

**Announcement to ASX****ASX: PGY**

1 July 2024

**Major increase to Cliff Head Carbon Storage Resource**

Pilot Energy Limited (ASX: PGY) ('Pilot' or the 'Company') is pleased to announce that following the recent approval of the Declaration of Greenhouse Gas Storage Formation for the Cliff Head Carbon Storage Project ('Declaration', refer to ASX announcement of 14 June 2024), the Company's technical consultant has completed an updated resource assessment resulting in a material 370% upgrade to the Carbon Storage Resources across the WA 31-L licence area.

The 2C contingent resource for WA 31-L licence area has increased from 9.7 million tonnes<sup>1</sup> to 45.6 million tonnes (100% basis) with the assessment completed in accordance with Society of Petroleum Engineers Storage Resource Management System (refer to Annexe 1 CO2Tech Resource statement). With the Declaration approved, the Contingent Storage Resource has been classified as Development Pending, the highest level of maturity for a contingent resource.

**Table 1**

<b>WA 31-L Carbon Storage Resources<sup>2</sup>WA 31L Carbon Storage Resources (31 March 2024, 100% basis)</b>					
SPE SRMS Classification	Structure	Reservoir	Storage Resource (Mt of CO <sub>2</sub> Equivalent)		
			1C   P90	2C   P50	3C   P10
Contingent Resource (Development Pending)	Cliff Head & Mentelle	IRCM & HCS	<b>24.2</b>	<b>45.6</b>	<b>67.0</b>
				2U   Best Estimate	
Prospective Resource (Lead)	Illawong	IRCM & HCS		<b>50.4</b>	

CO2Tech, the consulting arm of Australia's internationally recognised CO2CRC, is Pilot's subsurface consultant and has completed the updated Carbon Storage Resource assessment which represents a 370% increase on

<sup>1</sup> Refer to 30 November 2022 ASX Announcement "CHJV Update – Storage Resource Upgrade & NOPTA Submission"

<sup>2</sup> Following completion of the acquisition of the remaining Cliff Head interests from Triangle Energy (Global) Limited, Pilot will hold a 100% interest in the Cliff Head oil project and proposed Cliff Head Carbon Storage project. Prior to completion, Pilot holds a 21.25% interest in the projects and the Storage Resources.

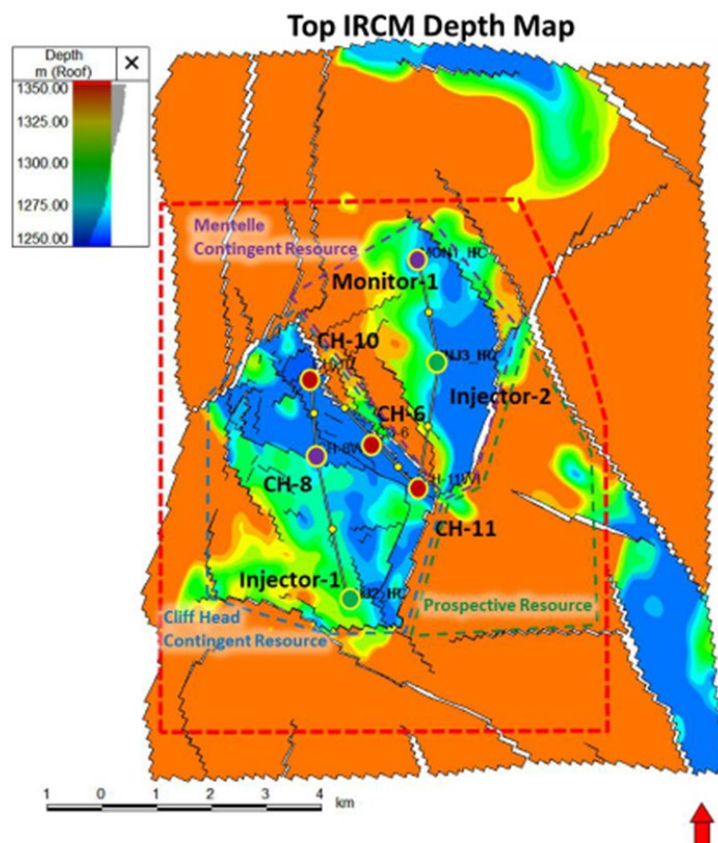
the November 2022 2C Contingent Storage Resource for the WA 31-L licence area (100% basis). This Carbon Storage Resource Assessment is an extension of the work that formed the basis for the November 2022 Declaration submission.

Further detailed reservoir analysis undertaken after the Declaration submission was made, combined with the existing oil & gas project data set associated with the production of oil from the Offshore Cliff Head project within WA 31-L since 2006, supported this resource upgrade within the Cliff Head structure and an extension to incorporate new storage regions in the Mentelle and Illawong structures. Furthermore, the proposed injection development plan now involves injecting and storing carbon across the declared Cliff Head Storage formation which includes both the Irwin River Coal Measures (IRCM – existing oil production horizon) and the High Cliff Sandstone (HCS – proven regional gas producing horizon).

Following the development of a Site Plan (i.e a development plan) required to support an application for key regulatory approvals such as an Injection Licence, Contingent Resources may convert to a Capacity (akin to reserves), if Pilot can demonstrate a firm intent to develop a carbon storage project based in its commerciality and there's a reasonable expectation that the Site Plan can be executed within 5 years, in satisfaction of the requirements of the Offshore Petroleum and Greenhouse Gas Storage Act.

The newly identified Illawong structure, located east of the Cliff Head platform (refer to Figure 1), includes the same storage formations as covered by the Declaration, and has received an initial prospective resource best estimate assessment of 50.4 million tonnes (100% Basis).

**Figure 1 Top storage reservoir map**



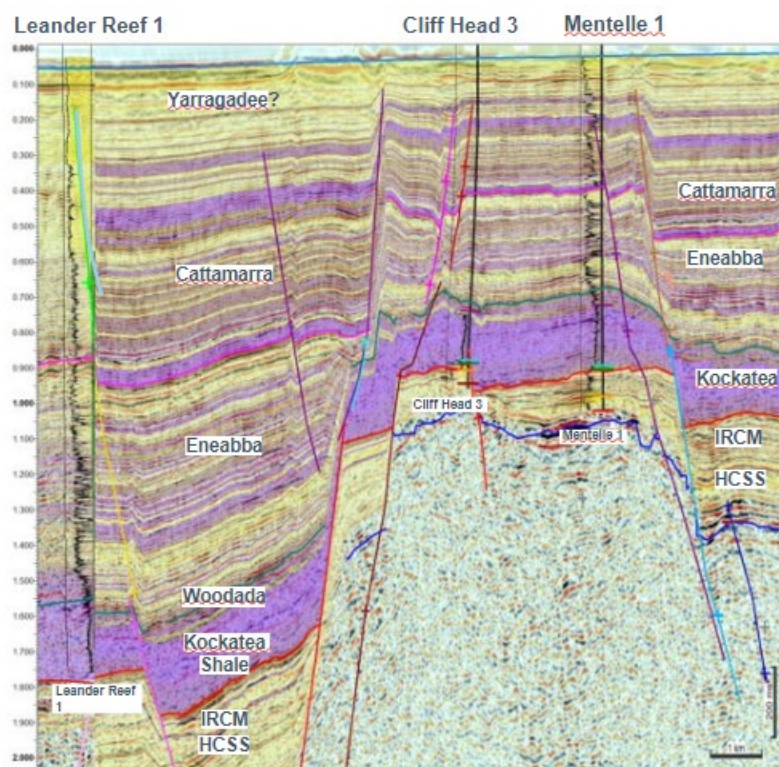
Conversion from prospective resource to a contingent resource is likely to involve the drilling of appraisal wells during the initial drilling program of the Carbon Storage project (2025/26) and potentially require the acquisition of additional seismic data following the appraisal well/s. The exploration drilling locations for Illawong will need to encounter adequate reservoir quality in the IRCM and HCS, and appropriate sealing properties in the Kockatea to determine a discovery. Additionally, the drilling program should include a sufficient number of wells to reduce structural uncertainty and confirm a reasonable chance of storage containment.

CO2Tech has assessed with a high degree of confidence that the IRCM, HCS and Kockatea Shale formations are reasonably expected to be present within the Illawong structure given it is in an adjacent fault block to the Cliff Head structure, and two 'dry' exploration wells which were drilled to the North and East of WA 31-L encountered these formations: Twin Lions-1 and Vindara-1. More broadly, these reservoir units are known to be regionally extensive onshore and offshore the Northern Perth Basin.

The proposed development plan associated with the Contingent and Prospective resources is based on a potential injection rate of 2.5 million tonnes per annum for the Cliff Head/Mentelle resource and a further potential 2.5 million tonnes per annum associated with the Illawong resource.

The updated development plan and storage resources result from workstreams initiated during the declaration application phase and engagement with National Offshore Petroleum Titles Administrator (NOPTA). The volumes associated with the Declaration represent the initial phase of a potential carbon storage project and Pilot will shortly commence the process to request an amendment to the Declaration to account for the increased volumes in parallel with progressing the project FEED and an injection licence application. The updated storage volume is also consistent with the potential technical scale of the project noted in the Company's ASX release 30 November 2022.

**Figure 2**  
**Cliff Head Geologic setting**  
**(Purple denotes region seal - Kockatea Shale, IRCM & HCSS are the storage formations)**



The key attributes of the Cliff Head Carbon Storage Project that make it ideally suited to hosting a permanent store of carbon, as confirmed by the Declaration, include the long-term operating history - re-enforcing the subsurface modelling, the stable geologic setting along with a proven regional sealing formation, the Kockatea Shale (refer to Figure 2) providing the ultimate seal at the offshore injection site. The Project is also located within 15 – 30km of material existing and planned emissions from Mid West WA industrial activity<sup>3</sup> requiring permanent abatement and an estimated ~1 day round trip via a marine transport to service the emissions from one of WA key industrial regions - Kwinana through to Bunbury south of Perth.

Brad Lingo Pilot's Chairman said, *"Having secured Commonwealth Government approval of the Cliff Head Storage Formation reservoirs for the safe and permanent injection and storage of carbon, this increase in both storage resources and injection capacity means that the Cliff Head Carbon Storage Project can be a material contributor to reducing safeguard facility emissions in Western Australia."*

Mr. Lingo added: *"Pilot is keenly focussed on providing major carbon emitters in the Mid West and South West regions of Western Australia with a real, near-term permanent greenhouse gas emissions abatement solution."*

Mr. Lingo continued: *"Pilot is working to demonstrate that the Cliff Head Carbon Storage Project can deliver a low-cost carbon abatement solution to industrial emitters as well as demonstrating that the Mid West region, with its abundant renewable energy resources, is an ideal location for supporting climate repair through direct air capture."*

The upgraded storage resource and injection capacity has been accounted for in the MWCEP Pre-FEED study. The Declaration will need to be amended, as discussed above, prior to proceeding with an Injection Licence Application based upon the upgraded resource. Pilot is also pleased to confirm that the main Pre-FEED reports have been received from Genesis and our team is in the process of preparing a summary report to communicate the Pre-FEED outcomes to key stakeholders and the market during July.

This announcement has been authorised for release to ASX by the Chairman, Brad Lingo on behalf of the Board of Directors.

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## Enquiries

Cate Friedlander, Company Secretary, email: [cfriedlander@pilotenergy.com.au](mailto:cfriedlander@pilotenergy.com.au)

**About Pilot:** Pilot is a junior oil and gas exploration and production company that is pursuing the diversification and transition to the development of carbon management projects, production of hydrogen and clean ammonia for export to emerging APAC Clean Energy markets. Pilot intends to leverage its existing oil and gas operations and infrastructure to cornerstone these developments. Pilot is proposing to develop Australia's first offshore CO<sub>2</sub> Storage Project through the conversion of the Cliff Head Oil field and associated infrastructure from oil production to CO<sub>2</sub> Storage as part of the Mid West Clean Energy Project.

Pilot holds a 21.25% interest in the Cliff Head Oil field and Cliff Head Infrastructure (increases to 100% on completion of the acquisition of Triangle Energy (Global) Pty Limited's interest), and a 100% working interest in exploration permit WA-481-P, located offshore Western Australia.

This announcement has been prepared in accordance with ASX Listing rules Chapter 5, in particular sections 5.33 – 5.35.

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<sup>3</sup> Refer ASX Announcement 6 June 2023 "AUSTRADE/PGY Japan-Korea CCS trade delegation presentation"

### **Competent Person Statement:**

This announcement contains information on Carbon Storage resources which is based on and fairly represents information and supporting documentation reviewed by Dr Xingjin Wang, a Petroleum Engineer with over 30 years' experience and a Master in Petroleum Engineering from the University of New South Wales and a PhD in applied Geology from the University of New South Wales. Dr Wang is an active member of the SPE and PESA and is qualified in 6 accordance with ASX listing rule 5.1. He is a former Director of Pilot Energy Ltd and has consented to the inclusion of this information in the form and context to which it appears.

Further Dr Maxwell Watson is noted as the nominated Competent Person in the CO2Tech Resource Statement (refer to Annexure 1). Dr. Maxwell Watson has 22 years' experience in carbon capture and storage (CCS), petroleum and hydrogen, working in academic, industry and R&D management sectors, gaining insights from a variety of countries and business types. He holds a PhD in Petroleum Geoscience from the University of Adelaide, investigating the long-term technical viability of safe CO<sub>2</sub> storage. Max commenced his career as a geotechnical engineer at BHP Cannington, Queensland, Australia. After transitioning to the petroleum geoscience sector, he worked in various research positions at the University of Adelaide, examining geochemical and risk management processes for CO<sub>2</sub> storage. In 2007 Max joined BP in the UK where he gained extensive experience in the CCS business unit and technology program, supporting BP as it developed international commercial scale CCS projects. Max worked extensively on risk-based project development processes and applied this to the In Salah Gas Project JV, and other emerging CCS projects.

Max joined CO2CRC in March 2012 as a Project Development Manager and progressed through various roles including Storage Program Manager in June 2015, and Business Strategy Manager in 2018, and is currently the Senior Manager of Technology Development. Max is accountable for planning, executing & implementing strategy, and major projects across CO2CRC, with a particular focus towards applied CO<sub>2</sub> storage technology demonstration. Max's work has enabled CO2CRC to translate innovative, user driven technologies from bench to field scale. In addition, Max leads the implementation of the Otway International Test Centre, and associated field-based projects. He is Australia's Delegate for the Carbon Sequestration Leadership Forum, a Ministerial-level international climate change initiative.

## **ANNEURE 1 – CO2TECH CARBON STORAGE RESOURCE STATEMENT**



1<sup>st</sup> July 2024

## RE: WA-31L Contingent and Prospective Storage Assessment (as at 31 March 2024)

This Storage Resource assessment is compliant with the Society of Petroleum Engineer's Carbon Dioxide Storage Management System (SPE-SRMS), an internationally recognised framework providing cross-border consistency between assessments. Concurrently, the Contingent Storage Resource Assessment meets the suitability determinants to support a Declaration of Identified GHG Storage Formation submission according to the OPGSA 2006. WA-31L is governed by this Act given its location within Australian Commonwealth waters.

Pilot Energy holds a 21.25% non-operated interest in the Cliff Head Joint Venture (**CHJV**). The balance of the interests in the CHJV are held by the Triangle Energy (Global) Limited group (**Triangle Group**). As announced on 27 July 2023, Pilot Energy will acquire Triangle Group's remaining 78.75% interest in the CHJV. The transaction is conditional on:

1. National Offshore Petroleum Titles Administrator (**NOPTA**) issuing the Declaration of a Greenhouse Gas Storage Formation, and
2. Pilot securing sufficient financial security to satisfy NOPTA and Triangle that it can assume the full abandonment liability for the Cliff Head oil field in accordance with the OPGSA.

The reported Contingent and Prospective Storage Resources in production permit WA-31L have been assessed by CO2Tech based on data available as at 31 March 2024. WA-31L was granted on 26 October 2005 for the development of oil from the Cliff Head field. Following the cessation of oil production, it is anticipated the project will transition from oil development to carbon storage. Based on current 2P Reserve estimates (as of 30 September 2023, RISC advisory), economic oil production will cease by end August 2025.

According to SPE-SRMS, there are two broad project maturity-based CO<sub>2</sub> storage classifications: undiscovered and discovered storage resources. Prospective Storage Resources are undiscovered, while Contingent Storage Resources are discovered until a project has financial commitment to commence injection. After this level of project maturity, the storable quantities estimate is termed Storage Capacity.

Figure 1 visualises this classification framework and shows how the maturity of a project determines its Storage Resource class and subclass.

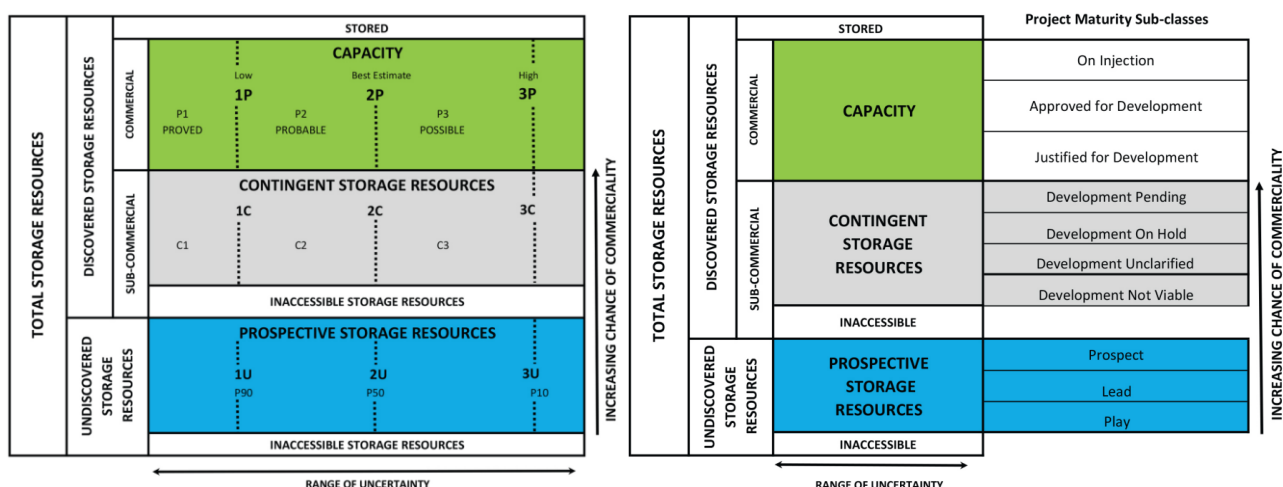


Figure 1 – Storage Resource Classification Framework (SPE-SRMS 2017)

The Storage Resources in WA-31L fall into the Contingent (discovered) and Prospective (undiscovered) Resource classifications. These resources have been identified across two hydrodynamically connected storage reservoirs: the oil-prone Irwin River Coal Measures (IRCM), and the predominantly water-saturated High Cliff Sandstones (HCS) which underly. The Kockatea Shale overlies these reservoir units. The presence of the Cliff Head Oil field has demonstrated prior vertical sealing capacity for hydrocarbons over geologic time. Given this history, it is reasonable to expect that stored CO<sub>2</sub> will not migrate past the sealing unit.

Within the permit area, three structural closures have been identified. The Cliff Head and Mentelle structures can be classed as Contingent Storage Resources, having been discovered and characterised by past oil exploration and development. East of Cliff Head and Mentelle is a previously unnamed feature with storage potential. It has been newly titled 'Illawong' and will be assessed as a Prospective Storage Resource for the first time. A common static and dynamic model was used for this evaluation.

The storage resources for Cliff Head and Mentelle were assessed using a probabilistic workflow. Static and dynamic uncertainty parameters with significant influence on CO<sub>2</sub> plume migration were included to ensure "all migration pathways of which the probability of occurrence is greater than 10%" were considered, a requirement within the guidelines of the governing Act.

Illawong was evaluated using a deterministic approach. The uncertainty parameters derived for quantifying plume migration within the Cliff Head and Mentelle structures were assumed for Illawong. Unfortunately, the resulting storage estimates range was unreasonably narrow for the immaturity of the resource. On this basis, only a Best Estimate could be provided using the reference case model. Despite this, the Illawong 'Lead' appears to hold significant storage potential and warrants further geological definition to identify a drillable 'Prospect'.

The Contingent Storage Resource Assessment for Cliff Head and Mentelle is summarised in Table 1. These probabilistic estimates are not additive.

**Table 1: Contingent Storage Resource Assessment (Cliff Head and Mentelle)**

Classification	Structure	Reservoir	Storage Resource (Mt of CO <sub>2</sub> Equivalent) Gross 100% (equivalent to eventual Net Share)		
			1C   P90	2C   P50	3C   P10
Contingent Resource (Development Pending)	Cliff Head	IRCM	6.4	15.9	25.3
	Cliff Head	HCS	4.6	7.0	9.4
	Mentelle	IRCM	5.7	15.2	25.8
	Mentelle	HCS	4.5	7.6	9.4
	Cliff Head & Mentelle	IRCM & HCS	<b>24.2</b>	<b>45.6</b>	<b>67.0</b>

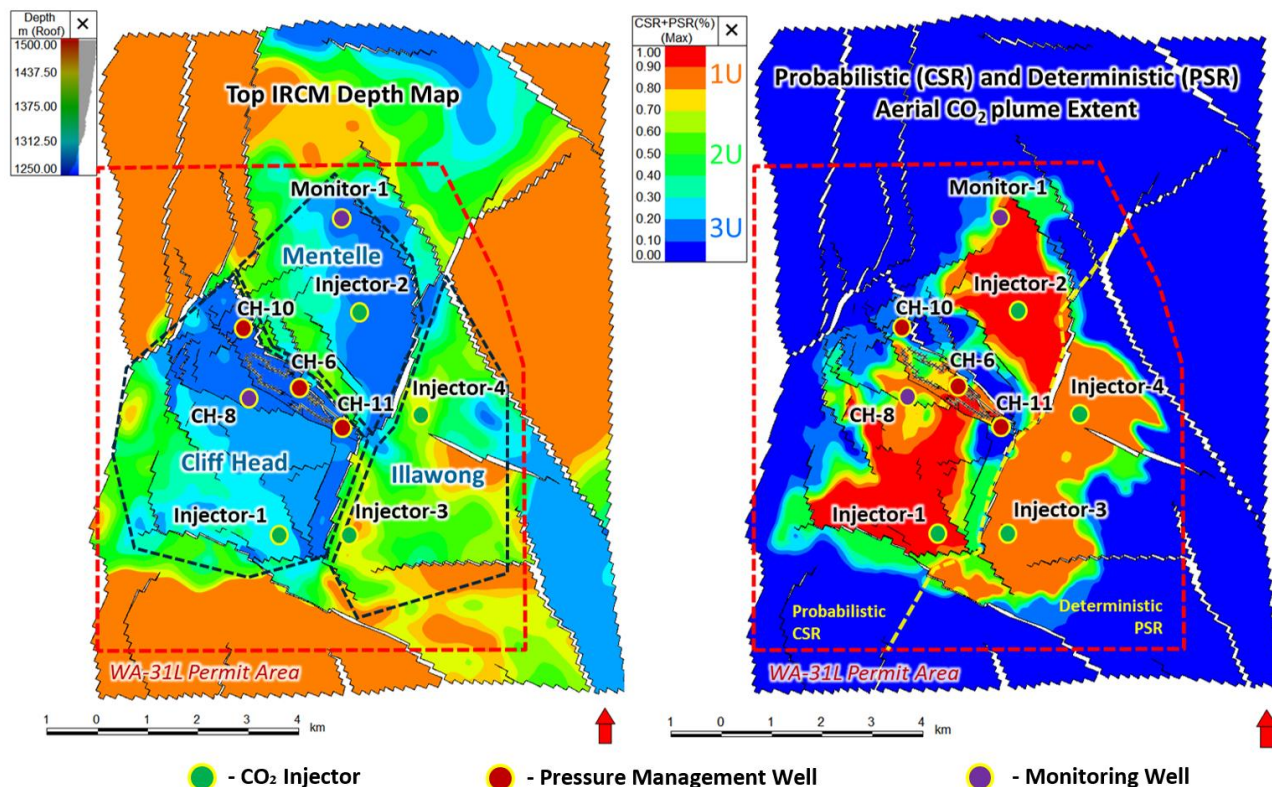
The Prospective Storage Resource Assessment for Illawong is summarized in Table 1. These deterministic estimates are additive.

**Table 2: Prospective Storage Resource Assessment (Illawong)**

Classification	Structure	Reservoir	Storage Resource (Mt of CO <sub>2</sub> Equivalent) Gross 100% (equivalent to eventual Net Share)		
			1U	2U   Best Estimate	3U
Prospective Resource (Lead)	Illawong	IRCM		32.9	
	Illawong	HCS		17.5	
	Illawong	IRCM & HCS		<b>50.4</b>	



Figure 2 shows the carbon storage development concept and resultant aerial CO<sub>2</sub> plume extents for the Contingent and Prospective Storage Resource Assessment. The probabilistic CO<sub>2</sub> plume maps confirm there is reasonable certainty that the modelled CO<sub>2</sub> plume can be aerially contained within the permit for the Contingent Storage Resource range assessed for Cliff Head and Mentelle. The deterministic CO<sub>2</sub> plume maps demonstrate a significant storage resource may be present at Illawong. According to SRMS, “the containment assessment for storable quantities should progress so that the evaluation is consistent with the maturity of the project.” This development concept reflects a project in early development; it does not constitute a final development plan.



**Figure 2: Proposed WA-31L carbon storage development concept and resultant aerial CO<sub>2</sub> plume extents.**

## Statement of Independence

This Storage Resource Assessment was conducted independently by **CO2Tech Pty Ltd** on behalf of **Pilot Energy Ltd** in accordance with the Australian Securities and Investments Commission Regulatory Guideline 112.

## Statement of Competence

CO2CRC Limited (and its commercial subsidiary, CO2Tech) is a world leading CCUS R&D company. CO2CRC is also the operator of the Otway International Test Centre (OITC) in Victoria, Australia – a unique site where CO<sub>2</sub> storage and capture technologies are being trialled and demonstrated at commercially relevant scale.

In addition to operating the OITC, CO2CRC, through its fully owned commercial subsidiary, CO2Tech, offers multidisciplinary technical and techno-economic consultation, advisory and project management services across the CCUS value chain including regional to field scale screening, field development planning, project conceptualisation, technical and commercial feasibility studies, design preparation, project management, and competent person reporting to SPE-SRMS standards.

For nearly 20 years, CO2CRC has demonstrated CCUS expertise through the development of feasibility and FEED; execution of project plans in facility construction & drilling operations; undertaking capture, transport, injection, and monitoring operations; and closing out operational projects safely.

**Nominated Competent Person:**

Dr. Maxwell Watson has 22 years' experience in carbon capture and storage (CCS), petroleum and hydrogen, working in academic, industry and R&D management sectors, gaining insights from a variety of countries and business types. He holds a PhD in Petroleum Geoscience from the University of Adelaide, investigating the long-term technical viability of safe CO<sub>2</sub> storage. Max commenced his career as a geotechnical engineer at BHP Cannington, Queensland, Australia. After transitioning to the petroleum geoscience sector, he worked in various research positions at the University of Adelaide, examining geochemical and risk management processes for CO<sub>2</sub> storage. In 2007 Max joined BP in the UK where he gained extensive experience in the CCS business unit and technology program, supporting BP as it developed international commercial scale CCS projects. Max worked extensively on risk-based project development processes and applied this to the In Salah Gas Project JV, and other emerging CCS projects.

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