





growth

PEOPLE   PORTFOLIO
GROWTH   SOCIAL LICENCE

03

A number of projects took shape during the year, all of which were key to our future success in a carbon-constrained environment. We are investing in low-emission, new generation coal technology, replacing old plant with new high efficiency plant, and switching to cleaner fuels.





03

GROWTH

Major Projects Completed

Progress 2007/2008

Completed the handover of the Kogan Creek Power Project from the construction consortium, Siemens Hitachi.

Started commercial operation of the Kogan Creek A Power Station and coal mine on 7 December 2007.

Finished the demolition of the old coal-fired Swanbank A Power Station.

Kogan Creek Power Project

The Kogan Creek Power Project drew to a close with the start of the station's commercial operations on 7 December 2007. The 750 megawatt station is now supplying the National Electricity Market with enough electricity to power one million homes. The Kogan Creek coal mine was brought into production at the same time as the station.

On opening, the \$1.2 billion station was heralded as a new era in electricity generation due to its efficiency, environmental performance and innovative design. It was officially opened on 27 November 2007 by the Queensland Premier, the Honourable Anna Bligh, MP and Queensland Minister for Mines and Energy, the Honourable Geoff Wilson, MP.

A Siemens Hitachi consortium constructed the station, and Golding Contractors developed the adjacent coal deposit as an open cut mine. The supply and construction contract for the power station was approximately \$900 million. The contracts awarded to Australian firms accounted for more than half the value of the works, at around \$460 million. Queensland firms were a major beneficiary of the project, being awarded approximately \$330 million worth of work, with \$60 million worth of work awarded to regionally-based firms. Additionally, local Chinchilla and surrounding shire businesses obtained direct construction and site services contracts of around \$21 million with Siemens Hitachi, and a similar amount in direct cash flow is estimated to have been generated in the local area from sub-contractor services.

ENVIRONMENTAL BENCHMARKS FOR THE KOGAN CREEK POWER STATION

BENCHMARK	IMPROVEMENT ON NATIONAL AVERAGE FOR COAL-FIRED PLANT
Water	90%
CO ₂	5%
NOx	22%
Particulates	55%

Following handover, the construction consortium entered a 12-month defect liability period to address any ongoing operational issues. One of the issues during initial operation was the coal transfer system, with coal supply chutes becoming blocked when the coal was wet. This has been resolved through a chute redesign. Siemens Hitachi continues to work on operational issues with the coal chain conveyor system.

Since construction began in September 2004, approximately four million hours were worked. In the busiest period, October 2006, the workforce peaked at 974. During construction Siemens Hitachi recorded nine lost time injuries.

At its peak, there were just over 200 local personnel, representing about 23 per cent of the workforce. These skills were supplemented by industry specialists from nine countries. While every effort was made to recruit locally, low unemployment rates in the region and competing developments in gas-fired power stations, coal mines, gas exploration and establishment, and transmission and pipeline construction projects all impacted on the availability of suitable personnel.



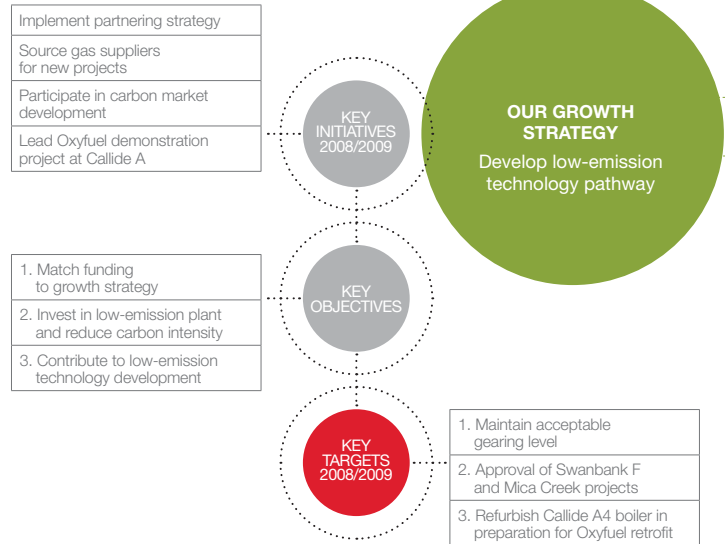
Siemens Hitachi, in conjunction with CS Energy, the Department of Employment and Training (DET), TAFE, Building and Construction Industry Training Fund (BCITF) and other stakeholders such as the Chinchilla Shire Council (CSC), developed a training program to support both the project and the community. The program was designed to complement those already offered regionally by the DET, TAFE, BCITF and CSC. In summary, more than 29,000 hours of community up-skilling and over 42,000 hours of on-site program delivery were provided for 1,822 participants.

The total training and up-skilling expenditure by DET and BCITF was in excess of \$735,500. TAFE training was also provided to the retail, hospitality and business sectors so the local workforce could meet demand for these services in support of the project.

For more information on the Kogan Creek Power Station, please see page 33 of this report.

Swanbank A demolition project

The \$19 million Swanbank A demolition project was finished in November 2007, with the site now prepared for the planned new Swanbank F Power Project. It took the contractor, Trio Industries, two and a half years, and around 129,000 hours to demolish the old coal-fired power station built in the 1960s. Over the life of the project, two lost time injuries were recorded.



KOGAN CREEK POWER PROJECT DETAILS	
SITE AREA	Construction site was approximately 50 hectares; Main plant footprint 7.5 hectares
STRUCTURAL STEEL	Between 13,000 - 14,000 tonnes of structural steel used
BOILER STRUCTURE DIMENSIONS	64m wide x 71m deep x 78m high
BOILER WEIGHT	24,000 tonnes
FOUNDATIONS	Approximately 35,000 cubic metres of concrete
BOILER PIPING	Approximately 27,000 metres
MAXIMUM FLAME TEMPERATURE	Approximately 2,000°C
STEAM TEMPERATURE	Main steam temperature, 541°C
REHEAT STEAM TEMPERATURE	561°C
COAL CONSUMPTION	Between 330 and 355 tonnes per hour

Low-emission Coal

Progress 2007/2008

Signed joint venture agreement between six international project partners.

Secured \$50 million funding from the Australian Government's Low Emission Technology Demonstration Fund and \$10 million from the Queensland Government.

Started technical work on the first stages of the Callide A4 boiler refurbishment.

Progressed design concepts for Kogan B, including dry-cooling technology and carbon-capture readiness.

The Callide Oxyfuel Project

The \$206 million Callide Oxyfuel Project passed several major milestones this year to become one of the most advanced clean coal projects in Australia.

Led by a joint venture partnership of six international companies, the project will demonstrate how we can produce electricity from coal, with almost no emissions, by capturing the carbon dioxide (CO₂) from the power station and storing it underground.

The Callide Oxyfuel Project, a flagship project of the Asia-Pacific Partnership on Clean Development and Climate (APP), is an important step towards demonstrating practical and adaptable technology to help to tackle climate change.

Construction of the project will begin with oxyfuel technology being retrofitted to our Callide A Power Station next year on Unit 4 (30 MW), with oxyfuel electricity generation scheduled to start by 2011.

This year, CS Energy received \$50 million in funding from the Australian Government's Low Emission Technology Demonstration Fund and an additional \$10 million from the Queensland Government, which it will direct into the Callide Oxyfuel Project together with its own direct funding of \$35 million. Additional funding was received from the Australian Coal Association's COAL21 Fund, Xstrata Coal, Schlumberger, IHI Corporation, JPower, Mitsui and the Japanese Government.

Final ratification of the project was given in March 2008, at an official joint venture signing between Australian and Japanese project partners.

The project comprises two key processes:

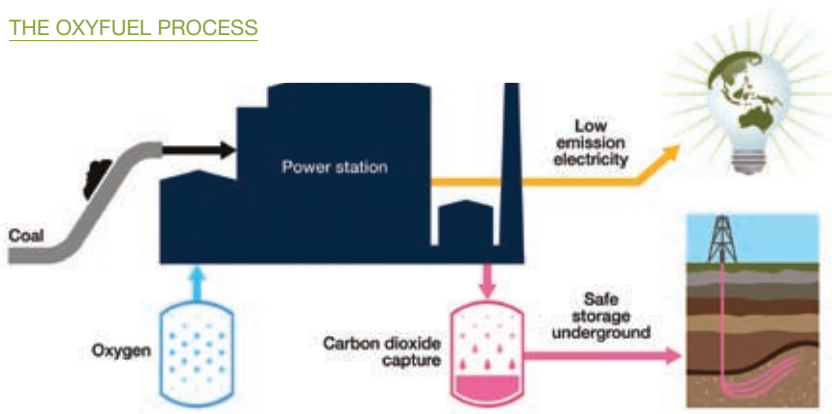
1. oxyfuel combustion and CO₂ capture at the power station, and
2. the long-term storage of CO₂ underground (geosequestration).

Building international partnerships is a key element of this project. We further strengthened our links with Japanese climate change and clean coal experts through three major events in March and April 2008.

In March 2008 we participated in the third Oxyfuel Combustion Network in Japan, organised by the International Energy Agency's Greenhouse Gas Research and Development Program. Later in the month, we hosted a group of leading Japanese resource and energy experts, including representatives from government, leading industrial companies and Japanese research institutions.

In April 2008, our Chief Executive, David Brown, accompanied the Queensland Premier, The Hon Anna Bligh MP, during a trade mission to Japan to meet with coal industry representatives. In a series of high-level meetings, the group discussed plans for Queensland infrastructure and opportunities for scientific and technological collaborations for the state.

THE OXYFUEL PROCESS



Technical work also started on the first stages of the construction program, with the completion of the front-end engineering design studies and preparation of plant refurbishment and supply contracts. These contracts were awarded in August 2008, and work on the boiler refurbishment started on site in September 2008. Construction of the main plant is scheduled to begin in 2010. The project is due for completion by 2012, and will operate for up to four years.

Sub surface experts Schlumberger have supported the Joint Venture in assessing areas suitable for geological storage of CO₂. This year, several deep reservoirs within the Denison Trough geological formation, 200 kilometres west of Callide, were identified as potential sites for storing CO₂. Over the next 12 months, more detailed investigations and stakeholder consultation proposed to define the specific location for the CO₂ storage demonstration, targeted for 2012.

For further information on the Callide Oxyfuel Project including project schedules and technical details please visit our website [www.cse.com.au](#).

Kogan B Power Project

We continue to examine expanding the new Kogan Creek Power Station to include a second generating unit on the site. Design concepts for Kogan B include an ultra-supercritical, high-efficiency steam-cycle unit. It will be dry-cooled and ready for carbon capture technology. If the Callide Oxyfuel Project successfully proves oxyfuel technology as a carbon capture option, we will fit this technology at Kogan B as part of our low-emission coal portfolio.

Looking forward 2008/2009

Commence boiler refurbishment of the Callide A4 boiler in preparation for Oxyfuel.

Select a suitable geological storage site for carbon dioxide storage.

Officially launch the Callide Oxyfuel Project in late 2008.

Continue to progress Kogan B plans, with the aim of retrofitting it with carbon capture and storage as a future showcase for low-emission coal.

Work with industry and government in the development of the necessary infrastructure and regulations for CO₂ storage in Queensland.

Gas Projects

Progress 2007/2008

Completed initial designs for the Mica Creek Renewal Project.

Commenced stakeholder engagement for the Swanbank F Power Project.

Finalised Swanbank F gas plant design specifications.

Mica Creek Power Station Renewal Project

This year we continued plans to replace some of the older generating plant at Mica Creek with new, high-efficiency plant. We have completed the initial design work for the project, and have been working with customers to secure supporting power purchase agreements so the project can move forward.

In 2008/2009 we will make a final decision on the project and, if approved, we will be seeking firm commitments from customers, carrying out the environmental impact assessment and calling for tenders to supply the first stage of the upgrade. The new plant will supply up to 115 megawatts of electricity.

This project will reduce our fuel consumption and carbon intensity at Mica Creek, meet the continued demand growth in the North West Minerals Province and continue to provide competitively priced power to our customers.

Swanbank F Power Project

Our Swanbank F Power Project made significant progress this year. This planned new gas-fired combined cycle unit will be located on the former Swanbank A site. It will use state-of-the-art technology, and generate about 400 megawatts of electricity. We plan to have Swanbank F in commercial operation by early 2012.

The concurrent development of Metgasco's Casino coal seam methane (CSM) fields underpins the gas supply for Swanbank F.

In August 2007 we commenced a stakeholder engagement program, providing briefings to state members for the area and local councillors. We also held an open community information session about the project to identify any community concerns.

This year we finalised the plant technical specifications, which will enable us to call tenders for construction of the station. We will also complete relevant environmental reviews by this time, as required under the *Integrated Planning Act 1997* (IPA).

In 2008/2009 we will be focusing on proving and securing gas supply, putting plant supply contracts in place, and seeking final development approval, if it is decided to go ahead with the project. Subject to the successful development of the Metgasco project, we aim to commence construction in the next financial year.

Looking forward 2008/2009

Prove and secure gas supply arrangements.

Subject to project approval, obtain licences and start construction of the Swanbank F Power Project.

Finalise power purchase agreements to underpin the Mica Creek Power Station Renewal Project.

Gas Developments

Progress 2007/2008

Commenced drilling at Metgasco's CSM field near Casino, with five pilot wells completed during the year.

Increased production at Arrow Energy's Kogan North CSM field.

Signed agreement with Mosaic Oil to fund four initial wells at its Waggamba field.

Metgasco Gas

The Metgasco Joint Venture underpins the gas supply for the proposed Swanbank F development. These CSM fields are located near Casino in northern New South Wales. We signed a farm-in agreement with energy company Metgasco in December 2006 to establish 540 petajoules (PJ) in 2P gas reserves (proven and probable). If sufficient reserves are established, 18 PJ per year will be supplied to the Swanbank Power Station.

We currently hold a 15 per cent interest in three blocks in the tenement PEL 16, with the right to acquire a further 35 per cent farm-in interest. A pilot well program commenced in November 2007 and a total of five horizontal wells have been drilled. Production testing of the flow rates in these wells will continue through the remainder of calendar 2008. The gas reserves were upgraded in March 2008 to 227 PJ (2P).

Pipeline approvals are also under way for the development of a 150 kilometre pipeline from Casino to Swanbank. The Pipeline has been declared a major project in New South Wales, and federal and Queensland approvals are currently being processed. Survey field work to confirm the location of the pipeline has commenced in both Queensland and New South Wales. The development, which has been renamed the Lionsway Pipeline, is being managed by Metgasco and we expect the pipeline licence to be issued by June 2009.

Kogan North Gas

We hold a 50 per cent interest in Arrow Energy's Kogan North CSM field PL194. In June 2008, the field increased production to just below 10 terajoules a day (TJ/d). This remains below the full contract quantity of 11 TJ/d but field production is increasing. Arrow Energy has drilled four new wells and four maintenance wells to increase production.

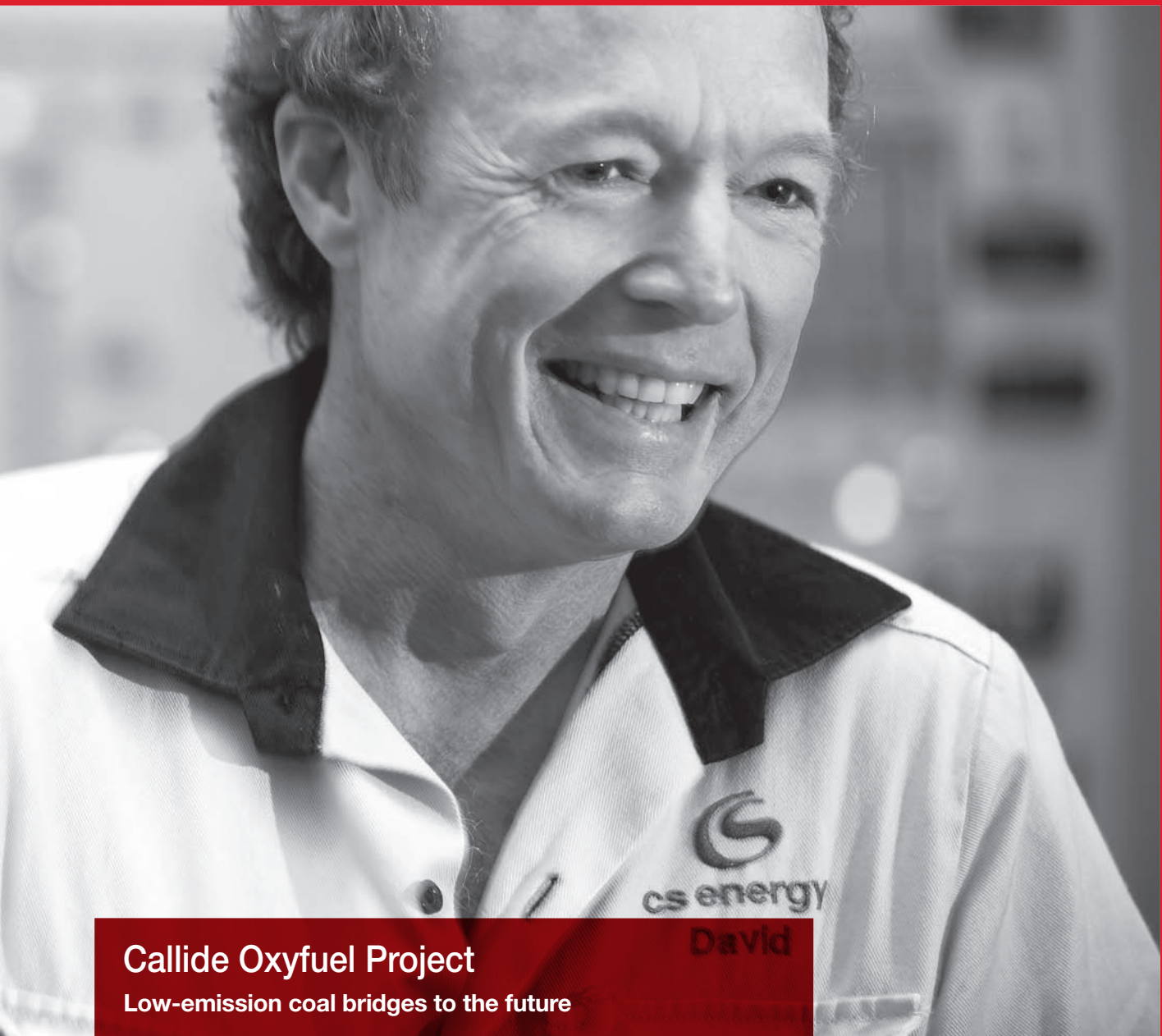
Mosaic Gas

In March 2008, we signed a Buyer-Funded Operations Agreement with Mosaic Oil to fund four initial wells at its Waggamba field development in south west Queensland. The first well was drilled in April 2008 and has produced in the order of 2 TJ/d, which is a pleasing result. The second well was drilled in June 2008 and is expected to produce a similar quantity of gas. The field will supply 5 PJ of gas to Swanbank Power Station until June 2013.

Looking forward 2008/2009

Continue development of the Metgasco field.

Work with other gas partners to secure additional gas supply for Swanbank Power Station.



Callide Oxyfuel Project

Low-emission coal bridges to the future

David

“Coal is the lifeblood of this region. Thirty-four years ago I started at the Callide A Power Station as a young apprentice. Since then, I've been part of the start-up of six coal-fired power stations around central Queensland. But now it's time to look to the future.

Our country is very reliant on coal, but we also need to act now to reduce our greenhouse emissions. New generation coal technology, like Oxyfuel, is based on the thermal power station process we've been using for years. Oxyfuel is a step ahead of other projects because it can be retrofitted to existing power stations.

If we can prove this technology, we're a step closer to securing a future for our region and this community.”

DAVID VAN ITALLIE – CALLIDE POWER STATION.

Renewable Technologies

Progress 2007/2008

Celebrated six years of renewable energy generation at the ReOrganic Energy Swanbank project.

Finalised a seven-year partnership with the Cooperative Research Centre for Coal in Sustainable Development (CCSD).

Worked with our CS Energy Research Fellow and the CCSD to produce a handbook on biomass co-firing.

ReOrganic Energy

ReOrganic Energy Swanbank, a joint project between CS Energy, Thiess Services, Landfill Management Services and New Hope Energy, entered its sixth year of operation in 2008 and is still one of Australia's largest waste-to-energy initiatives.

The project takes landfill gas from Thiess Services' Swanbank Landfill and co-fires it with coal in one of Swanbank B's boilers. ReOrganic produces five megawatts of electricity continuously and has reduced greenhouse gas emissions by over 780,000 tonnes since its inception.

Developing renewable energy technology

Our aim is to introduce an additional renewable energy project to our portfolio in the next couple of years. We are currently in discussion with proponents of three separate renewable energy technology development projects, including advanced solar thermal energy, solar voltaic energy and geothermal energy.

In 2008/2009 we will conduct a feasibility study on these projects, with the aim to have a firm proposal by the end of calendar 2009.

Research and development

We continue to focus on improving the use of coal in power generation through other research and development programs. We have been actively involved with the Cooperative Research Centre for Coal in Sustainable Development (CCSD) since its inception in 2001, the Ash Development Association of Australia and the United States-based Electric Power Research Institute (EPRI).

This year saw the end of the CCSD's seven-year program, which has contributed significantly to the knowledge and technical capability that will underpin the development of low-emission coal generation in Australia. The program sought to gain a better understanding of the environmental performance of coal in power generation, and contribute to the development of lower emission technologies.

The centre's research and feasibility study into oxyfuel combustion underpinned the development of the Callide Oxyfuel Project. We also played a key role in the technical assessments of other clean coal technologies, including co-firing of coal and biomass. This year the CCSD completed handbooks on biomass co-firing and coal combustion products in conjunction with CS Energy's Research Fellow.

Through our association with EPRI, we access the industry's best practice, training and research opportunities aimed at enhancing the performance of coal and gas-powered generation plant. In 2007/2008, we continued to support EPRI research into improving plant performance in steam turbines, generators and balance of plant; heat recovery steam generators; boiler and turbine steam and cycle chemistry; and plant maintenance.

Looking forward 2008/2009

Continue generating green energy at ReOrganic Energy Swanbank.

Conduct feasibility study into three renewable energy projects.