



# Gorgon Project:

Carbon Dioxide Injection Project  
Low Emissions Technology Demonstration  
Fund

Annual Report for the period 1 July 2015 – 30 June 2016

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## Carbon Dioxide Injection Project

### Low Emissions Technology Demonstration Fund

Annual Report for the period 1 July 2015 – 30 June 2016

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## Contents

<b>1.0</b>	<b>Executive Summary</b> .....	<b>5</b>
<b>2.0</b>	<b>Project Progress</b> .....	<b>5</b>
2.1	General Gorgon Project Construction Activities.....	5
2.2	Carbon Dioxide Disposal Management Plan .....	6
2.3	Compressor Design and Fabrication.....	6
2.4	Drilling & Completions Activities.....	7
2.5	Pipeline Installation .....	7
2.6	Drill Centre Facilities .....	7
2.7	Subsurface Studies .....	8
<b>3.0</b>	<b>Project Plan</b> .....	<b>8</b>
3.1	Project Milestones .....	8
3.2	Joint Venture Structure.....	9
3.3	Authorisations.....	9
3.4	Key Personnel .....	10
3.5	Approved Subcontractors.....	10
3.6	Project Branding .....	11
<b>4.0</b>	<b>Commercialisation and Intellectual Property</b> .....	<b>11</b>
4.1	Commercialisation Pathways Plan.....	12
4.2	Intellectual Property Plan .....	12
<b>5.0</b>	<b>Eligible Expenditure and Project Budget</b> .....	<b>12</b>
5.1	Additional Funding.....	14
<b>6.0</b>	<b>Certification</b> .....	<b>14</b>
<b>Attachment 1:</b>	<b>Progress Photographs</b> .....	<b>15</b>
<b>Attachment 2:</b>	<b>Project Plan</b> .....	<b>18</b>
<b>Attachment 3:</b>	<b>Joint Venture Structure</b> .....	<b>23</b>
<b>Attachment 4:</b>	<b>Commercialisation Pathway Plan</b> .....	<b>24</b>
<b>Attachment 5:</b>	<b>Intellectual Property Plan</b> .....	<b>26</b>
<b>Attachment 6:</b>	<b>Project Expenditure Statement</b> .....	<b>28</b>
<b>Attachment 7:</b>	<b>Notes to the Expenditure Statement</b> .....	<b>30</b>
<b>Attachment 8:</b>	<b>Financial Audit Statement</b> .....	<b>33</b>

### List of Tables

Table 3-1	Project Milestones and Progress.....	9
Table 3-2	Key Personnel.....	10
Table 3-3	Key Subcontractors .....	10
Table 5-1	Capital Expenditure Budget.....	13

## 1.0 Executive Summary

This is the seventh annual report submitted to the Department of Industry, Innovation and Science (the Department) in accordance with Section 14 and Section 15.3 (Schedule 6) of the Low Emissions Technology Demonstration Fund, Funding Agreement dated 15 October 2008.

This report covers activities related to the Gorgon Carbon Dioxide Injection Project for the period 1 July 2015 to 30 June 2016.

During this reporting period, project activities focused on Gorgon Project construction activities and the progressive start up, commissioning and transition to operations. The first cargo of liquefied natural gas departed the Project on 21 March 2016. While this marks a significant milestone for the Gorgon Project, it will be several years before the Project is fully commissioned and operating at full capacity.

During the reporting period, activities around the Carbon Dioxide Injection Project primarily involved:

- delivery and installation of the third and final carbon dioxide injection compressor module to Barrow Island;
- drilling of the remaining wells required for the injection project and the demobilisation of the Ensign 963 drilling rig;
- perforation and completion of wells at drill centre's A and C; and
- continued engagement with select stakeholders to promote the project and to share lessons learned.

No significant changes have been to the Project Plan, Commercialisation Pathway Plan or the Intellectual Property Plan during the reporting period.

## 2.0 Project Progress

### 2.1 General Gorgon Project Construction Activities

As at 30 June 2016, construction of the Gorgon Project is nearing completion with approximately 6,000 people continuing to work on Barrow Island. To date more than \$34 billion has been invested on Australian goods and services, more than 700 contracts awarded to Australian companies and more than 10,000 direct and indirect jobs across Australia have been created.

At the Barrow Island gas processing plant site, construction activities have focussed on:

- mechanical, electrical and instrumentation work required to connect the various components of the plant;
- installation of the condensate and LNG loading arms at the head of the 2.1 kilometre jetty; and
- delivery of the final module, completing the delivery of all 51 modules required for the Project's three LNG trains.

During the reporting period start up and commissioning has progressed generally as planned. Initial start-up and commissioning operations were undertaken using gas supplied from the Dampier to Bunbury Natural Gas Pipeline. During the reporting period, the Jansz

field was brought on line and is now being used to supply the fuel gas and feed stock for the processing facility on Barrow Island. The following milestones were achieved during the reporting period:

- October 2015
  - commissioning complete on the fired heater required to start up the Train 1 Acid Gas Removal Unit;
  - starting the second of five gas turbine generators (GTG 2) and synchronising this generator with GTG 1; and
  - the first two wells at the Jansz field were placed on line, confirming the full operability of the Jansz subsea production systems.
- December 2015
  - commissioning and start-up of LNG Train 1 commenced; and
  - a commissioning cargo of LNG was imported and used to cooldown of the LNG loading facilities and LNG storage tanks.
- March 2016
  - 7 March, the first LNG was produced from Train 1 and piped into the LNG storage tanks: and
  - 21 March, the first LNG cargo loaded and departed Barrow Island for markets in Japan.

As this gas from the Jansz field is low in reservoir carbon dioxide it is not yet practicable to commission the carbon dioxide injection project. Once gas from the Gorgon gas field has been successfully introduced to the gas processing facility in 2017, attention will turn to the commissioning and start-up of the carbon dioxide injection project.

Images of the gas processing plant site on Barrow Island as March 2016 are included in Attachment 1. Additional images and video of progress in delivering the Gorgon Project can be found on the Chevron Australia web site at:

<http://www.chevron.com/countries/australia/businessportfolio/projectprogress/>

## 2.2 Carbon Dioxide Disposal Management Plan

The project authorisations obtained under the Barrow Island Act 2003 (WA) in September 2009 require injection operations be undertaken in accordance with an approved Carbon Dioxide Disposal Management Plan. These authorisations require the Plan to be regularly updated for the purpose of ensuring it remains up-to-date and consistent with current industry best practice for carbon dioxide injection and management and incorporates up to date information on the Injection Project.

During the reporting period, no revisions were made to the Carbon Dioxide Disposal Management Plan.

## 2.3 Compressor Design and Fabrication

During the reporting period, fabrication of the third carbon dioxide compressor module was completed at Hyundai Heavy Industries in Korea. The module was transported to Barrow Island and installed on its foundations in January 2016. The Department was advised of the satisfactory completion of this progress milestone on 3 February 2016.



## 2.4 Drilling & Completions Activities

The drilling campaign using the Ensign 963 Rig was completed in November 2015 and the rig demobilised from Barrow Island. All 17 wells required for the injection project have now been drilled, comprising;

- nine injection wells (located on drill centres A, B and C);
- two reservoir surveillance wells (located on drill centres A and C);
- three pressure management wells (two water producers and one water injector) located on drill centre D; and
- three pressure management wells (two water producers and one water injection) located on drill centre E.

During the reporting period, perforation and well completion activities were undertaken on the wells at A and C drill centres. The existing CO<sub>2</sub> Data Well ST-1 was also recompleted as a surveillance well. The remaining wells are scheduled to be perforated and have completions run in the 2016/17 reporting period.

Drilling results continue to be as expected with the Dupuy Formation being intersected in all wells and reservoir quality generally within predicted ranges. Seal quality has been determined to be of high quality. A considerable amount of wireline and core data has been collected during the drilling campaign.

The Barrow Island Joint Venture which is licenced to undertake the oil field operations on Barrow Island, has responsibility for five wells, which penetrate the Dupuy Formation and are located in areas where the reservoir carbon dioxide plume may migrate over 1000 years. During the reporting period the:

- U22J well has been reviewed in detail and determined to have been plugged to a standard that is compatible with the presence of reservoir carbon dioxide;
- Gorgon Joint Venture provided technical support for the Barrow Island Joint Venture to workover three wells (X62J, Y58J, X53J) to ensure the wells are securely plugged and do not represent a migration pathway for injected reservoir carbon dioxide; and
- P18J, remains on production and work over operations will be deferred as long as practicable so as to minimise impacts on the Barrow Island Joint Venture.

## 2.5 Pipeline Installation

No further work on the carbon dioxide pipeline was undertaken during the reporting period. Excepting for tie in sections within the inlet area of the Gas Treatment Plant site the pipeline is complete and has been hydro tested, cleaned and dried.

## 2.6 Drill Centre Facilities

Civil works at the well centres continued intermittently during the reporting period. Facilities at each of the three injection well centres will include:

- an electrical substation;
- metering equipment;
- well control equipment;
- piping manifolds; and

- piping to each of the injection wells.

In March 2016 works commenced on the installation of power and communications cabling between the injection and pressure management drill centres.

## 2.7 Subsurface Studies

During the reporting period Chevron's subsurface team has been focused on:

- supporting the drilling and well completion programs;
- incorporating data from the drilling program into the understanding of the geology below Barrow Island;
- revising forward plans for the Injection Project monitoring program;
- planning for a 'Sparse 3D' baseline seismic survey to be acquired in 2017 in the areas around the injection drill centres;
- testing the existing array of buried geophone receivers with the objective of understanding the potential utility of using buried geophones for passive micro-seismic monitoring;
- acquisition of Interferometric Synthetic Aperture Radar (InSAR) baseline data; and
- groundwater/soil gas monitoring with groundwater monitoring wells and soil gas probes having been installed at 12 locations.

## 3.0 Project Plan

There have been no significant changes to the Project Plan during the reporting period.

During the reporting year significant progress was achieved in the commissioning and start-up of the Gorgon Project.

## 3.1 Project Milestones

During the reporting period, a further project milestone was achieved with the last of the carbon dioxide compressor modules arriving at Barrow Island on 13 January 2016. The module was unloaded on 14 January 2016. At the end of the reporting period all the major components for the carbon dioxide Injection project had been installed or constructed on Barrow Island. The exceptions being the pipeline tie in at the gas processing plant site and the manifold and control systems at each of the three well pads.

Table 3-1 lists the revised project milestones as at 30th June 2016.

In March 2017, discussions commenced between Chevron and the Department around the evidentiary requirements for the final two payment milestones. It was felt it may be difficult to provide suitable documentary evidence around the satisfactory completion of the final payment milestone to substantiate the request for payment. For example, there is no project documentation that can be provided as evidence of the commencement of injection and its not specified how much carbon dioxide would have to have been injected to satisfy this requirement. At the end of the reporting period, Chevron and the Department were in the final stages of agreeing a Deed of Variation to amend the project milestones to incorporate milestones that could be more readily substantiated. The proposed changes will not have an



impact on the overall delivery of the project's aims as specified in the Project Plan or the LETDF Program Objectives as outlined in the Funding Deed.

**Table 3-1 Project Milestones and Progress**

Milestone Description	% Complete at End of Reporting Period	Achievement Date (As Notified in the 2014 Annual Report)	Current Estimated Date (As at June 2015)	Date Milestone Achieved
Place order for the carbon dioxide injection compressors	100	-	-	21 October 2009
Commence drilling of injection project wells	100	-	-	28 September 2013
Carbon dioxide pipeline installation complete	100	Fourth Quarter 2014	-	24 November 2014
<b>Progress Payment 1 -</b> Delivery on Barrow Island of the first carbon dioxide injection compressor	100	June 2014	-	19 June 2014
Delivery on Barrow Island of the second carbon dioxide injection compressor	100	First Quarter 2015	-	4 February 2014
Delivery on Barrow Island of the third carbon dioxide injection compressor	100	Third Quarter 2015	-	14 January 2016
Nine injection wells drilled and ready for perforation and instillation of well completions	100	Second Quarter 2015	-	9 March 2015
<b>Progress Payment 2 -</b> LNG Train 2 ready for start up	90	First Half 2016	Second Half 2016	
<b>Progress Payment 3 -</b> Commencement of carbon dioxide injection	90	First Half 2016	First Half 2017	
LNG Train 3 operational and injection project running at design capacity	90	Second Half 2016	2017	

### 3.2 Joint Venture Structure

There have been no changes to the Joint Venture structure during the reporting period. The Joint Venture structure is provided in Attachment 3 for reference only.

### 3.3 Authorisations

The following regulatory approvals were applied for and/or obtained during the reporting period to support the Carbon Dioxide Injection Project:

- land tenure applications for project infrastructure and monitoring activities; and
- an application under the Pipeline & Injection Well Licence, PL93, for approval to undertake recompletion activities on the CO<sub>2</sub> Data Well (approved by WA Department of Mines and Petroleum).

### 3.4 Key Personnel

During the reporting period, there were a number of changes to Chevron's management that impact upon the Gorgon Carbon Dioxide Injection Project.

- s22 and
- s22

Table 3-2 lists the key personnel engaged in the Project as at the end of the reporting period.

**Table 3-2 Key Personnel**

Name of key personnel	Description of work/role/responsibility	Other comments
s22		Chevron Australia - Gorgon Project Team
		Chevron Australia - Gorgon Project Team
		Kellogg Joint Venture
		Chevron Australia - Gorgon Project Team
		Chevron Australia - Gorgon Project Team
		Chevron Australia - Gorgon Project Team
		Chevron Australia

As of 25 July 2016, s22 as the Gorgon Commercial Manager. All formal notices under Clause 28 of the LETDF Deed should now be forwarded to:

s22

Chevron Australia  
 GPO Box S1580  
 Perth WA 6845

Please continue to address all day-to-day enquiries regarding the Funding Deed to s22 s22

### 3.5 Approved Subcontractors

There have been no changes to the key subcontractors during the reporting period.

Table 3-3 provides a list of key subcontractors providing services for the Carbon Dioxide Injection Project. Only those contractors that are unique to the Carbon Dioxide Injection Project are shown. Contractors providing services to the wider Gorgon Project, such as module fabrication and managed under the Kellogg Joint Venture are not shown on this list.

**Table 3-3 Key Subcontractors**

<b>Name of approved subcontractor</b>	<b>Work to be subcontracted</b>	<b>Date of execution of subcontract</b>
Kellogg Joint Venture, a Joint Venture between; <ul style="list-style-type: none"> <li>• Kellogg Brown &amp; Root Ltd</li> <li>• JGC Corporation</li> <li>• Hatch Energy Associates Pty Ltd</li> <li>• Clough Projects Australia Pty Ltd</li> </ul>	Engineer, procure and construct the facilities for the project on Barrow Island including associated infrastructure and the surface components of the carbon dioxide injection system.	14 August 2009
General Electric Company	Supply of carbon dioxide injection compressors	21 October 2009
Ensign International Energy Services Inc	Supply of drilling equipment and services for the Carbon Dioxide Injection Project	14 February 2011
Sumitomo	Supply of casing and tubing for drilling of wells	21 April 2011
FMC Technologies	Supply of wellheads, Christmas trees and chokes	18 May 2011
Halliburton	Supply of cementing services, drilling and completion fluids, solids control services	June 2011 May 2011
Schlumberger	Supply of wire-line services, electric submersible pumps, down hole pressure gauges	July 2011 May 2011 May 2011
Baker Hughes	Supply of liner hangers, packers and sub-assemblies, well clean up tools, fishing services, mud logging services	31 May 2011  1 April 2011 31 March 2011 6 May 2011
Weatherfords	Supply of cementing and casing accessories, drilling rental tools, casing and tubing running tools	Jun 2011 Apr 2011 May 2011
Monodelphous	Supply and installation of the carbon dioxide pipeline and related works	12 Dec 2011

### 3.6 Project Branding

In accordance with Clause 26.1 of the Funding Deed, a Joint Branding Protocol was agreed with the Department on 30 August 2010. This Protocol sets out the procedures by which the Gorgon Joint Venture will recognise the Federal Government's funding contribution in external communications dealing with the Carbon Dioxide Injection Project.

## 4.0 Commercialisation and Intellectual Property

## 4.1 Commercialisation Pathways Plan

There have been no changes to the Commercialisation Pathway Plan during the reporting period. A copy of the Commercialisation Pathways Plan is provided in Attachment 4 for reference only.

Chevron continued to provide briefings and project updates to regulators and key stakeholders during the reporting period, including status reports to the Carbon Sequestration Leadership Forum, IEA Greenhouse Gas Program and the Global CCS Institute.

Chevron continues to receive a large number of speaking engagements to present information on the Carbon Dioxide Injection Project, with most declined due to a lack of new information available during the construction period.

## 4.2 Intellectual Property Plan

No changes have been made to the Intellectual Property Plan during the reporting period. A copy of the plan is provided in Attachment 5 for reference only.

No specific technologies had been developed by the Gorgon Joint Venturers that might constitute intellectual property that could be protected by patent.

## 5.0 Eligible Expenditure and Project Budget

Chevron Australia continues to review the project budget in line with progress made to date. During the reporting period, no changes have been made to the Project Budget from that disclosed in the 2014 and 2015 Annual Reports.

The Capital Expenditure Budget is provided in Table 5-1 for information only.

**Table 5-1 Capital Expenditure Budget**

<b>Budgeted Capital Expenditure</b>	<b>As at 30 June 2014</b>
Carbon dioxide injection compressors (three compressor modules each containing two electric drive multi stage compressors)	\$546.9 million
Electrical power generation costs (to power the injection compressors)	\$162.2 million
Carbon Dioxide Pipeline (including pig launchers and receivers)	\$66.9 million
Facilities related Indirect costs (detailed engineering, construction management, project management, special logistics including quarantine, camp costs and commissioning)	\$600.3 million
Downstream contingency	\$0 million
Downstream owners costs	\$94.3 million
Drill Centre facilities (facilities at each of three drill centres, including site works, manifolds and well control systems)	\$65.6 million
Drill and complete nine injection wells	\$252.9 million
Drill and equip four reservoir surveillance wells (two wells to be drilled at commencement of project, one well in year 10 and one well in year 20)	\$100.5 million
Pressure management facilities (facilities at each of the four pressure management wells sites including site works, manifolds, control systems, electrical supply and pumps)	\$33.4 million
Drill and complete four water production wells	\$109.8 million
Drill and complete two water injection wells	\$42.5 million
Remediate seven existing well penetrations so as to ensure fit for service	\$53.3 million
Remediation of existing carbon dioxide CO <sub>2</sub> Data Well at year 3	\$5.0 million
Drilling related engineering, supervision and management costs (including allowance for contingency and cyclone related down time)	\$155.3 million
Subsurface Seismic Baseline	\$16.7 million
Carbon Dioxide Injection Project Management	\$19.6 million
Carbon Dioxide Injection Subsurface Owners Team	\$70.3 million
Carbon Dioxide Injection Drilling Team	\$107.0 million
<b>Sub Total</b>	<b>\$2 502.5 million</b>
Notes <ul style="list-style-type: none"> <li>The capital budget excludes historical costs associated with the exploration and appraisal of the injection site and front end engineering costs incurred prior to the Project's Final Investment Decision on 14 September 2009</li> <li>Aside from the \$20 million milestone progress payment received from the Department of Industry, the Project has not received any Eligible or Unclassified Income during the reporting period</li> <li>No actual expenditure will be reported against Contingency, rather Contingency will be drawn down as required and expended against other line items.</li> </ul>	

Attachment 6 to this report provides a Project Expenditure Statement for the periods:

- 14 September 2009 to 30 June 2016;
- 1 July 2015 to 30 June 2016; and
- 14 September 2009 to 30 June 2015.

The notes to the Financial Report, included in Attachment 7, outline the basis of the Project Expenditure Statement and should be read in conjunction with that statement.

Several items in the Injection Project Capital Budget are based on an allocation of a proportion of overall project expenditure. For example the electrical power generation required to power the carbon dioxide injection compressors is a component of the overall power generation requirements being constructed for the larger Gorgon Project.

Chevron's financial systems do not allow the differentiation of expenditure items as either 'eligible' or 'non-eligible' as defined in the Low Emissions Technology Demonstration Fund – Guide to Managing Your Grant. The Project Expenditure Statement identifies 'Eligible Expenditure' and 'Unclassified Expenditure'. 'Eligible Expenditure' as referenced in Attachment 6 and 7 is expenditure that meets the definitions in the Funding Deed and can be readily identified as expenditure solely for the injection project. Expenditure which cannot be readily differentiated as either 'eligible' or 'non-eligible' or that require an apportionment from larger project expenditures, is shown as 'Unclassified Expenditure'.

Despite the qualifications above, reported Eligible Expenditure has exceeded the two for one funding obligation underpinning the Low Emissions Technology Demonstration Fund program.

Attachment 8 to this report contains a statement from Chevron Australia's financial auditors with respect to the expenditure data included in Attachment 6.

## 5.1 Additional Funding

Since the commencement date of the Low Emissions Technology Demonstration Fund Deed for the Gorgon Carbon Dioxide Injection Project, no additional funds have been invested in the Project over and above that provided by the Gorgon Joint Venture participants and the LETDF grant funds.

## 6.0 Certification

s22

being a person duly authorised by Chevron Australia hereby certify that the information listed in this report is correct.

I further certify that the expenditure data included in this report as 'eligible expenditure' are understood by Chevron Australia Pty Ltd to include only expenditure eligible for the grant in accordance with Project No 03954.

s22

Signec

Date: 27-9-2016



## Attachment 1: Progress Photographs



March 2016: Aerial view of the gas processing plant site looking southeast. The three carbon dioxide compressor modules can be seen in the lower left of the photo.



March 2016; Aerial view looking south showing the three carbon dioxide compressor modules in the foreground, the three carbon dioxide removal units (acid gas removal units) in the middle ground and the five gas turbine generators in the background. The gas inlet receiving facilities are shown in the right of this photo.





March 2011: Aerial view looking south of LNG processing train one.



March 2016: Three of the five gas turbine generators used to provide electrical power for the gas processing facility.





March 2016: LNG storage tanks.

s22



March 2016: Condensate storage tanks.



March 2016: Departure of the first LNG cargo on the vessel Asia Excellence. The jetty, loading arms and materials offloading facility can also be seen in this photo..

## Attachment 2: Project Plan

### Project Aims

The primary aim for the Gorgon Carbon Dioxide Injection Project is the successful compression, transportation and underground injection of reservoir carbon dioxide extracted from the feed gas during gas processing operations on Barrow Island and the permanent containment of the injected reservoir carbon dioxide in the Dupuy Formation. The annual volume of reservoir carbon dioxide injected will vary over the operational life of the facility due to the natural variability of the carbon dioxide content and the production profiles of the Gorgon and Jansz fields supplying the gas processing facility on Barrow Island.

As documented in the Project's environmental impact assessment documentation, the anticipated volumes of reservoir carbon dioxide that are proposed to be injected along with the volumes anticipated to be vented are shown in the following table.

### Volumes of Reservoir Carbon Dioxide Anticipated to be Vented and Injected<sup>1</sup>

Percentage of Reservoir Carbon Dioxide	Year 1	Year 2-5	Year 6+	Long Run Performance Target
Percentage of reservoir carbon dioxide injected into the Dupuy Formation	60-90% (2.52-3.78 MTPA)	70-95% (2.94-3.99 MTPA)	80-95% (3.36-3.99 MTPA)	95% (3.99 MTPA)
Vented due to scheduled maintenance and unplanned facilities downtime	5-15% (0.21-0.63 MTPA)	5-10% (0.21-0.42 MTPA)	3-5% (0.13-0.21 MTPA)	3% (0.13 MTPA)
Vented due to unforeseen reservoir constraints (including well injectivity failure)	0-25% (0-1.05 MTPA)	0-20% (0-0.84MTPA)	0-15% (0-0.63 MTPA)	2% (0.08 MTPA)
The percentages referred to in this table are relative to the total volume of reservoir carbon dioxide anticipated to be available for injection.				

<sup>1</sup> Public Environmental Review for the Gorgon Gas Development Revised and Expanded Proposal, Chevron Australia, September 2008.

**Gorgon Project description**

The Gorgon Joint Venturers are developing a 15 million tonne per annum (MTPA) Liquefied Natural Gas (LNG) plant and a domestic gas plant with 300 TJ/day capacity on Barrow Island, be supplied with gas from both the Gorgon and Jansz gas fields.

The Gorgon Project will consist of a subsea development for the production and transport of gas from the offshore gas fields to Barrow Island, and a gas processing facility located at Town Point on Barrow Island. LNG and condensate produced at the gas processing facility will be shipped directly to buyers from Barrow Island. Domestic gas will be supplied via a dedicated pipeline to the existing Western Australian natural gas pipeline grid.

It is proposed that reservoir carbon dioxide, which occurs naturally in the gas contained in the gas fields and is removed during a normal part of gas processing operations, will be compressed and transported via pipeline to three injection drill centres where it will be injected into the Dupuy Formation over 2km beneath Barrow Island. In addition, a range of associated infrastructure will be required on the Island to assist in reservoir management and in order to monitor the performance of the injected reservoir carbon dioxide.

The main components of the Gorgon Project are:

- the Jansz and Gorgon gas field wells and subsea facilities
- a feed gas pipeline from each of the Gorgon and Jansz fields to the gas processing facility on Barrow Island
- utility pipelines and umbilicals from Barrow Island to the Gorgon and Jansz gas fields required to operate the subsea production system
- a gas processing facility on Barrow Island (including three LNG processing trains, a domestic gas plant and condensate stabilisation facilities)
- port/marine facilities at Barrow Island
- water supply and disposal
- construction village and associated facilities
- facilities to compress, transport, and inject the reservoir carbon dioxide into the Dupuy Formation
- a mainland supply base
- other associated infrastructure such as upgrades to the airport, roads
- associated utilities.

**Gorgon Carbon Dioxide Injection Project description**

The Gorgon Carbon Dioxide Injection Project is a commercial-scale demonstration project with four main components:

- Compression and dewatering of the reservoir carbon dioxide and transportation by pipeline to the injection well sites;
- Injection into the Dupuy Formation reservoir;
- Active reservoir pressure management of the Dupuy Formation; and
- Monitoring of the injected reservoir carbon dioxide.

The Gorgon Joint Venturers have undertaken a detailed study to identify the optimum location for the injection of reservoir carbon dioxide. These studies commenced in 1998 and considered possible injection locations within 300km of the Greater Gorgon area. These studies identified the Dupuy Formation below Barrow Island as the preferred injection location. A detailed site appraisal program was then undertaken which considered seven different injection scenarios associated with the Dupuy Formation before the final injection location was selected.

Issues considered in the selection of the preferred location include:

- maximising the distance of the injection wells from the major faults thereby reducing the risk of unpredicted migration;



- minimising the area of land disturbance required for the facilities on Barrow Island and ensuring any areas to be cleared are of lower environmental sensitivity when compared to other proposed locations on Barrow Island;
- identifying sites where the Dupuy Formation reservoir is at, or near, its maximum thickness;
- minimising the number of existing wells that will be intersected by the migrating carbon dioxide plume; and
- a preference for areas of better seismic data quality to assist in the monitoring of the carbon dioxide plume.

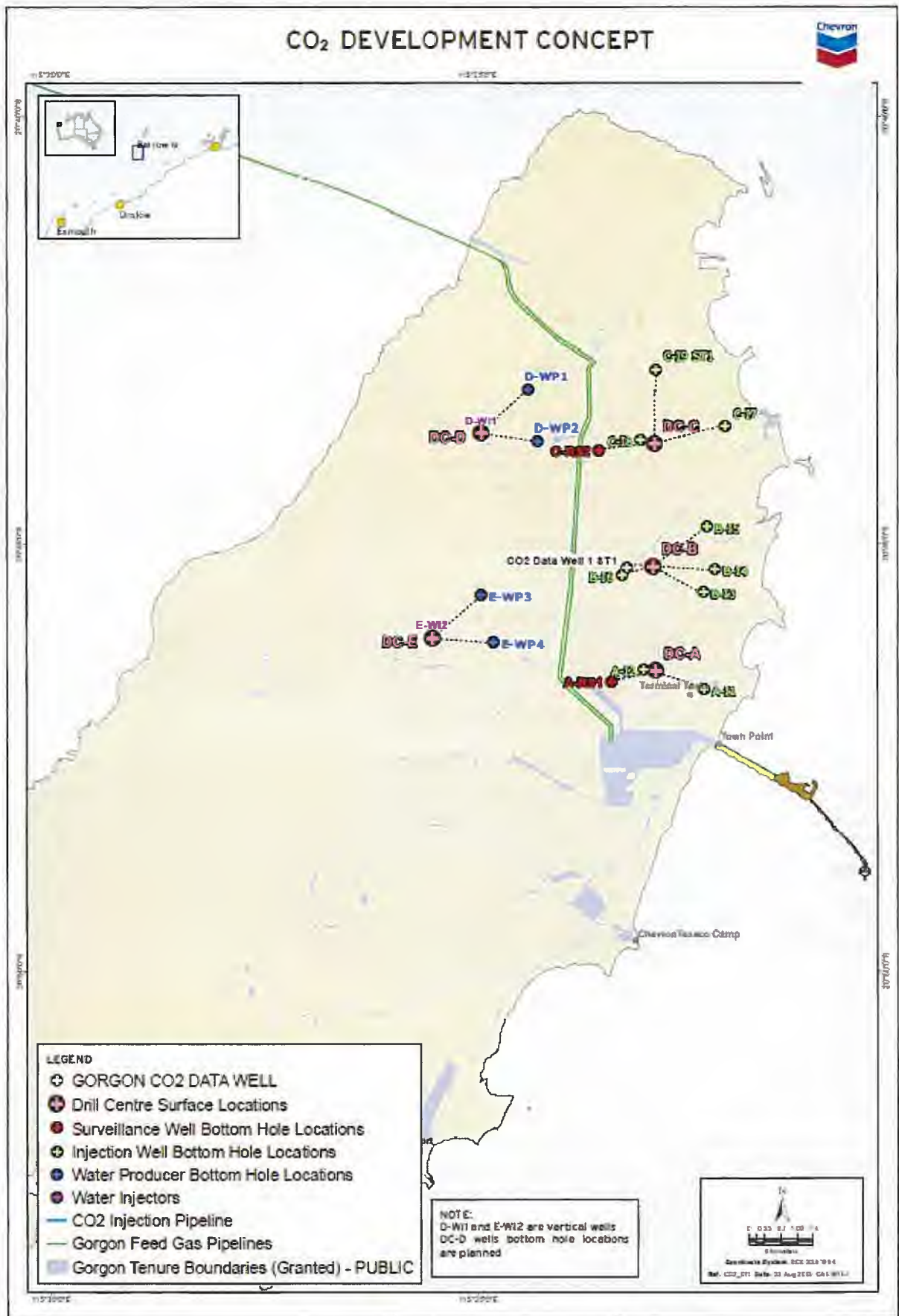
The reservoir carbon dioxide (containing minor quantities of hydrogen sulphide, methane and other hydrocarbons including traces of benzene, toluene, ethylbenzene, and xylene) will be sourced from the regeneration column in the carbon dioxide removal plant and piped to the carbon dioxide injection compressors. Six electrical driven multi stage compressors will compress the carbon dioxide stream from approximately atmospheric pressure to the required injection pressure.

Dewatering of the reservoir carbon dioxide gas stream will be accomplished through the compressor interstage liquid knock-out facilities. After the reservoir carbon dioxide is compressed, it will be transported via a buried pipeline to the injection wellheads.

Nine injection wells have been drilled from three surface locations using directional drilling technology. The use of directional or deviated drilling from a limited number of surface locations has been chosen to minimize the environmental impact by limiting land use disturbance.

The following figure shows the as drilled layout of the injection wells and pressure management wells.





The reference case development concept includes the drilling of four pressure management wells outside the limits of the carbon dioxide plume. These wells will be used to extract water from the Dupuy Formation during the injection period, reducing pressure within the formation and ensuring reservoir pressure limits are not exceeded. The formation water produced from these pressure management wells will be injected via two wells into the overlying Barrow Group, which shows regional pressure depletion due to the oil production operations surrounding Barrow Island. The indicative location of the pressure management wells are shown on the figure above.

Service utilities such as electrical power, inert gas, instrument air, fuel gas system, freshwater system, fire water, accommodation and other supporting infrastructure will be required to support the Carbon Dioxide Injection Project. The majority of the utilities will be shared with the gas processing facility.

The Gorgon Carbon Dioxide Injection Project incorporates the monitoring of injected carbon dioxide. The data obtained from the monitoring program will provide invaluable information to researchers and other proponents of greenhouse gas storage.

### **Proposed Reservoir Carbon Dioxide Injection System Concept**

The movement of carbon dioxide within the Dupuy Formation will be monitored to determine if it is behaving as predicted. The monitoring program will continue to be developed in line with improvements in monitoring technologies. As such, the following description should be considered as the reference case.

The reference case monitoring program involves a combination of surveillance wells and repeat seismic data acquisition. The Gorgon Project incorporates extensive management and monitoring of environmental factors. Included in this program is groundwater monitoring and the measurement of carbon dioxide flux rates in the surface that will be used to verify any surface leakage of the injected carbon dioxide.

Injection operations will be regulated in accordance with the approved Carbon Dioxide Disposal Management Plan<sup>2</sup>. The primary objective of the Disposal Management Plan is to maximise the volume of reservoir carbon dioxide injected whilst ensuring that the injection does not pose a health or safety risk to people, an environmental risk to the conservation values of Barrow Island, or a risk to other assets such as oil or gas field operations around Barrow Island. The Disposal Management Plan will be regularly updated for the purpose of ensuring it remains up-to-date and consistent with current industry best practice for carbon dioxide injection and management of injected carbon dioxide.

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<sup>2</sup> The Carbon Dioxide Disposal Management Plan forms part of the project authorizations granted on September 14, 2009 in accordance with Section 13 of the *Barrow Island Act 2003 (WA)*.

**Attachment 3: Joint Venture Structure**

For information only, the Gorgon Joint Venture participants with an interest in the Gorgon Carbon Dioxide Injection Project are shown in the following table.

**Gorgon Joint Venture Participants<sup>3</sup>**

<b>Participant</b>	<b>Contribution / Role of Participant</b>
Chevron Australia Pty Ltd (ABN 29 086 189 757)	Project Operator and LETDF Recipient (no equity participation)
Chevron (TAPL) Pty Ltd (ABN 18 081 647 047)	47.3330% Equity Participant
Mobil Australia Resources Company Pty Ltd (ABN 38 000 113 217)	25.0000% Equity Participant
Shell Development (Australia) Pty Ltd (ABN 14 009 663 576)	25.0000% Equity Participant
Osaka Gas Gorgon Pty Ltd (ABN 13 139 074 847)	1.2500% Equity Participant
Tokyo Gas Gorgon Pty Ltd (ABN 16 138 592 042)	1.0000% Equity Participant
Chubu Electric Power Gorgon Pty Ltd (ABN 94 140 107 464)	0.4170% Equity Participant

Both Chevron Australia Pty Ltd (ABN 29 086 189 757) and Chevron (TAPL) Pty Ltd (ABN 18 081 647 047) are wholly owned subsidiaries of Chevron Australia Holdings Pty Ltd (ABN 60 098 079 344) which is in turn ultimately a wholly owned subsidiary of Chevron Corporation of the USA.

Mobil Australia Resources Company Pty Ltd (ABN 38 000 113 217) is a wholly owned subsidiary of Mobil Exploration & Producing Australia Pty Ltd (ABN 81 004 588 827) which is a wholly owned subsidiary of ExxonMobil Australia Pty Ltd (ABN 48 091 561 198) which is in turn ultimately a wholly owned subsidiary of ExxonMobil Corporation of the USA.

Shell Development (Australia) Pty Ltd (ABN 14 009 663 576) is a wholly owned subsidiary of Shell Energy Holdings Australia Limited (ABN 69 054 260 776) which is in turn ultimately a wholly owned subsidiary of Royal Dutch Shell PLC of England.

Osaka Gas Gorgon Pty Ltd (ABN 13 139 074 847) is a wholly owned subsidiary of Osaka Gas Australia Pty Ltd (ABN 49 093 246 381) which is in turn ultimately a wholly owned subsidiary of Osaka Gas Co., Ltd. of Japan.

Tokyo Gas Gorgon Pty Ltd (ABN 16 138 592 042) is a wholly owned subsidiary of Tokyo Gas Australia Pty Ltd (ABN 46 102 349 557) which is in turn ultimately a wholly owned subsidiary of Tokyo Gas Co., Ltd. of Japan.

Chubu Electric Power Gorgon Pty Ltd (ABN 94 140 107 464) is a wholly owned subsidiary of Chubu Electric Power Australia Pty Ltd (ABN 68 140 147 048) which is in turn ultimately a wholly owned subsidiary of Chubu Electric Power Co., Inc. of Japan.

<sup>3</sup> Joint Venture participants under the Barrow Island Gas Processing Agreement.

## Attachment 4: Commercialisation Pathway Plan

The aim of the Gorgon Carbon Dioxide Injection Project Commercialisation Pathway Plan is to contribute to the knowledge of carbon dioxide injection technology and manage the release of this knowledge to the market place. This Plan is not intended to outline a path for the commercialisation of greenhouse gas storage technology across a range of industry applications.

The aim of the Gorgon Joint Venturers is to:

- Provide ongoing release of data to the public regarding the monitoring of carbon dioxide injection,
- Collaborate on an ongoing basis with research institutions and other interested proponents of this technology
- Provide ongoing information to the market place regarding the benefits of carbon dioxide injection.

The objective of sharing the Intellectual Property regarding carbon dioxide injection and monitoring technology is to contribute significantly to the information base available to the community, government, researchers and other proponents of this technology and to keep the market place informed of carbon dioxide monitoring activities at the Gorgon Carbon Dioxide Injection Project on Barrow Island.

The availability of such information should facilitate Australia emerging as a centre of excellence in greenhouse gas storage technology and application.

In accordance with project authorisations under the *Barrow Island Act 2003 (WA)*, a Draft Carbon Dioxide Injection Data Retention Plan was submitted to the Barrow Island Act Minister on 13 September 2010. The draft plan remains with the Department of State Development. Once the Data Retention Plan has been approved it will outline the time lines for the release of data to the Government regulatory agencies.

### **Process for commercialisation**

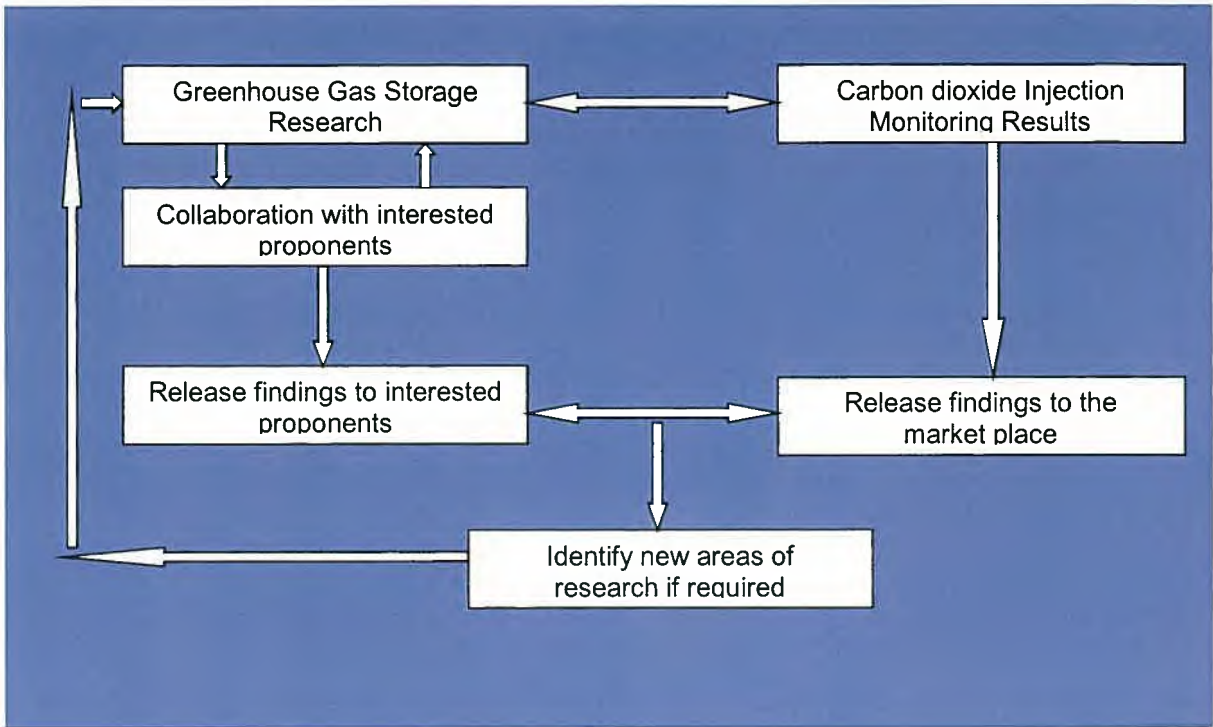
The process for developing the commercialisation of carbon dioxide injection and monitoring technology is to:

- Research
  - Collaborate with researchers and other interested proponents of carbon dioxide injection technology to increase the knowledge surrounding this technology particularly as it relates to monitoring of carbon dioxide injection and storage;
  - Release the findings of this research to government, researchers and other interested proponents of this technology;
  - Release the findings of this research to the market place; and
  - Commission additional research regarding carbon dioxide injection and monitoring where necessary.
- Monitoring
  - Release the findings of this research to government, researchers and other interested proponents of this technology in accordance with the Data Retention Plan; and
  - Release the findings of the monitoring activities to the market place.

A summary of this commercialisation pathway is presented in the following figure.



### Summary of the Gorgon Carbon Dioxide Injection Project Commercialisation Pathway



## Attachment 5: Intellectual Property Plan

The Gorgon Carbon Dioxide Injection Project will use technology that is currently being used by the oil and gas industry worldwide:

- the capture of carbon dioxide from reservoir gas is a standard part of gas processing for LNG production;
- the transport of carbon dioxide by pipeline is well understood with over 4 000 kilometres of carbon dioxide pipelines in service in the USA, Canada, Turkey and Trinidad and Tobago with a total estimated capacity to transport 45 MTPA of carbon dioxide to producing fields to enhance oil recovery in a process known as Enhanced Oil Recovery (EOR);
- the drilling and operating of injection wells is occurring at, for example, EOR projects including approximately 20 to 30 MTPA of carbon dioxide being injected in the USA for EOR. Demonstration greenhouse gas storage projects occur around the world e.g. 1 MTPA being injected at both the Sleipner Project and the Snohvit Project in Norway; and
- techniques such as seismic surveys and downhole sensing (e.g. wireline logging; pressure/flow tests) which may be applied to the monitoring of injected carbon dioxide are common oil field practices.

It is not expected at this stage that new intellectual property will be generated in the capture, pipeline and injection of carbon dioxide as both the hardware and software (including management procedures) of the processes are current industry practice.

The monitoring and verification of carbon dioxide behaviour following injection will build on existing worldwide knowledge of carbon dioxide behaviour and in doing so could generate new intellectual property regarding long term geologic storage of carbon dioxide.

The areas of intellectual property that may have relevance to the Gorgon Carbon Dioxide Injection Project are:

- Patents to protect inventions as new or improved products and processes; and
- Copyright to protect computer programs and engineering drawings (this protection applies automatically as the work is created).

To date no specific technologies have been developed by the Gorgon Joint Venturers that might constitute intellectual property that could be protected by patent. This in part arises from the observation that while carbon dioxide injection as a greenhouse gas emissions mitigation tool is new, the underlying technologies are well established in the oil and gas industry. In addition, large numbers of researchers are also working in the field.

Areas where technology development has occurred as a result of the Gorgon Carbon Dioxide Injection Project include:

- Development of computer code dealing with carbon dioxide behaviour for the purposes of reservoir simulation. Similar coding has been developed and is now included in the commercially available reservoir simulators; and
- Carbon dioxide flood samples on core data. There is no identifiable published information on this type of core analysis, but the techniques are somewhat similar to those widely used for analysis of core data in the petroleum industry.

Areas where future technology development could result in intellectual property include:

- Improved seismic imaging technology. However, it is difficult to foresee the development of new acquisition technologies or processing algorithms without significant investment outside the Carbon Dioxide Injection Project; and
- Innovative monitoring techniques such as soil gas flux metering. It is unclear if these would involve patentable technologies.



### ***Commitment to Make Monitoring Data Available***

The Joint Venturers have committed to publicly release information from the ongoing carbon dioxide injection monitoring program. A decision as to the processes for making this data publicly available will be determined closer to the time injection operations are to commence. The Gorgon Project will be one of the world's largest carbon dioxide injection projects. It will have benefits for both the Western Australian and Commonwealth Governments. This value stems from the potential for the Gorgon Carbon Dioxide Injection Project to add to the scientific and engineering knowledge around the commercial scale deployment of greenhouse gas storage, facilitating the wider uptake of the technology.

The existing undertaking to make data on the monitoring activities publicly available enables government to have confidence that this project will contribute significantly to the information base available to government, researchers and other proponents of this technology. The availability of such information should facilitate Australia emerging as a centre of excellence in greenhouse gas storage technology and its application. It will also assist in the public acceptance of greenhouse gas storage as a viable and safe option for the abatement of greenhouse gas emissions.

### ***Options for the public release of data***

While the Gorgon Joint Venturers are yet to determine a process for making data available to the public, several options have been identified:

- Gorgon Joint Venture publicly disclose data on monitoring;
- Form an alliance with the Cooperative Research Centre for Greenhouse Gas Technologies or its successor organisation;
- Form an alliance with a university or consortium of universities;
- Formation of a standalone Joint Industry Program (JIP);
- Participation in the Carbon Sequestration Leadership Forum (CSLF); or
- Through an alliance with the Global Carbon Capture and Storage Institute.

### ***Ownership of Intellectual Property***

The Gorgon Carbon Dioxide Injection Project involves researchers, the Gorgon Joint Venture participants and subcontractors working together to design, construct and operate the project.

Intellectual property owned by contractors working on the Gorgon Project will be extensively utilised but not transferred to the Gorgon Joint Venturers. The intellectual property retained by contractors is likely to be made available to others seeking to utilise the services of these contractors.

Intellectual property generated as a result of the Gorgon Carbon Dioxide Injection Project could either be retained and made commercially available by the individual Gorgon Joint Venture participants or shared at no cost through the commitments previously made by the Gorgon Joint Venturers.



**Attachment 6: Project Expenditure Statement**

CO2 Project Expenditure Statement For the Period 14 September 2009 to 30 June 2016		Comprised of:			
Ref	Item	Budget Last Updated 30 June 2014	Total Actual Expenditure to Date (\$A Millions)	Eligible Expenditure to Date (\$A Millions)-Audited	Unclassified Expenditure (\$A Millions)- Reviewed
a	Carbon dioxide injection compressors (three compressor trains each consisting of two electric drive multi stage compressors)	\$ 546.9	\$ 508.7	\$ 86.1	\$ 422.6
b	Electrical power generation costs (to power the injection compressors)	\$ 162.2	\$ 151.3	\$ -	\$ 151.3
c	Carbon Dioxide Pipeline (including pig launchers and receivers)	\$ 66.9	\$ 101.0	\$ 81.8	\$ 19.2
d	Facilities related indirect costs (detailed engineering, construction management, project management, special logistics including quarantine, camp costs and commissioning)	\$ 600.3	\$ 832.6	\$ -	\$ 832.6
e	Downstream contingency	\$ -	\$ -	\$ -	\$ -
f	Downstream Owners costs	\$ 94.3	\$ 67.1	\$ -	\$ 67.1
g	Drill Centre facilities (facilities at each of three drill centres, including site works, manifolds and well control systems)	\$ 65.6	\$ 54.8	\$ 19.2	\$ 35.6
h	Drill and complete nine injection wells	\$ 252.9	\$ 218.7	\$ 143.6	\$ 75.1
i	Drill and equip four reservoir surveillance wells (two wells to be drilled at commencement of project, one well in year 10 and one well in year 20)	\$ 100.5	\$ 41.2	\$ 28.2	\$ 13.0
j	Pressure management facilities (facilities at each of the four pressure management wells sites including site works, manifolds, control systems, electrical supply and pumps)	\$ 33.4	\$ 6.0	\$ -	\$ 6.0
k	Drill and complete four water production wells	\$ 109.8	\$ 60.0	\$ 40.0	\$ 20.0
l	Drill and complete two water injection wells	\$ 42.5	\$ 25.7	\$ 16.5	\$ 9.2
m	Remediate seven existing well penetrations so as to ensure fit for service	\$ 53.3	\$ 4.2	\$ 3.7	\$ 0.5
n	Remediation of existing CO2 data well at year 3	\$ 5.0	\$ 8.0	\$ 7.2	\$ 0.8
o	Drilling related engineering, supervision and management costs (including allowance for contingency and cyclone related down time)	\$ 155.3	\$ 95.2	\$ 126.7	\$ -31.5
p	Subsurface Seismic Baseline	\$ 16.7	\$ 14.8	\$ 13.8	\$ 1.0
q	CO2 Management	\$ 19.6	\$ 21.9	\$ 1.1	\$ 20.8
r	CO2 Injection Subsurface Owners Team	\$ 70.3	\$ 70.2	\$ 5.2	\$ 65.0
s	CO2 Injection Drilling Team	\$ 107.0	\$ 120.6	\$ 3.7	\$ 116.9
	<b>Total Expenditure</b>	\$ 2,502.5	\$ 2,402.0	\$ 576.8	\$ 1,825.2
	<b>Funding under the LETDF</b>	\$ 60.0	\$ -20.0	\$ -20.0	\$ -
	<b>GRAND TOTAL</b>	\$ 2,442.4	\$ 2,382.0	\$ 556.8	\$ 1,825.2

CO2 Project Expenditure Statement For the Period 1 July 2015 to 30 June 2016		Comprised of:		
	Total Actual Expenditure to Date (\$A Millions)	Eligible Expenditure to Date (\$A Millions)- Audited	Unclassified Expenditure (\$A Millions)- Reviewed	
	\$ 58.4	\$ 0.9	\$ 57.5	
	\$ 17.3	\$ -	\$ 17.3	
	\$ 4.3	\$ 0.4	\$ 3.9	
	\$ 141.8	\$ -	\$ 141.8	
	\$ -	\$ -	\$ -	
	\$ 1.5	\$ -	\$ 1.5	
	\$ 4.0	\$ 0.2	\$ 3.8	
	\$ 24.2	\$ 17.2	\$ 7.0	
	\$ 3.8	\$ 3.4	\$ 0.4	
	\$ 0.2	\$ -	\$ 0.2	
	\$ 30.0	\$ 22.9	\$ 7.1	
	\$ 18.3	\$ 14.6	\$ 3.7	
	\$ 3.7	\$ 3.2	\$ 0.5	
	\$ 7.8	\$ 7.0	\$ 0.8	
	\$ 9.4	\$ 14.2	\$ -4.8	
	\$ 0.1	\$ 0.1	\$ -	
	\$ 1.7	\$ 0.1	\$ 1.6	
	\$ 9.0	\$ 0.3	\$ 8.7	
	\$ 15.3	\$ 0.1	\$ 15.2	
	\$ 350.8	\$ 84.6	\$ 266.2	
	\$ -	\$ -	\$ -	
	\$ 350.8	\$ 84.6	\$ 266.2	

CO2 Project Expenditure Statement For the Period 14 September 2009 to 30 June 2015		Comprised of:		
	Total Actual Expenditure to Date (\$A Millions)	Eligible Expenditure to Date (\$A Millions)-Audited	Unclassified Expenditure (\$A Millions)- Reviewed	
	\$ 450.3	\$ 85.2	\$ 365.1	
	\$ 134.0	\$ -	\$ 134.0	
	\$ 96.7	\$ 81.4	\$ 15.3	
	\$ 690.8	\$ -	\$ 690.8	
	\$ -	\$ -	\$ -	
	\$ 65.6	\$ -	\$ 65.6	
	\$ 50.8	\$ 19.0	\$ 31.8	
	\$ 194.5	\$ 126.4	\$ 68.1	
	\$ 37.4	\$ 24.8	\$ 12.6	
	\$ 5.8	\$ -	\$ 5.8	
	\$ 30.0	\$ 17.1	\$ 12.9	
	\$ 7.4	\$ 1.9	\$ 5.5	
	\$ 0.5	\$ 0.5	\$ -	
	\$ 0.2	\$ 0.2	\$ -	
	\$ 85.8	\$ 112.5	\$ -26.7	
	\$ 14.7	\$ 13.7	\$ 1.0	
	\$ 20.2	\$ 1.0	\$ 19.2	
	\$ 61.2	\$ 4.9	\$ 56.3	
	\$ 105.3	\$ 3.6	\$ 101.7	
	\$ 2,051.2	\$ 492.2	\$ 1,559.0	
	\$ -20.0	\$ -20.0	\$ -	
	\$ 2,031.2	\$ 472.2	\$ 1,559.0	

- The capital budget excludes historical costs associated with the exploration and appraisal of the injection site and front end engineering costs incurred prior to the Project's Final Investment Decision on 14 September 2009.
- Unclassified expenditure includes all expenditure incurred in relation to the CO2 Project that may not be classified as Eligible Expenditure, including but not limited to:
  - Requisitioned quantities of CO2 bulks and tagged equipment based on estimated percentage allocations, which will be trued-up when final allocations are determined at the end of the project.
  - CO2 Project's share of Downstream Facilities Indirect Costs based on estimated percentage allocations, which will be trued-up when final allocations are determined at the end of the project.
  - CO2 Project's share of Gorgon Downstream Owners costs based on estimated percentage allocations, which will be trued-up when final allocations are determined at the end of the project.
  - CO2 Project team Timewrite charges.
  - Other General & Administrative (G&A) and Chevron Supply Chain allocations.

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Revision: 0

Gorgon Project  
Carbon Dioxide Injection Project  
Low Emissions Technology Demonstration Fund



## Attachment 7: Notes to the Expenditure Statement

### Chevron Australia Pty Ltd Notes to the CO2 Project Expenditure Statement For the period 14 September 2009 to 30 June 2016

#### Note 1 Basis of Compilation

This Expenditure Statement has been prepared to meet the requirements of the Low Emissions Technology Demonstration Fund Deed dated 15 October 2008 (the Deed) between Chevron Australia Pty Ltd and the Commonwealth of Australia. Significant accounting policies applied in the compilation of the report include:

##### (a) Eligible Income and Expenditure

Income as reported in the CO2 Project Expenditure Statement (the Statement) as eligible income includes, where applicable:

- Funding received under the Deed from the Commonwealth for the reporting period to be applied to eligible expenditure
- Proceeds from borrowings raised for the reporting period to be applied to eligible expenditure
- Proceeds from equity raised for the reporting period to be applied to eligible expenditure

Expenditure as reported in the Statement only includes expenditure that is defined as eligible in the Deed and the *Low Emissions Technology Demonstration Fund Customer Information Guide* (LETDF Guide) and reflects only cash spending on the project without accrual.

##### (b) Unclassified Project Income and Expenditure

Income as reported in the Statement as Unclassified Project Income includes, where applicable, all income received in relation to the project that may not be considered eligible income as defined in Note 1 (a).

Expenditure as reported in the Statement as Unclassified Project Expenditure includes all expenditure incurred in relation to the project that may not be considered eligible as defined in Note 1 (a).

#### Note 2 Related Parties

The following summarises the entities that are considered related parties to Chevron Australia Pty Ltd in accordance with Clause 32.1 of the Deed; the nature of the relationship and the value and nature of transactions that have flowed between Chevron Australia Pty Ltd and the related party in relation to this project for the reporting period 1 July 2015 to 30 June 2016.

Related party	Nature of relationship	Eligible expenditure paid to / (by) related party	Unclassified project expenditure paid to / (by) related party
Chevron Energy and Technology Company	Chevron Group Company	Nil	AUD 1,170,944

Chevron Australia Pty Ltd has complied with the requirements of the LETDF Customer Information Guide in relation to the above transactions.

#### Note 3 Update to Budget Numbers

There were no updates to the budget during the reporting period.

**Note 4 Unclassified Expenditure for Requisitioned Quantities of Bulks and Tagged Equipment**

Consistent with previous LETDF submissions, Chevron Australia Pty Ltd has included unclassified CO2 project expenditure relating to tagged and bulk equipment. The following ITD expenditure has been included in the 1 July 2015 to 30 June 2016 reporting period to maintain consistency with previously reviewed unclassified expenditure as detailed in the previous years' reports. Please see below the breakdown of expenditure for the current and prior reporting periods.

The CO2 related tagged and bulk equipment expenditure has been calculated based on the most current allocation percentages at the time of preparing the CO2 Project Expenditure Statement. The percentages relating to CO2 will refine over time as actual equipment is used. A true-up of equipment expenditure will be carried out at the end of the project when the final CO2 allocation percentages are established for each equipment package.

Tagged Equipment (AUD Millions)	FID - June 15	1 July 15 – 30 June 16	Total ITD
Carbon dioxide injection compressors (three compressor trains each consisting of two electric drive multi stage compressors)	\$ 36.7	\$ 0.5	\$ 37.2
Electrical power generation costs (to power the injection compressors)	\$ 73.2	\$ 0.1	\$ 73.3
Carbon Dioxide Pipeline (including pig launchers and receivers)	\$ 1.7	\$ 0.0	\$ 1.7
Drill Centre facilities (facilities at each of three drill centres, including site works, manifolds and well control systems)	\$ 5.9	\$ 1.1	\$ 7.0
Pressure management facilities (facilities at each of the four pressure management wells sites including site works, manifolds, control systems, electrical supply and pumps)	\$ 2.3	\$ 0.2	\$ 2.5
<b>Grand Total</b>	<b>\$ 119.8</b>	<b>\$ 1.9</b>	<b>\$ 121.7</b>

Bulk Equipment (AUD Millions)	FID - June 15	1 July 15 - 30 June 16	Total ITD
Carbon dioxide injection compressors (three compressor trains each consisting of two electric drive multi stage compressors)	\$ 55.9	\$ 0.8	\$ 56.7
Electrical power generation costs (to power the injection compressors)	\$ 5.6	\$ 0.1	\$ 5.7
Carbon Dioxide Pipeline (including pig launchers and receivers)	\$ 3.4	\$ 0.1	\$ 3.5
Drill Centre facilities (facilities at each of three drill centres, including site works, manifolds and well control systems)	\$ 12.5	\$ 0.2	\$ 12.7
Pressure management facilities (facilities at each of the four pressure management wells sites including site works, manifolds, control systems, electrical supply and pumps)	\$ 3.4	\$ 0.1	\$ 3.5
<b>Grand Total</b>	<b>\$ 80.8</b>	<b>\$ 1.3</b>	<b>\$ 82.1</b>



**Chevron Australia Pty Ltd  
Certification by Barrow Island Finance Manager  
For the period 14 September 2009 to 30 June 2016**

I hereby certify that the Expenditure Statement of Chevron Australia Pty Ltd is in accordance with Low Emissions Technology Demonstration Fund Deed dated 15 October 2008. In particular, the Expenditure Statement:

- (i) gives a true and fair view of the project income and expenditure for the period ended 30 June 2016 in accordance with the accounting policies described at Note 1;
- (ii) gives a true and fair view of the cumulative project income and expenditure since the commencement of the project on 14 September 2009 in accordance with the accounting policies described at Note 1; and
- (ii) gives a true and fair view of the budget and cumulative budgets approved by the Department as at the date of the annual Expenditure Statement.

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**Chevron Australia Pty Ltd**

14<sup>th</sup> September 2016

## Attachment 8: Financial Audit Statement



### **Independent auditor's report on the eligible expenditure information within the Project Expenditure Statement to the directors of Chevron Australia Pty Ltd**

#### ***Report on the eligible expenditure information within the CO2 Project Expenditure Statement***

We have audited the eligible expenditure information within the accompanying Gorgon Project: Carbon Dioxide Injection Project Low Emissions Technology Demonstration Fund Annual Report of Chevron Australia Pty Ltd (the "Company"), which comprises the Project Expenditure Statement (the "Statement") for the year ended 30 June 2016 and other explanatory notes. The Statement has been prepared by management to meet the requirements of the *Low Emissions Technology Demonstration Fund Deed* dated 15 October 2008 (the "Deed").

#### ***Management's responsibility for the eligible expenditure information within the Statement***

The company's management are responsible for the preparation and fair presentation of the eligible expenditure information within the Statement in accordance with the basis of preparation described in Note 1 to the Statement and the Deed.

The company's management responsibility also includes such internal control as the company's management determine is necessary to enable the preparation of the eligible expenditure information within the Statement that is free from material misstatement, whether due to fraud or error.

#### ***Auditor's responsibility***

Our responsibility is to express an opinion on the eligible expenditure information within the Statement based on our audit. We conducted our audit in accordance with Australian Auditing Standards. Those standards require that we comply with relevant ethical requirements relating to audit engagements and plan and perform the audit to obtain reasonable assurance whether the Statement is free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures related to the eligible expenditure information within the Statement. The procedures selected depend on the auditor's judgement, including the assessment of the risks of material misstatement of the Statement, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the company's determination of the eligible expenditure information within the Statement in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the company's internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by the directors, as well as evaluating the overall presentation of the Statement.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

---

**PricewaterhouseCoopers, ABN 52 780 433 757**  
Brookfield Place, 125 St Georges Terrace, PERTH WA 6000, GPO Box D198, PERTH WA 6840  
T: +61 8 9238 3000, F: +61 8 9238 3999, [www.pwc.com.au](http://www.pwc.com.au)

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## **Independent auditor's report on the eligible expenditure information within the Project Expenditure Statement to the directors of Chevron Australia Pty Ltd (continued)**

### *Auditor's opinion*

In our opinion, eligible expenditure information within the Statement of Chevron Australia Pty Ltd is prepared, in all material respects, in accordance with the Deed including:

- a) Presenting fairly the project eligible expenditure information for the year ended 30 June 2016 in accordance with the basis of preparation described in Note 1 and the Deed; and
- b) Presenting fairly the cumulative project eligible expenditure since the commencement of the project on 14 September 2009 to 30 June 2016 in accordance with the basis of preparation described in Note 1 and the Deed.

### *Basis of accounting and restriction on distribution and use*

Without modifying our opinion, we draw attention to Note 1 to the Statement, which describes the basis of accounting. The Statement has been prepared to assist Chevron Australia Pty Ltd to meet the requirements of the Deed. As a result, the Statement may not be suitable for another purpose. Our report is intended solely for the directors of Chevron Australia Pty Ltd and the Department of Industry, Innovation and Science and should not be distributed to or used by parties other than Chevron Australia Pty Ltd and the Department of Industry, Innovation and Science.

*PricewaterhouseCoopers*

PricewaterhouseCoopers

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Partner

Perth  
14 September 2016



## **Independent auditor's review report on the unclassified expenditure information within the CO<sub>2</sub> Project Expenditure Statement to the directors of Chevron Australia Pty Ltd**

### ***Report on the unclassified expenditure information within the CO<sub>2</sub> Project Expenditure Statement***

We have reviewed the unclassified expenditure information within the accompanying Gorgon Project Carbon Dioxide Injection Project Low Emissions Technology Demonstration Fund Annual Report of Chevron Australia Pty Ltd (the "Company"), which comprises the Project Expenditure Statement (the "Statement") for the year ended 30 June 2016 and other explanatory notes. The Statement has been prepared by management to meet the requirements of the *Low Emissions Technology Demonstration Fund Deed* dated 15 October 2008 (the "Deed").

#### ***Management's responsibility for the unclassified expenditure of information within the Statement***

The company's management are responsible for the preparation and fair presentation of the unclassified expenditure information in accordance with the accounting policies as described in Note 1 to the Statement and the Deed.

The company's management responsibility also includes such internal control as the company's management determine is necessary to enable the preparation of the unclassified expenditure information within the Statement that is free from material misstatement, whether due to fraud or error.

#### ***Auditor's responsibility***

Our responsibility is to express a conclusion on the unclassified expenditure information within the Statement based on our review. We conducted our review in accordance with Australian Auditing Standard on Review Engagements ASRE 2405 *Review of Historical Financial Information Other Than a Financial Report*, in order to state whether, on the basis of the procedures described, anything has come to our attention that causes us to believe that the unclassified expenditure information within the Statement is not prepared, in all material respects, in accordance with the basis of preparation as described in Note 1 to the Statement and the Deed.

ASRE 2405 requires us to comply with the requirements of the applicable code of professional conduct of a professional accounting body.

A review consists of making enquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and other review procedures. It also includes reading the other information included with the Statement to determine whether it contains any material inconsistencies with the Statement. A review is substantially less in scope than an audit conducted in accordance with Australian Auditing Standards and consequently does not enable us to obtain assurance that we would become aware of all significant matters that might be identified in an audit. Accordingly, we do not express an audit opinion.

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**PricewaterhouseCoopers, ABN 52 780 433 757**  
Brookfield Place, 125 St Georges Terrace, PERTH WA 6000, GPO Box D198, PERTH WA 6840  
T: +61 8 9238 3000, F: +61 8 9238 3999, [www.pwc.com.au](http://www.pwc.com.au)

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**Independent auditor's review report on the unclassified expenditure information within the CO2 Project Expenditure Statement to the directors of Chevron Australia Pty Ltd (continued)**

*Conclusion*

Based on our review, which is not an audit, nothing has come to our attention that causes us to believe that the unclassified expenditure information within the Statement of Chevron Australia Pty Ltd does not present fairly, in all material respects, the project's unclassified expenditure for the year ended 30 June 2016, in accordance with the basis of as described in Note 1 to the Statement and the Deed.

*Basis for Accounting and Restriction on Distribution and Use*

Without modifying our conclusion, we draw attention to Note 1 to the Statement, which describes the bases of preparation. The Statement has been prepared to assist Chevron Australia Pty Ltd to meet the requirements of the Deed. As a result, the Statement may not be suitable for another purpose. Our report is intended solely for the directors of Chevron Australia Pty Ltd and the Department of Industry, Innovation and Science and should not be distributed to parties other than Chevron Australia Pty Ltd and the Department of Industry, Innovation and Science.

*PricewaterhouseCoopers*

PricewaterhouseCoopers

s22

Partner

Perth  
14 September 2016





## Certification of Other Certain Matters by the Auditor to the Directors of Chevron Australia Pty Ltd

I understand that the Commonwealth of Australia and Chevron Australia Pty Ltd (the "Grantee") have entered into a Funding Deed dated 15 October 2008 (the "Deed") for the provision of funding under the *Low Emissions Technology Demonstration Fund* (LETDF) to the Grantee for the Project. A condition of funding under the Agreement is that the Grantee provides an audited Project Expenditure Statement (the "Statement") in accordance with the Deed.

In fulfilment of the condition, I hereby certify that:

1. I am a member of the Institute of Chartered Accountants in Australia.
2. I have prepared the audit and review reports on the eligible and unclassified expenditure respectively within the Statement, dated 14 September 2016.
3. I have reviewed the Low Emissions Technology Demonstration Funding Deed and related Guidelines and understand the requirements pertaining to financial reporting of eligible and ineligible expenditure contained therein.
4. I have not prepared the Statement to which my audit and review reports relate.
5. I have complied with the professional independence requirements of the Institute of Chartered Accountants in Australia. I specifically certify that I:
  - a. am not, and have not been, a director, officeholder, or employee of Chevron Australia Pty Ltd or a related body corporate of Chevron Australia Pty Ltd;
  - b. have not been previously engaged by Chevron Australia Pty Ltd for the purpose of preparing their LETDF application; and
  - c. have no financial interest in Chevron Australia Pty Ltd.

s22

Partner

Perth  
14 September 2016

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