

### Environment and heritage

The NWS Project undertakes detailed planning and monitoring to ensure that impact on the natural environment is minimised.

The NWS Project participants recognise and respect the heritage values of the region, its ecologically important coastal zone and the marine environment.

### Health and safety

and takes very seriously its commitment to provide a workplace where health and safety is a priority.

This includes ensuring the integrity of assets throughout their lifecycle so that operation occurs without jeopardising the health and safety of our people.

The NWS Project employs more than 1,000 people at the Karratha Gas Plant, offshore operations, shipping fleet and in Perth.

### Economic benefits, local content and community investment

Production from the NWS Project contributes more than A\$5 billion each year in taxation and royalties\*

The NWS Project injects more than \$900 million a year directly into the Australian economy and with Australian businesses through payroll, operating costs and capital expenditure.

In the City of Karratha, the NWS Project participants have made significant investments in infrastructure and programs that support the social, cultural and economic capacity of the community. Since 2008, more than \$50 million has been spent on social investment and infrastructure projects in the Pilbara region.

The NWS Project has built local LNG capability in Western Australia, with close to half the Project's total infrastructure being sourced or manufactured in Australia since the beginning of operations.

Woodside has safely and reliably operated The NWS Project has a strong track record the NWS Project's facilities for over 30 years and policies to ensure full, fair and reasonable opportunity is given to Australian suppliers.

### Further information

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# AUSTRALIA'S LARGEST OIL AND GAS DEVELOPMENT

Representing an investment of more than A\$34 billion, the North West Shelf Project is Australia's largest oil and gas development and currently accounts for about one third of Australia's oil and gas production.



The North West Shelf (NWS) Project is a joint venture between six major international companies. It is one of the world's largest liquefied natural gas (LNG) producers, supplying oil and gas to Australian and international markets from huge offshore gas and condensate fields in the Carnarvon Basin off the north-west coast of Australia.

The NWS Project is Western Australia's largest single producer of pipeline gas and this world-class project has been and continues to be a major contributor to the Australian economy.

With a reputation for the safe and reliable delivery of LNG to customers, the NWS Project has delivered more than 4000 LNG cargoes since 1989.

In 2014, the NWS Project celebrated 25 years of LNG exports to Japan and the broader Asia-Pacific region.

The NWS Project is operated by Woodside.

### Ownership

The six participants in the NWS Project are:

- BHP Billiton Petroleum (North West Shelf) Pty Ltd
- BP Developments Australia Pty Ltd
- Chevron Australia Pty Ltd
- Japan Australia LNG (MIMI) Pty Ltd
- Shell Australia Pty Ltd
- Woodside Energy (Ltd) Operator

The China National Offshore Oil Corporation is also a participant in the NWS Project but does not have an interest in its infrastructure.

### **NWS** agencies

The NWS Project's agencies provide valuable marketing and technical expertise to support the Project's activities with personnel from the six project participants.

#### North West Shelf Gas

North West Shelf Gas is an integrated agency established by the NWS Project participants to market pipeline gas to customers in Western Australia and LNG to major customers around the world.

The agency administers contracts with local gas distribution/aggregation companies, electricity producers, industrial customers and gas traders, and LNG customers from international power and utility companies. www.nwsg.com.au

### China Administration Company

In 2014, the China Administration Company was established to administer the NWS Project's long-term LNG supply contract with Guangdong Dapeng LNG.

### North West Shelf Shipping Services Company

The North West Shelf Shipping Services Company (NWSSSC) provides the vital shipping link between the NWS Project's world-class LNG production facilities in Australia and its customers across the globe.

As the largest carrier of LNG from Australia, NWSSSC has safely and reliably delivered shipments from the Karratha Gas Plant (KGP) to the NWS Project's customers for 25 years.

www.nwsssc.com.au

### History

The history of the NWS Project started in the 1970s with the discovery of vast quantities of natural gas and condensate off the north-west coast of Australia.

In 1980, the first major works commenced on this landmark project including phase one of the KGP, the LNG and condensate load out jetty, the North Rankin A offshore platform and a 135 kilometre subsea pipeline to shore.

Pipeline gas production began in 1984 followed by the first LNG shipment to Japan in 1989.

Throughout the 1990s, the NWS Project continued to grow with the construction of a third LNG processing train, the commissioning of the Goodwyn A offshore platform and an additional liquefied petroleum gas (LPG) loading jetty.

From 2001 to 2004, a fourth LNG train was constructed at the KGP.

This was followed by the development of a fifth LNG train and a second LNG loading berth in 2005, with production commencing in 2008. This delivered a boost in annual production capacity to 16.3 million tonnes of LNG.

In 2011, the Okha floating production, storage and offloading facility (FPSO) replaced the Cossack Pioneer FPSO as part of the A\$1.8 billion Oil Redevelopment Project to support ongoing safe and reliable production from the Cossack, Wanaea, Lambert and Hermes oil fields.

The A\$5 billion North Rankin Redevelopment Project was completed in October 2013, with a second offshore platform installed alongside the existing North Rankin A Platform. The two platforms now operate as a single integrated facility known as the North Rankin Complex.

In 2014, the Project celebrated two significant milestones – 30 years of domestic gas production and 25 years of LNG exports to customers in the Asia-Pacific region.



## North West Shelf Project facilities

### Karratha Gas Plant

Located 1,260 kilometres north of Perth, Western Australia and covering approximately 200 hectares, the Karratha Gas Plant includes five LNG processing trains, two domestic gas trains, six condensate stabilisation units, three LPG fractionation units as well as storage and loading facilities for LNG, LPG and condensate.

One of the most advanced integrated systems in the world, the Karratha Gas Plant has the capacity to produce:

Domestic gas	12,000 tonnes/day
LNG	52,000 tonnes/day
LPG	4,200 tonnes/day
Condensate	165,000 barrels/da

### Offshore facilities

The NWS Project's offshore gas production facilities include the North Rankin Complex, Goodwyn A and Angel platforms.

Hydrocarbons from the offshore production facilities are transported to the Karratha Gas Plant for processing by two subsea pipelines, also known as trunklines.

Light crude oil from the Cossack, Wanaea, Lambert and Hermes fields in the Carnarvon Basin is processed on the Okha FPSO.

### King Bay Supply Base

Located two kilometres south of the Karratha Gas Plant, the King Bay Supply Base comprises marine facilities and warehouses, providing logistical support to the NWS Project's shipping and offshore drilling and production operations.

The NWS Project participants continue to seek ways to enhance value and extend the life of the NWS Project by undertaking exploration activities, developing reserves and maintaining supply deliverability.

# North West Shelf Project developments

Demonstrating an ongoing commitment to maximising the value of Australia's largest operating oil and gas project, the NWS Project participants are focused on exploring existing NWS acreage and attracting third party gas to be processed at KGP as capacity becomes available.

The A\$2.5 billion Greater Western Flank (GWF) Phase 1 Project is currently underway to develop the Goodwyn GH and Tidepole fields, via a subsea tie-back to the existing Goodwyn A platform.

The project is due for completion in 2016.

The A\$1.2 billion Persephone Project, scheduled for completion in 2018, will install a two-well 7km subsea tieback from the Persephone field to the existing North Rankin Complex.

The proposed GWF Phase 2 development commenced front-end engineering and design in September 2014 and aims to develop the Keast, Dockrell, Sculptor, Rankin, Lady Nora and Pemberton gas fields via a subsea tieback to the existing GWA platform.

These projects will help maintain offshore supply to the Karratha Gas Plant and support ongoing marketing efforts for domestic gas and LNG.

### Reserves

The principal NWS Project oil and gas fields are located approximately 125 kilometres north-west of Karratha, Western Australia in water depths ranging between 80 and 131 metres, covering a total area of 3,134 square kilometres.

The Perseus field is an important longterm gas supply for the NWS Project and represents about one third of current gas resources. Other producing fields include North Rankin, Goodwyn, Angel, Searipple, Cossack, Wanaea, Lambert and Hermes.

Undeveloped gas reserves include Wilcox, Dockrell, Lambert Deep, Pemberton, Lady Nora. Keast, Dixon and Gaea.

Current appraisal activities are focused on opportunities close to existing infrastructure.



