving the Statement of Corporate Intent
- monitoring financial outcomes and the integrity of reporting; in particular, approving annual budgets and longer-term strategic and business plans

Membership and meetings

 All Directors, including the Chairman, are independent, non-executive Directors appointed by the Governor-in-Council in accordance with the GOC Act.

- monitoring management's performance and implementation of strategy, and ensuring appropriate processes for risk assessment, management and internal controls are in place
- ensuring an effective system of corporate governance exists
- disclosing to shareholding Ministers relevant information on the operations, financial performance and financial position of the corporation and its subsidiaries
- providing formal delegations of authority to the Chief Executive, management and other specified officers.
- In 2009/10, Powerlink held 11 meetings of Directors of the Board. The attendance record of the Directors at meetings of the Board is presented in the Directors' report section in this Annual Report.

Board Committees

Audit and Compliance Committee

Key Accountabilities

The Audit and Compliance Committee assists the Board in fulfilling its responsibilities in relation to:

- financial integrity
- laws, regulations and codes of conduct
- business risk management
- audit effectiveness.

Membership (at 30 June 2010)

- Ms Christina Sutherland (Chairman)
- Mr Ken Howard
- Mr Stuart Copeland

Remuneration Committee

Key Accountabilities

The Remuneration Committee assists the Board in fulfilling its responsibilities in relation to employee remuneration policies that will attract and retain a skilled and motivated workforce.

Membership (at 30 June 2010)

- Mr Walter Threlfall (Chairman)
- Ms Else Shepherd
- Dr Julie Beeby

Principle 2: Structure the Board to add value

At 30 June 2010, the Board comprised six independent non-executive Directors. All Directors are appointed by the Governor in Council in accordance with the GOC Act. Details of the skills and experience of each Director are presented separately in the Corporate Governance section of this Annual Report. The Directors' Report discloses the terms of office and appointment date for each Director.

In the event of Directors requiring independent professional advice, it is provided at the expense of Powerlink. All Directors, including the Chairman, continue to exercise independent judgement in the conduct of their responsibilities.

The Board continually assesses the ongoing independence of the Directors. All Directors are required to disclose any potential conflicts of interest at the commencement of each Board meeting. Any such conflicts are recorded in the minutes of the meeting.

All Directors, the names of whom are presented in the Directors' Report, are considered to be independent. No Directors are considered to have material supplier or customer relationships with the corporation. A predetermined specific materiality threshold has not been established by the Board. The Board's assessment of materiality is undertaken on a case-by-case basis taking into consideration the relevant facts and circumstances that may impact Director independence.

The Board annually reviews the individual and collective performance of the Directors and the Board, as a self assessment by the Directors, to assure itself that it operates in accordance with the Board Charter and the discharge of its responsibilities. A key element in this evaluation is considering the continuing education and professional development of Directors.

The Board also formally considers its information requirements on an annual basis to ensure it is receiving the appropriate information to enable it to effectively undertake its responsibilities.

The Board, having undertaken its annual review for 2009/10, concluded that it is fulfilling its role with no obvious gaps in its performance, and that there was

good interaction and relations with both shareholding Ministers and Powerlink management.

A structured internal process has also been established to review and evaluate the performance of Board Committees. Each Board Committee submits an Annual Report of its activities to the Board.

Principle 3: Promote ethical and responsible decision-making

The Board has a Code of Conduct that guides Directors in carrying out their duties and responsibilities, sets out expected standards of behaviour, and includes policies relating to conflict of interest issues. A summary of this document is available on Powerlink's website.

The Board has developed a Share Trading Policy, which is available on the Powerlink website. The primary purpose of the Share Trading Policy Framework is to mitigate the risk of inappropriate trading of shares by Powerlink employees, managers and Directors. This framework is supplementary to Powerlink's Conflict of Interest Policy.

Each Director has a responsibility to declare any related interests, which are appropriately recorded, and assessed for materiality on a case-by-case basis. Where appropriate, the Director does not participate in the Board's consideration of matters pertaining to the interests disclosed.

All Powerlink Directors and management are expected to act with integrity and strive at all times to enhance the reputation and performance of the corporation.

Principle 4: Safeguard integrity in financial reporting

The Board has established two Board Committees to assist in fulfilling its corporate governance responsibilities: the Powerlink Audit and Compliance Committee, and the Powerlink Remuneration Committee.

These committees have documented mandates that are reviewed on a regular basis. The membership of both committees consists of non-executive Directors. Membership and responsibilities of these committees are presented above in the Powerlink Corporate Governance Framework. Details of committee meetings held during 2009/10 and attendance are presented in the Directors' Report.

The Powerlink Audit and Compliance Committee endorses the corporation's internal audit program and risk management profile, and provides a link between the corporation's auditors (internal and external) and the Board. The Committee is responsible for considering the annual statutory financial statements for subsequent approval by the Board. The Chief Executive and Chief Financial officer are required to provide an annual declaration that the financial statements represent a true and fair view, and are in accordance with accounting standards.

Principle 5: Make timely and balanced disclosures

Powerlink has established processes to ensure it meets its disclosure and reporting obligations, including those to shareholding Ministers. Powerlink's reporting arrangements include the Powerlink Annual and (half yearly) Interim Reports, regulatory reports, Powerlink website and other public disclosures.

Principle 6: Respect the rights of shareholders

The Powerlink Board has a communication strategy to promote effective communication with shareholding Ministers. The Board aims to ensure that shareholding Ministers are informed of all major developments affecting the corporation's state of affairs. This includes regular meetings with shareholding Ministers' representatives and departments, and information communicated formally through quarterly progress reports and the Annual Report.

Each year Powerlink prepares a Statement of Corporate Intent (SCI) and a five-year Corporate Plan, reflecting the outcomes of a comprehensive strategic and business planning process involving the Board and the Executive Leadership Team. Both documents are presented to shareholding Ministers.

Quarterly progress reports on the performance against the SCI are prepared by the Board for shareholding Ministers.

Principle 7: Recognise and manage risk

Management regularly reports to the Board on key business risks. Powerlink has an approved Risk Management Charter that provides an overall framework and structure for the management of risk within Powerlink. This charter is consistent with, and builds on the principles of risk management as presented in the Australian/New Zealand Standard on Risk Management.

A management committee structure also operates in parallel with the Board Committees to address issues of environmental management, workplace health and safety, security and corporate emergency response. Each of these committees submits reports to the Audit and Compliance Committee through the Chief Executive.

The Environmental Steering Committee develops appropriate strategic responses to environmental issues, and ensures compliance with Powerlink policies and relevant environmental legislation.

The Safety Steering Committee develops and directs Powerlink's workplace health and safety management practices, and also ensures that Powerlink complies with relevant workplace health and safety legislation.

The Security Steering Committee provides guidance in the development and approval of the Powerlink Security Plan. The committee reviews security incidents and considers necessary amendments to the plan in response to these events.

The Corporate Emergency Response Committee develops appropriate strategic responses to corporate emergencies and is responsible for maintaining corporate emergency management documentation.

The corporation's internal control framework is designed to provide reasonable assurance regarding the achievement of the corporation's objectives. Implicit within this framework is the prevention of fraud (including corruption). Powerlink has a range of strategies and approaches that provide an effective fraud control framework that is closely integrated with the corporation's enterprise information management systems.

Powerlink's Employee Code of Conduct aims to ensure that Powerlink employees perform their work cost effectively, efficiently, cooperatively, honestly, ethically and with respect and consideration for others.

Principle 8: Remunerate fairly and responsibly

Powerlink seeks to develop individuals to attain the skills and motivation necessary to excel in an environment of high achievement. High priority is given to selecting the best person for the job at all levels in the corporation, and investing in that person's potential through further training and development.

The Powerlink Board has established a Remuneration Committee whose membership and responsibilities are presented in the Powerlink Corporate Governance Framework.

Powerlink's remuneration policy is designed to:

- attract and retain talented people with the skills to plan, develop, operate and maintain a large world-class electricity transmission network
- reward and provide incentives for exceeding key business performance targets.

The remuneration policy provides for performancebased payments for all permanent employees, with the payments directly linked to the performance of the individual or small teams against pre-agreed performance targets, and to the overall performance of the business.

The Working at Powerlink 2008 Union Collective Agreement commenced on 20 November 2008 and will operate for a period of three years. The Agreement will continue in force after its nominal expiry date until such time as it is replaced or terminated by law.

The Agreement provides a mechanism for Powerlink and its employees to respond to changes in an environment of increasingly challenging targets set by our owners and regulators. Its focus is on continuing to develop Powerlink into a competitive and satisfying place to work. It also recognises that the economic health of the company and the wellbeing of all employees depend upon the success of a shared commitment by all parties to this Agreement. Award employees may be eligible for performancebased payments that are delivered as gainsharing and performance pay. Gainsharing is a payment subject to Board approval, provided that the Corporation's profitability target has been exceeded, and that performance against key organisation performance measures has been achieved.

Performance pay is based on individual or small team performance targets, which are reviewed half yearly and rated at the end of the annual performance cycle. The individual performance targets are aligned with the overall business targets of the corporation.

Managers and senior staff are employed on management contracts. Powerlink's remuneration policy for contract employees uses the concept of Total Fixed Remuneration (TFR), which includes employer superannuation contributions. In order to promote management focus, the policy provides for performance-based payments dependent on the performance against pre-agreed business and individual targets. The TFR level is reviewed annually based on consideration of economic and individual capability factors.

Shareholding Minister Directions

Shareholding Ministers issued the following directions in 2009/10:

- 6 October 2009: Application of Sport and Recreation Sponsorship Policy
- 4 May 2010: Revocation of previous direction that applied the "Audit and Reporting Requirements for Government Owned Corporation Controlled Entities and Investments".

Amendment to Statement of Corporate Intent

On 15 December 2009, the Powerlink Board approved modifications to the Powerlink 2009/10 SCI to ensure compliance with the disclosure requirements of the *GOC Corporate Entertainment and Hospitality Guidelines*, and to include the weighted average cost of capital parameters. Shareholding Ministers were notified on 2 March 2010 of the approval of the proposed amendments.

Corporate entertainment and hospitality

The GOC Corporate Entertainment and Hospitality Guidelines establish reporting requirements for GOCs. Powerlink's corporate entertainment and hospitality expenditure for 2009/10 totalled \$99,253. The table below presents individual events above \$5,000.

Event	Date	Cost
Staff Recognition – Network Field Services	November 2009	\$10,485
Staff Recognition – Engineering and Projects	December 2009	\$ 1,122
Staff Recognition – Operations	December 2009	\$7,563

Board of Directors

Walter Threlfall

Board Member (Appointed 1994)

76

Julie Beeby BSc (Hons I), PhD (Physical Chemistry), MBA, GAICD

Board Member (Appointed 2008)

Stuart Copeland

Ken Howard CFA, LLB, BEcon, JP, MSAA, GAICD

Board member

(Appointed 2007)

Board Member (Appointed 2009)

Else Shepherd AM

BE (Hons Elec), FTSE, Hon FIE Aust, CPEng, RPEQ, FAICD, Grad Dip Mus (QCM), A Mus A

Chairman of the Board (Appointed 1994)

Christina Sutherland

Board Member (Appointed 2001)



Else Shepherd AM

Else is currently the President of the Australian National Council of the International Electrotechnical Commission, member of the Brisbane City Works and Brisbane City Design Advisory Boards, and Trustee of the Brisbane Girls Grammar School Board.

Else Shepherd is one of only a handful of women to chair large Australian corporations, the result of a successful engineering career in the sugar, telecommunications and electricity industries.

For her contribution to engineering, education and the electricity generating industry, Else was awarded a Member of the Order of Australia (AM) in 2003. She also received a Centenary Medal in 2003 for services to Australian society in the field of information technology.

She is a Fellow of the Australian Academy of Technological Sciences and Engineering, and is an Honorary Fellow of Engineers Australia. Else is a member of the Powerlink Board's Remuneration Committee.

Christina Sutherland

Christina Sutherland is a solicitor of the Supreme Court of Queensland and the High Court of Australia. Admitted as a solicitor in 1989 after serving two years of articles, Christina has over 20 years' experience in providing legal advice/services to many clients.

Christina has represented insurers, commercial clients and has acted for clients in employment and industrial matters. She has a strong interest in occupational health and safety matters. She is a Director of Surf Life Saving Queensland. Christina is a Chairman of the Powerlink Board's Audit and Compliance Committee.

Ken Howard

Ken holds the senior position of Responsible Executive (ASX) and Responsible Manager (Australian Financial Services Licence) for the Brisbane Dealing room of RBS Morgans, Australia's largest retail stockbroking firm. Ken advises private clients on the full range of financial planning and investment matters with a particular focus on shares traded on the Australian Stock Exchange.

Prior to joining the Powerlink Board of Directors, Ken was a Director of ENERGEX Retail Pty Ltd.

Ken is a member of the Chartered Financial Analyst (CFA) Institute, the Australian Shareholders Association, the Stockbrokers Association of Australia and the Australian Institute of Company Directors. From 1991 to 1998 Ken was an Infantry Officer in the Australian Army Reserve. Ken is a member of the Powerlink Board's Audit and Compliance Committee.

Stuart Copeland

Stuart is currently the Principal Manager, Government and Community, Office of External Relations, University of Southern Queensland.

Stuart served in the Queensland Parliament as Member for Cunningham from 2001 until 2009, when the seat was abolished following a state redistribution. During that time, he was Shadow Minister for a wide range of portfolios including Families and Disability Services, Education, Training, and the Arts, Health, Justice, and Attorney General. He also served as the Leader of Opposition Business.

He had extensive experience working in the Parliamentary Committee system as a member of various Budget Estimates Committees, the Parliamentary Criminal Justice Committee, the Parliamentary Crime and Misconduct Committee, and the Parliamentary Public Works Committee.

Prior to his election to Parliament, Stuart was Chief Executive Officer of the Royal Agricultural Society of Queensland. Stuart also spent a significant period working in the downstream petroleum industry, in areas as diverse as retail and commercial marketing, transport and logistics, production, and bulk shipping.

Julie Beeby

Julie has worked in the minerals and petroleum industries in Australia for 22 years and her career has included work for several major Australian and US resources companies. She has recently been appointed to the role of Chief Executive Officer of WestSide Corporation, a Queensland based coal seam gas company.

Julie commenced her career in mineral processing research, and went on to develop her project and business skills through a succession of successful senior management positions in chemical plant, coal seam gas, explosives and mining areas.

Julie was appointed as Chair of the Board of Zerogen Pty Ltd in July 2010 and was appointed a Queensland Resource Industry Ambassador in 2009. She has previously held positions on the Boards of Australian Coal Association Low Emissions Technology Ltd, Australian Coal Research Ltd, Queensland Resources Council Ltd and CRC Mining (CMTE Development Ltd). She is a member of the Powerlink Board's Remuneration Committee.

Walter Threlfall

Walter Threlfall has been an official of the Electrical Trades Union (ETU) of Australia – Queensland Branch (ETU) since 1977. In 2006, he retired as Assistant State Secretary of the Electrical Trades Union (ETU) of Australia, Queensland Branch, a position he held since 1983. In this role, Walter represented the interests of ETU members in Northern and Western Queensland.

Early in his career, Walter worked as an electrical fitter and mechanic in the steel manufacturing, electrical contracting, and mining industries.

Walter is Chairman of the Townsville Regional Group Apprenticeship Scheme and Townsville TAFE Education Training Advisory Group, a Director of Electricity Supply Industry Superannuation Scheme (ESI Super), and member of the Barrier Reef Institute of TAFE Council. Walter is Chairman of the Powerlink Board's Remuneration Committee.

Executive Leadership Team

Simon Bartlett BE (Hons), BSc, FIE Aust, FAICD, FTSE, CPEng, RPEQ Chief Operating Officer

Stewart Bell BEng, PhD, MBA, CEng, MIET Manager Revenue Reset Ray Di Marco BE(Hons), MBA, CPEng, RPEQ, MACS, GAICD Manager Operations

Maurie Brennan BBus, MBA, CPA, FAICD Chief Financial Officer Gordon Jardine BE(Hons), BCom, MSc (Environmental), FAICD, FAIM, FATSE

Chief Executive

Gary Johnston BA(Hons), MAPS, MAHRI

Manager Human Resources and Development



Gordon Jardine

Since 1995, Gordon has held the position of Chief Executive of Powerlink Queensland. He is also a member of the Reliability Panel of the National Electricity Market, and is the Chairman of Grid Australia, which represents Australia's electricity transmission network owners.

He was awarded a Centenary Medal in 2003 for his contribution to the electricity industry.

Before joining Powerlink, Gordon held senior management positions at one of Australia's largest computer software companies, Mincom. During his 14 years with the company, he spent three years in the United States as President of its North American subsidiary, before being appointed Deputy Managing Director of Mincom in 1990.

Gordon is also the Chairman of ElectraNet SA, the South Australian electricity transmission utility of which Powerlink is a 41 per cent owner, and Deputy Chairman of the SEQ Water Grid Manager.

Gary Johnston

Gary has responsibility for the development and implementation of Powerlink's effective workplace and industrial relations, occupational health and safety, electrical safety, employee development, equal employment opportunity, technical training coordination, organisational development, business process development, knowledge management and employment systems and services.

Gary manages Powerlink's continuous improvement initiatives that ensure we have a workplace culture that is right for our people and for our business. He also coordinates initiatives to ensure Powerlink has the right people and capabilities necessary to deliver our current and future business targets.

Gary has more than 35 years' professional experience in clinical and organisational psychology roles, including 23 years in human resource management.

Ray Di Marco

In his role as Manager Operations, Ray leads Powerlink's Operations Business Unit, which delivers a range of specialist services to Australian and international clients, including power system operations, asset monitoring, information technology, telecommunications, oil testing, and research and development.

Prior to joining Powerlink, Ray held Chief Technology Officer and Executive Management roles in the utilities, gambling and markets sectors.

Maurie Brennan

Maurie has provided strategic financial and commercial advice to public sector organisations in Queensland's electricity industry since 1979.

At Powerlink, Maurie manages all finance, tax, treasury, business planning and investment analysis, corporate services, internal audit, insurance, legal and risk services, and reporting to shareholding Ministers. In addition, Maurie is Powerlink's Company Secretary.

Maurie is a Director of ElectraNet SA, a member of the ElectraNet SA Audit and Compliance Committee, and a member of the ElectraNet SA Treasury Committee.

Stewart Bell

Stewart is leading the project to develop Powerlink's revenue proposal for the period 2013–2017. The revenue reset process is a once in five year exercise which sets over 90 per cent of Powerlink's revenue. The Australian Energy Regulator will publish Powerlink's regulatory determination on 30 April 2012.

Stewart has more than 15 years' experience in the electricity industry including management roles in operations, design, project delivery, and procurement.

Stewart is on a secondment from his Manager Procurement role.

Simon Bartlett

In his role as Chief Operating Officer, Simon is responsible for managing all aspects of Powerlink's transmission network to ensure that our transmission services meet Queensland's rapidly growing electricity needs reliably and cost effectively, and in a way that satisfies the expectations of our stakeholders, including our shareholding Ministers, regulatory bodies, customers, National Electricity Market participants, and the community.

Simon is a Director of ElectraNet SA, Chair of the Australian Power Institute, and a Director of the Australian National Committee of International Council on Large Electric Systems (CIGRE).

He was presented with the National Professional Engineer of the Year award by Engineers Australia in 2009.

Simon has more than 35 years' experience in electricity generation and transmission, including roles in Australia and overseas in planning, design, and strategic assets management.



Executive Leadership Team

Gerard Reiter BE (Hons), Adv Dip (Project Management), RPEQ, CPPD

Manager Procurement

Garry Mulherin

Manager Network Field Services

> **Merryn York** BE(Hons), MEngSc, Grad Cert AppLaw, FIEAust

Manager Network Strategy and Performance Terry Miller BE

Manager Network Development

Roland Vitelli BE, Assoc Dip Eng (Elec), FIEAust Manager Engineering

Michelle Palmer BComms, MA, MPRIA

Manager Corporate Communications



Terry Miller

As Manager Network Development, Terry is responsible for planning Powerlink's future network investments and timely acquisition of transmission easements to meet future development needs.

Planning for future investments entails forecasting future network demand, analysing network capabilities into the future and recommending augmentation investment options to ensure continued reliable network performance.

Acquisition of easements and substation sites requires detailed assessment of route options, environmental, social, and cost impacts which in turn necessitate extensive consultation with property owners and other stakeholders.

With more than 35 years' experience in the Queensland electricity industry, Terry's career has included experience in strategic business development, asset management, network planning, regulatory affairs, customer management, substation design, and distribution network design.

Roland Vitelli

Roland manages the Engineering Business Unit which is responsible for the delivery of capital works and refurbishment projects throughout Queensland. He is also responsible for leading the organisation's development, assessment, and implementation of new technologies to enhance network operability, availability and performance.

Roland recently returned to Powerlink after over 20 years with a global electrical technology company where he gained extensive experience in complete turnkey system integration of transmission systems, transmission and distribution product manufacture and development of new technologies. He has worked in Europe as well as South East Asia, with his recent responsibility being national.

Roland has strong commercial and extensive project delivery experience. His engineering career has included experience in various aspects of electricity transmission.

Merryn York

As Manager Network Strategy and Performance, Merryn's responsibilities include strategic business development and asset management to optimise the long-term return on Powerlink's investments in a way that meets the emerging expectations of our stakeholders, including our shareholders, customers, National Electricity Market participants, the Australian Energy Regulator, and the community.

With more than 20 years' experience in the Queensland electricity industry, Merryn's career has included experience in network planning, regulatory affairs, customer management, and strategic development of the transmission network.

Garry Mulherin

Garry manages Network Field Services work for Powerlink's transmission network in Southern Queensland, with the objectives of maximising system reliability and minimising outage restoration times at optimal cost.

Within the electricity transmission field, Garry has specialised in transmission and sub-transmission line design, and construction and project management. He has also led quality improvement projects in environmental processes, engineering design, project management and overall cost efficiency.

More than 30 years of experience in the electricity industry has provided Garry with a depth of experience in distribution and transmission networks, including management of key business areas and organisational change initiatives.

Michelle Palmer

As Manager Corporate Communications, Michelle is responsible for Powerlink's public relations policy and strategy, corporate communications, media liaison, government relations and internal communication.

The Corporate Communications Business Unit has responsibility for managing Powerlink's community and environment partnership initiatives.

Michelle has provided strategic communications counsel within the Queensland electricity industry for more than 11 years.

Gerard Reiter

As Manager Procurement, Gerard has responsibility for setting contractual terms and conditions, sourcing suppliers, determining market strategies, managing the supply chain, and the commercial administration of supply arrangements for Powerlink's capital projects and operations.

Gerard has more than 16 years' experience in the electricity industry, including senior management roles in technology and engineering standards, and substation design, as well as large transmission network project management and delivery. Gerard's breadth of experience ranges from detailed high voltage and secondary system engineering design through to project management for the delivery of Powerlink's capital works portfolio.

Statistical summary

Transmission lines and underground cables Added in 2009/10

	Transmission line		Under ca	ground ble		
Voltage	Route km	Circuit km	Route km	Circuit km	Location	
330kV	0	0	0	0		
275kV	271	542	2	4	South Pine to Sandgate, Nebo to Strathmore, Innisfail to Edmonton [*] , Ross to Yabulu South	
132kV	0	0	0	0	Larcom Creek to Yarwun, Innisfail to Edmonton [*]	
110kV	0	0	0	0		
66kV [†]	0	0	0	0		
Total [*]	271	542	2	4		

* The existing ageing 132kV Innisfail to Edmonton line was replaced with 275/132kV transmission line. † Equal to or less than 66kV.

Circuit breakers Added in 2009/10

	Circuit breakers	l e estie e		
voitage	Total number	Location		
330kV	0			
275kV	13	Larcom Creek, Greenbank, Nebo		
I32kV	17	Yabulu South, Larcom Creek, Clare South, Pandoin, Palmwoods		
110kV	0			
66kV [†]	0			
Total	30			

[†]Equal to or less than 66kV.

	Substations	Transfo	Transformers			
Voltage	Total number	Total number	Total rating MVAr	Location		
330kV	0	0	0			
275kV		2	750	Larcom Creek		
132kV	3	2	225	Pandoin, Yarwun, Yabulu South, Palmwoods		
110kV	0	0	0			
Total	4	4	975			

Substation/switching stations and transformers Added in 2009/10

Capacitor bank, shunt reactors and Static VAr Compensators Added in 2009/10

	Capacitor banks		Reactors		SVCs			
Voltage	Total number	Total rating MVAr	Total number	Total rating MVAr	Total number	Total rating MVAr	Location	
330kV	0	0	0	0	0	0		
275kV	2	320	0	0	0	0	Tarong, Mt England	
I32kV	0	0	0	0	I	230	Alligator Creek	
110kV	I	62	0	0	0	0	Belmont	
Total	3	382	0	0	I.	230		

83

Voltage	Substations	Cable transition sites	Communication sites
		er	
330kV	4	0	
275kV	35	2	
I32kV	58	0	
110kV	15	I	
Total	112	3	91

Substation/switching stations and communications sites As at 30 June 2010

Transformers As at 30 June 2010

	Transformer				
Voltage	ltage Total number				
330kV	5	4,975			
275kV	70	18,225			
I32kV	85	5,752			
110kV	27	2,000			
Total	187	30,952			

Circuit breakers As at 30 June 2010

Valtara	Circuit breakers
voitage	Total number
330kV	28
275kV	412
I32kV	427
110kV	263
66kV†	27
Total	1,157

Capacitor bank, shunt reactors and Static VAr Compensators As at 30 June 2010

	Capacito	or banks	Read	tors	SVCs		
Voltage	Total number	Total rating MVAr	Total number	Total rating MVAr	Total number	Total rating MVAr	
330kV	0	0	4	144	0	0	
275kV	26	3,600	15	611	8	2,510	
I32kV	25	1,113	0	0		1,081	
110kV	34	1,850	0	0	0	0	
66kV†	7	145	5	120	0	0	
Total	92	6,708	24	875	19	3,591	

[†]Equal to or less than 66kV.

[†]Equal to or less than 66kV.

	20	10	20	09	20	08	20	07	20	06
Voltage	Route km	Circuit km								
Transmission lir	nes									
330kV	347	691	347	691	347	691	347	691	347	691
275kV	5,819	8,037	5,548	7,495	5,335	7,068	5,227	6,852	5,179	6,669
I32kV	2,769	4,405	2,816	4,488	2,802	4,480	2,651	4,151	2,623	3,961
110kV	238	416	238	416	238	416	238	422	320	602
66kV [†]	I	I	I	I	I	I	I	I	I	I
Total lines	9,174	13,550	8,950	13,091	8,723	12,656	8,464	12,117	8,470	11,924
Underground ca	ables									
330kV	4	9	2	5	2	5	2	5	2	5
275kV	I	2	I	2	I	2	I	2	I	2
l10kV	3	7	3	7	3	7	3	7	3	7
66kV [†]	I	I	I	I	I	I	I	I	I	I
Total cables	9	19	7	15	7	15	7	15	7	15
Total lines and cables	9,183	13,569	8,957	13,106	8,730	12,671	8,471	12,132	8,477	11,939

Five-year history of transmission lines and underground cables * As at 30 June 2010

*As constructed voltages. †Equal to or less than 66kV.

Index

	500 kilovolt network	4, 10, 13, 40, 41, 64
Α	Annual Planning Report	24
	Arrow	21
	Australian Energy Market Commission (AEMC)	6, 17, 21
	Australian Energy Market Operator (AEMO)	6, 16, 26, 30
	Australian Energy Regulator (AER)	5, 6, 8, 17, 20, 21, 34, 41
	Australian Quarantine Inspection Services (AQIS)	44
	Australian Research Council	28
	Australian Strategic Technology Program	28
В	BHP Billiton Mitsubishi Alliance (BMA)	21
	Borrow Pits to Rowes Bay Learnscape Project	11, 58
	Brigalow-Jimbour Floodplains Group (BJFG)	56, 57
	Brisbane City Council	55
	Business continuity	30
С	Capital expenditure	8
	Capital works	4, 9, 10, 12, 26, 34, 55, 62, 81
	Central Queensland University	51
	Climate change	12, 13, 20, 40, 44
	Community and environment programs	11, 54 ,57, 59
	Community Benefits Program	55, 56, 59
	Community Environmental Program	11, 56, 58
	CSIRO	50
	Cultural heritage	38, 44, 45, 48
	Culture survey	4, 11, 13, 62, 67
D	Department of Environment and Resource Management (DERM)	45, 50
	Development programs	62, 66, 67
	Dividend	8, 9

Е	Easement co-use guidelines	54
	Easements	5, 31, 34, 41, 50, 51, 54, 59, 81
	Ecofund	46
	ElectraNet SA	8, 79
	Electric and Magnetic Fields (EMF)	59
	Electricity demand	4, 5, 10, 12, 13, 17, 18, 20, 24, 34, 35, 36, 40, 41
	Electric Power Research Institute (EPRI)	28
	Emergency response	30, 73
	ENERGEX	6, 12, 30, 35, 36, 63, 77
	Energy consumption	12, 20, 25, 46
	Energy efficiency	5, 12, 25, 46
	Energy management system (EMS)	26, 44
	Energy Networks Association	17, 63
	Environmental Management System (EMS)	26, 44
	Ergon Energy	30, 63
	ERM Power	21
F	Financial indicators	9
G	Galilee Basin	13, 20
	Gladstone region	20
	Greenhouse	4, 44, 46, 47, 51
	Grid Australia	17, 79
	Griffith University	26, 51
н	Health and safety	63, 73, 77, 79
T	Infrastructure security	30
	International Transmission Operations and maintenance Study (ITOMS)	10, 25
	Ipswich City Council	58
	Isaac Regional Council	55

L	Landcare	56, 58, 59
	Landowners	11, 18, 31, 48, 50, 52, 54, 55, 56, 57, 59
	Live live	13, 24, 27, 63, 64
	Live substation	13, 24, 27
	Lockyer Valley	58
М	Mackay Regional Council	55
	Maintenance	4, 5, 10, 13, 17, 24, 25, 26, 27, 28, 29, 31, 45, 47, 48, 50, 51, 52, 54, 56, 64
	Management training	62, 66
Ν	National Electricity Market (NEM)	5, 16, 17, 19, 24, 27, 34
	National Electricity Market Operator (NEMMCO)	16
	National Electricity Rules (the Rules)	16, 17, 20, 24, 34
	National Greenhouse and Energy Reporting Act 2007 (NGER Act)	46
	National Transmission Network Development Plan (NTNDP)	16
	National Transmission Statement	4, 16
	Network performance	4, 16, 20, 25, 81
0	Office of Clean Energy	20
	Oil testing	5, 79
	OpsWAN	26
	Origin Energy	21
	Outage management	27, 31
Ρ	Peak summer electricity demand	20
	Powerlink Excellence Awards	67
	Powerlink GreenWorks	11, 58
	Power generators	4, 5, 6, 13, 21
Q	Queensland Gas Company	21
	Queensland Rail (QR)	12, 13, 20, 21, 35 ,55
	Queensland Treasury Corporation	8

R	Regulated revenue	6, 17, 21
	Regulatory Investment Test for Transmission	17, 21
	Regulatory Test	4, 17, 34, 41
	Reliability Centred Asset Management (RCAM)	28
	Reliability targets	4, 16, 20
	Research and development	28, 50, 51, 79
	Rio Tinto	21
	Rockhampton Regional Council	55
S	Safety	4, 26, 28, 30, 38, 54, 55, 63, 64, 66, 67, 73, 77, 79
	Safety Management System	4, 63
	Salvation Army	59
	SEQ Catchments	58
	Solar Flagships Program	16
	Somerset Regional Council	58
	South Burnett Regional Council	58
	Sponsorship	59
	Statement of Corporate Intent (SCI)	9, 71, 73
	Surat Basin	12, 13, 18, 20, 24, 41
	Sustainable Procurement Energy Committee (SPEC)	47
Т	Telecommunications	8, 29, 31, 47, 77, 79
	Toowoomba Regional Council	58
	Townsville City Council	54, 57, 58, 59
	Transmission Network Service Provider (TNSP)	20
	Transmission pricing	17
U	University of Queensland	50, 51, 58, 67
W	Weed management	50
	Wellbeing	67, 74
	Western Downs Regional Council	56, 58
	Whitsunday Regional Council	56
	Workforce	7, 44, 50, 60, 62, 66, 67, 71

Glossary

ACCC	Australian Competition and Consumer Commission	ITOMS	International Transmission Operations and Maintenance Study
AEMC	Australian Energy Market Commission	LIPP	Local Industry Participation Plans
AEMO	Australian Energy Market Operator	LNG	Liquefied natural gas
AER	Australian Energy Regulator	LTC	Lost Time Calculation
APR	Annual Planning Report	MITC	Market Impacts of Transmission Congestion
AQIS	Australian Quarantine Inspection Services	MRET	Mandatory Renewable Energy Target
ASX	Australian Stock Exchange	NEM	National Electricity Market
BJFG	Brigalow-Jimbour Floodplains Group	NEMMCO	National Electricity Market Management Company
СНМР	Cultural Heritage Management Plan	NGER Act	National Greenhouse and Energy Report Act 2007
Community and environment	Proactive, community-based projects that aim to build relationships with local government,	NPAT	Net Profit After Tax
programs	communities and key stakeholders in strategic areas traversed by existing or future Powerlink transmission infrastructure	NTNDP	National Transmission Network Development Plan
Debt to	Deht/Fived Assets	NTS	National Transmission Statements
Fixed Assets	Debutiked Assets	Operating	The Operating Agreement is the agreement
DERM	Queensland Department of Environment and Resource Management	Agreement	Powerlink as the System Operator under the National Electricity Rules. The Agreement
DWDM	Dense Wave Distributed Multiplexing		defines the geographical areas for direct
EIAAG	AAG Energy Infrastructure Assurance Advisory Group		The Agreement also defines the extent to which AEMO's powers have been delegated
EBIT	Earnings Before Interest and Tax		
EBITDA	Earnings Before Interest, Tax,	OpsWAN	Operational Wide Area Network
EMF	Electric and Magnetic Fields	OPGW	Optical Fibre Ground Wire
EMS	Energy Management System	РСВ	Polychlorinated biphenyls
EMS	Environmental Management System	PLIST	Powerlink Lucid Information Support Tool
EPIS		RCAM	Reliability Centred Asset Management
EPRI	Electric Power Research Institute	Regulatory Test	The Regulatory Test, promulgated by the AER under the National Electricity Rules, requires TNSPs to identify the solution that maximises
GOC	Government Owned Corporation		
Grid	The high voltage electricity transmission network	the net benefit to the NEM when addressing emerging network limitations. From August 2010, the Regulatory Investment Test for Transmission (RIT-T) will replace the Regulatory Test for assessment of future electricity needs	
Grid Australia	The organisation that represents electricity transmission network owners		
IEIA	International Electricity Infrastructure Assurance	Regulatory	From August 2010, the Regulatory Investment
Interest cover	EBIT/gross interest expense	for Transmission	by the AER under the National Electricity Rules, will replace the Regulatory Test for assessment of future electricity needs

Return on Assets	Earning before Interest and Tax and after abnormal (EBIT)/average total income
Return on Equity	Operating profit after income tax/average total equity
ROA	Return on Total Assets
Rules	National Electricity Rules
SCI	Statement of Corporate Intent
SF ₆	Sulphur hexafluoride gas
SPEC	Sustainable Procurement Energy Committee
Sponsorship	Involves a contribution by Powerlink to an organisation or activity that meets our sponsorship policy requirements
Statewide peak electricity demand (weather corrected)	The peak power (in MW) of Powerlink's network during summer. This demand is corrected to the appropriate standard reference temperatures for Queensland.
Static VAr Compensator	A specialised part of a substation that provides fast-acting reactive power compensation to control such issues as uneven load and voltage regulation on high voltage electricity transmission networks
SVC	Static VAr Compensator
TFR	Total Fixed Remuneration
TISN	Trusted Information Sharing Network

Terms of Measurement

Gigawatt (GW)	One gigawatt = 1,000 megawatts or 1,000 million watts
Gigawatt hour (GWh)	One gigawatt hour = 1,000 megawatt hours or one million kilowatt hours
Kilovolt (kV)	One kilovolt = 1,000 volts A volt is a unit of potential or electrical pressure
Kilowatt (kW)	One kilowatt = 1,000 watts A watt is a unit of electrical power or the rate of doing work
Kilowatt hour (kWh)	The standard unit of energy representing consumption of electrical energy at the rate of one kilowatt
m	Million
Megawatt (MW)	One megawatt = 1,000 kilowatts or one million watts
Megawatt hour (MWh)	One megawatt hour = 1,000 kilowatt hours
System minute	One system minute = a measure of energy not supplied during transmission disturbances. One system minute is the amount of energy that would be transported during one minute at the system maximum demand









Paper made carbon neutral – for more information visit www.cpigroup.com.au



Pr



Cover – Matt Bullman, Linesperson Powerlink's Queensland/New South Wales Interconnector



Powerlink Queensland ABN 82 078 849 233

33 Harold Street Virginia Queensland Australia 4014

PO Box 1193 Virginia Queensland Australia 4014

Telephone: (07) 3860 2111 Facsimile: (07) 3860 2100

www.powerlink.com.au