

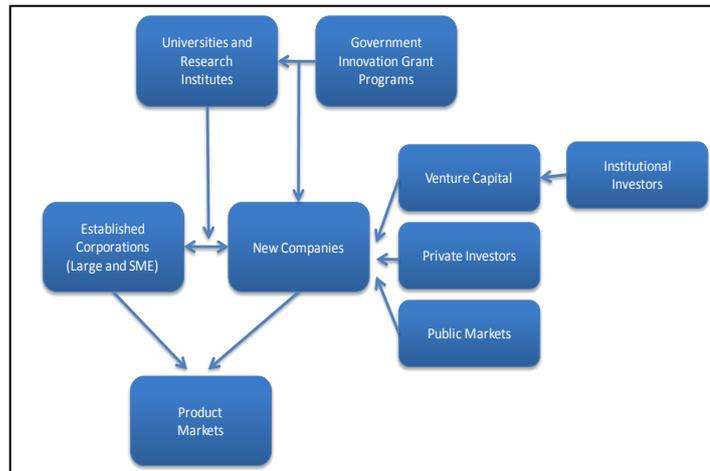
The wider contribution to Australia of the Oil and Gas Industry

A Selection of Case Studies from the
Development of Offshore Gas Fields

September 2012

Australian Venture Consultant

Established in 2002, Australian Venture Consultants ('AVC') is a solution driven management consulting practice focused on creating successful commercial outcomes for innovative projects, companies and institutions. AVC provides its clients with a unique service based on the insights it has acquired through expertise and engagements in all elements of the innovation ecosystem (see adjacent figure).



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- Government innovation policy and programs
- Innovative education and training programs

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ACRONYMS

bbls	Barrels
BOE	Barrels of Oil Equivalent
CCS	Carbon Capture and Storage
E&P	Exploration and Production
EPCM	Engineering Procurement and Construction Management
FEED	Front End Engineering and Design
FID	Final Investment Decision
FIFO	Fly-in-fly-out
FLNG	Floating LNG
FPSO Vessel	Floating Production, Storage and Offloading Vessel
LNG	Liquefied Natural Gas
mcf	Million Cubic Feet
mmbbls	Millions of Barrels
mtpa	Millions of Tonnes Per Annum
O&G	Oil and Gas
PRRT	Petroleum Resource Rent Tax
TCF	Trillion Cubic Feet
TJ	Terrajoule

INTRODUCTION

The Australian O&G industry produces oil, natural gas and gas liquids. Whereas oil production in Australia has been somewhat volatile and declining since the turn of the century, gas production has increased consistently since the early 1970s. This is illustrated in Figure 1¹ below.

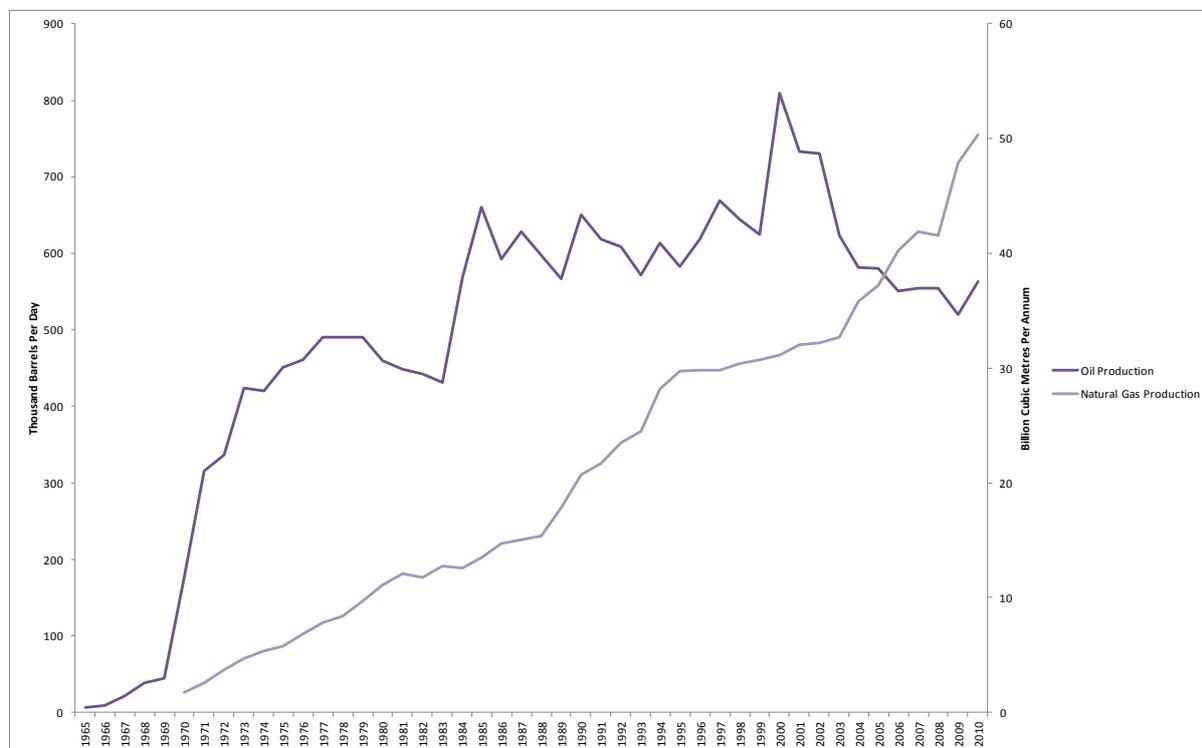


Figure 1 - Long term trend in Australian Petroleum Production

Similarly, while there has been a general declining trend in Australia's proven oil reserves since the early 2000s, the Nation's gas reserves have, despite a period of stagnation between 2000 and 2008, continued to grow. This is illustrated in Figure 2².

¹ British Petroleum (2011), *BP Statistical Review of World Energy*

² British Petroleum (2011), *BP Statistical Review of World Energy*

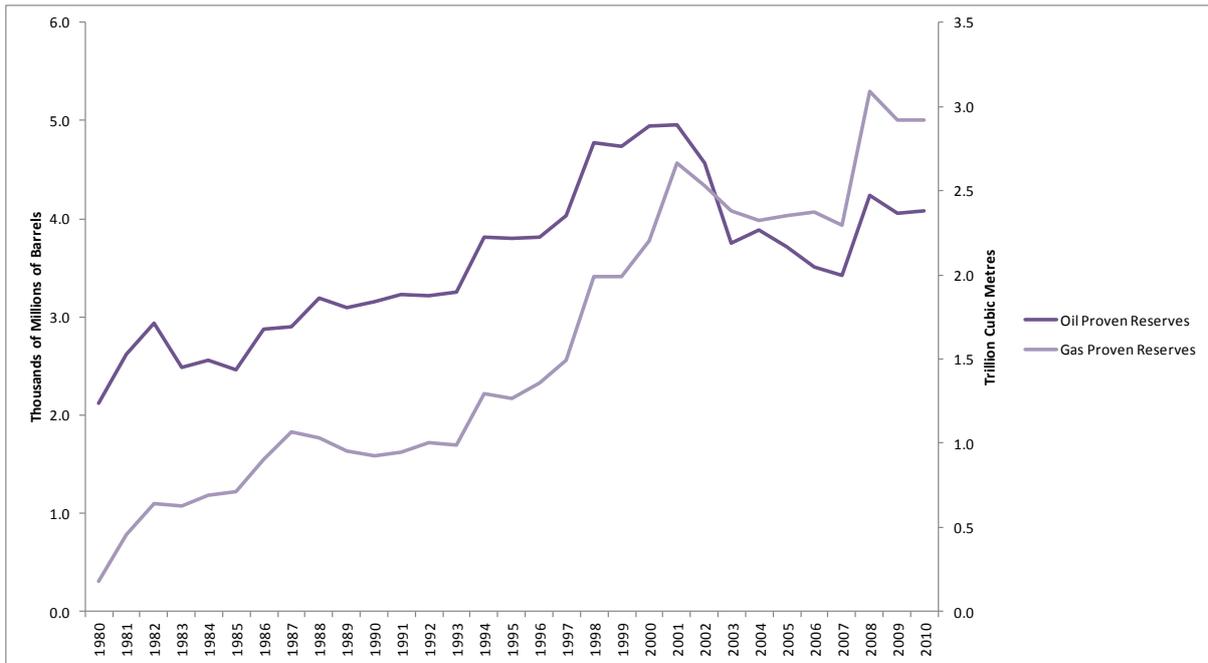


Figure 2 - Trend in Australian Oil and Gas Reserves

Global demand for LNG is expected to grow at a rate of between four and five percent per annum over the next decade.³ This combined with Australia's significant natural gas resources and close proximity to the energy hungry developing nations of Asia is driving significant investment in gas exploration, development, production and processing. This is particularly the case in the Indian Ocean off the northwest of Australia and in the Timor Sea between the Northern Territory and Timor Leste, where offshore E&P activity is supported by a number of onshore processing and export facilities and supply bases.

In 2010, Australia's LNG capacity, defined as existing production plus production expected from advanced and less advanced development projects, was more than twice that of any other country in the world.⁴ Less than 12 percent of that LNG capacity was operational, with the remaining annual production capacity of approximately 145mtpa in various stages of project development.⁵ In 2005, Australia produced approximately, 12 million tonnes of LNG, representing 7 percent of the world's LNG supply. It is estimated that by 2016, the Australian LNG industry will be producing approximately 94 million tonnes of LNG, accounting for approximately 22 percent of global supply. At this point, Australia will rival Qatar as the world's largest LNG exporter.⁶

This will have a very significant impact on the Australian economy. To put this in context, production from Australia's largest single operational petroleum project, the North West Shelf Project, accounts for approximately one percent of Australia's Gross Domestic Product.⁷ According to a recent study undertaken by

³ WoodMackenzie, Global LNG Tool (November 2011) FACTS Global Energy in Woodside Annual Report 2010-11

⁴ Macquarie Research IN: West, M. (2011), *Assessment of the Engineering Design Capability and Capacity in the Oil and Gas Sector in Western Australia*, Western Australian Government Department of Commerce

⁵ Macquarie Research IN: West, M. (2011), *Assessment of the Engineering Design Capability and Capacity in the Oil and Gas Sector in Western Australia*, Western Australian Government Department of Commerce

⁶ GlobalData, Global LNG Industry Outlook 2012 IN: Gallagher (2012), 'Servicing the gas boom: a contractor's perspective on creating exportable skills', *APPEA Conference Proceedings*, Adelaide

⁷ Woodside (2012), *Our Capabilities*, APPEA Conference, Adelaide

Deloitte Access Economics⁸, when production based on current and forthcoming capacity and prices are expected to peak in 2020, the industry's total contribution is expected to be approximately 3.5 percent of the National economy. This expansion will also transform a number of Australian regional economies. The Ichthys Project, for example, will grow the Northern Territory economy by approximately 7.6 times its current size over the estimated life of the project and the Gorgon Project is expected to spend approximately A\$33 billion on goods and services produced by Pilbara based businesses over the first 30 years of its life.

As at April 2011, there were 35 new energy projects in Australia classified by the Australian Bureau of Resource Economics (ABARE) as being at an advanced stage of development, representing a total of \$116 billion of new capital expenditure. O&G projects account for 92 percent, or \$106.1 billion of this capital expenditure.⁹ In addition to these advanced projects there were another 38 production, processing and pipeline projects with a total estimated capital expenditure of \$109 billion at the concept study or FEED phase. Figure 3¹⁰ below summarises the activity of the Australian O&G industry at various stages of the project development pipeline as at April 2011.

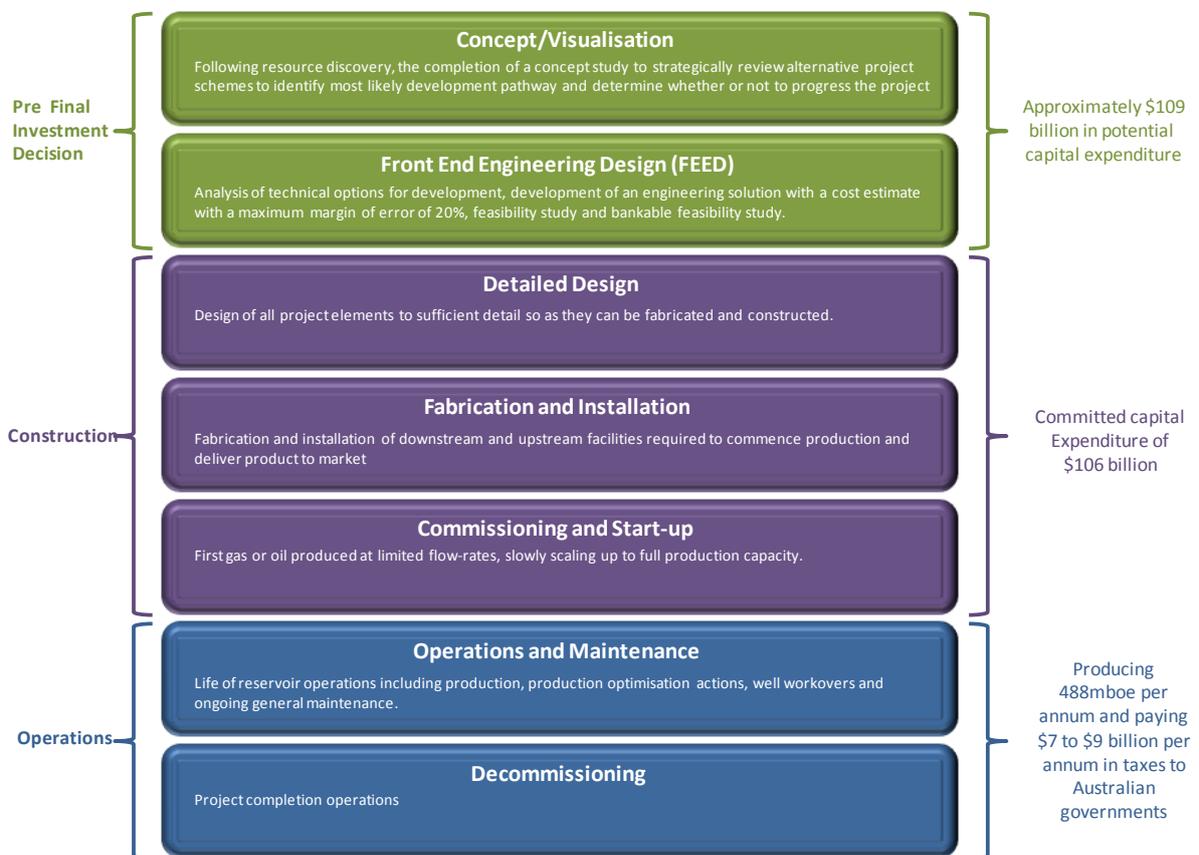


Figure 3 - Australian Oil and Gas Industry Development Pipeline

⁸ Deloitte Access Economics (2012), *Advancing Australia: Harnessing our Comparative Energy Advantage*, APPEA

⁹ New, R., Ball, A., Copeland, A. et al (2011), *Mineral and Energy Major Development Projects: April Listing*, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra

¹⁰ Adapted from: New, R., Ball, A., Copeland, A. et al (2011), *Mineral and Energy Major Development Projects: April Listing*, Australian Bureau of Agricultural and Resource Economics and Sciences, Canberra AND West, M. (2011), *Assessment of the Engineering Design Capability and Capacity in the Oil and Gas Sector in Western Australia*, Western Australian Government Department of Commerce

According to the Deloitte Access Economics report, by June 2012 the total number of oil and gas projects that were either committed or under construction had a value of A\$210 billion, with over A\$150 billion attributable to projects which are already under construction or recently completed.¹¹

This substantial pipeline of new developments has drawn significant attention to the benefits that the Nation accrues from these projects. Much of this debate focuses on local content during the construction phase. While the benefits that accrue to the Nation during the construction phase are important, a project's construction phase typically lasts only a few years. The focus should be on the very significant benefits that accrue over the life of the projects, which is between 25 and 50 years at a minimum and likely longer as the projects expand.

Deloitte Access Economics estimate that the Net Present Value of the corporate and production taxes that will be paid to Australian Governments between 2011 and 2025 by the Nation's O&G industry amounts to \$93.6 billion.¹² However, above and beyond taxes, the projects that comprise the Australian oil and gas industry deliver a range of other benefits to the Australian economy and society. These benefits are significant and many and include:

- Opportunities for Australian based businesses to provide a range of products and services to the projects (local content) over their lives;
- Employment and training opportunities from traineeships through to executive leadership programs;
- Opportunities to participate in a wide range of research, development and technology opportunities associated with the projects that span a range of disciplines;
- Significant enhancement of soft and hard community infrastructure in communities that host projects that accrues from the social investment programs that accompany the projects; and
- Conservation investments made by the projects.

This report provides a series of case studies examining this broader contribution from the following selection of pre-FID, construction phase and recently completed gas projects that collectively represent more than A\$130 billion in capital investment:

- Devil Creek Gas Plant
- Gorgon Gas Project
- Wheatstone Gas Project
- Ichthys Project
- Prelude FLNG
- North West Shelf Project (North Rankin Redevelopment and Greater Western Flank Phase I)
- Pluto LNG Project
- Browse LNG Development
- Greater Sunrise

The cases are discussed from the perspective of the five operators that manage these projects. These operators are domestic and international petroleum companies that are pioneers in the Australian O&G industry, having operated in Australia for between 20 and 110 years. They continue to drive future industry growth with large contemporary investments in exploration and appraisal. They manage the world-class projects discussed in this report on behalf of a total of 22 joint venture partners, including some of the world's leading integrated energy companies and the region's largest energy utilities. Most will also contribute

¹¹ Deloitte Access Economics (2012), *Advancing Australia: Harnessing our Comparative Energy Advantage*, APPEA

¹² Deloitte Access Economics (2012), *Advancing Australia: Harnessing our Comparative Energy Advantage*, APPEA

substantially to growing Western Australia's gas supply through their domestic gas obligations, providing Western Australian industry, including its substantial minerals industry, and households across the State with a lower cost, relatively clean source of base-load energy.

LOCAL CONTENT

Local content refers to the value of the goods and services that form inputs to major domestic industries that are produced by other domestic businesses. The level of local content associated with the construction phase of current Australian O&G projects has been the focus of public debate. There is empirical evidence that the degree of local content in Australian O&G project construction has decreased over the past 30 years. For example, local content associated with the construction of the North West Shelf Project's train 4 was approximately 72 percent.¹³ Whereas actual and expected local content associated with the construction phases of the projects discussed in this report is lower. For example, the construction of Devil Creek and Pluto LNG were completed with 60 percent and 50 percent local content respectively and local content associated with the construction of the Gorgon and Wheatstone gas projects are similarly expected to achieve lower Australian content percentages than the North West Shelf Project's train 4 outcome.

There are a number of factors that explain why local content is lower during the construction phase of Australian O&G projects:^{14&15}

- **Modularisation**

O&G projects have become increasingly technically complex and larger, implying a need for the services of technical specialists and large-scale, cost effective manufacturing capacity. The global distribution of technical expertise and manufacturing capacity has driven the industry toward a modular construction mode. A number of other factors such as schedule are also important in decisions to modularise. Australian manufacturing facilities do not have the scale to physically undertake many of the fabrication requirements and much of the technical and organizational expertise that is required does not reside in Australian companies. An extreme example of this is Shell's Prelude FLNG facility where there are only a handful of shipyards around the world that have adequate scale to construct vessels of this size.

- **Capital Servicing Requirements**

The specialised equipment that forms many of the components of O&G projects is required to operate for very long periods of time in a high wear-and-tear environment. As such, operators and project financiers frequently require life of asset performance assurance and technical support for such equipment. The ability to provide such assurances typically only resides with established O&G engineering and equipment firms, particularly within their global centres of excellence that are sustained by continuity of work arising from addressing global demand. This sector does not have a significant operational presence in Australia.

¹³ Department of State Development and Department of Commerce (2011), *May Local Content Report*, Government of Western Australia

¹⁴ West, M. (2011), *Assessment of the Engineering Design Capability and Capacity in the Oil and Gas Sector in Western Australia*, Western Australian Government Department of Commerce

¹⁵ APPEA (2011), *APPEA Submission to Commonwealth Department of Innovation, Industry, Science and Resource Australian Industry Participation Plan*

- **Centralised Procurement Functions**

Global O&G companies typically either centralise their global EPCM or outsource this service to global EPCM firms. The global EPCM industry does not have a significant presence in Australia. The necessary expertise is, again, sustained by continuity of work that arises from projects across the globe and in any case, uses global networks to optimise procurement for their clients. Similarly, there is increasing use of global supply chains by the O&G companies that interact with the international marketing systems of global O&G industry service providers.

- **Other Issues**

Increasing global demand for natural gas has placed considerable pressure on O&G companies to expedite routes to production and large O&G project delivery in Australia has had a mixed record with cost over-runs from FID being as high as 60 percent and schedule slippages being as long as 18 months in some cases.¹⁶ As a result of the historically high Australian dollar and relatively high labour costs in some O&G supply and service sectors (for example, Western Australia has among the highest engineering and designer sell rates in the world¹⁷), Australian companies are simply not cost competitive, and improvements in transportation productivity and communications technologies have provided lower cost service providers and suppliers more efficient access to Australian O&G project construction markets.¹⁸

The projects examined in this report source construction inputs from around the world including South Korea, China, Indonesia, Italy, Germany, Thailand, Malaysia and Scotland. Nevertheless, local content expenditure during the construction phase of these projects has been significant. For example at the date of this report, the Gorgon Gas Project had spent A\$17 billion on supplies and services from Australian based businesses and will spend over A\$20 billion before construction is completed, the Wheatstone Gas Project had spent A\$7 billion on supplies and services from Australian based businesses and will spend A\$15 billion before construction is completed, and Pluto LNG spent A\$7.6 billion on Australian based businesses during its construction phase.

This case study series summarises a sample of 59 specific separate construction phase contracts that have been awarded to Australian businesses. The 48 specific samples where the contract value was disclosed totaled A\$12.3 billion, or an average contract value of A\$256 million. The sample demonstrates a wide range of services being provided by Australian based businesses including engineering, fabrication, OH&S, medical, aviation, marine and FIFO accommodation services. There are also examples where a head contract has been awarded to an offshore business and that business has sub-contracted components of the work back to Australian businesses.

Importantly, these projects also seek supplies and services during the construction phase from the local region. For example, to date, the Gorgon Project has spent approximately A\$1 billion with businesses based in the Pilbara region of Western Australia.

However, the construction phase for the advanced O&G projects will peak at around 2016, when these projects will commence between at least 25 and 50 years of operations.¹⁹ The local content opportunities during this longer phase will be significant. For example, the North West Shelf Project currently spends approximately A\$600 million per annum in operational expenditure with Australian based businesses and the

¹⁶ Macquarie Research IN: West, M. (2011), *Assessment of the Engineering Design Capability and Capacity in the Oil and Gas Sector in Western Australia*, Western Australian Government Department of Commerce

¹⁷ Hays Oil and Gas Salary Guide 2011 in Department of State Development, Department of Commerce (2011), *Local Content Report: May*, Government of Western Australia

¹⁸ Hays (2011), *The Oil and Gas Industry Salary Guide 2011: Global Salaries and Recruiting Trends*

¹⁹ GlobalData, Global LNG Industry Outlook 2012 IN: Gallagher (2012), 'Servicing the gas boom: a contractor's perspective on creating exportable skills', *APPEA Conference Proceedings*, Adelaide

Gorgon project estimates that it will spend A\$33 billion on local goods and services over the first 30 years of its life. This will create opportunities for local businesses across the nation, including many regional businesses and businesses owned and operated by Indigenous Australians.

EMPLOYMENT AND TRAINING

According to a study commissioned by APPEA, the peak construction workforce for all current committed projects is in excess of 30,000.²⁰ The projects in this case study series are significant employers during both the construction and operational phases. During the construction phase, the aggregate peak construction workforce for these projects is in excess of 30,000 jobs. However, more importantly, thousands of longer-term jobs will be created during the operational phase of these projects.

The resources industry generally has also been the subject of recent criticism regarding its investment in training, with commentators drawing comparisons to the construction and manufacturing sectors. The structure of, particularly, the O&G industry workforce is vastly different to these sectors and involves a significantly smaller portion of tradespersons and larger portion of technical professionals. Irrespective of this, these projects and their operators invest heavily in training across the workforce spectrum. They operate trainee and apprentice programs in conjunction with Australia's vocational education and training sector and have worked with this sector and international O&G equipment suppliers to establish domestic specialist training facilities and programs in O&G processing, equipment servicing, maritime trades and in emerging areas such as FLNG. Many of the operator's training programs are structured to provide opportunities for under-represented groups in the O&G workforce such as women and Aboriginal peoples. They also invest in regionally based up-skilling programs designed to provide opportunities for disadvantaged persons to access mainstream training programs.

Most operators run sophisticated graduate programs in close association with Australian universities that provide opportunities for international careers for a large number of geosciences, engineering and business school graduates.

The companies also have life-time-learning cultures offering employees throughout the workforce structure opportunities to continue to progress formal qualifications, enhance expertise and develop leadership skills.

The companies discussed in this case study series are spending tens of millions of dollars a year on workforce training.

RESEARCH, DEVELOPMENT AND TECHNOLOGY

The O&G industry is a science and technology intensive industry. Many of the projects in this case study series involve world technology firsts, and all invest heavily in local scientific capability, bringing opportunities for local research organisations to develop capabilities in cutting-edge research and technology areas and providing employment opportunities for local scientific professionals.

The development of these projects will bring a number of world-first technologies. For example, the CO₂ injection project associated with Gorgon will be the largest of its kind by orders of magnitude, the semi-submersible platform for the Ichthys Project will be the largest in the world and Shell's Prelude project will

²⁰ Pitcrew Management Consulting Services (2012), *Labour Market Report – Northern Australian Strategy*, APPEA

very likely be the world's first FLNG facility. This will and is already creating opportunities for Australian research organisations to develop unique, globally relevant capability. An example of this is the important role the Centre for Offshore Foundation Systems at the University of Western Australia played in the development of mooring systems for the Prelude FLNG facility.

The operators of the projects have made significant investments in building capability at Australian universities in O&G related disciplines through the funding of professorial chairs and other academic appointments in a range of disciplines, funding projects through contract research, investing in research infrastructure that support O&G related research projects and participating in multi-institution Cooperative Research Centres and other collaborations. An example of such a collaboration is the Western Australian Energy Research Alliance (WA:ERA), a formal research collaboration between Woodside, Chevron, CGG Veritas, Curtin University, University of Western Australia and the CSIRO, which has seen a large number of research projects initiated by these companies delivered through the alliance.

Some companies are growing the local presence of their internal technical functions, which in turn creates employment opportunities for Australian researchers as well as increased opportunities for collaboration for local research institutions.

The contribution by the industry to research, development and technology is not limited to O&G geosciences, engineering and business disciplines. As a result of the Environmental Impact Assessment process, monitoring conditions placed on projects, environmental offset packages and general corporate social responsibility investments, these projects are investing hundreds of millions of dollars in research that is adding significantly to the Nation's understanding of its terrestrial, and in particular, marine natural environment and biodiversity. Local research organisations are typically contracted to undertake significant components of this work and the results will make substantial contributions to knowledge of the biodiversity of northern Australia.

The projects that are the subject of this case study series are investing hundreds of millions of dollars in research and development in Australia.

COMMUNITY INFRASTRUCTURE AND SOCIAL INVESTMENT

The projects discussed in this report are significant investors in community infrastructure and social initiatives across the nation, and particularly in the regions in which the projects are located. The social investments made by these projects cover a wide range of soft and hard community infrastructure including hospitals, remote health-care, child care, parenting services, emergency services, pre-primary, primary and secondary schooling, community events, airports, roads, accommodation, water infrastructure, power infrastructure and so on. This investment is revitalizing regional Australian towns and communities. Social and community investment plans are developed in collaboration with local communities and governments, and often involve private and public co-investment.

A significant amount of this social investment is targeted at creating opportunities for enhancing the quality of life of Indigenous Australians in regional and remote Australia.

Many of the operators have internal programs that encourage employees to donate their own money and/or time to local charitable causes. The companies also make a large number of significant donations to a diverse range of charitable causes across the Nation.

The projects in this case study series are collectively investing hundreds of millions of dollars in community infrastructure and social initiatives.

CONSERVATION

In addition to funding research designed to enhance understanding of the terrestrial and marine environments in which they operate, the projects discussed in this report are collectively investing over \$100 million in conservation actions in the areas in which they operate and across the nation.

APACHE IN AUSTRALIA

Apache Energy was established in the United States in 1954 based on initial investment capital of US\$250,000 to drill a single onshore well in Oklahoma. Today, Apache is a global O&G company with E&P interests in the United States, Canada, Argentina, United Kingdom, Egypt and Australia.

Apache entered Australia in 1991 with the acquisition of a small non-operator interest in 500,000 acres and nine wells in the offshore Carnarvon basin near Airlie Island, Western Australia. In 1993, Apache acquired Hadson Energy Resources for US\$98 million, which bought with it operator interests in eight fields collectively known as the Harriet Joint Venture, as well as the associated Varanus Island onshore oil production, gas processing and export facilities in Western Australia.

Over the past ten years, Apache has invested approximately \$5 billion in exploration and development projects in Australia. This has included bringing on additional gas production for the Varanus Island processing and export facilities through the development of the John Brookes, East Spar and Halyard/Spar joint ventures and expansion of the Varanus Island facility to include oil processing and storage facilities with a capacity of 750,000bbls, oil export systems, five gas processing trains with a combined capacity of 400Tj per day and two gas pipelines to the Western Australian mainland.

In more recent times, Apache has completed the development of the Reindeer field, offshore Carnarvon Basin and the associated Devil Creek gas plant near Karratha, Western Australia. Through both Varanus Island and Devil Creek, Apache is a significant supplier in the Western Australian domestic gas market, currently supplying around 35 percent of the State's natural gas.

In addition to its onshore oil production interests on Varanus Island, Apache is the operator of the Stag field in the Carnarvon Basin, and the operator of the Van Gogh field in the Exmouth Basin, where oil is produced via a FPSO facility. It also has a non-operator interest in the adjacent Pyrenees oilfield. Oil development projects include the Balnaves FPSO project, and the Coniston and Novara projects, which will be tied back to the Van Gogh field's FPSO facility.

Apache has operator interests in the Julimar-Brunello fields that will supply gas to the Chevron Australia operated Wheatstone Project (see the Chevron Case Study). It also has a non-operator interest in the BHP Billiton Petroleum operated Macedon gas field, which is expected to produce first gas in mid 2013.

Apache's Australian interests currently account for 9 percent of its total global production and 11 percent of its global reserves. Apache's exploration interests in Australia are extensive, with approximately 90 percent of its 8.8 million gross acres of permits in Australia undeveloped.

Table 1 below summarises Apache’s Australian production and development interests.

Project	Description	Apache’s Interest
Harriet Joint Venture	Gas production	81.0% operator interest
John Brookes Joint Venture	Gas production	55.0% operator interest
East Spar Joint Venture	Gas production	55.0% operator interest
Halyard/Spar Joint Venture	Gas production	55.0% operator interest
Varanus Island	Oil production and oil and gas processing	55.0% to 81.0% operator interest
Stag Field	Oil production	33.3% operator interest
Van Gogh Field	Oil production	52.5% operator interest
Pyrenees Field	Oil production	28.6% non-operator interest
Reindeer Field	Gas production	55.0% operator interest
Devil Creek	Gas processing	55.0% operator interest
Julimar/Brunello	Gas development	65.0% operator interest
Wheaststone	Gas development	13.0% non-operator interest
Macedon	Gas development	28.6% non-operator interest
Balnaves Field	Oil development	65.0% operator interest
Coniston Field	Oil development	52.5% operator interest

Table 1 – Apache’s Australian Development and Production Interests

Apache has committed A\$13.5 billion to develop new energy infrastructure projects in Australia, including approximately \$5.0 billion over the next five years.

This case study focuses the Devil Creek project as a recently completed development project. Although the project is a domestic gas plant, not an LNG export facility, it is Western Australia’s third domestic gas hub and the first new facility in almost 20 years. As such it represents a significant piece of new energy infrastructure for the State.

DEVIL CREEK GAS PLANT

Devil Creek Ownership

Apache Energy	55.0% operator interest
Santos Limited	45.0%

Development of the Reindeer Gas Field located in offshore Carnarvon Basin, 45 kilometres southwest of Dampier, and the associated Devil Creek gas plant

located near Karratha, Western Australia was completed in December 2011. Gas production from the unmanned wellhead platform at the Reindeer field is piped to the Devil Creek plant via a 105 kilometre long subsea trunkline. The Devil Creek plant is comprised of two gas trains designed to process 200mcf gas per day, as well as 1,000bbls of condensate per day, and represents the third domestic natural gas processing hub to be commissioned in Western Australia, and the first such hub in more than 15 years. The project currently has a lifespan of between 20 and 30 years and will supply gas the Citic Pacific’s Sino Iron project when operational.

Capital expenditure associated with the Devil Creek plant was approximately A\$1.1 billion.

Devil Creek Gas Plant



LOCAL CONTENT

Apache makes annual payments to Australian based businesses for capital and operation expenditure amounting to approximately A\$1.4 billion.

Approximately 60 percent of the value of the contracts awarded in relation to the construction of the recently completed Devil Creek project (including the development of the Reindeer Field) was awarded to Australian based businesses. Table 2 below summarises examples of some of the major contracts related to the Devil Creek Gas Project that were awarded to Australian based businesses.

Australian Based Firm	Contract	Approx. Value
John Holland	Construction of the subsea pipeline between the Reindeer production platform and the Devil Creek Plant	A\$230m
Clough	Engineering, Procurement and Fabrication of Modules for the Devil Creek Gas Plant	A\$120m
DrillTec Australia	Construction of the shore crossing facility	A\$21m
Nomad	Construction of the Devil Creek accommodation village	A\$18m
John Holland	Construction of Gas Plant Permanent Buildings	A\$14m
WorleyParsons	Reindeer wellhead platform design	A\$10m

Table 2 - Examples of Contracts Awarded to Australian Based Companies for the Devil Creek Project

In addition to contracts that are awarded for specific projects, Apache has also awarded a number of contracts to Australian based business that supply services to Apache's entire Australian operations. The contracts awarded to Bristow Helicopters and Tox Free Solutions are examples of this. In 2010, Apache awarded Bristow Helicopters a contract valued at A\$50.0 million to support Apache's drilling and production operations in Australia. In the same year, the Company awarded Tox Free Solutions a A\$6.0 million, two year contract to provide waste management solutions to Apache's Australian operations.

EMPLOYMENT AND TRAINING

Apache's Australian workforce is comprised of more than 350 employees and 600 contractor personnel.

Apache's Australian apprentice and training program was established in 1999 and was the first of its kind in the Australian O&G industry. In its first year of operation the program enrolled two apprentices and enrolments have continued to grow since. In 2011 there were:

- Three trainee production operators completing the two-year, Certificate III hydrocarbons training qualification, PMA08 on Apache's production platforms at Varanus Island and Stag. On completion of their training, these trainees will join Apache as entry level production operators.
- Twelve dual trade electrical and instrumentation apprentices working on Apache's Australian operations. In addition to their five year dual apprenticeship qualification, these apprentices will also complete the Certificate III hydrocarbons training and join Apache as entry level production technicians.
- Five mechanical fitter apprentices completing a three and a half years apprenticeship before they will join the Company as entry-level mechanical tradespersons.

Over the past three years, 17 percent of the personnel who have joined Apache's Trainee and Apprenticeship Program have come from minority groups identified in the National Skills Shortage Strategy.

In 2010, Apache commenced an up-skilling program that is run in conjunction with Challenger Institute of Technology's Australian Centre for Energy and Process Training (ACEPT). This program is structured such that the skills and knowledge of experienced offshore personnel who will not have had the opportunity in the past to gain formally recognised, national qualifications can acquire such qualifications. The program is delivered onsite through a distance learning package overseen by Offshore Training Coordinators employed directly by Apache. As an extension of this program Apache is actively developing a second phase that will include a management leadership program for its front-line offshore supervisor team, to enhance the skills of supervisors, PICs and field supervisors and lead them to attaining nationally recognised vocational qualifications. This program will also seek to develop safety, leadership and management skills.

Apache has also developed a series of tailor-made training programs specific to the roles that post-graduate engineers may assume within the company and each year takes on graduates in petroleum, chemical and mechanical engineering for post-graduate training. In 2008, Apache entered a partnership with the University of Western Australia to support critical engineering and geosciences programs. Through the partnership, Apache funds a scholarship program, offers prizes and supports a range of activities designed to foster interest in engineering careers. The partnership is also intended to help Apache heighten its profile among engineering graduates and gain access to quality, work-ready candidates.

In 2010, as part of Apache's efforts to promote greater understanding of the resources industry, Apache hosted the first visit by senior University of Western Australia leaders, including the Director of the Minerals and Energy Institute and the Dean of the Business School to an offshore drill rig. Similar familiarisation visits were undertaken in 2011 and 2012.

RESEARCH, DEVELOPMENT AND TECHNOLOGY

ENVIRONMENTAL RESEARCH

Varanus Island is a declared nature reserve that hosts gazetted threatened flora and fauna. Apache has undertaken or supported a considerable amount of research that has led to better understanding of the environment at Varanus Island, the Island's flora and fauna, and its surrounding marine environment. This includes:

- Estimating demographic parameters of breeding populations of Hawksbill Turtles – a critically endangered marine species
- Collaborative whale shark data collection – Ningaloo Reef
- Monitoring of annual variation in seabird breeding colonies throughout the Lowendal Group of Islands
- The integrated shearwater monitoring project
- Marine monitoring- corals
- Varanus and Bridled Islands vegetation monitoring
- Chemical and biological assessment of produced formation water discharge from Harriet A Platform with a tropical reef species, stripey seaperch
- Marine monitoring program for persistence and impacts of synthetic-based muds
- University of Sydney Serpent Research Program
- Australian Institute of Marine Science research on whale shark populations and migratory cycles of the Ningaloo Reef.

COMMUNITY INFRASTRUCTURE AND SOCIAL INVESTMENT

In Australia, Apache has continued the tradition of its Houston, Texas based parent company of supporting local medical research efforts through a medical research institute model. For example, Apache recently entered into a two year, A\$300,000 partnership with the Perth, Western Australia based Institute of Child Health Research to fund research into a rare and aggressive form of cancer tumour that affects both children and adults.

Apache has also made investments in the following community infrastructure:

- Exmouth Hospital
- New fire engine for Exmouth airport
- New rescue vessel for the Exmouth volunteer Marine Sea Rescue Group
- Pilbara Wildlife Carers Association
- Exmouth Whale Shark Festival
- Karratha Rotary FeNaCING Festival
- NAIDOC annual Exmouth Arts Awards
- Exmouth Senior High School Science Department maritime and marine studies program
- Emergency equipment and Nickol Bay Hospital
- Recreational facilities at Gnoorea Point, Forty Mile Beach

CHEVRON CORPORATION IN AUSTRALIA

Chevron is one of the world’s largest integrated energy companies, employing approximately 57,000 people world-wide in its E&P, manufacturing, transportation and energy generation businesses, as well as approximately 3,800 people in its retail service station network that spans six continents. Approximately 75 percent of Chevron’s 2011 net production was sourced from its interests outside of the United States. The company history goes back 130 years when it was known as Pacific Coast Oil Co. That company later became Standard Oil Co. of California and, subsequently, Chevron. Since that time, Chevron has acquired several other major O&G companies including Texaco, another US oil company with an operating history in Australia.

Chevron and its predecessor companies have been present in Australia for more than 60 years through the oil operations on Barrow and Thevenard Islands, and later as a foundation partner in the production of LNG and domestic gas from the Woodside operated North West Shelf Project. Chevron is also the operator for the A\$43 billion Gorgon and A\$29 billion Wheatstone Projects in the North-west of Australia that will produce first gas in 2014 and 2016 respectively.

Chevron Australia is currently the largest investor in Australian petroleum exploration, appraisal and development. Chevron is Australia’s most successful explorers for gas resources in Australia. As the largest permit holder and investor in Australian petroleum acreage, Chevron is currently undertaking its largest ever Australian drilling campaign. Deepwater drilling contracts have been secured to support a planned exploration investment totaling several hundred million dollars.

As summarised in Table 3 below, Chevron Australia currently has significant operator and non-operator interests in Australian O&G development and production projects. Furthermore, given that the offshore Carnarvon Basin is home to Chevron Corporation’s largest portfolio of exploration acreage and that since 2009, of 15 exploration wells drilled by Chevron Australia in the Carnarvon Basin, 14 have resulted in discoveries, it is reasonable to expect that Chevron Australia’s portfolio of development and operational interests in Australia will continue to grow into the future.

Project	Description	Chevron Australia’s Interest
Barrow and Thevenard Islands	Oil production	57.1% operator interest
Thevenard Island	Oil production	54.1% operator interest
North West Shelf Joint Venture	Gas production	16.67% non-operator interest
Gorgon	Gas development	47.3% operator interest
Wheatstone	Gas development	64.14% operator interest in onshore foundation project

Table 3 - Chevron Australia’s Development and Production Interests

The Gorgon and Wheatstone projects are a key part of Chevron Corporation’s global LNG business, which currently accounts for approximately 7 percent of total global revenues, and is expected to grow to 14 percent of total global revenues by 2017. With the development of a 200 TJ per day domestic gas plant as part of the Wheatstone Project and a 300 TJ per day domestic gas plant as part of the Gorgon Project, in addition to Chevron’s existing interests in the North West Shelf Project, Chevron will be a significant provider of domestic gas to Western Australia.

Both Gorgon and Wheatstone are world-class petroleum projects, with a combined estimated capital investment of A\$72 billion. With the current estimated life of these projects expected to be between 40 and 50 years they will continue to provide significant ongoing economic benefits to the nation. The Gorgon and

Wheatstone projects are expected to deliver more than A\$60 billion to Australian governments in the form of income tax, PRRT and other royalties, excises and duties. However, these projects will continue to deliver a lot more to Australian society and its economy in the form of opportunities for local business, employment and training, and investments in research, development and technology, social and physical infrastructure and environmental conservation.

THE GORGON GAS PROJECT

Gorgon Ownership

Chevron	47.30% operator interest
ExxonMobil	25.00%
Royal Dutch Shell	25.00%
Osaka Gas	1.25%
Tokyo Gas	1.00%
Chubu Electric Power	0.42%

The Gorgon Project is located on Barrow Island, a Class A Nature Reserve, around 60 kilometres off the north west coast of Western Australia. It is the largest single resources industry project in Australia and one of the world's largest natural gas projects. It will also incorporate the world's largest CO₂ injection project.

The Gorgon Project will source natural gas from a combination of production rigs and subsea production systems at the Jansz and Lo fields, located in the Greater Gorgon area, 130 kilometres off the northwest coast of Western Australia. Gas will be piped to processing facilities on Barrow Island via a subsea pipeline. The processing facilities on Barrow Island include condensate plants, three LNG trains with a combined capacity of 15mtpa and a 300TJ per day domestic gas plant. LNG will be offloaded onto LNG tankers at Barrow Island via a 2.1 kilometre long LNG jetty, and domestic gas will be piped to the mainland via a subsea pipeline that connects to the Dampier-Bunbury gas pipeline.



The construction of the Gorgon project represents a total capital investment of A\$43 billion and it has been estimated that the project will contribute a total of A\$64 billion to Australia's GDP over the first 30 years of operation. The Gorgon Joint Venture participants are considering an expansion of the Project through the addition of a fourth 5mtpa LNG train. The expansion project is expected to enter FEED in late 2012.

THE WHEATSTONE GAS PROJECT

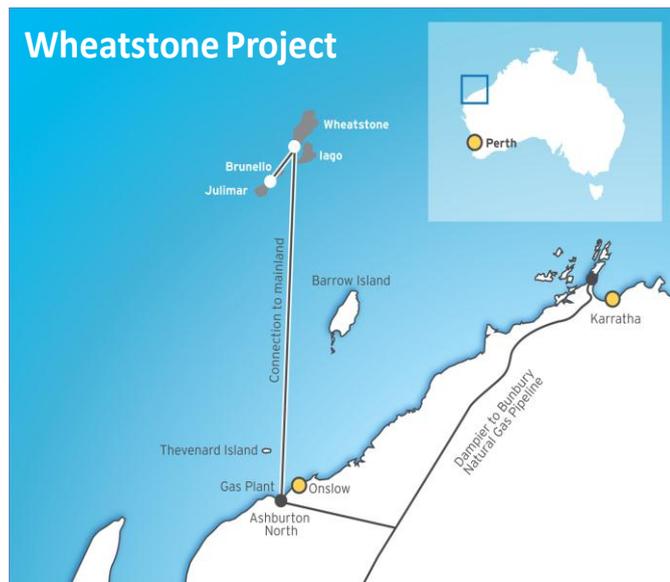
Wheatstone Ownership

Chevron	64.14% Operator Interest
Apache Energy	13.00%
Tokyo Electric Power Company	8.00%
KUFPEC	7.00%
Shell	6.40%
Kyushu	1.46%

The Wheatstone Project will source gas from the Chevron Australia operated Wheatstone and Lago fields via what will be Australia's largest offshore production platform, with additional gas being provided to the project from Apache Energy and KUFPEC's Julimar and Brunello fields (see Apache Energy Case Study). Gas from these fields will be

transported via a 225 kilometre trunkline to an onshore facility at Ashburton North, 12 kilometres west of Onslow, Western Australia. The onshore facility will be comprised of two LNG trains with a combined capacity of 8.9mtpa, as well as a domestic gas plant with a capacity of 200TJ per day. Domestic gas will be distributed to the local market via a 90 kilometre pipeline connecting the facility to the Dampier-to-Bunbury natural gas pipeline. The Ashburton facility will be Australia's first LNG hub to be used by third party gas providers namely, the Apache-KUFPEC Joint Venture and Shell.

In 2008, Chevron announced its intention to develop the Wheatstone gas field via a new onshore LNG and domestic gas project to be developed by the Company at Ashburton North. The Wheatstone project entered into the FEED phase in July 2009. In 2010, Apache Energy and KUFPEC became joint venture partners in the Wheatstone Project. In 2011, Shell also joined the Wheatstone Project as a supplier of gas and as an equity participant. Wheatstone received final environmental approval from the Western Australian and Federal Governments in 2011, immediately prior to reaching FID in September of that year. Construction commenced at Ashburton North in December 2011.



The construction of the Wheatstone project represents a capital investment of A\$29 billion and Chevron Australia is currently evaluating options for further expansion of the project. Environmental approval to expand the Wheatstone operation to 25mtpa has been received.

LOCAL CONTENT

Modularised components for the Gorgon and Wheatstone projects are being sourced from contractors located around the world including in South Korea (major LNG facility modules and vessels), China (pipe racks), Indonesia (pipe racks), Italy (gas turbines), Germany (heat exchangers), Thailand (heaters and modular housing), Malaysia (pipe coating) and Scotland (subsea trees). Nevertheless, as of 31 December 2011, approximately half of the 177 contracts awarded to external firms relating to the construction of the Gorgon and Wheatstone projects were awarded to Australian based businesses.

LNG Jetty Caissons being Transported from Henderson to Barrow Island for the Gorgon Project



As at August 2012, contracts relating to the construction of the Gorgon Project awarded to Australian firms have a total value of approximately A\$17 billion, with the project expecting to spend over A\$20 billion on Australian goods and services during construction. Table 4 below summarises examples of some of the Gorgon Project construction phase related contracts that have been awarded to Australian based businesses. This is a sample of contracts for the Project, with individual contracts ranging from tens of thousands of dollars, to multiple billions of dollars in value. Collectively, they have created thousands of jobs, with many of those new jobs located in regional Australia.

Construction of LNG Storage Tanks at the Gorgon Project



Australian Based Firm	Contract	Approx. Value	Approx. Number and Location of New Jobs
AGC	Fabrication of pipe spools, shear keys and adjustable pipe support structures	A\$70m	200 (Henderson, WA)
Civmec	Fabrication and supply of approximately 10,000 tonnes of fabricated steel structures	n.a.	60 (Henderson, WA)
CB&I and Kentz Joint Venture	Mechanical, electrical and instrumentation commissioning	A\$2b	1,650 (Barrow Island & Henderson, WA)
Ertech	General earthworks services for Gorgon site development and WAPET site landing	A\$250m	250 (Barrow Island, WA)
John Holland	Design and construction of permanent buildings at the Gorgon site	A\$180m	160 (Barrow Island, WA)

Australian Based Firm	Contract	Approx. Value	Approx. Number and Location of New Jobs
Velocious	Design and fabrication of buckle initiation components and tooling	n.a.	(Henderson & Barrow Island, WA)
Strategic Marine	Construction of transfer vessels to transport workers between Barrow Island and construction barges for the LNG jetty and other marine structures at Barrow Island	A\$1m	(Henderson, WA)
United Industries	Development of specialised sea-bed stone spreader equipment and 1,500 tonnes of various metal works	A\$8m	(Henderson, WA)
CBI Contractors	Construction of two LNG and condensate storage tanks	A\$500m	400 (Barrow Island, WA)
Kilarnee Civil and Concrete Contractors	Construction for earthworks and concrete structures for the LNG and condensate storage tanks (subcontracted by CBI Contractors)	A\$80m	(Barrow Island, WA)
Clough Sea Trucks Joint Venture	Laying of pipeline to link the Barrow Island domestic gas facility to the Dampier-Bunbury gas pipeline	A\$300m	500 (Pilbara region, WA)
Saipem-Leighton Consortium	Construction of LNG jetty caissons	A\$1.8b	2,000 (Henderson & Barrow Island, WA)
Mammoet	Transportation and placement of heavy equipment and modules at the Gorgon site	A\$123m	(Barrow Island & Karratha, WA)
Thiess, Decmil, Kentz Joint Venture	Construction of the 4,000 person worker village on Barrow Island	A\$500m	n.a.
UXC	Entertainment solutions for the worker village on Barrow Island	A\$1m	100 (Barrow Island, WA)
Toll Energy	Supply base and logistics services on Barrow Island	A\$200m	200 (Barrow Island, WA)
Howard Porter	Manufacture of 300 truck trailers	A\$20m	70 (Perth, WA)
Ausco	Manufacture of modular buildings for the Gorgon site	A\$50m	80 (Perth, WA)
Cobham Australia	Provision of fixed-wing flights between Perth, Karratha and Barrow Island	A\$170m	(Perth, Karratha & Barrow Island, WA)
Bristow Helicopters	Helicopter services for the Gorgon Project	A\$200m	(Pilbara region, WA)
SKM	OH&S induction services	A\$10m	12 (Perth, WA)
Osmoflo	Construction of four reverse osmosis desalination plants	n.a.	30 (Adelaide, SA)
BJ Services	Pipeline pre-commissioning	A\$88m	30 (Pilbara region and Perth, WA)
Paull & Warner	Construction of emergency, rescue, fire and medical services equipment for the project	n.a.	(Perth, WA)
Hertel Modern	Provision of paint, insulation and fireproofing services for the project	A\$90m	200 (Perth & Barrow Island, WA)

Table 4 - Examples of Contracts Awarded to Australian Based Companies during the Construction Phase of the Gorgon Project

As at August 2012, contracts relating to the construction of the Wheatstone Project awarded to Australian firms since FID in September 2011 have a total value of approximately A\$7 billion, with the project expecting to spend a total of A\$15 billion on Australian goods and services during the construction phase. Table 5 below summarises examples of some of the Wheatstone Project construction phase related contracts that have been awarded to Australian based businesses. This sample of 11 such contracts has a total value of more than A\$1.1 billion and have collectively created more than 930 new jobs, with many of those jobs located in or near the Pilbara town of Onslow.

Australian Based Firm	Contract	Approx. Value	Approx. Number and Location of New Jobs
Aspen Medical	Primary care, emergency medical services and onsite medical assessments for the construction phase of the project	A\$36m	(Onslow, WA)
Clough Limited	Offshore hook-up and commissioning component of the project	A\$350m	300 (Onslow, WA)
Decmil Australia	Design, supply and installation a fly-camp for the project	n.a.	100, (Perth & Onslow, WA)
Desert Plains	Delivery of 25 four-bedroom mobile accommodation units	n.a.	n.a.
Keller Australia Group	Installation of approximately 20,000 piles for the onshore plant facility	A\$186m	(Onslow, WA and various Australian locations)
John Holland	Design and construction of 12 permanent buildings at the onshore processing facility	A\$240m	240 (Onslow, WA)
Modular Engineering	Supply of diesel treatment equipment and consumables	n.a.	(Perth, WA)
Skywest Airlines	Transport of workers between Perth and Onslow	n.a.	(Perth & Onslow, WA)
WorleyParsons	Construction management	A\$235m	(Perth & Onslow, WA)
Thiess and BESIX SA Partnership	Development of the breakwater and materials offloading facility for the project	n.a.	300 (Onslow, WA)
Thiess	Development of a 1.2 kilometre tunnel shore crossing under the ocean that will connect two offshore gas reserves with the onshore facility	A\$58m	(Onslow, WA)

Table 5 - Examples of Contracts Awarded to Australian Based Companies During the Construction Phase of the Wheatstone Project

Both projects work closely with the local communities through organisations such as the Karratha Districts Chamber of Commerce and Industry to develop opportunities for local Pilbara businesses during the construction and operational phases of the projects. To date, the Gorgon project has spent approximately A\$1 billion with Pilbara based businesses. The Project expects to spend around A\$33 billion on local goods and services over the first 30 years of the project's life.

McLaren's Raw Hire and NTC Contracting are two examples of Pilbara based, locally owned businesses that have been successful in winning contracts relating to the construction of the Gorgon and Wheatstone Projects. McLaren's Raw Hire is a Pilbara-based family owned company that was awarded a contract in 2011 to supply short-term, specialised vehicle hire to the Gorgon and Wheatstone projects. The company has supplied 70 vehicles to Barrow Island for the Gorgon Project and 40 to Onslow for the Wheatstone Project. NTC Contracting is an Onslow based civil and engineering company that has been awarded contracts for the Wheatstone Project for land preparation, road construction and bulk earthworks for the preparation of the initial accommodation camps and associated utilities services, as well as contracts for loading and transporting water to the site for dust suppression and compaction.

EMPLOYMENT AND TRAINING

In 2010, Chevron Australia was recognised by the Western Australia Department of Training and Workforce Development as Western Australian Employer of the Year.

It is estimated peak direct and indirect employment during the construction phases of the Gorgon and Wheatstone Projects will reach 16,500 jobs. To date, the Gorgon Project alone has created more than 10,000 jobs across Australia. Beyond the construction phase of both projects, employment opportunities will progress toward higher skilled, long-term jobs in LNG and domestic gas plant operations, maintenance and logistics support and ongoing offshore exploration and appraisal work.

In 2012, Chevron Australia launched an aggressive recruitment campaign targeting facilities engineers across a broad range of disciplines. Chevron delivered 14 information sessions in nine cities across Australia and New Zealand over a four week period. These roadshows highlighted the opportunities available within Chevron in Western Australia, particularly in areas of Australia where process engineers may be facing redundancies due to plant and factory closures. A similar roadshow has also been undertaken for a range of operations jobs for the Wheatstone Project.

Chevron Australia has a team dedicated to Aboriginal employment and is working with traditional land owner groups to identify employment opportunities for local Indigenous peoples within the Gorgon and Wheatstone projects, and with contractors during construction and operations.

Chevron Australia supports apprenticeships and skills development, hosting mechanical and instrument/electrical apprentices through a relationship with the Energy Apprenticeships Group (EAG), a joint venture between the Chamber of Commerce and Industry of Western Australia and the Australian Centre for Energy and Process Training. Across the Gorgon and Wheatstone Projects, Chevron Australia has invested approximately A\$12 million in directly employing and training 40 apprentices. Additionally, contractors working on the construction of Gorgon and Wheatstone employ hundreds of contractors and trainees.

The Gorgon Project supports a scholarship program through the Challenger Institute of Technology, whereby up to 100 maritime students will be given an opportunity to gain careers in the resources and energy sectors each year. On completion of the scholarship program, students will be equipped with the skills necessary to find employment on domestic and international projects in positions such as deck officers, engineering officers and general hands. The scholarships will be used to encourage under-represented groups into the maritime industry including women and Aboriginal people.

Hundreds of Gorgon and Wheatstone project engineering and technical staff will be trained at the new GE Oil and Gas training facility in Perth. The facility will train production and maintenance personnel working on subsea equipment, turbines, compressors and support equipment.

Chevron Australia offers vacation employment opportunities for university students in their penultimate year of study. This is a structured 12 week program that runs from December to February and provides hands-on opportunity to experience real projects. The Company also currently employs 140 university graduates as part of its Horizons graduate program. Under the Horizons program, university graduates participate in a five-year program whereby they receive technical and non-technical training, challenging job assignments, mentoring and international career opportunities.

RESEARCH, DEVELOPMENT AND TECHNOLOGY

The Gorgon and Wheatstone projects will continue to provide opportunities to advance technology and knowledge in Australia. The projects will contribute to a critical mass of O&G operations in Australia that will, in turn, create opportunities and serve as a catalyst for enhancing local research and development capabilities both within Chevron Australia, as well as its local research partners in a range of areas such as petroleum production, health and safety, gas processing technology, CO₂ management, subsea technology and environmental management.

CHEVRON PERTH TECHNOLOGY CENTRE

Perth, Western Australia, is home to one of Chevron's five global technology centres, the others being in Texas, California and Louisiana in the United States, and Aberdeen in Scotland. These centres play a vital role in Chevron's global operations, assisting with the identification of new O&G exploration and production R&D opportunities individually, and in conjunction with external research partners. The Perth Technology Centre services Chevron's Asia Pacific operations which account for 25 percent of Chevron's global production and provides targeted support in areas such as earth sciences, technical computing, reservoir and production engineering, health, environment and safety, facilities engineering and drilling and completions.

The Perth Technology Centre was established in 2007, and currently employs 100 professionals including researchers, scientists, engineers and technical experts to stimulate research and development in Western Australia.

CHEVRON UNIVERSITY PARTNERSHIP PROGRAM

The Chevron University Partnership Program partners with universities around the globe to foster academic excellence and research capacity in O&G related disciplines. In Australia, Chevron has such partnerships with the University of New South Wales, University of Western Australia and Curtin University.

This program has included Chevron's participation in the Western Australian Energy Research Alliance (WA:ERA). Since the establishment of WA:ERA, Chevron has invested approximately A\$20 million in and executed over 50 projects through the alliance.

OPPORTUNITIES IN SUBSEA TECHNOLOGY

The Gorgon Project will be the largest subsea production system deployed in Australia. It will be comprised of between 20 and 30 development wells over a 30 year period, a network of subsea trees, cluster manifolds, flowlines and a control systems linked via umbilicals back to the remote operations centre at Barrow Island. Remotely operated vehicles, offshore work vessels and semi-submersible drill rigs will be used for inspection and maintenance of subsea systems.

In the case of Wheatstone, gas, condensate and associated aquifer water will be brought to the Earth's surface via a series of subsea wells and then transported through a network of subsea pipelines to a central processing platform. On the platform, water produced with the gas and condensate will be separated, cleaned and pumped back into the ocean. The gas and condensate will then be dehydrated, compressed and sent to the onshore facility via a 200 kilometre long subsea trunkline. This process will be controlled from personnel on the platform.

Scientific and technology services for these large, technically complex projects will be provided by Chevron's Perth Technology Centre, with opportunities for Chevron's local external research partners to undertake research and participate in technology development.

OPPORTUNITIES IN CO₂ INJECTION TECHNOLOGY

Decreasing CO₂ emissions from major stationary sources is a major challenge for global industry, particularly in jurisdictions that have introduced carbon emissions pricing or taxation. Carbon Capture and Storage (CCS) by means of geological sequestration has an important role to play in the mitigation portfolio, particularly in relatively stable geological environments such as Australia. Indeed there are currently 13 CCS projects at stages of development ranging from feasibility to operational in Australia.

The CO₂ injection project that is an integral component of the Gorgon Project has the potential to position Australia as a world-leader in commercial scale CO₂ injection technology. Located on the central eastern coast of Barrow Island, once operational the CO₂ injection facility associated with the Gorgon Project will inject up to four times more CO₂ underground than any similar existing project in the world. Once the CO₂ is injected into the subsurface, it will continue to move through the host reservoir, driven by the injection pressure and natural buoyancy until it becomes trapped. The project will inject a total of 120 million tonnes of CO₂ over the life of the project. The project will cost approximately A\$2 billion. A contract has been awarded to GE for the development of the injection units.

Chevron Australia is a core industry participant in the Australian CO₂ Cooperative Research Centre, a research collaboration between Geoscience Australia, CSIRO, Curtin University, GNS Science, Monash University, University of Adelaide, University of Melbourne, University of New South Wales, University of Western Australia and 22 other private and public sector partners.

ENVIRONMENTAL RESEARCH

A wide range of environmental research programs has been undertaken by Chevron Australia in conjunction with local research organisations. In relation to the Gorgon project, such environmental research programs have included:

- Gorgon dredging simulation studies
- Quantification of suspended sediment concentrations and sedimentation associated with pipeline installation directional drilling from the west coast of Barrow Island
- Barrow Island flora and vegetation surveys
- Barrow Island protected marine species
- Sea turtle census monitoring program
- Sea turtle hatching arena experiments
- Barrow island light survey
- Marine benthic habitats
- Barrow Island intertidal habitats
- Barrow Island marine surveys
- Plant pathogen threats to Barrow Island
- Measurement and model prediction of ocean currents and tides and Barrow Island, North Western Australia

COMMUNITY INFRASTRUCTURE AND SOCIAL INVESTMENTS

The Wheatstone onshore facility is located on a remote part of the Western Australian coast, with very limited existing infrastructure. Chevron Australia is undertaking considerable upfront investment in roads, accommodation and water infrastructure in Onslow and at and around the project site at Ashburton North. As part of the Wheatstone Project, Chevron Australia has committed approximately A\$200 million to physical and social infrastructure projects in Onslow, including upgrades to power and health services, and the expansion of school and childcare facilities and emergency services. Chevron Australia will also upgrade the Onslow Airport, develop a recreation and aquatic centre, picnic area and playground in Onslow. Additionally, the Company has committed A\$20 million to the A\$30 million Onslow Community Development Fund, with the Government of Western Australia providing the other A\$10 million. This fund will be used by the Shire of Ashburton to revitalise the town of Onslow through investment in a range of projects including community and sporting facilities, youth services programs and amenity improvements.

Chevron's Community Spirit Grants program supports local community organisations in the towns of Exmouth, Onslow, Karratha and Dampier.

In 2010, a binding Heads of Agreement was signed between Chevron and the Thanlanyji Peoples of Onslow, who hold native title in the Onslow Area. This agreement underpins a range of new education, employment and business opportunities and long-term sustainable benefits for local Aboriginal communities.

Marr Mooditj Training Inc. is an Aboriginal community controlled RTO that delivers training for national qualifications in health and community services to Aboriginal people. It is training people to deliver culturally appropriate health services in the region. The organisation has a 96 percent retention rate, with between 60 and 70 percent of student who undertake the program being still employed five years after graduation. Chevron Australia provides scholarships to students enrolled in Certificate III, Certificate IV and Diploma Level qualifications in Aboriginal and Torres Strait Islander Primary Health Care.

Finally, employees of Chevron Australia are encouraged to spend one paid day per annum volunteering on community projects. During 2011, close to 700 Chevron Australia employees volunteered nearly 4,200 hours to Australian communities and donated more than A\$80,000 of their own money to 38 Chevron community partners.

CONSERVATION INVESTMENTS

In 2010, Chevron received an APPEA Award for Excellence in Innovation and Environmental Management and the Gorgon Project's quarantine management system received the Environmental Category Award from the Western Australian Division of Engineers Australia, the peak industry body for the Australian engineering industry.

The Gorgon Project is located on a Class A Nature Reserve. The Gorgon gas processing facility occupies only 1.3 percent of Barrow Island's un-cleared landmass, and as part of the Gorgon Project's environmental approval process, the Project agreed to provide \$60 million to a Net Conservation Benefits Program, as well as committing approximately \$190 million in environmental offsets, including funding for a Department of Environment and Conservation presence of Barrow Island. Funding in the Net Conservation Benefits Program will provide financial support for conservation projects for the next 25 to 30 years. The Western Australian Minister for the Environment recently announced that the following projects would receive financial support equivalent to a total of A\$23 million from this fund:

- A\$8.5 million over seven years to the Dirk Hartog Island National Park for ecological restoration;
- A\$5.7 million over five years to the Western Australian Museum for the conservation of western Pilbara fauna;
- A\$7.19 million over five years to the University of Western Australia and CSIRO for managing the conservation of coral reef ecosystems in the Pilbara/Ningaloo region; and
- A\$2.04 million over five years to the Department of Environment and Conservation for a decision support system for prioritising and implementing biosecurity on Western Australia's islands.

In addition, Chevron Australia is committing A\$62.5 million over the life of the Gorgon Project to establish the North West Shelf Flatback Sea Turtle Conservation Program that will increase the protection of the entire population of these species.

INPEX CORPORATION IN AUSTRALIA

INPEX CORPORATION (INPEX) is a global O&G E&P company that is listed on the Tokyo Stock Exchange and owned 18.9 percent by the Japanese Government. As the Japanese national flag oil and gas company, INPEX’s mission is to secure a stable supply of energy for Japan, as well as to enhance corporate values and establish a competitive mid-sized international E&P company within the next decade. It currently has more than 70 O&G projects across 26 countries.

Since INPEX commenced operations in Australia in 1986, it has invested over A\$5 billion in exploration, development and production projects. The US\$34 billion Ichthys LNG Project and other exploration blocks surrounding the Ichthys field are the Company’s operated projects in Australia. However, INPEX also has significant non-operated interests in offshore Western Australia and the Timor Sea, as well as in existing on-shore LNG processing in Darwin, Northern Territory.

Table 6 below summarises INPEX’s Australian production and development portfolio.

Project	Description	INPEX’s Interest
Ichthys LNG Project	Gas and Condensate Development	66.07% operator interest
Prelude FLNG Project	Gas and Condensate Development	17.50% non-operator interest
Coniston	Oil Development	47.49% non-operator interest
Van Gough	Oil Production	47.49% non-operator interest
Ravensworth	Oil Production	28.50% non-operator interest
Kitan	Oil Production	35.00% non-operator interest
Bayu-Undan (Darwin LNG)	Gas and Condensate Production	11.37% non-operator interest
Griffin	Oil and Gas Production	20.00% non-operator interest
Elang, Kakatua & Kakatua North	Oil Production	21.209% non-operator interest

Table 6 – INPEX’s Australian Development and Production Interests

The discussion in the following sections focuses on the development of the Ichthys LNG Project. It is anticipated that the Ichthys LNG Project will increase Northern Territory GSP by almost 18 percent per annum, growing the Northern Territory economy to 7.6 times its current size over the life of the Project. It will increase export income by A\$1.8 billion per annum and Australian GDP by 0.2 percent per annum. The project will also pay PRRT, income tax and other charges and duties to Australian Governments over the life of the Project.

ICHTHYS LNG PROJECT

Ichthys LNG

Project Ownership

INPEX	66.070% operator interest
Total	30.000% non-operator interest
Tokyo Gas	1.575%
Osaka Gas	1.200%
Chubu Electric	0.735%
Toho Gas	0.420%

During the period 2000 to 2001 an exploration program conducted by INPEX on its 100 percent owned Browse Basin permit (WA-285-P) resulted in the discovery of the Ichthys gas and condensate field, approximately 200 kilometres northwest of Western Australia. In 2006, INPEX transferred a 24 percent interest in the Ichthys LNG Project to Total. In September 2008, the joint venture selected Darwin as the site for the project's

onshore LNG processing facility. The project achieved FID in January 2012, with an associated capital expenditure of US\$34 billion for its development. Construction of the LNG plant in Darwin commenced in April 2012.

During 2011 to 2012, equity interests in the project were transferred to several Japanese utility companies and in July 2012, INPEX transferred an additional 6 percent interest in the Ichthys LNG Project to Total, subject to approval from the Australian Government.

Gas from the Ichthys field will be sourced from up to 50 subsea wells and undergo preliminary processing on a semi-submersible offshore Central Processing Facility to remove water and raw liquids, including the greater portion of the condensate. The removed condensate will be pumped to a FPSO facility anchored nearby, from which it will be offloaded to sea cargo for freight to overseas markets. The gas will be transported from the central processing facility, via a 889 kilometre long trunkline to the LNG processing facility in Darwin.

The Ichthys LNG Project is expected to produce 8.4 million tonnes of LNG and 1.6 million tonne of LPG per annum, along with approximately 100,000 barrels of condensate per day at peak. The project is expected to have 40 year operational life.

By January 2012, INPEX and its joint venture participants had entered into sales and purchase agreements with Chubu Electric Power Company, Toho Gas Company, CPC Corporation, Taiwan, Tokyo Electric Power Company, Tokyo Gas Company, The Kansai Electric Power Company, Osaka Gas Company and Kyushu Electric Power Company equivalent to 6.52mtpa of LNG, or approximately 78 percent of the Ichthys Project's LNG production capacity. The remaining production has been acquired by INPEX and Total themselves.

LOCAL CONTENT

Like most large scale O&G projects, Ichthys brings together expertise and capacity from around the globe including companies such as the JKC Joint Venture (JGC Corporation, KBR and Chyoda Corporation), GE, Daewoo, McDermott International, Technip, Air Products, Mitsui, Samsung, SBM Offshore, Boskalis and Saipem. Many of these companies sub-contract components of their contracts back to Australian firms. For example, BAMClough has a subcontract with the JKC Joint Venture for the construction of the loading jetty and the Australian Division of INTECSEA has been subcontracted by McDermott International for design engineering services.

As at 30 June 2012, INPEX had spent approximately A\$5.0 billion with Australian based businesses on the construction of the Ichthys LNG Project, including with over 65 Northern Territory based businesses. Table 7

below summarises examples of some of the contracts that have been awarded to Australian based businesses for the construction of the Ichthys LNG Project.

Australian Based Firm	Contract	Approx. Value	Approx. Number and Location of New Jobs
East Arm Civil	Upgrade of a heavy haulage transport route to the onshore gas facility construction site	A\$9.0m	25, Darwin, Northern Territory
MacMahon and John Holland Joint Venture	Onshore LNG plant site development and civil works	A\$340m	n.a.
Laing O'Rourk	Construction of the accommodation village in Howard Sprints, Darwin	A\$260m	n.a.
BAM Clough	Design and construction of the LNG loading jetty	A\$370m	n.a.
Clough Doris Joint Venture	Offshore integrated project management support services	A\$250m	300
INTECSEA Australian and New Zealand Division	Project management and design engineering of flowlines, riser systems, subsea structures, umbilicals and control systems	n.a.	n.a.
Heerema Marine Contractors Australia	Transportation and installation of infield flowlines and subsea structures and mooring	n.a.	n.a.

Table 7 - Examples of Contracts Awarded to Australian Based Companies for the Ichthys LNG Project

EMPLOYMENT AND TRAINING

Construction of the gas processing facilities in Darwin and the offshore central processing facility and FPSO will create 5,000 and 1,000 new jobs respectively at peak construction. When operational, the Ichthys LNG Project will employ approximately 700 persons.

In 2009, the Larrakia Development Corporation and INPEX signed a memorandum of understanding to identify and, where practical, seek employment, training and business opportunities for the Larrakia People. At the same time the Ichthys Joint Venture donated \$3.0 million to the construction of the Larrakia Trade Training Centre by the Larrakia Development Corporation. The purpose of the Larrakia Trade Training Centre is to deliver literacy and numeracy skills so that aspiring tradespeople have an adequate level of literacy and numeracy to complete trade qualifications, as well as some limited trade skills development in the areas of metal fabrication, welding, civil construction, general construction, electrical and refrigeration trades.

RESEARCH, DEVELOPMENT AND TECHNOLOGY

TECHNOLOGY

The Ichthys LNG Project will be constructing, deploying and operating the world's largest semi-submersible platform. This Central Processing Facility will have topside infrastructure weighing over 70,000 tonnes to separate the production stream into condensate that will be transferred to the FPSO and natural gas that will be delivered to the Darwin LNG facility via a 889 kilometre long subsea pipeline.

UNIVERSITY PARTNERSHIPS

Additionally the Ichthys Joint Venture has provided A\$3 million to Charles Darwin University toward the establishment of the North Australian Centre for Oil and Gas. This Centre will offer cutting edge research services and accredited education and training to support the oil and gas industry in the region. Charles Darwin University already offers a range of engineering and VET courses relevant to the oil and gas industry, along with new courses such as the Associate Degree in Process Engineering that was designed in consultation with industry. Charles Darwin University is also offering a certificate course in process operations that is delivered in conjunction with Challenger TAFE's Australian Centre for Energy and Process Training.

INPEX is a core industry participant in the CO₂CRC, an Australian research collaboration between Geoscience Australia, CSIRO, Curtin University, GNS Science, Monash University, University of Adelaide, University of Melbourne, University of New South Wales, University of Western Australia and 22 other private and public sector partners. A major focus of the CO₂CRC is the development of technologies and systems that facilitate the efficient and effective geo-sequestration of CO₂ that is produced from the gas sweetening process.

ENVIRONMENTAL RESEARCH

The Ichthys joint venture partners have committed A\$91 million to a social and environmental package in Darwin and the Northern Territory. Within this package the following research is being undertaken:

- A long-term survey of coastal dolphins to improve understanding of dolphin numbers, distribution and critical resource needs;
- Production of habitat maps of the Darwin region that will provide baseline information for future coastal planning;
- As part of its EIA process, INPEX has undertaken extensive studies and surveys gathering information on marine turtles and whales along the extensive Western Australian Kimberley coastline. The results from this A\$15 million investment by INPEX will be published;
- A project in collaboration with the Northern Territory Government that will pursue savannah fire management opportunities that will offset some greenhouse gas emissions; and
- Darwin Harbour integrated monitoring and research program aimed at understanding the health of the harbor through funding and implementing important research and development programs over the life of the Ichthys LNG Project

COMMUNITY INFRASTRUCTURE AND SOCIAL INVESTMENT

In addition to the A\$91 million social and environmental package committed to by the Ichthys LNG Project, INPEX sponsors a range of community organisations in the Northern Territory and Western Australia including:

- Darwin Harbour Cleanup Day
- Fred's Pass Show
- Palmerston Festival
- NT Volunteer
- Coast Guard
- NT Training Awards
- Palmerston Golf Open
- Darwin Australia Day Fund Run

- NT Thunder Football Club
- Kimberley Art Prize
- Djarindjin Community Spirits Award
- Derby Boab Festival
- Broome and Derby Volunteer Sea Rescue Groups
- Djarindjin Sea Scouts

In 2011, INPEX also donated over A\$3.0 million to the Queensland Premier's Flood Relief Appeal, Victorian Bushfire Appeal and the City of Perth Lord Mayor's Gascoyne and Mid West Floods Appeal.

In 2009, INPEX signed an agreement with the Djarindjin Aboriginal Coproation, who manage the Djarindjin-Lombadina Airport on behalf of the Bardi Jawi People, for the long-term management of the Airport. In partnership with the Western Australian Government, INPEX undertook a major upgrade of the airport, which now guarantees access for emergency evacuation from the Browse Basin fields.

CONSERVATION INVESTMENTS

INPEX is funding a program that allows for Aboriginal groups to actively manage marine mammals and turtles along the Territory coast, securing conservation status and increasing employment in disadvantaged areas.

SHELL IN AUSTRALIA

Shell is a global group of energy companies that collectively employ around 90,000 staff in more than 80 countries. Shell is the world's largest commercial producer of LNG.

Shell has maintained an operational presence in Australia since 1901. It has played an important historical role in the development of the Australian upstream and downstream petroleum industry, including:

- In the early 1900s when Shell ships delivered the first bulk cargos of petroleum products to Australia;
- An extensive onshore and offshore exploration program that has operated since the late 1940s;
- The 'dealer plan', or solo marketing, which was introduced in 1951 and has been hailed as the most significant single development in Australia's petroleum marketing history, resulting in lower distribution costs and ultimately lower petrol costs for consumers; and
- Significant investments in refinery capacity.

Today Shell has significant investments in both the downstream petroleum refining and marketing business, and in the upstream production and processing of LNG, employing around 2,250 people in its Australian operations.

The company's refining and marketing business manufactures and supplies petrol, LPG, diesel, aviation fuel, propylene, solvents and bitumen products that meet approximately 25 percent of Australia's total petroleum product consumption. It distributes these products to reseller, mining, construction, transport and industrial sector markets, as well as to retail customers through a nation-wide network of 900 branded service stations, mostly operated by Coles as Coles Express outlets.

Shell has equity in a significant portfolio of LNG production, development and exploration projects in Western Australia, Queensland and the Northern Territory. The company is the operator of the Prelude Floating LNG project, which is currently in the execution phase after FID was taken in May 2011. Shell also has 50% equity in Arrow Energy, which is developing a coal seam gas to LNG project in Queensland. Shell's current equity LNG production from Australia is approximately 3mtpa.

The Prelude Floating LNG project is at the forefront of Shell's considerable investment in integrated gas projects. The company expects to invest around A\$30 billion in Australian projects over the next five years.

Table 8 below summarises Shell's Australian production and development portfolio.

Project	Description	Shell's Interest
North West Shelf ²¹	Gas Production	16.67% equity interest
Gorgon	Gas Development	6.4% equity interest
Greater Sunrise	Gas Development	26.6% equity interest
Wheatstone	Gas Development	6.4% equity interest
Browse ²²	Gas Development	26.6% equity interest
Arrow Energy	Coals Seam Gas Production	50.0% equity interest
Prelude	Gas Development	72.5% equity interest & Operator

Table 8 – Shell's Australian Upstream Interests

It has been estimated that the Prelude Project will contribute more than A\$12 billion in total taxation payments to Australian Governments over the life of the project.

PRELUDE FLNG

Prelude Floating LNG Participation

Shell	72.5% operator interest
Inpex	17.5%
Kogas	10%

During the period 2007 to 2009, Shell discovered the Prelude and Concerto gas fields in a then 100 percent Shell owned permit in the offshore Browse Basin, 475 kilometres north-north-east of Broome, Western

Australia. Both Prelude and Concerto are relatively small fields with a combined resource of approximately 3tcf of gas. The size of these fields, combined with their distance from shore, renders their development using Shell's Floating LNG option, which processes the gas in situ without the need for a trunkline to shore or onshore processing, as the optimal development solution.

Shell expects the Prelude Floating LNG development to be a world-leading application of LNG technology. The Prelude FLNG facility will process 3.6mtpa of LNG, as well as condensate and LPG, on a floating facility positioned directly over the gas field. Products will then be loaded at sea and exported direct to customers.

The Prelude FLNG vessel will be 488 metres long and 74 metres wide, with a fully-loaded weight of approximately 600,000 tonnes, which is six times the weight of the world's largest aircraft



²¹ In addition to Shell's 16.67 percent direct interest in the North West Shelf Joint Venture, Shell also has a 24.3% interest in the issued capital of Woodside, which in turn has a 16.67% operator interest in the North West Shelf Joint Venture.

²² Shell's current interest in the Browse Project is a 9.4 percent unitized interest. Once Chevron completes the sale of its interest in Browse to Shell, Shell's unitized interest will be 26.6 percent.

carrier. It is designed to be moored at location for a continuous 25 years, irrespective of weather conditions, and is rated to withstand 1 in 10,000 year weather events.

The key benefits of FLNG technology are the ability to be deployed in smaller, remote offshore fields that may not otherwise be developed using conventional means, and the reduce capital and operating costs and environmental footprint.

The economic benefits of FLNG technology are summarised below:

- FLNG can be deployed in smaller, remote offshore fields (“stranded gas”) that would be uneconomic to develop via traditional onshore LNG facilities;
- Significant capital and operating cost savings from the elimination of the need for long-pipelines, compression platforms to push production gas to shore, near-shore works such as dredging and jetty construction and onshore development such as roads, lay-down areas and accommodation facilities.

In addition FLNG has a significantly smaller environmental footprint than conventional offshore-to-land based LNG developments because it uses fewer materials and requires less infrastructure, as outlined above.

LOCAL CONTENT

The contract for the design, construction and installation of the Shell proprietary designed facility was awarded to a consortium comprising Technip and Samsung, with construction taking place at the Geojje shipyard in Korea, one of the few shipyards in the world that is large enough to undertake construction of the enormous floating facility.

Shell has worked closely to identify and capture opportunities for local suppliers to deliver products and services during the construction phase. The location of the main construction base in South Korea has created challenges for local suppliers, but a number have become involved and will be involved in supplying Australian content to the project.

The drilling of the wells, installation of the subsea facilities, construction of the Onshore Support Centre in Darwin and the installation of a monitoring room in the Perth office will all occur in Australia. Once the FLNG facility is deployed to location in Australia, and begins operation for the next 20-25 years, the local content will be similar to that achieved for other Australian LNG projects.

During the operations phase, the Prelude project will source supplies and services from Australian-based businesses. An independent analysis of the Prelude project undertaken by ACIL Tasman found that the project would spend approximately \$12 billion on Australian goods and services over its 25 year life.

Local content opportunities during operations include the employment of a skilled local workforce to operate and maintain the offshore facility; the provision of aviation, drilling and marine support services out of Broome; and the provision of supply and maintenance services in Darwin, through the establishment of a marine supply base at Darwin Port and the engagement of local workshops to provide maintenance services.

Shell has an Australian Industry Participation Plan and seeks to maximise the opportunity for Australian companies to participate in the Prelude project, using the Industry Capability Network for advice and advertising opportunities on their websites. Progress will be reported on these websites when contracts are awarded.

EMPLOYMENT AND TRAINING

An independent analysis undertaken by ACIL Tasman estimates that the Prelude project will create approximately 350 direct jobs, and 650 indirect jobs in Australia during operations.

Shell is working with local education institutions to find and develop people with the skills needed to operate its world-first FLNG technology.

Shell will pioneer international training for FLNG technology in Western Australia, through the Global Centre for Floating LNG Learning and Research, a partnership between Shell, Curtin University and the Challenger Institute. This centre is a multi-million dollar commitment that will train future operators of FLNG from Australia and around the world, bringing together a mix of processing, offshore and marine skills in Western Australia.

RESEARCH, DEVELOPMENT AND TECHNOLOGY

FLNG technology has the potential to become increasingly relevant in Australia, particularly where conventional LNG projects face significant challenges from economic or other risks. The CSIRO has estimated that Australia has around 140tcf of natural gas resources contained in currently sub-economic stranded fields. Floating LNG has the potential to reach gas resources that otherwise would likely not be developed in the near or medium term. Their development would see royalties and taxation revenues to flow from these resources.

Through the Prelude Development, Shell is the first company to commit to Floating LNG. The Prelude FLNG facility is a Shell proprietary design, and the company has awarded a contract for the design, construction and installation of multiple FLNG facilities over a period of up to 15 years to an international consortium comprising Technip and Samsung Heavy Industries.

Shell Australia is driving the commercial and operations aspects of the development, using Shell's worldwide resources. This has the potential to establish Perth as a leading centre for FLNG development.

TECHNOLOGY

In terms of scale and complexity, the Prelude FLNG will be a world first oil and gas production technology. It presents Australian research organisations and technology development companies an opportunity to develop world class expertise in areas that are core to FLNG facilities, which will become an increasing component of the global production portfolio. An example of this is the University of Western Australia's Centre for Offshore Foundation Systems, which has been working with Shell on the anchoring systems for the Prelude FLNG facility.

UNIVERSITY PARTNERSHIPS

At the University of Western Australia, Shell has helped establish a new professorial chair in metocean engineering and offshore foundations, which will strengthen education and research in a field that is becoming increasingly important as the oil and gas industry expands into new offshore basins off Australia's coast.

The agreement between Shell Australia and The University of Western Australia involves the appointment of the Shell EMI Chair in Offshore Foundations-Metocean Engineering, as well as two research assistant professors and two PhD students.

ENVIRONMENTAL RESEARCH

As part of the preparation of an Environmental Impact Assessment, Shell undertook an environmental baseline study in the region around the Prelude gas field. This included participation in a study of blue whales and other cetaceans that confirmed that 200km offshore in the Prelude location there is hardly any whale activity.

Shell is sponsoring a three year research study by Curtin University into the population and diversity of Northern Demersal Scalefish species in the area offshore the Kimberley region.

Shell is engaging leading environmental researchers through the Western Australian Marine Science Institute (WAMSI) to undertake further baseline monitoring ahead of production start-up, and then at intervals during the production life of the facility. They will also develop a monitoring system to be deployed immediately should an oil spill occur so that any impacts on the marine and bird life can be accurately determined and effective mitigation developed.

COMMUNITY INFRASTRUCTURE AND SOCIAL INVESTMENT

Through its national social investment program, Shell will invest around \$15 million in Australia over the next three years. This program comprises national, State and local level initiatives and focuses primarily on education and encouraging interest in science particularly with respect to Indigenous and remote communities.

While the Prelude FLNG project is located some 200 kilometres off the Kimberley coast, Shell is continuing to develop its community relationships in the Kimberley and Northern Territory, with social investment partners in Broome, East and West Kimberley and Northern Territory. Shell social programs and partnerships that are relevant to Prelude by virtue of reach into Western Australian and Northern Territory communities are summarised in Table 9 below.

National Programs	State Programs
<p><i>Shell Questacon Science Circus</i> An award-winning science education outreach program run through Questacon (National Science and Technology Centre and Australian National University) which has generated interest and extended knowledge to more than 80,000 school students, teachers and families in regional and remote communities around Australia.</p>	<p><i>Engineers Australia Northern Division</i> Engineers Australia is the peak industry body for the Australian engineering profession. The Science, Maths and Real Technology (SMART) program was developed by the University of Newcastle and is an entertaining science show that helps the audience explore science. Through Shell, Engineers Australia is taking the SMART roadshow to 4,000 primary school students in the Northern Territory.</p>
<p><i>Indigenous Community Volunteers</i> Indigenous Community Volunteers (ICV) is a program whereby Indigenous communities invite ICV to partnership in the development of human capacity in their communities to improve quality of life, health, social and economic wellbeing and inclusion within Australian society. ICV is operating in communities in the West and East Pilbara, Perth, Darwin, Brisbane, Cairns, Alice Springs, Melbourne and Western Sydney.</p>	<p><i>David Wirrpunda Foundation</i> The David Wirrpunda Foundation was established to improve life outcomes for Indigenous Australian children by promoting strong role models and healthy life choices. Shell is supporting the Foundation's Deadly Sista Girlz program which offers a stable environment in which girls can discuss current and personal issues that they might be facing, as well as The Wirra Club, a rewards based program aimed at keeping Indigenous children in school and improving their standards of behavior and achievement.</p>
<p><i>Foundation for Young Australians</i> Foundation for Young Australians (FYA) is a program designed to encourage students from low socio-economic government schools to stay at school through to Year 12, develop their strengths and pursue their future passions. Shell's investment in FYA will contribute towards 2,000 year</p>	<p><i>Blue Earth Foundation</i> The Blue Earth Foundation is focused on enhancing the health and wellbeing of Australian school children. It achieves this by providing a Professional Learning Program</p>

National Programs	State Programs
<p>10 students from schools in the Northern Territory, Queensland, Victoria and Western Australia having the opportunity to investigate what it takes to succeed in life and work, through personal contact with employees and executives in the workforce</p> <p><i>Earthwatch Australia</i> Earthwatch Australia provides an innovative funding model for scientific research by matching volunteers from around the world with suitable conservation research projects. Earthwatch, CSIRO and Shell, as well as other collaborating organisations, are implementing Shell TeachWild, a program that will deliver a national partnership that connects regional and remote teachers, students and Shell employees through experimental learning aimed at tackling the global issue of marine debris.</p> <p><i>Australian Indigenous Mentoring</i> Australian Indigenous Mentoring provides a unique style of education-based mentoring to Indigenous Australian high school students, utilizing university student volunteers as role models and mentors. Its goals are to improve Year 10 completion rates, Year 12 completion rates and university admission rates for all participating students.</p>	<p>for teachers with the key objective being to instill a lifelong love of physical activity in students, teachers, schools and communities.</p> <p><i>Indigenous Communities Education Appeal (ICEA) Foundation</i> The ICEA Foundation endeavours to provide Indigenous children in remote communities with opportunities to enhance their educational experience. It also focuses on developing a greater understanding and awareness of Indigenous culture within the Australian community.</p> <p><i>Kimberley Land Council</i> The Kimberley Land Council (KLC) works for the protection of traditional lands, waters, customs, laws and traditions of the Kimberley Traditional Owners. With the support of Shell, the KLC is implementing a project seeking to document Traditional Knowledge of the Nurrara people to ensure the maintenance of their land management traditions.</p> <p><i>Stride Foundation</i> The Stride Foundation is dedicated to helping improve the physical, mental and social wellbeing of young people and their communities through education and community development programs across Australia. In Western Australia, Stride is working with Shell and two schools to deliver Online Dreaming, a program aimed at re-engaging young people with their education and improving their employment prospects through mentoring from role models within the technology and multimedia industry.</p>

Table 9 - Shell Social Investments in Western Australia and the Northern Territory

CONSERVATION INVESTMENTS

Shell Australia is a signatory to the National Packaging Covenant, implementing various initiatives to reduce, reuse and recycle packaging. Shell Australia also participates in the Australian Government's Energy Efficiency Opportunities Program, which aims to encourage large energy-using businesses to improve their energy efficiency by requiring them to identify, evaluate and report publically on cost effective energy saving opportunities.

WOODSIDE: NORTH WEST SHELF, PLUTO, BROWSE AND GREATER SUNRISE

WOODSIDE IN AUSTRALIA

While Woodside has deep water production interests in the Gulf of Mexico, as well as exploration interests in the United States, Peru, Brazil, the Republic of Korea and the Canary Islands, its main operational assets are located in offshore, Western Australia.

Woodside was founded in Australia almost 60 years ago. Today, it is Australia's largest independent dedicated O&G company and operator of O&G production, with its operated assets accounting for around 40 percent of Australia's current O&G production. Woodside is also the most active O&G exploration company in deepwater Australia, having participated in approximately 36 percent of all historical deepwater wells in offshore Australia and currently holding more offshore exploration permits in Australia than any other O&G company.

Woodside's operator interests in the North West Shelf Project and Pluto LNG near Karratha, Western Australia position Woodside as a leading global operator of LNG plants. Woodside produces approximately 900,000boe each day from the facilities that it operates on behalf of some of the world's largest O&G companies, including many of those discussed in this case study series. The facilities operated by Woodside include six LNG trains, five offshore production platforms and four FPSO vessels.

As summarised in Table 10 below, Woodside has an extensive portfolio of development and operational interests in Australia. Woodside's oil production interests in the Cossack, Wanaea, Lambert, Hermes, Vincent, Enfield, Stybarrow and Muntineer-Exeter fields offshore Western Australia and the Laminaria-Corallina fields in the Timor Sea account for approximately 23 percent of its total petroleum production.

Project	Description	Woodside's Interest
North West Shelf (Angel, Goodwyn A, & North Rankin A Platforms; Karratha Gas Plant; Okha FPSO; North Rankin Redevelopment and Greater Western Flank)	Gas, Condensate and Oil Production	16.67% operator interest (33.34% operator interest in Okha FPSO)
Vincent-Ngujima-Yin FPSO	Oil Production	60% operator interest
Enfield-Nganhurra FPSO	Oil Production	60% operator interest
Laminaria-Corallina-Northern Endeavour FPSO	Oil Production	59.9% operator interest in Laminaria 66.67% operator interest in Corallina
Stybarrow Venture MV16 FPSO	Oil Production	50% non-operator interest
Muntineer-Exeter-MODEC Venture II FPSO	Oil Production	8.2% non-operator interest
Pluto LNG	Gas and Condensate Production	90% operator interest
Browse	Gas Development	31.3% operator interest
Sunrise	Gas Development	33.44% operator interest

Table 10 – Woodside's Australian Development and Production Interests

Production from the North West Shelf Project contributes more than A\$5.0 billion each year to total State and Federal taxes and royalties. As Pluto LNG gears-up to full production and production from the Browse and Greater Sunrise projects potentially come on stream in the future, Woodside's operated asset portfolio will become a major contributor to Federal, State and Territorial Government revenues. However, above and beyond this Woodside operated projects are making considerable contributions to the nation in the form of

opportunities for local businesses to provide supplies and services to the projects, employment and training opportunities associated with the projects and research, development and technology, social and common infrastructure and environmental conservation investments.

The following discussion focuses on the North West Shelf Expansion, Browse and Sunrise projects as current development projects, and Pluto LNG as a project that has produced first gas this year.

NORTH WEST SHELF

North West Shelf Ownership

Woodside	16.67% operator interest
Chevron Australia	16.67%
BHP Billiton Petroleum	16.67%
Shell Development Australia	16.67%
BP Developments Australia	16.67%
Japan Australia LNG (Mitsubishi and Mitsui)	16.67%

To date, the North West Shelf Project partners have invested approximately A\$27 billion in the North West Shelf Project, and since 1989 the North West Shelf Project facilities have delivered more than 3,500 LNG sea cargos.

Production from the Angel, Goodwyn A and North Rankin A platforms is piped to the Karratha Gas Plant. The five LNG trains and domestic gas plant facilities near Karratha, Western Australia collectively produce

around 2.6bcf of gas per day, accounting for more than 80 percent of Australia’s current LNG exports and supplying around 65 percent of Western Australia’s domestic gas supply. Production from the North West Shelf Project accounts for approximately 1 percent of Australia’s GDP.

While the North West Shelf Project has been in production for many years, it is of interest to this analysis because the joint venture partners have, in recent years, committed more than A\$9 billion in reserves and infrastructure development projects. These investments have included:

- *North West Shelf Oil Redevelopment Project* - involving the replacement of critical subsea infrastructure and the conversion of Okha production to an FPSO;
- *North Rankin Redevelopment Project* - involving an investment of approximately A\$5.0 billion in the installation of infrastructure for the recovery of low pressure gas from the North Rankin and Perseus gas fields; and
- *Greater Western Flank Phase I Project* - involving an investment of approximately A\$2.5 billion from December 2011 for the development of 16 fields located southwest of the Goodwyn A platform which are estimated to hold up to 3tcf of recoverable gas and 100mmbbls of condensate. Infrastructure will include subsea production facilities with a tieback to the Goodwyn A platform.



PLUTO LNG

Pluto Ownership

Woodside	90.0% operator interest
Kansai Electric	5.0%
Tokyo Gas	5.0%

The Pluto and Xena gas fields are located in the Carnarvon Basin, approximately 190 kilometres north of Karratha. Gas is produced from the Pluto field via a not normally manned platform that is connected to five subsea wells. Gas is piped from the platform via a 180 kilometre trunkline to the onshore Pluto LNG Park, located adjacent to the North West Shelf Project onshore facility. The Pluto LNG Plant comprises a single LNG train with a production capacity of 4.3mtpa as well as storage and loading facilities and jetty. From discovery of gas in 2005, to FID in 2007, to first gas in early 2012, Pluto LNG has been an exercise in rapid project development. At full capacity Pluto LNG is expected to contribute more than 100,000boe to Woodside's operated production. Pluto LNG is of interest to this analysis because it is a recently completed development project. Total capital expenditure on the Pluto LNG Project was A\$14.9 billion.

Pluto LNG Plant



BROWSE LNG DEVELOPMENT

Current Browse Ownership	Estimated Unitised Interest
Woodside	46.0% operator interest
Shell	9.4%
BP	17.2%
BHP	10.2%
Chevron	17.2%

The proposed Browse LNG Development is comprised of gas and condensate fields located in the Indian Ocean, 425 kilometres north of Broome, Western Australia. The Browse contingent resources in the Browse Basin are estimated at 15.5tcf of dry gas and 417mmbbls of condensate, making its Woodside's most

significant resource outside of the North West Shelf Project. According to current planning, production from these fields will be via a platform connected to a network of subsea wells, with production gas piped to an onshore gas processing facility located at the Western Australian Government's LNG Precinct at James Price Point, 60 kilometres north of the town of Broome on the Kimberley coast.

In order to support its future activities in the Browse Basin, Woodside became the foundation proponent of the Precinct. This precinct is designed to maximise the benefits and minimise the environmental and social impacts of LNG processing in the Kimberley by co-locating multiple LNG proponents at a single, suitable site. Following completion of the basis of design studies, the Browse Development entered FEED phase in 2010. The project is currently navigating an assurance and commercial evaluation phase, with the Browse Joint Venture aiming to be in a position to take a final investment decision on Browse in the first half of 2013. The Browse Development is expected to generate up to A\$50 billion in GDP for the Australian economy.

Browse Ownership Following Completion of MIMI-Woodside and Chevron-Shell Transaction	Estimated Unitised Interest
Woodside	31.3.0% operator interest
Shell	26.6%
BP	17.2%
BHP	10.2%
MIMI	14.7%

In May 2012, Woodside accepted an offer from Japan Australian LNG (MIMI Browse) Pty Ltd (MIMI) to purchase a minority portion of Woodside's equity in the Browse Development for US\$2.0 billion. In addition to equity participation, MIMI has entered into a long-term sales and purchase agreement with the Browse Development for approximately 1.5 million

tonnes of LNG per annum from the Browse Development. The transaction is approaching completion and once finalized will see MIMI take an estimated 14.7 percent equity interest in the Browse Development. Woodside's equity interest would decrease to 31.3 percent. Woodside will remain as operator.

In August 2012, Shell and Chevron announced a deal in which Shell will acquire Chevron's equity stake in Browse. Under the deal, Chevron will exchange its shares in the East and West Browse titles for Shell's holdings in two licenses in the Carnarvon Basin, further south. Shell will also make a US\$450 million cash payment to Chevron.

GREATER SUNRISE

Greater Sunrise Ownership

Woodside	33.4% operator interest
ConocoPhillips	30.0%
Royal Dutch Shell	26.6%
Osaka Gas	10.0%

The Greater Sunrise Development will develop the Sunrise and Troubador fields located in the Timor Sea, approximately 450 kilometres northwest of Darwin, Australia and 150 kilometres southwest of Timor-Leste. Approximately, 80 percent of these fields reside in

Australian waters, with the remainder located in the jointly administered JPDA. Development of the Greater Sunrise fields is the subject of two international treaties signed by the Australian and Timor-Leste Governments, which establish a framework for the development of the Greater Sunrise fields and provide for equal sharing of upstream Government revenues from the project.

LOCAL CONTENT

Since it commenced operations, almost 50 percent of Woodside's total infrastructure has been either sourced or manufactured in Australia. Much of that expenditure has been associated with the North West Shelf Project, which injects almost A\$600 million per annum into Australian based businesses through operational expenditure.

The North West Shelf Project has a strong track record and policies to ensure full and fair opportunity is given to Australian suppliers. In 2011, the North West Shelf Project reported:

- 86 percent local content for North West Shelf Project operations excluding exploration, development or project expenditure;
- 62 percent local content for the North Rankin Redevelopment Project; and
- 84 percent local content for the Cossack Wanaea Lambert Hermes Project (North West Shelf Oil Redevelopment).

Collectively, this local content expenditure amounted to approximately A\$600 million during the course of 2011.

By the end of 2011, approximately A\$7.6 billion worth of contracts had been awarded to Australian based businesses in relation to the construction of the Pluto LNG Project, representing just over 50 percent of the total capital cost. Table 11 below summarises examples of some of the Pluto Project construction phase related contracts that were awarded to Australian based businesses.

Australian Based Firm	Contract	Approx. Value
CB & I	LNG tanks and structural, mechanical and piping works	A\$690m
Leighton	Civil works	A\$240m
Monadelphous	Mechanical work	A\$600m
Kentz	Electrical and instrumentation work	A\$250m
Downer	Electrical and instrumentation work	A\$140m
Decmil	Civil works	A\$400m
Southern Cross Electrical	Electrical and instrumentation work	A\$70m
BGC	Civil works	A\$325m
RCR Fremantle (joint venture between RCR Tomlinson and Freo Group)	Site general services	A\$50m
Georgiou	Civil works	A\$150m

Table 11 - Examples of Contracts Awarded to Australian Based Companies for Pluto LNG

Both Browse and the Greater Sunrise projects are at a pre-FID phase. Nevertheless, both projects are working closely with local suppliers, including those based in communities that are in close proximity to the projects to identify opportunities. For example, in the case of Browse and subject to the project achieving FID and certain milestones, the Native Title Agreement with the Goolarabooloo Jabirr Jabirr Peoples provides for A\$5 million worth of contracting opportunities for Goolarabooloo Jabirr Jabirr businesses, as well as a joint venture with Goolarabooloo Jabirr Jabirr to build the workers accommodation.

EMPLOYMENT AND TRAINING

Woodside currently has approximately 3,850 employees and is supported by around 730 third party contractors. As a result of the North West Shelf and Pluto Projects, Woodside employs approximately 1,000 operational staff in the Pilbara city of Karratha, including approximately 500 employees who are permanent residents of Karratha, accounting for around 4 percent of Karratha's total population.

Indigenous employees currently comprise around 2.2 percent of Woodside's workforce and around 27 percent of the workforce is comprised of female staff members.

The construction workforce for Pluto peaked at around 4,000 personnel, and since construction commenced in 2007, the Project has delivered more than 15,000 Australian jobs.

As of May 2012, the Browse LNG Development employed 331 people and approximately 100 third party contractors and services providers. This team includes 13 Indigenous staff, including 11 from the Kimberley and 50 Indigenous trainees, of which 44 are from the Kimberley. It is anticipated that should Browse achieve FID, the construction workforce will peak at just under 6,000. Under the Native Title Agreement with the Goolarabooloo Jabirr Jabirr Peoples, 300 Kimberley Indigenous people will be employed during construction and the project will target an Indigenous participation rate in the operational workforce of 15 percent, subject to the project achieving FID and certain milestones.

As a corporation, Woodside has invested approximately A\$20 million directly in training and education every year since 2008. Training at Woodside is organised according to the following five main pathway programs:

- *Graduate Program* - which is a three year program that has seen over 450 university graduates employed into Woodside since 2001, including 145 graduates currently working within Woodside;
- *Internship Program* - which is a pre-Graduate program and has on average 50 people participate each year;

- *Onshore and offshore apprenticeships and traineeships;*
- *MY Program* - which is focused on up-skilling potential Indigenous employees so that they can progress into traineeships or direct employment with Woodside. During the period 2009 to 2011 a total of 40 participants entered the MY Program, 15 of which have been retained by Woodside and 19 who are still currently participating in the program; and
- *Business Administration Trainees Program* - which is focused on training Indigenous employees. During the period 2008 to 2011 a total of 36 business administration trainees and 11 cadets joined the program.

Currently, approximately 340 Woodside employees are engaged across these training programs (including 35 Indigenous employees) representing 7.35 percent of its workforce.

Currently, Woodside employs 75 trainees who are completing Certificate II and III qualifications in process plant operations, operations support, maritime, business administration, transport logistics and warehouse operations. Additionally, 58 apprentices are currently completing Certificate III and IV qualifications in mechanical fitting, electrical, communications technology and fabrication trades as employees of Woodside. Woodside works in collaboration with a number of Registered Training Organisations to deliver its apprentice and trainee programs including Karratha TAFE, Challenger TAFE’s Australian Centre for Energy and Process Training, Polytechnic West, Industrial Training Institute and other Registered Training Organisations in Perth and Karratha.

Of the 133 trainees and apprentices working on Woodside’s onshore and offshore facilities, only 51 are employed on a FIFO basis. Approximately 18 percent of Woodside’s apprentices and trainees are female.

Figure 4 below summarises the number of Woodside training participants over the past five years.

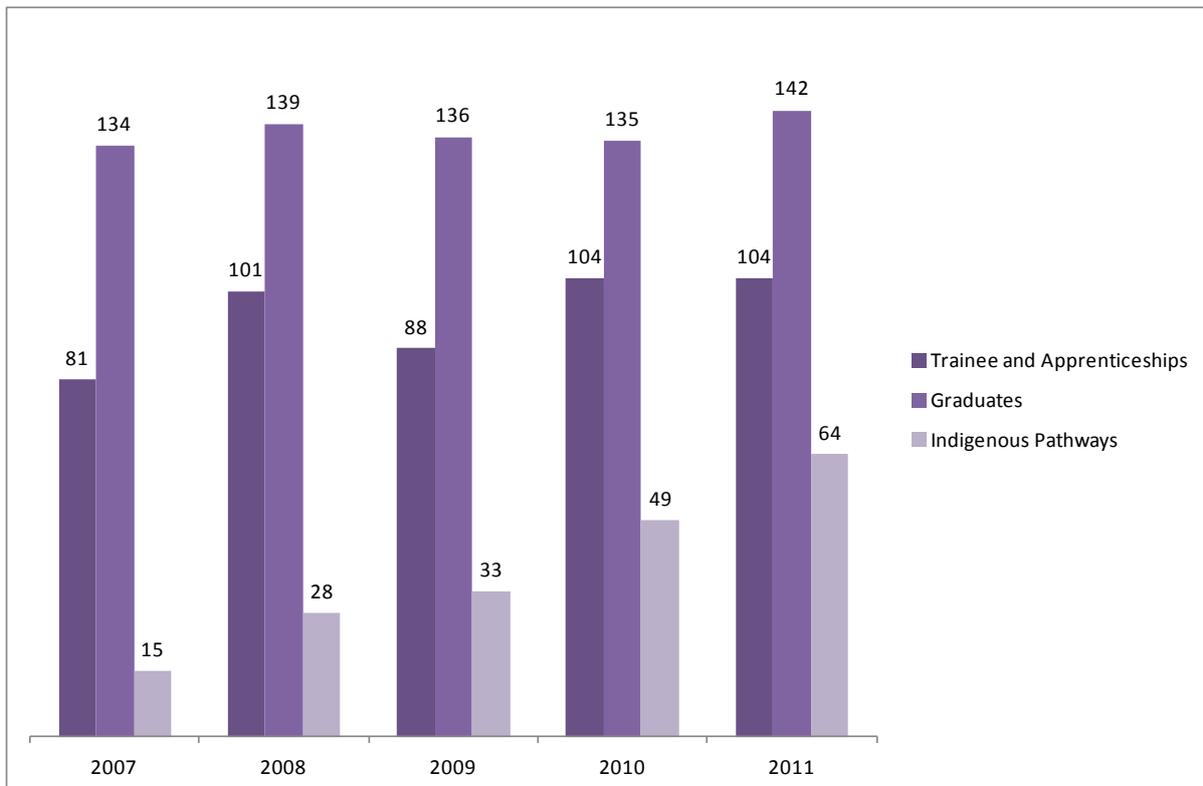


Figure 4 - Historical Woodside Trainees, Apprentices, Graduates and Indigenous Pathways Participation

Woodside also operates a Leadership for High Performance Program that offers employees across all aspects of its business the opportunity to develop leadership skills at three different levels of seniority. In 2011, a total of 247 employees attended the Leadership for High Performance Program and since the program's inception over 1,000 employees have participated. Woodside also offers all employees across the business access to technical training to continue to develop knowledge relevant to their professional skill set.

RESEARCH, DEVELOPMENT AND TECHNOLOGY

Woodside is a key supporter of O&G, environmental and resources business research in Western Australia.

TECHNOLOGY

Woodside is recognised as a technology leader in a number of areas. For example, Woodside has been an industry leader in big bore gas wells since 2000. High rate gas wells produce through 5 ½ inch tubing and achieve rates of around 100 million standard cubic feet per day. Whereas, Woodside's big bore technology can produce up to 400 million standard cubic feet per day through 9 5/8 inch tubing. Woodside was also the first operator in the world to drill large-bore 10 ¾ inch multilateral wells and Vincent²³ is the world's first subsea development based entirely on a multilateral system.

UNIVERSITY PARTNERSHIPS

Woodside funds professorial chairs in business leadership and petroleum geosciences, and co-funds the Woodside-Chevron chair in gas process engineering at the University of Western Australia. Woodside also part funded the O-tube testing facility at the University of Western Australia, a large scale model that facilitates modeling of the effect of cyclones on subsea pipelines and develop stabilization solutions. This model is the largest of its kind in the world.

Woodside is a partner in the Western Australian Energy Research Alliance (WA:ERA), a research collaboration between CSIRO, Curtin University, University of Western Australia, Woodside, Chevron Australia and CGG Veritas. This collaboration is conducting research into LNG and gas processing, unconventional gas production, deep water engineering, corrosion and reliability engineering, hydrates and flow assurances and geo sequestration.

ENVIRONMENTAL RESEARCH

Woodside funds scientific research with key partners that contributes to the understanding of the natural environment in which the Company operates. Since 1993, Woodside has invested, on behalf of the Browse Joint Venture over \$80 million in research and development designed to understand the marine and terrestrial natural environments in the Kimberley region. This includes major research projects, such as the Scott Reef Environmental Research Program undertaken with the Australian Institute of Marine Science and the Western Australian Museum, which is one of the longest running and most comprehensive studies of an offshore coral reef ecosystem ever undertaken. Similarly, a long-term partnership with the Western Australian Museum that is exploring marine biodiversity in the Kimberley and Pilbara regions of Western Australia has identified 10,700

²³ Vincent is a Woodside operated, offshore Western Australia oil field that is serviced by a FPSO

species to date, including 495 new species. This later project was awarded the Western Australian Premier's 2011 Award for Excellence in Public Sector Management.

In relation to the Browse operating environment, Woodside, on behalf of the Browse LNG Development, has and is continuing to fund numerous studies, including:

- Long term monitoring of marine turtles of Scott Reef
- Surveys of humpback whale migration patterns and behaviours in the Kimberley region
- Distribution and abundance of dugongs in the shallow waters of the Dampier Peninsula
- Distribution and abundance of sea snakes, sharks and seabirds along the Dampier Peninsula
- Surveys of fish communities and their association to benthic habitats in the region offshore from James Price Point
- Intertidal communities of the Dampier Peninsula
- Scott Reef biodiversity status
- Understanding nesting and inter-nesting activities of turtles on and adjacent to the Dampier Peninsula
- Satellite tagging of south bound female humpback whales in the Kimberley region
- Using noise loggers to understand the seasonality of whales in the offshore waters of the Browse region
- Baseline marine habitat survey of the Dampier Archipelago

Additionally, as a component of the Pluto LNG Project environmental conditions, Woodside has invested A\$3.2 million in the Western Australian Marine Science Institute to fund research into improving environmental management and mitigation of dredging activities.

COMMUNITY INFRASTRUCTURE AND SOCIAL INVESTMENT

In 2011, Woodside's equity-only voluntary social investment contribution was A\$7.7 million and its total social investments inclusive of management costs was A\$13.8 million. Approximately 17 percent of this investment was targeted at the Pilbara Region of Western Australia, 7 percent at the Kimberley Region of Western Australia, 51 percent at the rest of Western Australia, 15 percent to the rest of Australia and 10 percent internationally. In addition to Woodside's financial contribution, its employees donated approximately A\$242,000 to community organisations and contributed 3,484 volunteer hours.

Woodside's current investments in community infrastructure are focused primarily on Karratha and the Shire of Roeburne, which host the operational facilities of the North West Shelf and Pluto LNG Projects. Under the Karratha Infrastructure Investment Strategy (2008-13), Woodside has allocated approximately A\$30 million to support initiatives that focus on improving health, education, town amenity, recreation and childcare for residents of Karratha. A key element of the Karratha Infrastructure Strategy is that it facilitates partnerships between resources companies operating in the region, as well as with the State and Federal Governments to maximize the benefits of funding and ensures projects are consistent with community needs and government planning.

Projects that Woodside has contributed through the Karratha Infrastructure Strategy include:

- *Tambrey Early Learning and Care Centre and Extension of the Millars Well Day Care Centre* – which has resulted in approximately 200 new childcare places in Karratha;
- *Pilbara Health Initiative* – which funds critical health needs in the Pilbara such as access to medical specialists, hospital emergency department equipment, emergency transport and Indigenous health care workers;

- *Baynton Adventure Playground* – provides an all-ages outdoor recreation park based on climate-appropriate design;
- *Pilbara Institute and Woodside Mechanical Apprentice Project* – provides new teaching equipment and improved training outcomes of mechanical apprentices and tradespeople in the Pilbara; and
- *Youth Shed* – comprises an indoor children’s play space and café, a youth resource room and outdoor skate park.

The North West Shelf Project also provides a number of houses for use by Woodside’s not-for-profit community partners and essential service providers such as doctors and childcare workers.

In collaboration with Ngala, a provider of early parenting and early childhood services, Woodside supports the Nurturing the Pilbara Program. This program won a Global Excellence Award for Social Responsibility at the 20th World Petroleum Congress in Doha, Qatar in 2011 and focuses on providing proactive parenting education, resources and support to families living and working in remote and rural communities, as well as supporting FIFO parents.

Subject to achieving certain milestones the Browse LNG Development through the Native Title Agreement between the Goolarabooloo Jabirr Jabirr Peoples, Woodside on behalf of the Browse Joint Venture and the Western Australian Government provides for the following direct investments:

- A\$13 million paid to the Goolarabooloo Jabirr Jabirr traditional owners;
- A\$1.4 million paid to the Goolarabooloo Jabirr Jabirr per annum for ten years and then \$400,000 annually over the life of the project for business development
- Provides land in the Blue Haze to build the Goolarabooloo Jabirr Jabirr corporate offices;
- A Broome housing and land package
- A\$8 million for a remedial reading program
- A\$10 million for a ranger program.

Subject to certain conditions, this agreement also provides for the establishment of several funds, including:

- A\$20 million Regional Economic Development Fund
- A\$30 million Regional Indigenous Housing Fund
- A\$20 million Regional Education Fund
- A\$8 million Cultural Preservation Fund
- A\$108 million Kimberley Enhancement Scheme

CONSERVATION INVESTMENTS

In 2008, Woodside initiated the formation of the Industrial Communities Against Rubbishing Our Environment (iCARE) group. iCARE is a partnership between Dampier Port Authority, Woodside, Rio Tinto Iron Ore and Rio Tinto Dampier Salt that helps develop education programs to raise community and business awareness of the importance of securing loads on vehicles and not littering. During 2011, over 450 large bags of rubbish were collected by volunteers from the participating organisations.

The Woodside Coastal Conservation Program is focused on rehabilitating severely degraded pockets of the coastline around Perth, Western Australia, the location of Woodside’s global headquarters. This program, run in conjunction with Conservation Volunteers Australia, has injected over 10,000 community volunteer hours into priority coast conservation areas, including 4,500 volunteer hours from Woodside employees. During 2011, Woodside worked with Conservation Volunteers Australia to develop the Coastal Guardians Program, through which community volunteers have assisted in the Queensland Flood Recovery and on the

rehabilitation efforts at Lake Macquarie in New South Wales, the Great Ocean Road in Victoria and on Kangaroo Island in South Australia.

The execution of the A\$34 million Conservation Agreement that was signed with the Commonwealth Government in 2007 as part of the Pluto LNG Project will see Woodside continue to provide funding for a suite of programs designed to recognise, protect and conserve the National Heritage values of the Dampier Archipelago.

Should the Browse LNG Development achieve FID and subject to certain conditions, A\$15 million will be allocated to create and jointly manage conservation and heritage research on the Dampier Peninsula with the Western Australian Department of Environment and Conservation.