



human energy®



# Gorgon

A PROJECT UPDATE

APRIL 2016



## A Message from the Project Director

**JEFF BRUBAKER**

I am immensely proud to be part of the team that safely delivered the first liquefied natural gas (LNG) cargo from the Gorgon Project.

Put simply, Gorgon is a three-train LNG and domestic gas facility on Barrow Island, about 60 kilometres off the northwest coast of Western Australia. But that description masks the sheer size and complexity of the largest single-resource project in Australia's history and one of the biggest natural gas developments in the world.

Gorgon has been described as a modern-day equivalent of Australia's iconic Snowy Mountains Hydro-Electric Scheme. When construction started in 1949, the Snowy Scheme was one of the largest and most complex

hydro-electric structures in the world. Its completion 25 years later was considered by many as a defining point in the nation's history.

Like that amazing feat of vision, engineering and human endeavour, the Gorgon Project represents a nation-defining development that will deliver reliable energy for generations to come - in Australia and across Asia.

At peak there were more than 10,000 people working on the Project Australia-wide, including more than 8,000 people on Barrow Island. The efforts and commitment of these people has enabled the achievement of this iconic milestone.

I would like to thank everyone, in Australia and around the world, who has contributed to the Project.



**LEFT** Gorgon Development Director, Jeff Brubaker (second from left); with (from left) General Manager - Major Capital Projects, Kevin Shannon; former Gorgon Development Director, Scott Young; Barrow Island Asset Manager, Murphy Bowers; and Chevron Australia Managing Director, Roy Krzywosinski.

## Project Enabling Innovation Recognised

Overcoming the challenges posed by the Gorgon Project's scale and complexity required innovative solutions. Gorgon has received numerous accolades during its construction, including:

**2015**

**Australian Petroleum Production and Exploration Association (APPEA) Environment Award**

Domestic Gas Pipeline Construction and Rehabilitation

**2015**

**Australian Biosecurity Award**

Quarantine Management System

**2014**

**Australian Engineering Excellence Award**

Jansz-Io Subsea Pipeline Scarp Crossing

**2014**

**Western Australia Engineering Excellence Award**

Jansz-Io Subsea Pipeline Scarp Crossing

**2013**

**Western Australia Engineering Excellence Award**

Dredging and Materials Offloading Facility Construction

**2012**

**United Nations Association of Australia Business Award**

Quarantine Management System

**2012**

**Australian Engineering Excellence Award**

Gorgon Shore Crossing on Barrow Island

**2012**

**Western Australia Engineering Excellence Award**

Gorgon Shore Crossing on Barrow Island

**2012**

**Society of Petroleum Engineers / APPEA Environment Innovation Award**

Gorgon Shore Crossing on Barrow Island

**2011**

**APPEA Environment Award**

Quarantine Management System

**2011**

**Western Australia Engineering Excellence Award**

Quarantine Management System



## First LNG Cargo Departs for Japan

The first shipment of liquefied natural gas (LNG) from the Gorgon Project departed Barrow Island on 21 March. The first cargo was transported by the *Asia Excellence* LNG vessel to one of Chevron Australia's foundation buyers, Chubu Electric Power, for delivery into Japan.

Chevron Australia Managing Director Roy Krzywosinski said it was a momentous achievement.

The Gorgon Project will be a significant supplier of cleaner burning energy to the Asia-Pacific region for at least the next 40 years. Gorgon will also be a major source of new affordable

and reliable domestic gas to Western Australia for decades to come," Mr Krzywosinski said.

"During its construction Gorgon has made a substantial contribution to the Australian and Western Australian economies. There have been outstanding benefits to local industry during Gorgon's construction phase. Importantly, the Project will continue to provide jobs and opportunities well into the future.

"On behalf of Chevron Australia, I would like to thank the Federal, State and Local governments, Aboriginal and community stakeholders, the

Gorgon Joint Venture participants and the Western Australian community. Without your support Gorgon would not have been possible."

The Gorgon Project is operated by an Australian subsidiary of Chevron and is a joint venture of the Australian subsidiaries of Chevron (approximately 47 percent), Exxon Mobil (25 percent), Shell (25 percent), Osaka Gas (1.25 percent), Tokyo Gas (one percent) and Chubu Electric Power (0.417 percent).





# Investing in Australia

## Major Investment Creates Enduring Benefits for Australia

Gorgon has made a significant contribution to the Australian economy during its construction and will continue to do so during its 40-plus years of operations.

Since construction activities commenced in December 2009, the Project has spent more than \$34 billion dollars on Australian goods and services, created opportunities for hundreds of local companies and more than 10,000 jobs across the country.

In the long-term, local businesses will continue to play an important role by providing the support necessary to operate and maintain the plant and other facilities on Barrow Island and the mainland.

The ongoing legacy created during Gorgon's construction phase is significant, with many companies and individuals reporting long-lasting benefits as a result of their involvement with Gorgon.



"We weren't sure our credentials were established enough to supply our remotely operated vehicles on a project as large as Gorgon. Chevron listened to us and TMT was awarded one of the most significant contracts in our history, allowing us to establish a track record to prove our remotely operated underwater vehicles to the world. In addition to doubling our number of employees, we've grown internationally with offices in Brazil and Malaysia."

**Paul Colley**  
Total Marine Technology Chief Executive Officer

"As one of the first contractors on the Gorgon Project, Ertech delivered a wide range of services and completed works to exacting safety and environmental standards. The opportunities presented on the Gorgon Project led us to fast-track our growth in skills and company systems. We have since gone on to win work on other resource projects, including the Wheatstone Project."

**Jim Giumelli**  
Ertech Executive Chairman



"We are a WA family-owned business manufacturing Bin Bombs - all natural, biodegradable pellets designed to quickly absorb and replace unpleasant odours with a pleasant fragrance. We have been supplying Bin Bombs to Gorgon to help neutralise odours in sealed waste containers arriving from Barrow Island. Our involvement in the Project has added further credibility to our product and has had a very positive effect on our expansion into all states around Australia, plus interest from overseas groups."

**Alex Smith**  
Bin Bombs Co-founder

“Gorgon has been incredibly pivotal in broadening our capability and footprint in Australia in terms of subsea wells and infrastructure, LNG compression and power generation, and digital and technological solutions. On a global scale this is a unique opportunity to serve a customer across a broad range of critical equipment. The future is even more exciting, as we partner for integrity and productivity of all equipment across the total lifecycle.”

**Mary Hackett**  
**GE Oil & Gas Regional Director**



“The Gorgon Project has been a very exciting project for Cimec and has assisted in developing many of our capabilities. We have successfully manufactured approximately 120,000 tonnes of precast components, fabricated in excess of 12,000 tonnes of structural steel and been heavily involved in large modular assemblies and project support solutions both on Barrow Island and at our Henderson facility. This Project has truly been a major part of the Cimec story over the past five years.”

**Pat Tallon**  
**Cimec Chief Executive Officer**

“The contract Osmoflo was awarded required a high level of design engineering and documentation to achieve Gorgon’s operability requirements and environmental standards. This enabled Osmoflo to provide opportunities to our employees to increase their skillset, which has helped expand the capabilities of the business. Osmoflo has secured projects not only in Australia but globally using the expertise obtained on the Gorgon Project.”

**Marc Fabig**  
**Osmoflo Director and Co-Founder**



“The Gorgon Project has injected billions of dollars into the Australian economy, with nearly all of this investment spent in Western Australia, creating thousands of jobs and supporting the growth of our world class industry services sector. For decades to come, the Project will create wealth and jobs. As the largest of the wave of new LNG projects in Australia, Gorgon is a major reason Australia is poised to become the world’s leading LNG exporter. Everyone involved in this historic project can be proud of being part of this Australian success story.”

**Dr Malcolm Roberts**  
**APPEA Chief Executive**

“The Gorgon Project has been a game changer. The investments by Chevron and its partners have flowed through the economy, with hundreds of businesses and thousands of workers benefitting. Chevron’s commitment to safety, local procurement and employment, as well as their investment in research and innovation, will ensure WA is a global LNG hub. CCI is proud to work with Chevron to make Western Australia a world-leading place to live and do business.”

**Deidre Wilmott**  
**Chamber of Commerce & Industry of Western Australia Chief Executive Officer**

“First gas from the Gorgon Project has been much anticipated throughout Western Australia. Through Gorgon, Chevron and the Joint Venture participants have made a massive investment in the future of Western Australia. Not only are they committed to delivering the resource they have made a significant contribution by supporting important initiatives in health, education, environment and the arts.”

**Reg Howard-Smith**  
**The Chamber of Minerals and Energy of Western Australia Chief Executive**

“The investment by Chevron and its contractors has stimulated the Pilbara economy and allowed hundreds of small to medium enterprises to grow their businesses. Chevron’s local procurement policies and support of not-for-profit organisations has been of enormous benefit to the local community. The Karratha and Districts Chamber of Commerce & Industry (KDCCI) has a strong working relationship with Chevron which significantly benefits our members. Chevron’s strong commitment will bring long term economic stability and prosperity to the region.”

**John Lally**  
**KDCCI Chief Executive Officer**



# Protecting Barrow Island

Since construction activities commenced on Gorgon:

**700,000+**

Passengers have undergone quarantine inspection prior to travelling to Barrow Island.

**38,000+**

People around the world have received quarantine training.

**1.4 million**

Hours undertaken by quarantine inspectors to ensure equipment, materials and supplies were quarantine compliant.

**750,000+**

Quarantine inspections undertaken on equipment, materials and supplies.



## World-Class Example of Sustainable Development

Just as the size and complexity of Gorgon Project required excellence and innovation in design and engineering, a similar approach and commitment was needed to protect the biodiversity of Barrow Island.

The island has been a Class A Nature Reserve since 1910 and is an internationally important conservation estate. It is home to a range of fauna and flora - more than 350 native plants, 13 mammal species, 119 types of birds and 43 reptiles, including 24 unique terrestrial species found nowhere else in the world. The waters surrounding Barrow Island are also protected as a marine conservation reserve, with an estimated 9,000 species in the area.

[The Western Australian Environmental Protection Authority considers the QMS 'likely to be world's best practice'](#)

The Gorgon Quarantine Management System (QMS), the world's largest non-government quarantine initiative, has been integral to protecting the island and its surrounding waters during Gorgon's construction.

Comprised of hundreds of procedures, specifications, checklists and guidelines, the QMS was developed by Chevron to address the potential risk of introducing non-indigenous plant and animal species to Barrow Island. It focuses on preventing the introduction of these species through pre-border screening of cargo and passengers prior to arrival. This is complemented by on-island inspection and surveillance activities.

The excellence of the design and implementation of the QMS is borne out of the fact there has been no introduction or proliferation of non-

indigenous species to the island or its surrounding waters since construction activities began in December 2009.

Gorgon Quarantine Manager Johann Van Der Merwe said the development of the QMS involved a comprehensive and lengthy consultation with the community, industry, government and independent experts.

"The QMS illustrates what can be achieved when industry, government and community work together. Its ongoing success can be attributed to the active and enthusiastic participation of all personnel - including contractors at various locations around the globe," Mr Van Der Merwe said.

## A Global Effort

Building a project the size of Gorgon required a massive global effort, one that involved more than 30 countries.

Constructing one of the world's biggest LNG plants on Barrow Island and the largest offshore gas gathering system ever installed in Australia required materials from all over the world and a sophisticated logistics effort involving thousands of people across multiple locations.

The operation was made even more challenging by the limited laydown area available on Barrow Island. The Gorgon State Agreement, under which

the Project operates, required the total construction footprint on Barrow Island to be no more than 300 hectares (later amended to 332 hectares) of uncleared land - unusually small for a project of this scale.

In addition to the sheer volume of materials needed to build the Project, moving, accommodating and feeding a workforce that peaked at more than 8,000 on site required a biglogistics effort of its own. It included the construction of a 4,000-bed accommodation village, more than 13,000 flights to Barrow Island and the

preparation of in excess of 10 million meals.

The Project's stringent quarantine requirements added another level of complexity to the logistics effort. Before reaching Barrow Island, every single piece of equipment had to be inspected.

In all, more than four million tonnes of equipment and materials was transported to Barrow Island, or the waters between the gas fields and the mainland.

### 4 million tonnes+

Domestic and international freight delivered to Barrow Island. This is the weight almost 11,000 Airbus A380 aircrafts.

### 4,500+

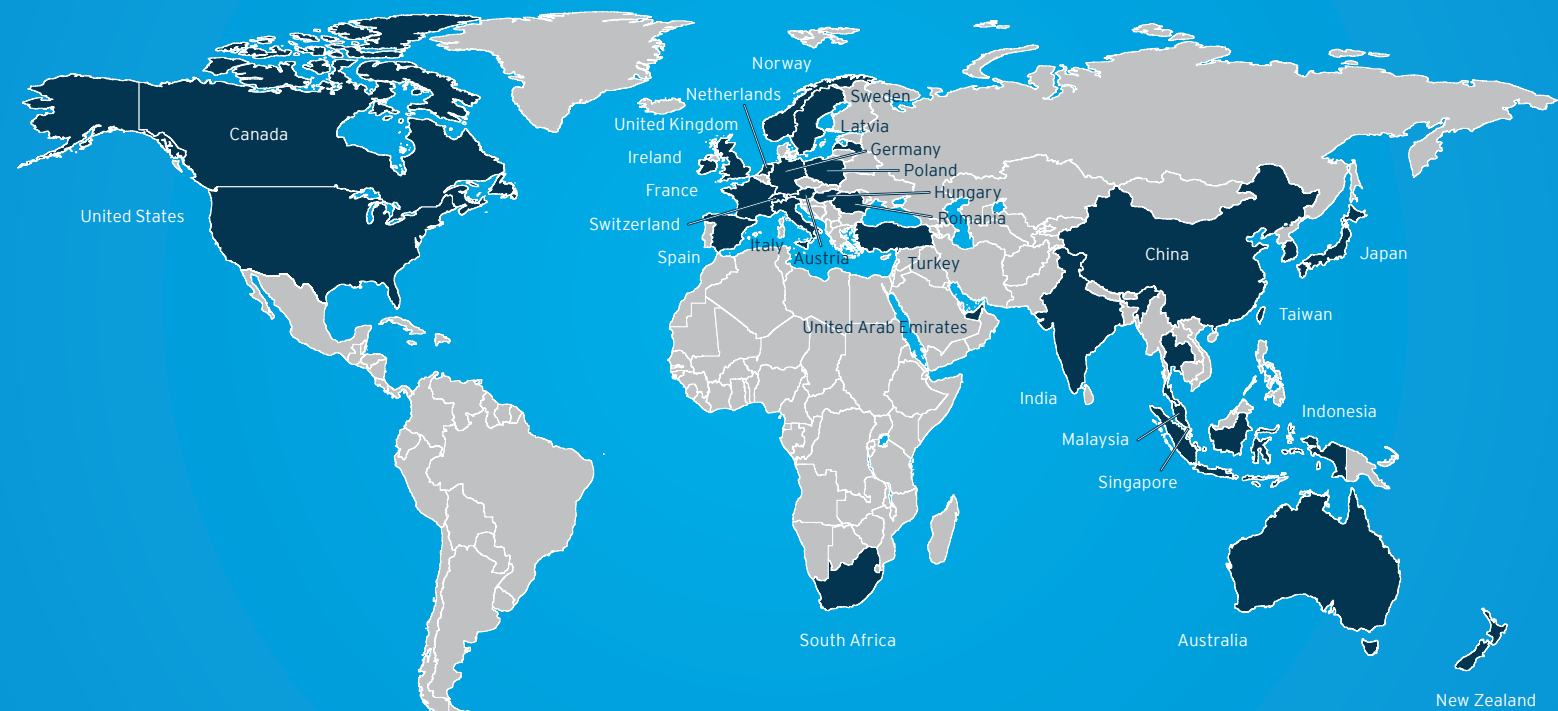
Domestic round-trip marine voyages to Barrow Island to deliver materials and equipment.

### 200,000+

Domestic twenty-foot equivalent containers delivered to Barrow Island. If all the containers were lined up, they would span 1,200 kilometres. This is the approximately road distance from Melbourne to Canberra and back.

### 30+

Countries supported the construction of the Gorgon Project.







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