

Sustainability

Report to Stakeholders 2002



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Highlights



Origin's first report



Gas-fired generation portfolio saves one million tonnes of greenhouse gas emissions (see page 12)



GreenEarth Plus rated as 'market leading' by nine influential green groups (see page 14)



Launch of Origin Energy Solar (see page 14)

Scope of this report

This document is a report on Origin Energy Limited's sustainability performance for the financial year ended 30 June 2002. In the absence of statutory requirements or generally accepted sustainability reporting standards in Australia, the Global Reporting Initiative (GRI) has guided the format of this report. External parties have not verified the contents of this, Origin's first Sustainability Report.



Launch of Origin's energy efficiency and home safety websites (see pages 15 & 26)

Launch of Hardship Policy (see page 26)

Lost Time Injury Frequency Rate improved to 3.6 injuries per million hours worked (see page 27)

Origin ranked in the top third of ASX 100 companies on total shareholder returns (see page 29)

From the Managing Director

Origin Energy is focused on owning, developing and procuring energy and related products and services to provide customers with better choices to meet their energy needs.

We are committed to:

- Delivering better returns to shareholders than comparable companies by ensuring existing businesses generate cash returns surplus to operating requirements; and through our detailed understanding of the energy industry, identifying, analysing and investing in opportunities that create leverage and value across the energy supply chain.
- Delivering better value to customers than competitors by accessing competitive sources of energy and incorporating these into a range of products and services that provide customers with better choices to meet their energy needs.
- Attracting and retaining the best team of people by encouraging their development and rewarding success.
- Contributing to the sustainable development of our communities by developing and commercialising energy and related products and services that reduce the environmental and social impact of energy production and use.

To fulfil these commitments over the long term, we must ensure that all aspects of our activities as they impact on shareholders, the environment and the communities in which we operate are sustainable.

We believe that to improve the sustainability of our activities, we must identify, implement and measure the key outcomes that are the most important drivers of sustainable performance and set objectives for those outcomes that are most capable of being influenced significantly by our own activities.

The purpose of this report is to identify and begin reporting on these objectives under the categories of environmental, social and economic performance.

Environment

The company's activities impact on the environment in two significant ways.

Climate change Energy production and use is the major source of greenhouse gases – most particularly carbon dioxide. We believe that major energy producers and consumers must acknowledge that we are now operating in an environment increasingly constrained in its ability to absorb greenhouse gases without unacceptable environmental impacts. As a major producer and retailer of energy, we are committed to decreasing the carbon intensity of our activities. To achieve this, our objectives are:

- To accurately measure and report the company's greenhouse gas emissions.
- To reduce the carbon intensity of our energy production and distribution.
- To reduce the carbon intensity of customers' energy consumption.

Local environmental impact The production, distribution and sale of gas and electricity require access to land and resources. Origin's access to land and the development of resources impacts on the local environment. To ensure we continue to get access to land and resources, our objective is:

- To take all reasonable steps to eliminate or minimise adverse impacts that our activities have on the local environment.



We must ensure that all aspects of our company's activities as they impact on shareholders, the environment and the communities in which we operate are sustainable.

Social

From a gas explorer in regional Australia to a retailer of energy in our bigger cities, our activities impact on many differing communities. The sustainability of our activities depends on the trust and goodwill of these communities. We rely on them to allow or support our access to land and resources; buy our products and services; and maintain a stable political and economic system that encourages investment in and development of resources, as well as the provision of services by the private sector.

We also rely on our local communities to provide employees and, through them, the skills needed to conduct our business.

To maintain our licence to operate from the community, our objectives are:

- To provide and maintain a satisfying and rewarding working environment for all our employees.
- To maintain community support and goodwill for the company's activities.
- To eliminate or manage hazards and practices in our business that could cause accident, injury or illness to people, damage to property, or unacceptable impacts on the environment.

Economic

The measures for determining the successful financial performance of the company are already well established and reported in the company's Annual Report. Shareholders are the key economic stakeholders in the company but other economic stakeholders include our employees and the communities in which we operate. To maintain sustainable economic performance our objective is:

- To provide sustainable returns to Origin's key economic stakeholders.

In pursuing our environmental, social and economic objectives, our actions are guided by the following values:

- We care about the impact of our operations and actions on shareholders, customers, employees, the community and the environment.
- We listen to the needs of others, knowing that an unfulfilled need creates the best opportunities.
- We constantly learn and implement new and better ways of doing business by collecting, analysing and sharing information and ideas effectively.
- We deliver as individuals and as a company on the commitments made in all areas of performance.

This report records our objectives and strategies for improving the sustainability of our activities, and outlines the actions and outcomes that we are pursuing in 2002/03. By measuring and reporting on our progress, we can pursue actions that will continually improve the sustainability of Origin's activities.

We look forward to hearing your views on this report and, to assist in gathering feedback, we have enclosed a response card for your convenience.

A handwritten signature in black ink, appearing to read 'Grant King'. The signature is fluid and cursive, written in a professional style.

Grant King, Managing Director

About Origin Energy

Origin Energy is one of Australia's largest energy companies and was listed in February 2000 as a result of the demerger of Boral's energy and building materials businesses. In just over two years Origin's revenues have grown nearly 60% to \$2.4 billion and profit after tax has increased 70% to \$128.7 million. Origin's market capitalisation has increased threefold to over \$2 billion, placing it just outside the top 50 companies on the Australian Stock Exchange.

Exploration and production

Origin, and its 85%-owned subsidiary, Oil Company of Australia Limited (OCA), hold significant exploration and production interests throughout Australia and New Zealand.

Natural gas accounts for approximately 80% of sales volumes with condensate, crude oil and LPG, providing the remainder. Origin produced 83 PJ of gas and liquids in 2001/02, and had 2P reserves totaling 1,140 PJ as at 30 June 2002.

In June 2001, the company's strategy to locate and commercialise gas close to market led to the discovery of the large Thylacine and Geographe gas fields in the offshore Otway Basin from which first gas deliveries are expected in 2006. The BassGas Project, which will develop the Yolla gas field in Bass Strait, is set to commence production by mid 2004.

These fields will mostly supply the Victorian and South Australian markets. Gas will be transported to South Australia through the SEA Gas Pipeline in which Origin holds a 33% share.

This year, the first commercial gas discoveries since 1990 and the first commercial oil discovery since 1966 were made in the onshore Perth Basin and, through OCA, major strategic assets in the Fairview and Durham CSG projects were acquired.

Retail

Origin is one of Australia's leading energy retailers, serving two million business and residential customers throughout Australia, New Zealand and the Pacific.

Last financial year, Origin sold 172.5 PJ of natural gas, electricity and LPG. Origin also sells a range of energy-related products and services including gas and electrical appliances through a network of 38 Origin Energy Shops.

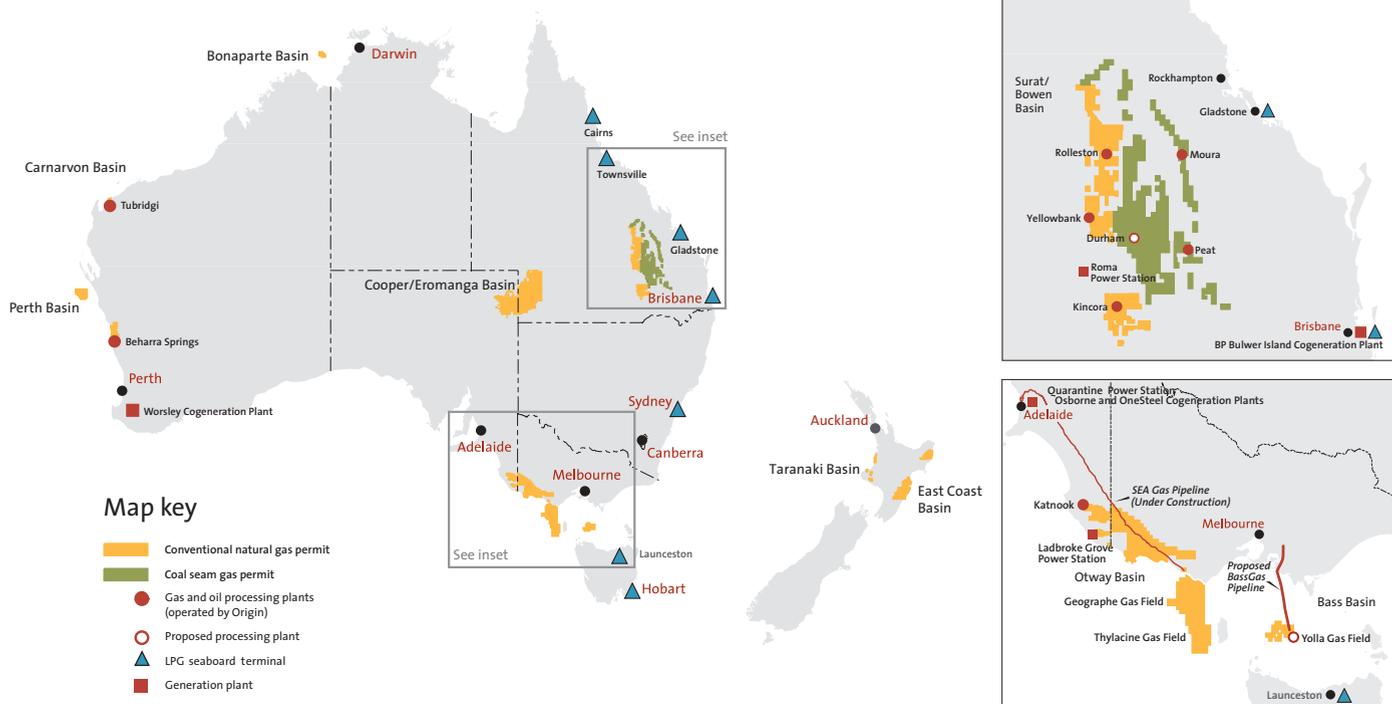
Natural gas As one of the largest gas retailers in Australia, Origin supplied 118 PJ of natural gas to nearly one million customers in all mainland States and the Northern Territory.

In October 2002, full retail competition (FRC) was introduced for small business and residential customers in Victoria, and from January 2002 for customers in New South Wales.

Electricity Origin supplied 8.4 TWh of electricity to more than 800,000 customers mainly located in Victoria and who became Origin customers with the acquisition of the Powercor retail business in June 2001. Origin also acquired the CitiPower retail business in August 2002.

From January 2002, all electricity customers in New South Wales and Victoria became eligible to choose their electricity retailer. The South Australian electricity market was opened to full competition in January 2003.

Key operations in Australia and New Zealand



Origin is also one of the largest wholesalers in the National Electricity Market (NEM).

LPG Origin has an extensive network of LPG terminals across Australia supplying 209,000 customers. We own and operate eight of the 12 active Australian LPG import facilities. This infrastructure is strategically located close to LPG markets and underpins Origin's LPG retail sales. Wholesale and retail sales totalled 489,000 tonnes in 2001/02. Through Vitalgas, a joint venture with Caltex, Origin is involved in the largest network of automotive LPG outlets in Australia, and supplies over 800 service stations.

In its own right or through local joint ventures, Origin is the major supplier of LPG to New Zealand and the Pacific region. Wholesale and retail sales to countries including New Zealand, Papua New Guinea, Solomons, Fiji, Vanuatu, Tonga, Samoa, American Samoa, Cook Islands and other smaller island nations are approaching 58,000 tonnes per annum.

Generation

Origin has interests in 886 MW of power generation in Australia, and capitalises on its natural gas supply position to develop cogeneration and gas-fired generation projects.

We are a leading developer and investor in cogeneration with interests in about 350 MW of cogeneration capacity. In 1999, Origin developed the first fully merchant (i.e. uncontracted) power plant in Australia – the 73 MW Roma Power Station in Queensland.

Since then the company has developed the Ladbroke Grove and Quarantine power plants in South Australia and, in January 2003, purchased the Mt Stuart Power Station in Queensland.

Networks

Origin's networks business comprises a 19.1% equity investment in Envestra and asset management services including the construction and operation of natural gas distribution networks in all mainland States and the Northern Territory. These networks are mostly owned by Envestra.

Other activities include the provision of infrastructure management services, maintenance of numerous small cogeneration sites and refuelling stations for natural gas vehicles.

Exploration and Production permit areas

Area		Km ²
Bonaparte Basin	Offshore (NT/WA)	1,858
Carnarvon Basin	Onshore (WA)	187
Perth Basin	Offshore (WA)	3,967
	Onshore (WA)	3,130
Otway Basin	Offshore (VIC/TAS)	9,281
	Onshore (VIC/SA)	11,962
Bass Basin	Offshore (TAS)	1,647
Cooper/Eromanga Basin	Onshore (SA)	10,987
	Onshore (QLD)	31,281
Surat Basin	Onshore (QLD)	3,603
Denison Trough	Onshore (QLD)	9,358
CSG areas	Onshore (QLD)	20,983
Taranaki Basin	Onshore (NZ)	820
East Coast Basin	Onshore (NZ)	7,741
Total		116,805

Customers ('000) as at 31 December 2002

Product	VIC	SA/NT	QLD	NSW	TAS	WA	Total
Natural gas	580	334	79	0	0	0	993
Electricity	836	0	0	0	0	0	836
LPG	18	57	90	20	22	2	209
Total	1,434	391	169	20	22	2	2,038

Generation plants

Peaking plants	Origin's share	Capacity (MW)
Mt Stuart	100%	288
Quarantine	100%	95
Ladbroke Grove	100%	83
Roma	100%	73
Cogeneration plants		
Osborne	50%	180
Worsley	50%	120
Bulwer Island	50%	32
OneSteel	100%	9

Pipes under management (km)

VIC	SA	QLD	NSW	NT	WA	Total
8,290	7,280	2,590	510	180	100	18,950

Key Performance Indicators

Objectives

Strategies

Environment: 8 to 19

To measure and accurately report the company's greenhouse gas emissions.

- Improve the company's greenhouse gas measurement methodology, audit and report regularly.

To reduce the greenhouse gas intensity of our energy production and distribution.

- Seek economic avenues for reducing greenhouse gas emissions in our energy production activities.
- Identify and invest in renewable energy technologies that are economically viable.
- Seek economic avenues to reduce fugitive emissions.

To reduce the carbon intensity of customers' energy consumption.

- Provide a range of competitively priced clean energy products and services, which allow customers to choose their level of greenhouse gas intensity.
- Provide information for our customers so they can measure and reduce the carbon intensity of their energy use.

To take all reasonable steps to eliminate or minimise any adverse impact that our activities have on the local environment.

- Ensure all environmental impacts are appropriately assessed and all environmental approvals are obtained.
- Comply with all environmental conditions of approval and promptly report any non-compliance to relevant authorities.
- On completion of use, ensure land is managed and/or rehabilitated to approved environmental standards.

Social: 20 to 27

To provide and maintain a satisfying and rewarding working environment for all our employees.

- Provide employment conditions consistent with community expectations.
- Work towards having Origin's workforce reflecting the diversity expected by the communities in which we operate.
- Provide access to the necessary job training and assist employees obtaining additional skills to develop their careers.
- Encourage and support employee participation in community-based activities that form part of the company's corporate community involvement.

To maintain community support and goodwill for the company's activities.

- Maintain an open and constructive approach to gaining access to land and resources.
- Identify and participate in public debates where we can make a relevant and meaningful contribution.
- Maximise value of company sponsorship to recipients by focusing on activities that most leverage Origin's skills and resources.
- Facilitate improved access to services and support for the disadvantaged in our community so they can also enjoy the comforts of energy use.

To eliminate or manage hazards and practices in our business that could cause accident, injury or illness to people, damage to property or unacceptable impacts on the environment.

- Continuously improve the Health, Safety and Environment Management System.

Economic: 28 to 30

To provide sustainable returns to Origin's key economic stakeholders.

- Provide shareholder returns in the top third of comparable companies.
- Ensure the reward and remuneration levels for employees are consistent with the market, and will attract the quality of employees required for the business to meet its objectives.
- Ensure that all payment obligations to government are identified and reported.
- Identify appropriate levels of investment in community activities.

2002/2003 Actions

- Develop an audited greenhouse gas inventory.

- Identify opportunities to reduce the greenhouse gas emissions intensity of our gas production and power generation portfolio.
- Assess potential wind farm sites.
- Continue research and development efforts towards the manufacture of solar PV systems.
- Identify opportunities to reduce losses in the natural gas distribution systems under management.

- Increase the GreenEarth customer base to 25,000, lifting annual CO₂e savings to 89,000 tonnes for 2002/03.
- Install 125 kW of solar PV systems, saving 5,610 tonnes of CO₂e over the life of these installations.
- Sell 20,000 kg of hydrocarbon refrigerants, saving 80,000 tonnes of CO₂e for 2002/03.
- Expand the provision of education programs on energy efficiency.
- Reduce customer greenhouse gas emissions by an additional 35,000 tonnes per annum through energy efficiency consulting services.
- Include greenhouse gas indicators on mass-market electricity bills by January 2003 and on gas bills by 2004.

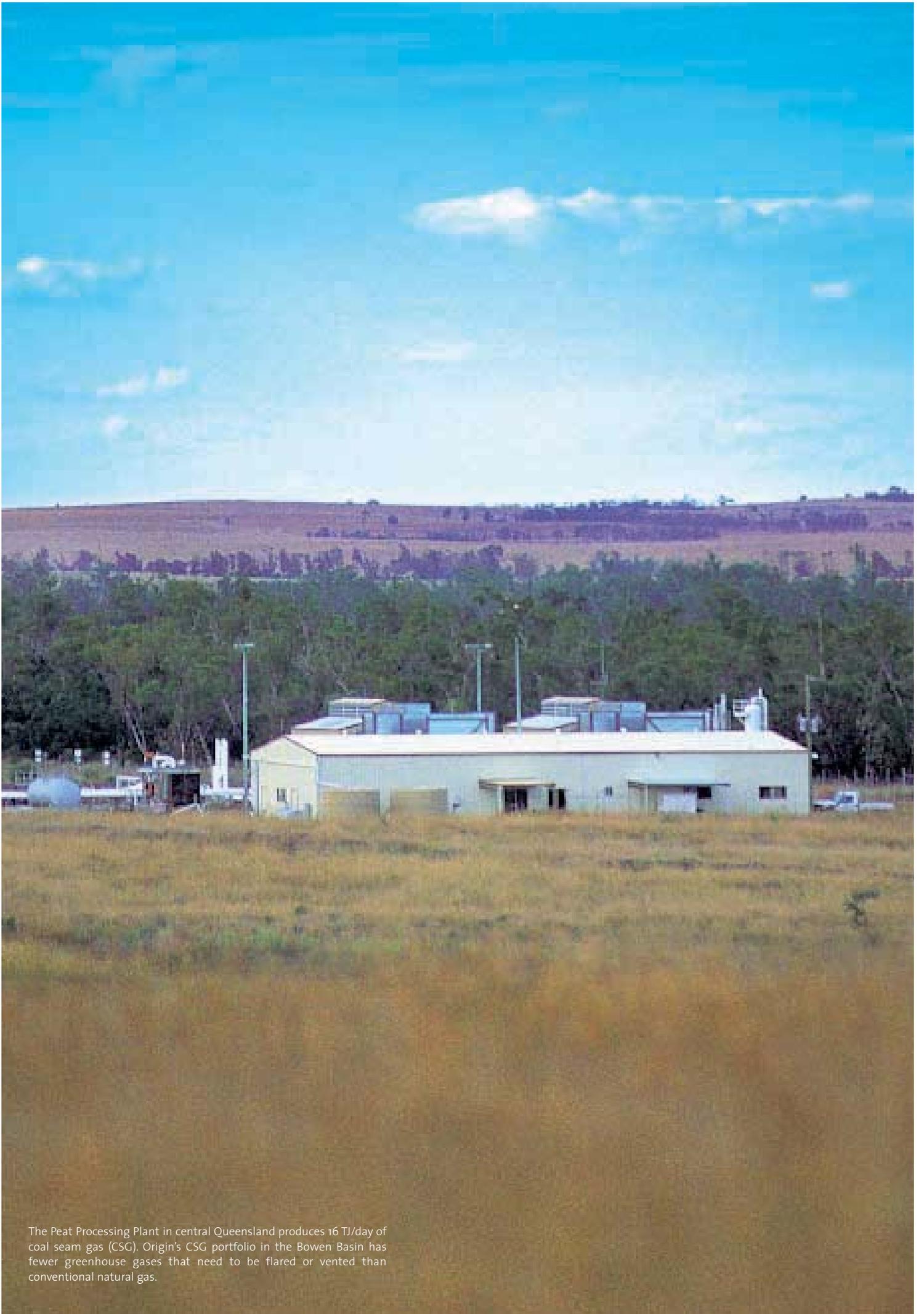
- Obtain environmental approval for the BassGas Project and development of the Thylacine and Geographe gas fields.
- No material breach of obligations under environmental regulations or licences.
- No hydrocarbon spills that contaminate land or water.
- Complete entry of Australian licences, authorisations and permits into RCMS and continually review legislation that may impact on the company's regulatory obligations.
- Measure and report the volume of water produced from gas fields and water used in generation plants.
- Compile dossier on endangered regional ecosystems within potential upstream development areas.
- Reduce noise complaints through improved designs and more effective consultation processes.
- Before relinquishment, rehabilitate all gas or petroleum exploration sites to State Government standards as a minimum.
- Ensure the plans for managing contaminated land at owned or leased sites are approved by local EPAs, and where the site is for sale, ensure there is full disclosure of the status of the site to the purchaser, EPA and other relevant parties.

- Identify areas in our operations in which more flexible working conditions can be introduced without adversely affecting productivity or customer service and develop procedures for implementing appropriate changes.
- Complete implementation of consistent long service, maternity and paternity leave entitlements across the company.
- Benchmark levels of employee turnover by gender, length of service and occupation.
- Further analyse workforce composition to better understand how the diversity of Origin's workforce compares to the wider community.
- Clarify criteria for recruitment and promotion to ensure there are no impediments to selecting candidates on the basis of merit.
- Improve process for resolving issues related to equal employment opportunity and harassment prevention.
- Continue review of remuneration processes and working conditions to ensure there are no systemic discriminatory practices.
- Ensure information systems are capable of adequately capturing total investment in employee training and ensure the level of investment is appropriate.
- Continue development and implementation of HSE skills and competency measures.
- Develop an employee Community Involvement Program, including matched giving.

- Improve the timeliness and impact of our community consultations, directly and with government, to ensure agreements with landholders and indigenous communities are reached in a timely fashion.
- Contribute to energy policy development that encourages investment by the private sector.
- Revise Origin's sponsorship program based on the external impacts of the company's activities.
- Incorporate a community support mechanism in our Corporate Community Involvement Program.
- Fully implement a hardship policy in the retail business by June 2003, incorporating LPG by December 2003.
- Work with government to improve or provide safety net arrangements for customers with an inability to pay for energy.

- Complete review of HSE management plans for all sites and activities.
- Shift the focus of incident reporting to the Total Reportable Case Frequency Rate so that it becomes our prime safety indicator.
- Achieve an LTIFR target of 2.5.

- Achieve an Operating Cash Flow After Tax Ratio in excess of 9.7%.
- Continue operation of the company-wide remuneration benchmark process.
- Continue to monitor employee turnover and analyse the degree to which it may be affected by remuneration practices.
- Identify and report on payments (royalties, taxes, fees and charges) to all levels of government.
- Identify and report on our investment in community-based activities.



The Peat Processing Plant in central Queensland produces 16 TJ/day of coal seam gas (CSG). Origin's CSG portfolio in the Bowen Basin has fewer greenhouse gases that need to be flared or vented than conventional natural gas.

The production and use of energy has environmental impacts, the most significant of which is greenhouse gas emissions. Origin Energy is committed to reducing the carbon intensity of its activities and minimising its impact on the local environment.

Environment

Climate change and energy

Climate change refers to the phenomenon of global warming that occurs when greenhouse gases are released into the atmosphere. Greenhouse gases such as carbon dioxide and methane act like a blanket, trapping the sun's warmth and thereby making life on Earth possible.

Over the last century, increased industrialisation and energy consumption has led to significantly higher levels of greenhouse gas emissions to the atmosphere. It is now widely recognised that human actions – particularly the burning of fossil fuels (coal, oil and natural gas) and land clearing – are increasing the concentrations of these gases, creating the prospect of global climate change. This is known as the enhanced greenhouse effect.

Most scientists have concluded that the enhanced greenhouse effect will raise the Earth's surface temperature. It is hard to predict what the impacts of global warming will be and where they will occur because the global climate is a complicated system. Global warming may impact the distribution of plants and animals; the frequency of storms and floods; and the spread of weeds, pests and diseases.

While scientists are continuing to better understand these impacts, many governments have determined that it is prudent to act now to reduce greenhouse gases.

In 2000, Australia's total net greenhouse gas emissions were 535.3 million tonnes of CO₂e to which the energy sector contributed 69.5%. Of this proportion, 43.5% was the result of burning coal to generate electricity.¹

The Federal Government's policy responses to increasing greenhouse emissions are still evolving. The uncertainty and complexity of the greenhouse emissions regulatory framework are significant issues for Origin's business. We respond by actively participating in the climate change debate and developing strategies to manage our exposure.

The Federal Government's policy position is described in 'Australia's Third National Communication on Climate Change 2002':

- Australia will not ratify the Kyoto Protocol unless ratification is shown to be in the national interest.
- Australia will continue to strive to meet its target under the Kyoto Protocol in the first commitment period – an 8% increase in 2010 on the greenhouse gases emitted in 1990. In August 2002, the Federal Government announced Australia is projected to reach around 111% of 1990 emissions by 2010.²

Origin believes that it is operating in an environment that will become increasingly carbon-constrained, leading to both challenges and opportunities. Across our business we are identifying ways of reducing the intensity of carbon emissions associated with the production of energy and our customers' use of that energy.

Greenhouse gas emissions (CO₂e) per unit of energy across the Origin gas and electricity supply chain

Production

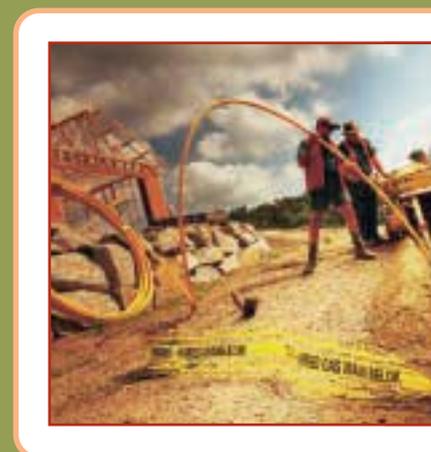
Natural gas, LPG and other products



<p>Origin production: 86 PJ GHG intensity: 12.1 kt/PJ</p>
<p>Purchases: 142 PJ GHG intensity: 12.5 kt/PJ</p>

Greenhouse gases are emitted during gas processing to remove impurities and through venting or flaring.

Transportation



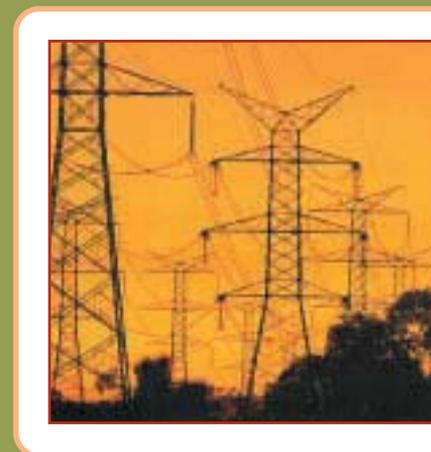
Gas purchased for Origin generation: 21 PJ

Electricity



<p>Origin generation: 1,907 GWh = 6.9 PJe (Steam production: 5.4 PJe) GHG intensity: 0.5 t/MWh = 139 kt/PJe</p>
<p>Purchases: 8,400 GWh = 30.4 PJe GHG intensity: 0.9 t/MWh* = 250 kt/PJe</p>

Burning fossil fuels to generate electricity emits greenhouse gases.



Origin owned or operated

External providers

* Includes purchases from the NEM and renewable generators

Greenhouse gas emissions

Objective: To measure and accurately report the company's greenhouse gas emissions.

Strategy: Improve the company's greenhouse gas measurement methodology, audit and report regularly.

To better understand its emissions profile across the energy supply chain, Origin has calculated the greenhouse gas emissions associated with each element of our activities.

The greenhouse gas intensity of each activity is illustrated above.

Origin participates in most segments of the chain including the production, distribution and sale of gas and the generation and sale of electricity.

We produce or purchase gas from various sources and sell it directly to customers or the wholesale market. As an electricity generator Origin sells electricity to the wholesale pool, retailers and to large industrial customers. As a retailer we buy electricity from the pool and directly from generators.

Greenhouse gas emissions are produced at each stage of the supply chain. Last year, 24 million tonnes of CO₂e were emitted across the supply chain to meet the energy demands (242 PJe) of Origin's retail and wholesale customers.

Origin's model of greenhouse gas intensities contains internal estimates based on general and, where possible, specific data on greenhouse gas intensity. To have confidence in planning for future actions and outcomes, we must improve the accuracy and efficiency of greenhouse gas measurement and reporting.

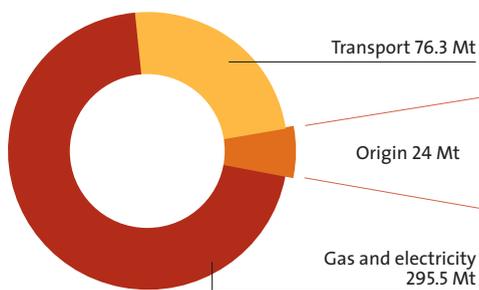
2002/2003 Action

- Develop an audited greenhouse gas inventory.

Customer consumption

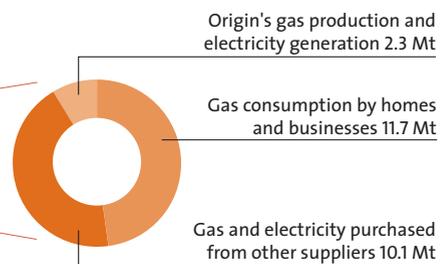


National energy sector emissions (CO₂e)



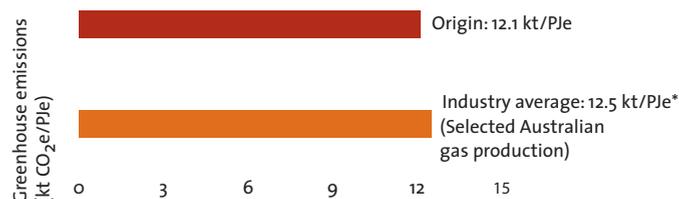
Total activities across the Origin supply chain contribute 6.5% of the national energy sector's emissions.

Origin Energy supply chain emissions (CO₂e)

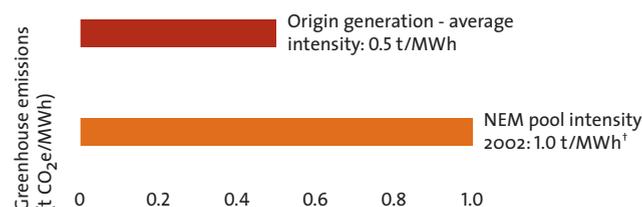


9.5% of emissions are the direct result of Origin's gas production and electricity generation.

Emissions intensity of Origin’s gas production v. industry average*



Emissions intensity of Origin’s generation v. industry average†



Sources: * 'Assessment of Greenhouse Gas Emissions from Natural Gas', Final Report, Australian Gas Association, May 2000, and 'Greenhouse Challenge Electricity Workbook' † www.nemmco.com.au 28 October 2002

Reducing Origin’s greenhouse gas emissions

Objective: To reduce the greenhouse gas intensity of our energy production and distribution.

Strategy: Seek economic avenues for reducing greenhouse gas emissions in our energy production activities.

Gas production

Greenhouse gases are emitted during natural gas production. During the processing of raw gas from the wellhead to create sales quality gas, CO₂, other inert gases and some methane are either vented or flared to the atmosphere.

As Origin’s gas production portfolio grows, our challenge is to manage the greenhouse gas intensity of that portfolio. This will be assisted by developing Origin’s coal seam gas (CSG) projects in the Bowen Basin, which contain fewer greenhouse gases needing to be either flared or vented than conventional natural gas fields.

In December 2001, Origin implemented an innovative project to reduce greenhouse gas emissions by installing advanced flaring technology at its Yellowbank gas processing facility in the Denison Trough, western Queensland. More details on the emission savings achieved are in the case study below.

Power generation

Burning fossil fuels to produce electricity accounts for about 32% of Australia’s annual greenhouse gas emissions, and is the fastest-growing sector of the energy industry in terms of emissions.³ On current forecasts, by 2010 greenhouse emissions from electricity production and use will increase over 60% on 1990 levels. With little likelihood of significant reductions in the emissions intensity of coal generation, additional low and zero-emission generation is needed to allow growing power demand to be met with less greenhouse gas emissions.

Origin’s natural gas-fired generation and cogeneration plant produce electricity at significantly lower greenhouse intensity than the pool average because natural gas produces less carbon dioxide when burnt relative to coal, and the technologies are more energy efficient than at most coal-fired power stations.

Origin’s gas-fired generation portfolio reduced greenhouse gas emissions by over one million tonnes for the year compared with the NEM pool average.

2002/2003 Action

- Identify opportunities to reduce the greenhouse gas emissions intensity of our gas production and power generation portfolio.

Gas production: Innovation key to emissions reductions at Yellowbank

Origin worked with Oil Company of Australia (OCA) and Santos to use an emerging market mechanism to support investment in a greenhouse mitigation program. Under contract to Origin, the Denison Trough Joint Venture has installed advanced flaring technology to eliminate the venting of waste methane at the Yellowbank gas production facility in Queensland.

The project will reduce greenhouse gas emissions over four years by 700,000 tonnes, equivalent to taking all of Canberra’s 170,000 passenger cars off the road for a full year.

The emission reduction units (ERUs) produced from the Yellowbank project have been purchased by BP Australia for use in its BP Global Choice Program.

BP will use the ERUs to provide a greenhouse offset fuel, BP Ultimate, which is the first product accredited by the Australian Greenhouse Office under the Greenhouse Friendly Certification Program.

OCA is the production operator of the Yellowbank Processing Plant, pictured right.

Power generation: Osborne Cogeneration Plant

Cogeneration is the production of two or more forms of energy from one fuel. Gas-fired cogeneration plants make more efficient use of natural gas for the production of heat and electrical power, delivering long-term sustainable cost savings for industry.

In such plants, natural gas is burned in a gas turbine or internal combustion engine, which in turn drives a generator to produce electricity. Instead of being wasted to the atmosphere the exhaust heat can be used to produce steam, which in turn can be used to produce more electricity through a steam turbine and generator. Alternatively, the steam can be used directly for other industrial processes.

The largest plant in Origin's cogeneration portfolio is the 180 MW Osborne plant in South Australia. Origin is a 50% owner of the plant and was co-developer. The plant provides 1.2 million tonnes of steam per year to Penrice Soda Products and about 10% of South Australia's electricity needs. Exhaust heat is recovered from the plant's 120 MW gas turbine to produce further power through a steam turbo-alternator. Penrice uses the steam to manufacture soda ash for the glassmaking industry.

Net greenhouse emissions are reduced by more than 600,000 tonnes a year by offsetting coal-based generation and using energy more efficiently. The greenhouse gas intensity of the plant is 0.4 tCO₂/MWh.

Strategy: *Identify and invest in renewable technologies that are economically viable.*

A growing amount of Australia's electricity is generated from renewable energy sources such as wind, biomass, solar and hydro power.

Origin purchases electricity from renewable sources to meet its obligations under the Federal Renewable Energy (Electricity) Act of 2000, and to cover its sales of Green Power. However, we are aiming to expand the diversity and reduce the carbon intensity of our generation portfolio by developing wind generation projects. Origin has established wind monitoring at several attractive wind power sites as a precursor to such development.

We are also investing in the development and commercialisation of solar PV systems. Already one of Australia's leading suppliers of grid-connected solar PV systems, sourced from overseas and local manufacturers, we have an ongoing research project that is intended to lead to direct investment in our own solar PV manufacturing capacity. More details of this project can be found on page 14.

2002/2003 Actions

- Identify opportunities to reduce the greenhouse gas emissions intensity of the company's gas production and power generation portfolio.
- Assess potential wind farm sites.
- Continue research and development efforts towards the manufacture of solar PV systems.

Strategy: *Seek economic avenues to reduce fugitive emissions.*

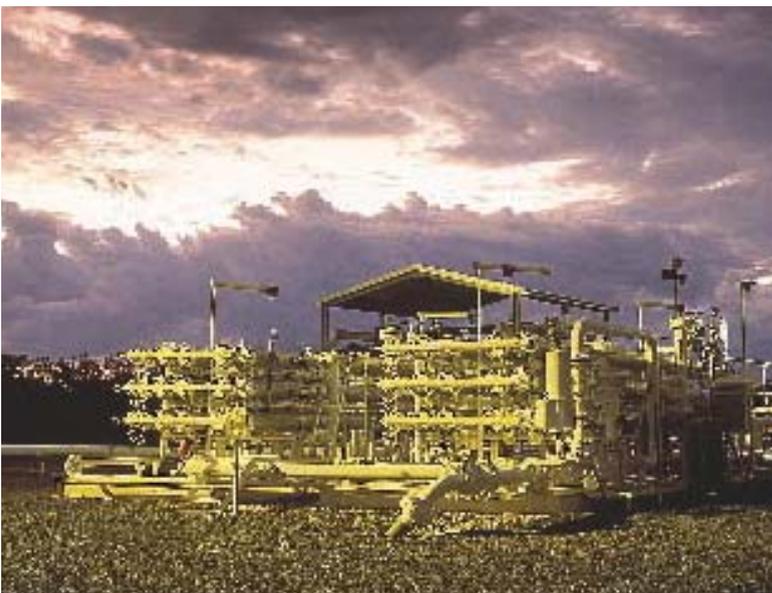
When released directly to the atmosphere, natural gas has significantly higher global warming potential than CO₂.

Origin is the network operator for Envestra, the owner of a significant proportion of the networks distributing natural gas to Origin's customers. In this role, Origin works with Envestra on pipe refurbishment programs to minimise gas leakage.

Last financial year, 142 km of gas mains were refurbished, as part of a program expected to cost about \$50 million over six years. The refurbishment is achieved by inserting polyethylene pipe through old steel and cast iron mains.

2002/2003 Action

- Identify opportunities to reduce losses in the natural gas distribution systems under management.



Environment

Clean energy choices

Australia's demand for energy has grown at 4% per annum over the last 20 years. More than half of the energy sector's greenhouse gases are emitted as a consequence of the production and/or consumption of goods and services used by households (particularly domestic electricity and motor vehicle fuel), and about a quarter of emissions are generated in the production of goods and services for export.⁴

Origin's aim is to reduce the amount and carbon intensity of energy consumption and, as a consequence, the environmental impact of energy production and use.

Objective: To reduce the carbon intensity of customers' energy consumption.

Strategy: Provide a range of competitively priced clean energy products, which allow customers to choose their level of greenhouse gas intensity.

Green Power

In February 2002, Origin introduced the GreenEarth range of products derived from wind and hydro power. Nine peak environmental groups across Australia rated Origin's GreenEarth Plus as the "market leading green electricity" product. This group also acclaimed Origin's GreenEarth product as the cheapest zero-emission product in the market. The entire product range is fully accredited under the National Green Power Program, which is a collaboration of State Government agencies in NSW, Victoria, Queensland, South Australia and the ACT.

By 30 June 2002, more than 16,000 customers (ranging from residential to industrial) were buying Green Power from Origin. In the year ending 30 June 2002, these customers saved 35,000 tonnes of greenhouse gas emissions.

Product name	Breakdown
GreenEarth	20% wind 80% hydro power
GreenEarth Extra	40% wind 60% hydro power
GreenEarth Plus	100% wind

Origin Energy Solar

Launched in February 2002 in the Victorian and South Australian markets, Origin Energy Solar allows customers to harness energy from the sun to power homes or businesses with solar photovoltaic (PV) power supply systems. Once installed, the PV power supply systems generate electricity for the premises with zero greenhouse gas emissions, feeding excess electricity into the grid.

Early signs of customer interest in solar PV systems are encouraging, with Origin capturing more than 50% of the solar grid connected market in Victoria. The company was awarded a contract in conjunction with BP Solar to supply and install 1,300 solar panels at the Queen Victoria Market in Melbourne and partnered the South Australian Museum to build the North Terrace Solar Power Station in Adelaide.

Since 1998, Origin has invested \$6 million in research and development of new technologies for solar cells and power inverters to produce an improved solar module. During the year, we received a \$1 million grant under the Federally funded Renewable Energy Commercialisation Program, to support the construction of a pilot plant to manufacture solar systems using this new technology.

Compressed natural gas

Compressed natural gas (CNG) is one of the cleanest-burning transport fuels in Australia. It matches the engine performance of diesel while producing less harmful emissions.

By teaming with Origin, South Australia's Passenger Transport Board has reduced greenhouse emissions by powering 213 of its buses (30% of its fleet) with CNG. These buses produce 50% lower particulate emissions when compared with diesel buses.

In South Australia, the Unley Council and its contractors, Collex and Kerbside, operate Australia's first dedicated fleet of CNG waste collection trucks including a CNG compactor for green waste and Australia's first CNG street sweeper. These vehicles also operate at much reduced noise levels compared with diesel equivalents.

Mandatory Renewable Energy Target

The Federal Renewable Energy (Electricity) Act of 2000 provides an incentive for investment in new renewable energy generation, in order to meet the Federal Government's Mandatory Renewable Energy Target (MRET). From 2001, the Act requires electricity retailers to source an increasing proportion of total electricity purchased from renewable energy sources or pay an economic penalty.

To meet its MRET obligations and to supply its GreenEarth products, Origin will purchase the output of the 52.5 MW Chalicum Hills wind farm (near Ararat, Victoria) and the 30 MW Yambuk wind farm (near Portland, Victoria).

In combination with its existing contracts with the 18 MW Codrington and 20 MW Toora wind farms, Origin will have

contracted around 120 MW of wind capacity by mid 2003, sufficient to meet the energy requirements of 60,000 homes.

In 1997, renewables made up about 11% of Australia's total electricity supply. As electricity demand grows and assuming no additional initiatives, the current MRET will result in the renewables' share increasing to about 11.9% by 2010, well short of the original target of 13%. Origin supports increasing the MRET to 5% above the 1997 level so that renewables contribute 16% of electricity produced by 2010.

Origin purchases the entire output of the Codrington wind farm, pictured right, in south west Victoria.

Customer education: Learning about energy efficiency

Year seven students at Melbourne's Ruyton Girls School collected energy usage data from the rooms, garages and pools or spas at their homes. They then used Origin's website energy calculator (www.originenergy.com.au/efficiency) to understand the amount of energy used and the different running costs for appliances.

The data were collated and a class report produced, outlining the total amount of energy used. It also identified meaningful ways to reduce energy consumption. The students identified that an average Victorian household could cut energy costs by 25% or the equivalent of negating the annual greenhouse gas emissions of the family car.



Refrigerant gas

Some classes of air-conditioning refrigerants are recognised as significant contributors to greenhouse gas emissions and ozone depletion. Origin's response is to market a range of hydrocarbon and hydrocarbon-blend refrigerants that are locally produced, non-toxic and non-ozone depleting replacements for chloro-fluorocarbons and hydro-fluorocarbons in automotive and commercial applications. Origin's ER12 hydrocarbon refrigerant is one of five Greenpeace-approved solutions in the refrigeration industry.

In the past four years, Origin has sold 84,000 kg of hydrocarbon refrigerants predominantly into the automotive market, replacing some 250,000 kg of hydro-fluorocarbon and saving 325,000 tonnes of CO₂e.

2002/2003 Actions

- Increase the GreenEarth customer base to 25,000, lifting annual CO₂e savings to 89,000 tonnes for 2002/03.
- Install 125 kW of solar PV systems, saving 5,610 tonnes of CO₂e over the life of these installations.
- Sell 20,000 kg of hydrocarbon refrigerants, saving 80,000 tonnes of CO₂ for 2002/03.



Strategy: Provide information for our customers so they may measure and reduce the carbon intensity of their energy use.

Origin supports the Victorian and New South Wales Governments' initiative to include greenhouse gas emission information on customer electricity bills from 2003. In addition, Origin's GreenEarth customers will be able to see the greenhouse savings on their bill as a result of their purchases.

Energy efficiency advice features regularly in customer communication through newsletters, welcome kits and television community service announcements.

The communication regularly refers customers to an "Energy Calculator" on the Origin website which helps them understand the main contributors to electricity consumption and adopt strategies to reduce energy use. A range of tips on saving energy complements a free, online home and small business energy efficiency audit.

Origin provides large industrial and commercial organisations with cost-effective solutions to lower energy use and greenhouse gas emissions. We help businesses clarify their energy and greenhouse objectives, plan strategies for reductions and then help the business achieve its reduction goals and implement systems for continuous improvement.

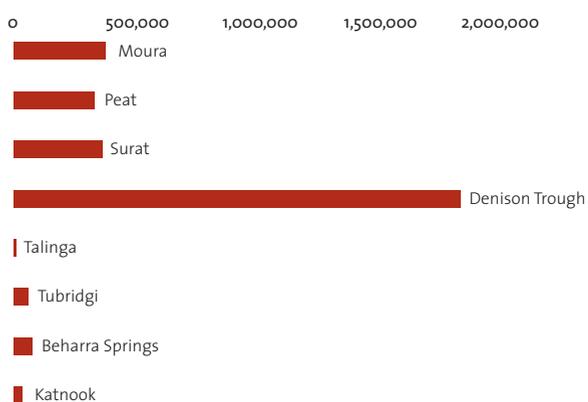
Origin's energy efficiency advice is saving customers including Amcor and Dupont more than 65,000 tonnes of greenhouse gas emissions annually, and more than \$3 million per year in energy costs.

2002/2003 Actions

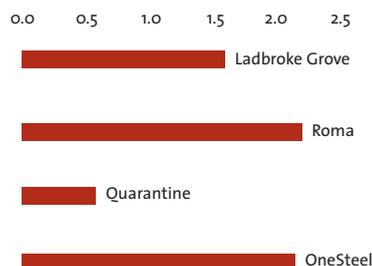
- Expand the provision of education programs on energy efficiency.
- Reduce customer greenhouse gas emissions by an additional 35,000 tonnes per annum through energy efficiency consulting services.
- Include greenhouse gas indicators on mass-market electricity bills by January 2003 and on gas bills by 2004.

Environment

Upstream NO_x emissions by asset (kg per annum)



NO_x emissions by generation plant (kg per MWh) (Origin operated plants)



These figures are estimates based on the techniques set out in relevant industry handbooks, including the 'Oil and Gas Exploration and Production Emission Estimation Technique Manual', for estimating emissions of NPI substances.

Local environmental impact

The production, distribution and sale of gas and electricity require long-term access to land and resources. Gas fields can remain operational for up to 50 years; network pipelines lie underground for up to 120 years and power generation plants last up to 30 years. Origin acts to minimise its impact on the physical environment, remediate any damage and promptly rehabilitate land after use.

Objective: To take all reasonable steps to eliminate or minimise any adverse impact that our activities have on the local environment.

Strategy: Ensure all environmental impacts are appropriately assessed and all environmental approvals are obtained.

Before a project with potential environmental impact is initiated, an environmental planning process is completed and relevant approvals (both State and Federal) must be obtained.

A summary of environmental licences granted to Origin is detailed on page 32.

2002/2003 Action

- Obtain environmental approval for the BassGas Project and development of the Thylacine and Geographe gas fields.

Strategy: Comply with all environmental conditions of approval and promptly report any non-compliance to relevant authorities.

The regulatory environment in which Origin operates is complex and extensive. To help ensure we meet our many regulatory obligations, we have developed a Regulatory Compliance Management System (RCMS), which is an electronic compliance database containing all relevant regulatory requirements that impact on operations.

The system has identified 2,560 instruments (including Acts, Regulations, Permits and Licences), 388 licences, authorisations and permits, and 317 compliance management grids that require ongoing management and compliance. Where compliance requirements are dated and periodically actionable, the system is designed to automatically advise responsible management of the pending requirement and track the requirement through to completion.

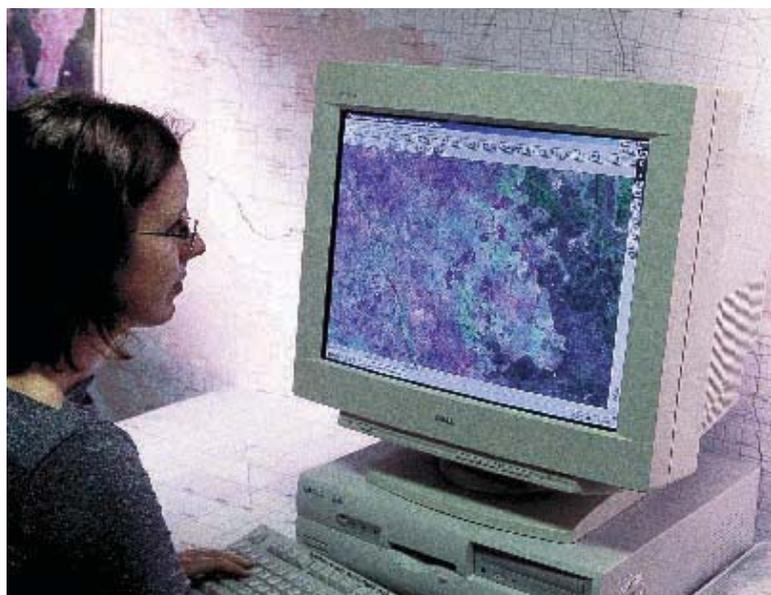
As part of Origin's Health, Safety and Environment Management System, we formally record and report all incidents that have an impact on the environment, either directly or indirectly. All incidents are included in a monthly report to the Board, which covers the investigation and corrective action taken to prevent re-occurrence.

Origin reports its emissions to the environment to State and Federal Governments as part of the National Pollutant Inventory (NPI). The inventory is an internet database providing communities, industry and government with information on types and amounts of nominated substances being emitted to land, air and water.

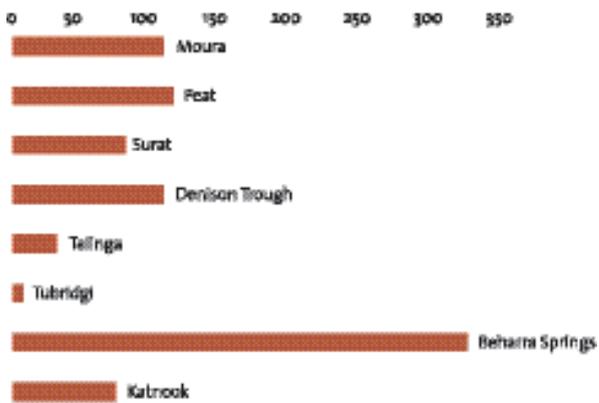
In the past three years, Origin has operated all its onshore and offshore facilities in accordance with its licence conditions and corporate values, with no major breach of the company's regulatory and environmental obligations.

Air quality

Emissions to air are produced from flaring, particularly during the exploration drilling phase, from new wells and from the consumption of gas and diesel at some gas production facilities.



Upstream SO_x emissions by asset (kg per annum)



Last year, NO_x and SO_x emissions reduced mostly as a result of decreased production, decreased gas and diesel consumption and because Origin ceased to be the operator of the Kenmore gas field.

In thermal power stations, NO_x is generated during the high-temperature combustion of coal, oil and gas fuels. Origin's gas-fired plants produce less NO_x than plants using other hydrocarbon fuels.

In the development of new generation assets, Origin conducts air plume modelling that determines the concentration and dispersion of NO_x emissions at ground level. In addition to meeting regulatory requirements, Origin also ensures the location of the plant, exhaust stack height and gas exit velocity from the exhaust provide an acceptable environment for our staff and neighbours.

During start up and shutdown of any thermal power plant, NO_x emissions are higher for a short time than when the plant is running. This year, higher NO_x levels than permitted in our South Australian EPA licences were produced during start up and shutdown of our Osborne Joint Venture and Quarantine generation plants. The SA EPA has since modified the licences for these plants, recognising the special conditions during start up and shutdown.

Identifying sensitive areas: GIS

Because our activities cover large areas of land in relatively remote parts of Australia, we have developed expertise in the use of a Geographic Information System (GIS). The system uses computer software and digital information that provides a fast and comprehensive "map" of a geographic region of exploration and production interest to help identify any areas of ecological or social concern, before starting extensive fieldwork. The GIS not only provides existing well and land ownership information and access details, but also helps to identify potential conflict in areas such as rare and threatened flora and fauna.

The GIS may also assist in identifying areas of environmental significance to help plan new developments, such as pipeline routes and facility locations.



Water extracted as part of the CSG production process is stored in purpose-built evaporation ponds. Pictured is the evaporation pond at the Peat Processing Plant in central Queensland.

Water

Water is a by-product of Origin's onshore oil and gas production. The water may contain salts and other contaminants that must be disposed of or used in a way that does not cause any adverse environmental effects. Typically, Origin disposes of the waste water at gas production sites in adjacent evaporation ponds. At the Tubridgi gas field, water is re-injected into a shallow aquifer with the approval of the EPA. At the Katnook and Ladbroke Grove gas fields, the cool and wet climate does not provide enough evaporation to dispose of all produced water and excess water from the site evaporation pond system is transported to the government-operated water treatment plant near Mount Gambier for disposal.

In some areas of CSG development where water production is high, Origin is investigating alternative ways of managing the produced water, including its use in local agriculture. Our aim is to find economic and environmentally acceptable ways to minimise the impact of water disposal.

In its generation plants, Origin consumes small quantities of water in cooling technology to increase the summer power output at its Ladbroke Grove and Quarantine gas turbine power plants.

For example, when planning the Myall Creek pipeline in the Surat Basin, the GIS was used in initial pipeline route planning. As a result, sensitive areas along the direct route were avoided.

Using the GIS, 33 in-house Environmental Protection and Biodiversity Conservation (EPBC) Act assessments were completed during the year, concluding that referrals to government were not required.

Environment



To reduce noise, Origin installs the best available technology, which may include noise barriers, such as these at the Peat Processing Plant in central Queensland.

Noise

Origin's gas processing plants are located in rural areas where large field compressors at wellheads are used to bring low-pressure gas to sales pipeline pressure. Last year, two complaints were received from landowners in the Bowen Basin and although noise levels have been significantly reduced, discussions with these landowners continue.

Seven complaints were received about noise from our generation plants. Three of these complaints were received from the same complainant as a result of a subcontractor at the Redcliffe Hospital in Brisbane working outside the time limits specified as a licence condition. The matter has been resolved.

Four complaints were received at the Osborne Cogeneration Plant in South Australia. Three were about noise during start up and shutdown of the gas turbine, when steam is vented to the atmosphere. The noise produced during this period is slightly louder than normal operation and is being monitored. The fourth complaint was resolved after a site visit by the complainant when it was acknowledged that the noise was from another source.

Spills

Company operations use chemicals and oil that require delivery, storage and subsequent on-site handling. While Origin has strict procedures for the handling of these substances, some minor leaks and spills have still occurred.

During the past year, three minor hydrocarbon spills were reported to the regulatory authorities, cleaned up by in situ bioremediation or removal and proper disposal. Each incident was investigated and appropriate corrective actions were taken.

Waste and chemical management

Origin has management plans to ensure chemicals are handled responsibly and that waste is managed and disposed of in a responsible and effective manner. These plans are periodically reviewed to ensure they are in line with relevant State and Federal legislation and adequate for Origin's employee and site-specific requirements.

2002/2003 Actions

- No material breach of obligations under environmental regulations or licences.
- No hydrocarbon spills that contaminate land or water.
- Complete entry of Australian licences, authorisations and permits into RCMS and continually review legislation that may impact on the company's regulatory obligations.
- Measure and report the volume of water produced from gas fields and water used in generation plants.
- Compile dossier on endangered regional ecosystems within potential upstream development areas.
- Reduce noise complaints through improved designs and more effective consultation processes.

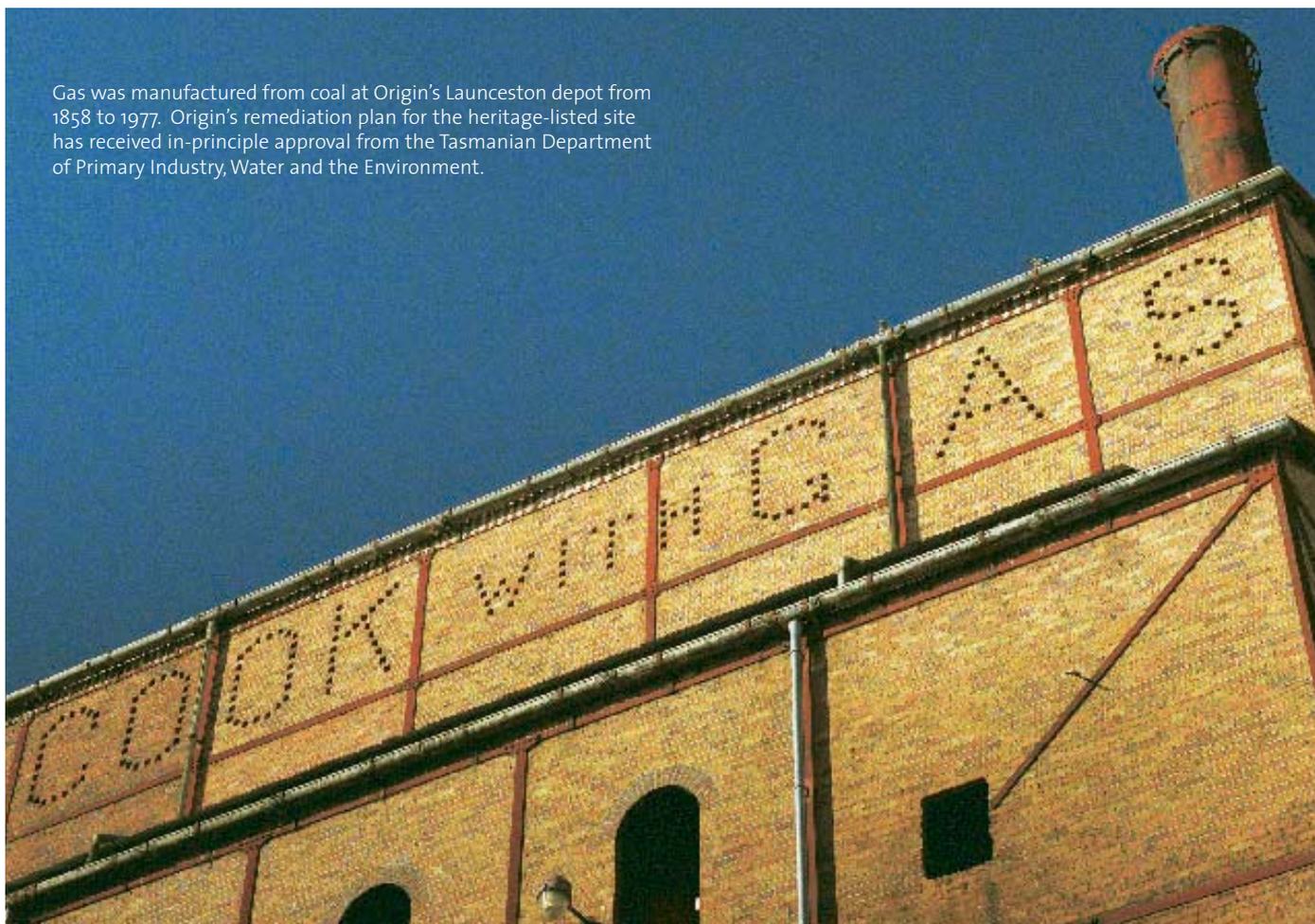
Land rehabilitation: Living history to become riverfront living

From 1887, the Brisbane gas works were located at Newstead, on Brisbane's waterfront, where it continued to operate until the city converted to natural gas in 1996. Boral Limited bought the Brisbane Gas Company in 1971 and the Newstead site became part of Origin when Boral demerged its energy business in 2000.

Over the years, the land was contaminated by the accepted manufacturing practices of the times. With no further need for manufacturing facilities and responsibility for rehabilitating the site, Boral and then Origin began the process of selling the land with a view to rehabilitating it as part of the redevelopment process. Investigations commenced in 1993 and since that time extensive bores and investigative trenches have been completed and water and soil monitoring maintained.

In June 2001, Origin and the Brisbane City Council, which owns the adjacent property, contracted to sell about 60% of their combined properties to Mirvac Limited. Mirvac plans to build a shopping and residential complex on the site and will rehabilitate it to the satisfaction of the Queensland Environment Protection Authority, Brisbane City Council and Origin.

Gas was manufactured from coal at Origin's Launceston depot from 1858 to 1977. Origin's remediation plan for the heritage-listed site has received in-principle approval from the Tasmanian Department of Primary Industry, Water and the Environment.



Strategy: *On completion of use, ensure land is managed and/or rehabilitated to appropriate environmental standards.*

Land is rehabilitated as soon as possible after exploration or production activities cease. Typically this is within three to six months. Last year, approximately 700 km of seismic line and 30 well sites were completely or partially rehabilitated, all within Queensland operational areas.

Origin and its predecessors have a long history, which dates back 140 years in some parts of Australia. The company owns or leases 15 sites in Queensland, Victoria, New South Wales, South Australia and Tasmania that contain contaminated soil from past gas manufacturing processes. Origin Energy Asset Management also manages six sites on behalf of owners, Envestra.

The approach to managing these sites is to ensure no ongoing harm to the environment as a result of the contamination. If issues are identified, action is taken to ensure no contaminants leave the site and the health of those working on the site is protected. Where no harm to the environment has been identified, a management program, including continual monitoring, is developed and implemented in conjunction with relevant environmental authorities.

In 2001, a detailed external audit was completed and a comprehensive environmental plan developed for the containment or remediation of all sites managed by Origin. Audit recommendations have been or are in the process of being implemented, and a financial provision of \$23 million has been created for remediation, monitoring and forward assessment.

Significant milestones were achieved on two key sites.

- A Development Master Plan for a site at Newstead, Brisbane has been submitted to the Brisbane City Council for approval. A Remediation Action Plan is being finalised to allow work on remediation and development of the site to proceed. The site will eventually house a residential and shopping development.
- In-principle approval has been received from the Tasmanian Department of Primary Industry, Water and the Environment (DPIWE) for the Launceston site remediation plan. The plan is to stabilise and build an on-site containment cell for some of the contaminants with the remaining liquid tar-based products used as fuel for a local manufacturing process. This is being done with strict oversight of air emissions by the DPIWE.

2002/2003 Actions

- Before relinquishment, rehabilitate all gas or petroleum exploration sites to State Government standards as a minimum.
- Ensure the plans for managing contaminated land at owned or leased sites are approved by local EPAs, and where the site is for sale, ensure there is full disclosure of the status of the site to the purchaser, EPA and other relevant parties.



Origin Energy's diverse activities impact on many differing communities in a variety of ways. The sustainability of our activities depends on developing and maintaining the trust and goodwill of these communities.

Social

Origin has operations in all Australian States and Territories and in the Pacific, ranging from oil and gas exploration in rural communities to retailing energy in our larger cities. We rely on these communities to provide staff with the skills to conduct our business, buy our products and services, maintain a stable political environment and provide access to land and resources. Origin acts to maintain stakeholder trust and goodwill by developing relationships of mutual advantage, and by ensuring our activities do not adversely affect the health, safety and environment of the communities in which we operate.

Our employees

Objective: To provide and maintain a satisfying and rewarding working environment for all our employees.

Strategy: Provide employment conditions consistent with community expectations.

Origin has a diverse workforce spread across all States and Territories of Australia and in the Pacific region. As a result of acquisitions and generic growth, Origin's employee numbers have risen steadily for several years. At the end of June 2002, Origin employed 2,721 people, an increase of 24% on the previous year.

We measure our performance* in providing a rewarding working environment in three ways:

- Absenteeism, or the percentage of available workdays taken as sick leave. In 2001/02, this was 4.4%. External benchmarking indicates this to be a top quartile result.
- Days lost to industrial disputes. Four working days per 1,000 employees were lost due to industrial disputes. This compares favourably with the Australian Bureau of Statistics national average of 48 working days as at May 2002. Two industrial disputes were lodged during the year and are still in negotiation.

- Employee retention. This is measured by analysing the percentage of those who voluntarily resigned during the year and the percentage of employees whose termination was initiated by the company. The rates for the year were 11.2% for voluntary turnover and 4.2% for organisation-initiated separations. Given the complexity of our business (i.e. both upstream and downstream) we have been unable to identify comparable industry benchmarks. To help improve retention we are analysing resignations by length of service, occupational grouping and gender, and by examining broader employee feedback mechanisms. The aim is to gain a better understanding of the drivers of turnover and therefore employee attitudes and satisfaction.

The majority of Origin's employees participate in the company's Performance Management System. Formal one-on-one discussions between employees and their manager are held twice a year. The review includes employees' workplace style and effectiveness and their performance against objectives.

A review of the performance management data capture system is underway, with the aim of achieving 100% participation of non-award employees.

2002/2003 Actions

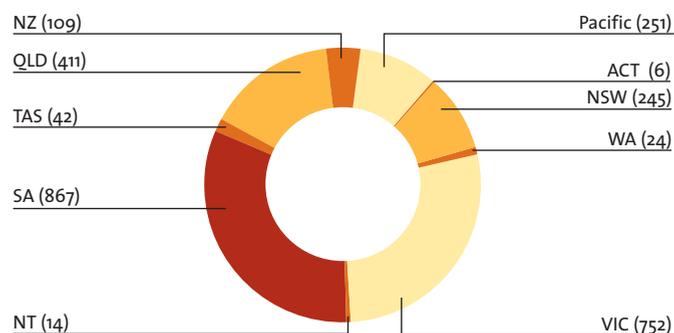
- Identify areas in our operations in which more flexible working conditions can be introduced without adversely affecting productivity or customer service and develop procedures for implementing appropriate changes.
- Complete implementation of consistent long service, maternity and paternity leave entitlements across the company.
- Benchmark levels of employee turnover by gender, length of service and occupation.

Left: Ada Cinaglia, Environmental Systems Facilitator, regularly participates in environmental conservation activities as part of Origin's Staff Ambassador Program. Ada is joined by other Origin Staff Ambassadors, Richard McIntosh and Nicholas Thomas, on land rehabilitation north of Melbourne, Victoria.

* The performance results reported do not include the Pacific region, although the same employment standards, policies and practices apply to these operations.

Social

Employees by region



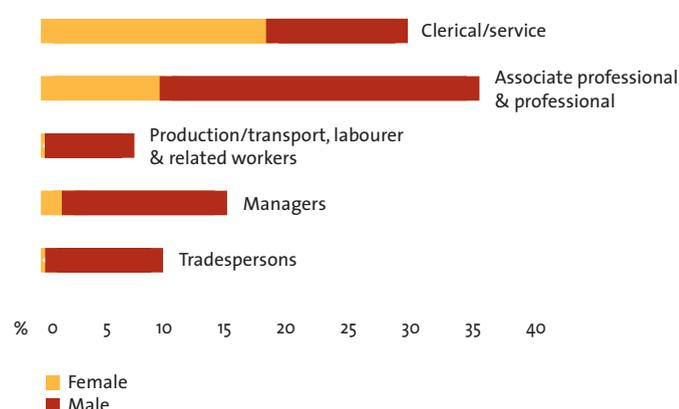
Strategy: Work towards having Origin’s workforce reflecting the diversity expected by the communities in which we operate.

Origin is committed to the principle of equal opportunity employment and has an equal opportunity and harassment prevention policy.

We also survey employees for their views on the organisation’s equal opportunity performance. The 2002 survey found 75% of women respondents were “fairly well” or “very satisfied” with the effectiveness in providing equal opportunities for women, indicating an “average to good” level of achievement in equal opportunity. It also identified three priority areas for attention:

- Further analysing remuneration, incentives and working conditions to ensure equal employment opportunities.
- Examining promotional opportunities for both women and men.
- Reinvigorating the process for preventing and dealing with workplace harassment.

Employees by occupation and gender



Action plans are in place to address the issues identified in the survey.

Origin is committed to employing, training and developing local employees to manage its operations. Of our 360 employees in the Pacific and New Zealand, 99% are local nationals.

2002/2003 Actions

- Further analyse workforce composition to better understand how the diversity of Origin’s workforce compares to the wider community.
- Clarify criteria for recruitment and promotion to ensure there are no impediments to selecting candidates on the basis of merit.
- Improve process for resolving issues related to equal employment opportunity and harassment prevention.
- Continue review of remuneration processes and working conditions to ensure there are no systemic discriminatory practices.

Employee involvement: Staff Ambassadors Program

Origin is the national sponsor of the World Wide Fund for Nature Australia’s (WWF) Save the Rock Wallaby Project. The plight of the rock wallaby is similar to that of many native animals and plants that are being pushed to extinction by loss of habitat and introduced species.

This project provided the foundation for other joint activities including:

- Fundraising for threatened species protection.
- Increasing community awareness and understanding of species protection issues.

- Encouraging employees and customers to provide practical support for conservation.

As part of this partnership, a Staff Ambassadors Program was developed to provide Origin employees with an opportunity to participate at a personal level. Thirty-six Origin employees volunteered as ambassadors in the program.

These staff have organised and participated in educational field trips, fundraising activities and on-ground species conservation outings.

Employee involvement: Green Office Program

Initiated in our Melbourne CBD office in April 2001, Origin's Green Office Program has now been widely embraced by employees as a way to actively benefit the environment. While coordinated nationally by the company's HSE department, the program is mainly driven by employee initiatives at each site, promoting a strong sense of ownership.

The program has resulted in changes to purchasing policies to use more environmentally friendly paper, significant reduction in waste going to landfill and savings in energy usage and costs associated with lighting and air-conditioning.

From April 2001 to June 2002, these initiatives saved 100 tonnes of CO₂, 40 trees, 99,500 litres of water and 3.2 tonnes of waste. The program is now active in over 20 offices in Victoria, South Australia, New South Wales and Queensland.



Strategy: Provide access to the necessary job training and assist employees obtaining additional skills to develop their careers.

Origin offers employees a wide range of training opportunities through the Employee Development Program. This program focuses on improving skills that enhance each employee's competence and career prospects. Courses are offered nationally through training organisations, business schools and universities.

In 2001/02, 1.15% of Origin's payroll was spent on direct training and educational assistance. This does not include employee time or other indirect costs associated with training.

2002/2003 Actions

- Ensure information systems are capable of adequately capturing total investment in employee training and ensure the level of investment is appropriate.
- Continue development and implementation of HSE skills and competency measures.

Strategy: Encourage and support employee participation in community-based activities that form part of the company's corporate community involvement.

Where possible, Origin seeks to establish links between its corporate directions and employees' roles in the communities in which they live. This year we implemented the following activities:

- Green Office Program in which staff volunteers are implementing practices in several Origin offices to reduce office waste and save energy (see case study above).
- Staff Ambassadors Program in which staff are learning and contributing to environmental programs (see case study on previous page).

In the coming year, our activities will be expanded to include a matched giving program in which the fundraising efforts of employees for one-off appeals of national significance will be matched by the company on a dollar-for-dollar basis.

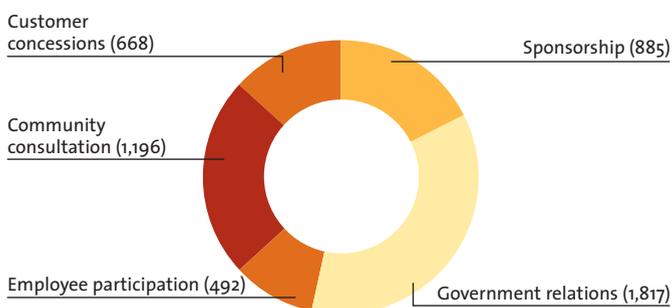
2002/2003 Action

- Develop an employee Community Involvement Program, including matched giving.

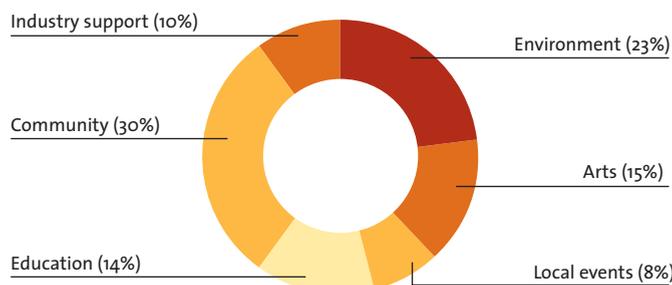


Social

Community investment (\$'000)



Sponsorship expenditure by category



Our communities

Objective: To maintain community support and goodwill for the company's activities.

Strategy: Maintain an open and constructive approach to gaining access to land and resources.

SEA Gas and BassGas These projects require access to land to build and operate gas pipelines. Both project teams are liaising extensively with landowners and other stakeholders through regular community meetings, one-to-one consultations with affected landowners and regular newsletters and information material. Toll-free telephone numbers and websites have been established for enquiries and ongoing communication.

Access to land has been at times slower than desired and this has led to some criticism of processes and to community frustration. The target is to improve systems and processes, both internally and with government and other stakeholders.

Coal seam gas (CSG) Generally, CSG fields are located on land owned either freehold or leasehold by other parties who use it for agricultural or other purposes.

Before access occurs there is consultation with the affected landholder(s) covering matters such as access, compensation, level of disturbance, environmental impact and rehabilitation, and any other issues raised by the landholder/occupier. On exploration permits, access does not occur until agreement is reached.

Operations undertaken on private landholders' properties are carried out to ensure minimal impact on land surrounding the site, and landowners are compensated in full for any losses incurred.

For example, wellheads are positioned in consultation with the landowner, well sites are fenced off and surrounding areas restored after drilling operations. All access routes to Origin's assets are kept to existing tracks where possible or as otherwise agreed.

Cultural heritage

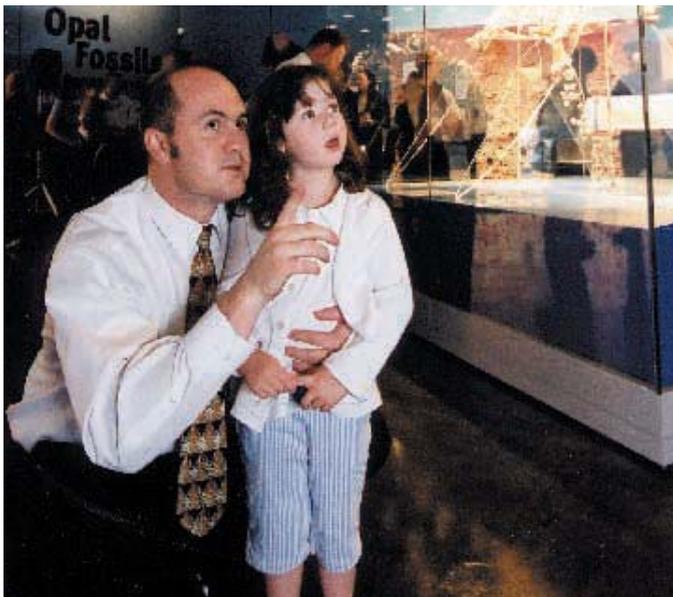
The Australian landscape is dotted with places of indigenous and European cultural or historical significance. On occasions, company exploration and production activities take place near or include cultural heritage sites. Origin's aim is to identify these sites and take measures to protect all areas of cultural or historical significance within its production fields. During the year, a cultural heritage management arrangement was signed with one indigenous group in the Surat Basin.

Indigenous communities

On lands where native title may exist, the company follows the appropriate legislative processes to gain access or the grant of a petroleum title. This process may include negotiating either an Indigenous Land Use Agreement (ILUA) or following the Right to Negotiate (RTN) process in line with the Native Title Act 1993. Origin is negotiating an ILUA with a claimant group for the grant of CSG exploration tenure in Queensland. Two ILUAs were set up in June as part of the BassGas Project in Victoria.

2002/2003 Action

- Improve the timeliness and impact of our community consultations, directly and with government, to ensure agreements with landholders and indigenous communities are reached in a timely fashion.



Kurt Riebe from Origin's Cavan LPG terminal in Adelaide and his daughter Esther view the exhibits in the Origin Energy Fossil Gallery at the South Australian Museum.

Strategy: Identify and participate in public debates where we can make a relevant and meaningful contribution.

Origin regularly participates in industry forums and works constructively with Local, State and Federal Governments in the development of policies on land access, energy industry structure, competition and environmental matters. Last year, we made more than 100 submissions and responses to government including:

- A major submission to the Council of Australian Governments Energy Market Review regarding the strategic policy direction and regulatory role of governments over the next 20 years.
- Development of the Queensland Code of Conduct for the first tranche of gas contestability.
- Review into effectiveness of retail competition in Victoria.
- Retail Price Justification for South Australia from January 2003.
- Climate Change and Energy Efficiency Consultation in New Zealand.
- Victorian Bottled LPG Government Enquiry.
- Energy Efficiency and Demand Side Opportunities for South Australia.
- Development of Marketing Codes of Practice for full retail contestability in Victoria, South Australia, New South Wales and Western Australia.

2002/2003 Action

- Contribute to energy policy development that encourages investment by the private sector.

Strategy: Maximise value of company sponsorship to recipients by focusing on activities that most leverage Origin's skills and resources.

Sponsorships offer a practical way of developing relationships with our stakeholders. They also improve our understanding of and support for issues important to energy consumers and the communities in which we operate. We therefore seek opportunities to develop closer relationships with relevant communities and, where possible, offer employees the opportunity to become involved in these activities on a voluntary basis.

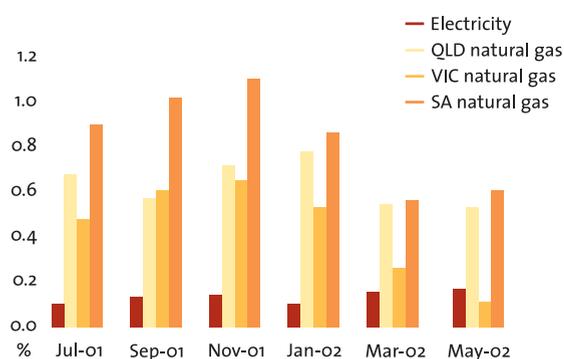
Origin's sponsor partnerships in 2001/2002 included:

- A commitment with the World Wide Fund for Nature Australia (WWF) to saving threatened rock wallaby species and exploring broader environmental issues.
- An eastern State's regional tour of the Melbourne Theatre Company's award-winning play "Life after George", written by Hannie Rayson.
- The student education programs of both the South Australian State Theatre and the Melbourne Theatre Company.
- The South Australian Museum's Origin Energy Fossil Gallery in its three-staged development of opal, ediacara and megafauna fossils.
- Supplying LPG for the 6th South Pacific Mini Games on Norfolk Island.

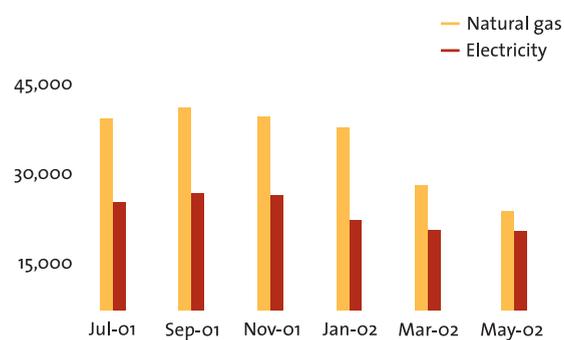
2002/2003 Actions

- Revise Origin's sponsorship program based on the external impacts of the company's activities.
- Incorporate a community support mechanism in our Corporate Community Involvement Program.

Electricity and natural gas disconnections per bill issued



Payment plans (Victoria)



Disconnection rates are falling with the introduction of more flexible payment plans and improved customer consultative processes. While natural gas disconnections are significantly higher than electricity disconnections, under a common hardship policy for all customers we expect this variance to reduce over time.

Strategy: Facilitate improved access to services and support for the disadvantaged in our community so they can enjoy the comforts of energy use.

Origin recognises that a reliable energy supply is essential to the daily lives of customers. Sometimes, customers find it difficult to pay their gas and electricity bills due to unexpected events or financial hardship. In these cases our aim is to handle each case with sensitivity and respect.

For those residential customers who have difficulty paying their bills we offer assistance through an applicable concession (where available) or instalment plans. In Victoria, we processed \$23 million of government-funded concessions to eligible households unable to pay accounts due to illness or financial hardship.

As well as evaluating and processing grants, Origin works with financial counselling services to help customers who have difficulty paying their bills. We also help customers lower their fuel bills by providing energy efficiency advice, either by telephone or the internet.

Origin will only disconnect a customer's energy supply for non-payment as a last resort and after a thorough process of reminders and follow-ups, which go beyond our regulatory obligations.

Hardship policy

To facilitate improved access to services for the financially disadvantaged in the communities it serves, Origin is introducing a hardship policy. In August 2002, Origin began a trial of the policy in the electricity retail business. The policy seeks to assist customers in genuine financial hardship and to help the company sensitively address the needs of these customers.

The aim of the hardship policy is to:

- Detect genuine hardship and identify customers who cannot pay as early as possible in the billing process so we can tailor a solution before a debt becomes unmanageable.
- Work with key community and external stakeholders to assist customers during their period of hardship.

2002/2003 Actions

- Fully implement a hardship policy in the retail business by June 2003, incorporating LPG by December 2003.
- Work with government to improve or provide safety net arrangements for customers with an inability to pay for energy.

Community and customer safety: Promoting safer home energy use

The Home Safety section on our website features Australia's first interactive safety assessment tool. Internet users can access the site at no charge and generate a tailored report that lists any potential risk to safety arising from the gas and electricity appliances and systems in their homes. Tips on how to use energy safely in the home complement the interactive assessment.

Three Melbourne mothers trialled the Home Safety section before it was launched to the community. They were asked to complete the home safety assessment and generate a report for their home.

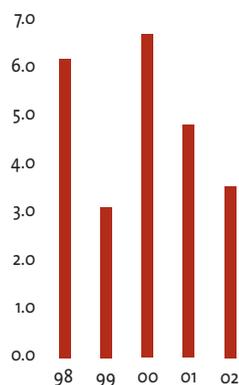
The trial showed that regardless of the age of the home, there were potential risks to safety, relating mainly to how gas and electricity was used rather than problems with faulty appliances or systems.

The Home Safety section was developed in close cooperation with three leading Victorian safety authorities: the Melbourne Metropolitan Fire Brigade, the Office of Gas Safety and the Office of the Chief Electrical Inspector.

In October 2002, the Origin Energy Home Safety Program won the Victorian Fire Awareness Community Service Award (FACSA) in the business category. The FACSA's are held annually to recognise excellence in raising community awareness about fire prevention.

Marathon swimmer and safety ambassador, Tammy van Wisse, and Melbourne Metropolitan Fire Brigade Director of Community Safety, David Nicholson, both pictured right, use the Origin Energy Home Safety website to identify potential gas and electrical risks around the home.

Lost Time Injury Frequency Rate



Origin's key indicator of employee health and safety is the Lost Time Injury Frequency Rate (LTIFR), which improved from 4.9 in 2001 to 3.6 in 2002.

Health and safety

Objective: To eliminate or manage hazards and practices in our business that could cause accident, injury or illness to people, damage to property or unacceptable impacts on the environment.

Strategy: Continuously improve the Health, Safety and Environment Management System.

Employee safety

Through our Health, Safety and Environment (HSE) Management System, Origin identifies and eliminates or controls risks to employees and the community. In addition, we ensure people appointed to manage these risks have the necessary skills to fulfil their responsibilities.

This approach has created greater awareness of HSE issues and prompted a significant cultural shift towards line management ownership of HSE responsibilities. Origin's operations involve over 250 sites and activities. To date, existing plans have been reviewed on 40% of sites and detailed plans developed, with remaining plans to be upgraded in the current year. The process has also involved significant skilling of Origin's workforce with over 28,000 hours of training involving 1,400 employees and contractors last year.



The key indicator of health and safety outcomes is the Lost Time Injury Frequency Rate (LTIFR), the number of incidents that resulted in injuries sufficiently severe to lead to losing time from work per million hours worked. This measure is recorded and reported monthly, together with the severity and impact of injuries. Origin's LTIFR improved from 4.9 in 2001 to 3.6 in 2002.

Community and customer safety

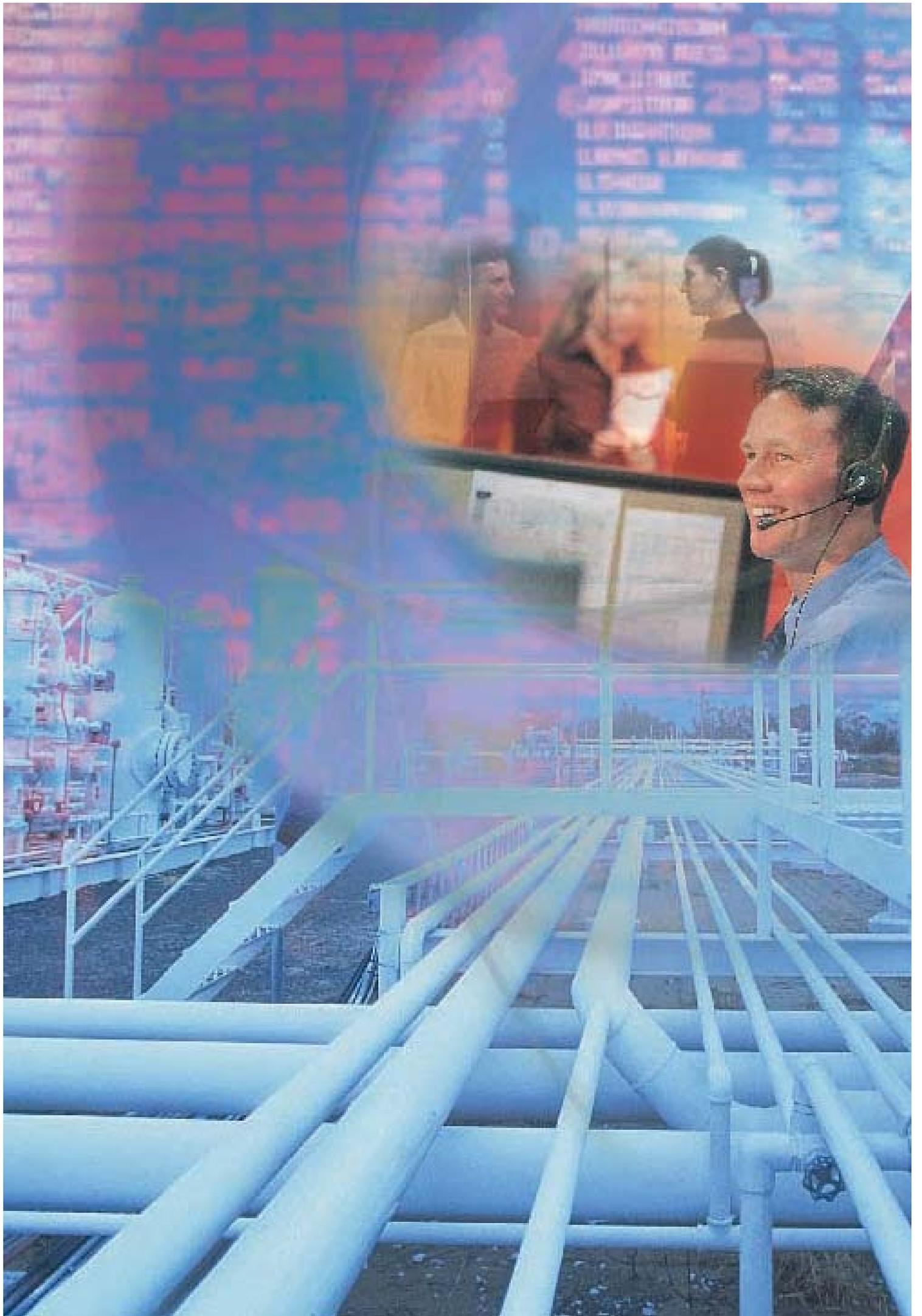
Origin either owns or manages infrastructure ranging from gas pipelines, electricity generation plants, LPG distribution terminals and retail outlets to oil and gas exploration and production facilities. Procedures for the safe operation of these assets and the safety of staff and the community are detailed and managed in accordance with the company's HSE Management System.

Last year, four claims were received for trips or falls on or around an area where Origin had undertaken repairs to the gas network. Three of the four claims have been resolved.

Origin has a commitment to encourage its customers to handle its products safely, in line with the company's HSE commitments and government regulations. All LPG supply and storage facilities carry appropriate safety warnings and instructions for the safe decanting of LPG. Consumer advice on the safe handling of electricity, natural gas and LPG, and first aid procedures is provided on Origin's website. Brochures on the safe handling and decanting of LPG are available at all LPG distribution points. A national 24 hour/7 day a week contact centre provides advice on the safe installation of gas appliances and, if necessary, responds to emergency situations.

2002/2003 Actions

- Complete review of HSE management plans for all sites and activities.
- Shift the focus of incident reporting to the Total Reportable Case Frequency Rate so that it becomes our prime safety indicator.
- Achieve an LTIFR target of 2.5.



Origin Energy's activities have economic impacts on our shareholders, employees and the communities in which we operate. Our continued success relies on meeting the needs of these key stakeholders.

Economic

Origin works to satisfy the needs of our many customers, bringing them energy to support their lifestyles and to run their businesses. This activity creates value for our economic stakeholders. Origin has four main economic stakeholder groups:

- Capital providers including shareholders and lenders.
- Employees.
- Government.
- Local communities.

Origin's total contribution to its economic stakeholders was \$447 million in 2001/02.

Objective: To provide sustainable returns to Origin's key economic stakeholders.

Strategy: Provide shareholder returns in the top third of comparable companies.

Last year, \$34 million was paid to shareholders as dividends. \$99 million was retained in the business to fund growth and further wealth creation for the benefit of all current and future stakeholders.

To date, Origin has demonstrated its ability to provide returns significantly above those of most comparable companies. From March 2000 to September 2002, Origin achieved an annualised Total Shareholder Return (TSR) of over 50% and was among the best performers in the top 100 companies on the Australian Stock Exchange on this measure.

While the TSR measure is the ultimate measure of the company's performance, it is subject to significant short-term influences that are beyond the ability of the company to manage. These include global economic shocks, market downturns and changes in investor sentiment.

Origin therefore uses an internal proxy for TSR, the OCAT Ratio (Operating Cash Flow After Tax divided by Funds Employed). This captures the cash flow generated by the business and relates it to the capital employed by the business. Studies undertaken at the time of the demerger from Boral indicated that to achieve the goal of a top third ranking in TSR of comparable companies, the company would have to deliver an OCAT Ratio in excess of 9.7% per annum. Our OCAT Ratio at June 2002 was 13.7%, well in excess of our target.

More information on the company's financial performance is documented in Origin's Annual Reports.

2002/2003 Action

- Achieve an Operating Cash Flow After Tax Ratio in excess of 9.7%

Strategy: Ensure the reward and remuneration levels for employees are consistent with the market, and will attract the quality of employees required for the business to meet its objectives.

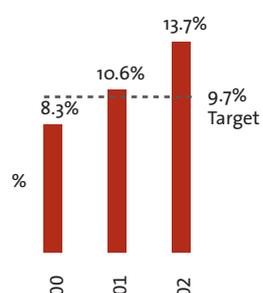
Last year, we paid \$157 million in wages and salaries to more than 2,700 people employed by Origin and its subsidiary, Oil Company of Australia.

To ensure remuneration paid to employees is market based, Origin regularly participates in external surveys and market sector analysis of its remuneration practices. The results of these surveys indicate that Origin's remuneration practices are generally in line with the market.

Initiatives were implemented during the year to address the degree of equity between grade levels in terms of employee benefits, leave benefits and access to salary sacrifice arrangements.

Economic

Operating Cash Flow After Tax Ratio



To align employee and shareholder objectives, the Board of Directors approved the creation of the Employee Share Plan in May 2001. More than 99% of Australian and overseas employees elected to participate in the plan with a small number declining for personal reasons.

Under the plan, qualifying employees are eligible to receive up to \$1,000 worth of Origin shares – provided the company meets defined financial and safety improvement targets for the year. As these targets were achieved for the 2001/02 year, eligible employees received their share allocation.

2002/2003 Actions

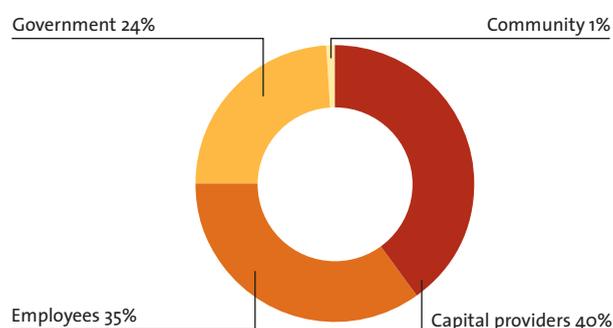
- Continue operation of the company-wide remuneration benchmark process.
- Continue to monitor employee turnover and analyse the degree to which it may be affected by remuneration practices.

Strategy: Ensure that all payment obligations to government are identified and reported.

Governments play a vital role in providing an environment in which companies such as Origin can provide services to customers and economic returns to stakeholders. From the wealth created by Origin, governments take a legitimate share, directly through royalties on oil and gas production, sales taxes and taxes on profits, and indirectly by taxing employee incomes.

Gross value added	2002 \$'000
Exploration & production	286,968
Retail	1,938,942
Generation	63,176
Networks	137,419
Other	8,969
Total revenue (excl interest)	2,435,474
Payment to suppliers	1,814,357
Depreciation & amortisation	173,926
Gross value added	447,191

Distribution of gross value added



In 2001/02, Origin distributed \$108 million in taxes and charges, including:

- \$54 million in taxes;
- \$20 million as royalties; and
- \$33 million in government charges.

Of the government charges, \$29 million was paid in agency fees to the Victorian Government. Origin sold natural gas under an agency agreement with the Victorian Government, in which the government retained a significant proportion of the gross profit. This agreement ceased in October 2002.

2002/2003 Action

- Identify and report on payments (royalties, taxes, fees and charges) to all levels of government.

Strategy: Identify appropriate levels of investment in community activities.

Details of Origin's community investment and activities can be found on page 24.

2002/2003 Action

- Identify and report on our investment in community-based activities.

Value distribution	2002 \$'000	%
Wages & salaries	157,495	35
Income tax expense	54,280	12
Royalties paid to government	20,462	5
Other government charges	33,493	7
Taxes & other government charges	108,235	24
Net interest	42,804	10
Dividends paid to shareholders	34,203	8
Retained profit	99,397	22
Capital providers	176,404	40
Community investment	5,057	1
Value distribution	447,191	100

Glossary of terms

Biodiversity Biological diversity (biodiversity) is the term that describes the richness and variety of all living things in the world.

Carbon dioxide (CO₂) A greenhouse gas that can be produced as a by-product of oil and gas production, burning fossil fuels and biomass.

CO₂e Carbon dioxide equivalent (Global warming potential).

Coal seam gas (CSG) Natural gas contained within coal seams.

Cogeneration The production of two or more forms of energy from one fuel source. In general, cogeneration plants operated by Origin produce steam and electricity from natural gas.

Demerger The separation of Boral's energy business and building and construction materials business into two separately listed companies now trading as Origin Energy Limited and Boral Limited respectively.

EBITDA Earnings before interest, tax, depreciation and amortisation.

Electricity measures

- **Watt (w)** A measure of power present when a current of one ampere flows under the pressure of one volt.
- **Kilowatt (kW)** One kW = 1,000 watt.
- **Megawatt (MW)** One MW = 1,000 kW or one million watts.
- **Kilowatt hour (KWh)** A standard unit of electrical energy that represents the consumption of one kilowatt of electricity for one hour.
- **Megawatt hour (MWh)** One MWh = consumption of one megawatt of electricity for one hour.
- **Gigawatt hour (GWh)** One GWh = 1,000 megawatt hours or one million kilowatt hours.

EPA Environment Protection Authority, or equivalent State authority.

Full Retail Contestability (FRC) Where homes and businesses are able to choose their own energy supplier.

Gas measures

- **Joule** A joule is the primary measure of energy in the metric system.
- **Gigajoule (GJ)** A gigajoule is equal to one billion joules. An average household in Victoria consumes approximately 55 GJ per annum.
- **Terajoule (TJ)** A terajoule is equal to 1,000 gigajoules.
- **Petajoule (PJ)** A petajoule is equal to one million gigajoules.
- **Petajoules equivalent (PJe)** The measurement used in this report to represent the equivalent energy in different products so the amount of energy contained in these products can be compared on an equal basis.

The factors used by Origin to convert to PJe are:
One million barrels crude oil = 5.83 PJe
One million barrels condensate = 5.41 PJe
One million tonnes LPG = 49.3 PJe
One TWh of electricity = 3.6 PJe.

GHG Greenhouse gas.

Global warming potential (GWP) Greenhouse impact relative to carbon dioxide.

Greenfields exploration An area in which Origin holds exploration rights, but does not have a substantial producing interest.

HSE Health, safety and environment.

LTI Lost Time Injury.

LTIFR Lost Time Injury Frequency Rate. Calculated as LTIs per million hours worked.

LPG Liquefied Petroleum Gas.

NEM National Electricity Market.

NO_x Oxides of nitrogen.

OCA Oil Company of Australia Limited.

Operating Cash Flow After Tax Ratio (OCAT Ratio)

OCAT Ratio = EBITDA
less change in working capital
less stay in business capital
less tax
divided by funds employed.

Origin Origin Energy Limited and its controlled entities.

Photovoltaic (PV) Photovoltaic cells convert sunlight directly into electricity.

Probable reserves (2P) Probable reserves are those reserves which analysis of geologic and/or engineering data suggests are more likely than not to be recoverable. There is at least a 50% probability that reserves recovered will exceed probable reserves.

RCMS Regulatory Compliance Management System.

Seismic survey A geophysical survey used to gain an understanding of rock formations beneath the earth's surface.

SO_x Oxides of sulphur.

Stakeholders Refers to our employees, shareholders, customers and communities.

The company Origin Energy Limited and its controlled entities.

Total Shareholder Return (TSR) TSR represents the annualised return to shareholders. This is determined by taking into account the appreciation in stock price, returns to shareholders in the form of dividends and other disbursements, and the effect of movements in issued capital.

Upstream Part of Origin's business that is involved in the exploration and production of hydrocarbon liquids and gases.

Sustainability Report 2002 Response card



To continually improve its Sustainability Report, Origin welcomes and encourages your feedback. Responses will be treated as confidential. Please complete the form below then detach from this report; fold, seal and post at your nearest Australia Post Office box. Please note that no stamp or envelope is required if posted in Australia.

1. How did you rate Origin's Sustainability Report overall? (please tick)

- Poor Fair Good Very good Excellent

2. Please rate (circle) the report on the below criteria (1 = low, 5 = high)

- | | | | | | |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | Content – addressed key areas of sustainability |
| 1 | 2 | 3 | 4 | 5 | Transparency of addressing issues |
| 1 | 2 | 3 | 4 | 5 | Clarity of content |
| 1 | 2 | 3 | 4 | 5 | Readability |
| 1 | 2 | 3 | 4 | 5 | Appearance and design |
| 1 | 2 | 3 | 4 | 5 | Informative, interesting reading |

3. What areas of the report did you find of most interest?

4. In what areas would you like to see additional information provided?

5. How would you rate Origin on its sustainability performance? (please tick)

- Worse than most companies Below average Average Above average Better than most

6. Any further comments?

Please tick the appropriate boxes that apply to you:

- | | |
|--|--|
| <input type="checkbox"/> Business professional | <input type="checkbox"/> Environmental Non-Government Organisation |
| <input type="checkbox"/> Government official | <input type="checkbox"/> Social Non-Government Organisation |
| <input type="checkbox"/> Origin employee | <input type="checkbox"/> Interested citizen |
| <input type="checkbox"/> Origin shareholder | <input type="checkbox"/> Student |
| <input type="checkbox"/> Other | |

Name Company

Address

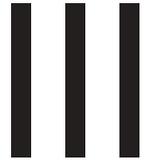
Phone Email

- Yes, please send me ___ copies of future Origin Energy Sustainability Reports.
 No, I do not wish to receive Origin Energy's Sustainability Report in the future.

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Corporate Communications Manager
Public & Government Affairs
Origin Energy
Reply Paid 186
MELBOURNE VIC 8060

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Data and sources

Environmental licences	Total
New South Wales Environment Protection Authority - Road Tanker Drivers Dangerous Goods Licences Environment Protection Authority - Pollution Control Licence	10 1
Northern Territory Department of Administrative and Information Services - Dangerous Goods Licence Department of Industries and Business - Dangerous Goods Licence Environment Protection Authority - Road Tanker Drivers Dangerous Goods Licence	1 1 1
Queensland Cairns City Council - Trade Waste Discharge Permits Department of Natural Resources and Mines - Environmental Environmental Protection Agency - Dangerous Goods Licence Environmental Protection Agency - Operating Licences Environmental Protection Agency - Road Tanker Drivers Dangerous Goods Licence Gladstone City Council - Licence to Store Flammable and Combustible Liquids Queensland Transport - Road Tanker Drivers Dangerous Goods Licence Townsville City Council - Operating Licence	16 4 1 6 1 2 1 1
South Australia Department of Administrative and Information Services - Dangerous Goods Licences Department of Water Resources - Water Licence Environment Protection Authority - Operating Licences Environment Protection Authority - Trade Waste Discharge Permit Exemption to Environmental Authorisation Licence SA Water - Provisional Permits to Discharge Water	10 1 6 1 1 2
Tasmania Workplace Standards Tasmania - Road Tanker Drivers Dangerous Goods Licences	3
Victoria Environment Protection Authority - Road Tanker Drivers Dangerous Goods Licence Yarra Valley Water - Water Licence	1 1
Western Australia Department of Environmental Protection - Environment Department of Minerals and Energy - Dangerous Goods Licences Environmental Protection Authority - Road Tanker Drivers Dangerous Goods Licence	2 3 1
Total	78

Global warming potentials

CO₂ (Carbon dioxide) = 1

CH₄ (Methane) = 21

HFC-134a (Hydrofluorocarbon 134a) = 1,300

Footnotes

1. Australian Greenhouse Office, National Greenhouse Inventory, 2000

2. Australia's Third National Communication on Climate Change, Australian Greenhouse Office, 2002

3. Australian Greenhouse Office, National Greenhouse Inventory, 2000

4. Australian Bureau of Statistics, Measuring Australia's Progress 2002, The Headline Indicators, Greenhouse Gases, April 2002

Printed on paper predominantly produced from sugar refining waste.

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Issued April 2003

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is also available online at:

www.originenergy.com.au/sustainability

