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1 May 2024

To: Australian Senate Standing Committees on Environment and Communications

Re: Glencore's proposed carbon capture and storage project

The Institute for Energy Economics and Financial Analysis (IEEFA) thanks the Senate Standing Committees on Environment and Communications for the opportunity to submit these comments in connection with its inquiry into Glencore's proposed CTSCo carbon capture and storage (CCS) project.

Based in Asia, Australia, Europe and North America, IEEFA's energy finance analysis team researches and analyses issues related to energy markets, trends, and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy.

This submission responds primarily to item *(g) the role of CCS technology in Australia's broader climate change mitigation strategy, including an evaluation of its efficacy, risks and alternatives*. The submission summarises the existing track record of CCS projects in Australia and overseas. CCS is an expensive and unproven technology that allocates resources and capital away from alternative projects and technologies that do have proven track records of supporting decarbonisation efforts.

Kind regards,

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Kevin Morrison – Energy Finance Analyst, Australian Gas, IEEFA

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Summary

Key points in response to the following sections of the inquiry are listed below:

(g) the role of CCS technology in Australia's broader climate change mitigation strategy, including an evaluation of its efficacy, risks and alternatives

1. The Glencore CTSCo project would only capture around 2.1% of total Scope One carbon dioxide (CO_2) emissions produced by the Millmerran coal-fired power station, based on the capture rate targets stated in the Environmental Impact Statement (EIS) and the reported emissions in 2022-23.
2. Carbon capture is an expensive and unproven technology that consumes a lot of energy. **The proponents are proposing to spend A$46.44 million over three years to potentially store 0.003% of the power station's annual CO_2 emissions.**
3. CCS has a long history of failure and underperformance. **Since 2000, close to 90% of proposed CCS capacity in the power sector has failed** at the implementation stage or was suspended early.
4. Investing in CCS projects allocates resources and capital away from alternative projects and technologies that do have proven track records of supporting decarbonisation efforts.
5. The proponent has not detailed the leakage risks of transporting CO_2 to the injection site, and the risks associated with long-term CO_2 storage. **The net CO_2 captured and stored will likely be far lower than proposed by the project.**
6. **CCS does not address upstream or downstream Scope Three emissions from** the Millmerran Power Station, including upstream coal mine methane emissions.
7. The Australian coal industry has not had much success with CCS in Australia despite decades of promises and the use of taxpayer funds to finance such projects.
8. Australia currently hosts the world's largest CCS project – the Gorgon LNG project, which underperformed on its targets by around 50% during its first five years of operation and captured less than 4% of the plant's total emissions in 2022-23. As of 30 June 2023, Chevron, ExxonMobil and Shell had spent A$3.2 billion (US$2.14 billion) on the Gorgon CCS facility since it started five years earlier.

(a) the environmental impact assessment process and the adequacy of the project's approval by federal and state regulatory bodies, including the decision not to classify the project as a controlled action under national environment law

9. The project should be classified as a controlled action project under the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999. The Australian Government's decision that the project is not a controlled action under the EPBC Act, and therefore does not require assessment and approval under the Act, is based on a ten-day assessment process where "no public comments were received on the referral".

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(d) the potential socioeconomic impacts on agriculture and regional communities, relying on the Great Artesian Basin for water, including an assessment of the project's impact on existing and future water use rights

10. The present and future environmental and economic costs of the project as a result of the impact on groundwater sources have not been adequately addressed.

f) the potential precedent set by allowing CCS projects within the Great Artesian Basin and its implications for future projects, considering Australia's strategic interests in preserving its largest groundwater system

11. An approval of Glencore's Surat Basin CCS project would set a poor precedent. It could endanger the economics of rural Australia as well as the livelihoods of thousands of people and impact the cultural way of life for many.

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(g) the role of CCS technology in Australia's broader climate change mitigation strategy, including an evaluation of its efficacy, risks and alternatives

1. **Even if the proponent's claimed capture rates are fully realised, the Glencore CTSCo project would only capture around 2.1% of total Scope One carbon dioxide (CO_2) emissions produced by the power station, based on the target capture rates stated in the Environmental Impact Statement (EIS) and the reported emissions in 2022-23.**

The proposed Glencore CTSCo Project (the project) plans to use carbon capture and storage (CCS) to capture up to 110,000 tonnes of CO_2 each year for a three-year period from the 850 megawatt (MW) black coal-fired Millmerran Power Station.[1] This represents 2.1% of the 5.01 million tonnes (Mt) of Scope One greenhouse gas (GHG) emissions released from the Millmerran Power Station in 2022-23.[2]

As noted in a recent IEEFA report, "A key point about CCS that is often missed is its low capture rates. Confronted with numerous technical and financial challenges, CCS projects have consistently encountered difficulties in reaching their targeted capture rates. Furthermore, targeted carbon capture is itself often far less than overall carbon emissions. Installations that see low levels of CO_2 captured cannot be considered 'decarbonised'."[3]

2. **Carbon capture is an expensive and unproven technology that consumes a lot of energy and has historically been used to extend the life of fossil fuel power plants.**

Previous research by IEEFA has highlighted the high energy requirements of carbon capture: "Capturing CO_2 consumes a lot of energy, effectively reducing the amount of electricity delivered to consumers. […] This also means that more fossil fuels will need to keep burning to generate the same amount of electricity in a non-CCUS power plant."[4]

Carbon capture has been used as a greenlight to extend the life of fossil fuels power plants, which is a significant financial and technical risk. This is evident by the string of historical issues in retrofitting CCS/CCUS [carbon capture, utilisation and storage] into power plants, with several failed projects and cost blowouts. In contrast to gas processing and certain industrial processes that could generate exhaust gas with a CO_2 composition of 40%-90%, **coal plants emit gases that typically only contain 10%-14% CO_2,** while gas power plants generate 4%-5% CO_2.[5]

The project represents a significant cost relative to the net storage of CO_2. Glencore has said it will construct a 7.35-hectare transportation facility, and that all related infrastructure for the project will cost a total of A$15.2 million.[6,7] Annual operating costs are estimated at A$7.2 million or A$21.4 million over the life of the three-year project.[8] A further A$4.5 million will be spent on monitoring and rehabilitation costs or A$8 million over the life of the project.[9] Glencore has

[1] Glencore. Glencore's CTSCo Carbon Capture and Storage (CCS) Project. March 2023.
[2] Clean Energy Regulator. Greenhouse and energy information by designated generation facility 2022-23.
[3] IEEFA. Carbon capture for steel? CCUS will not play a major role in steel decarbonisation. 17 April 2024. Pages 14-15.
[4] IEEFA. The carbon capture crux: Lessons learned. 1 September 2022. Page 73.
[5] Ibid. Page 73.
[6] Independent Expert Scientific Committee (IESC) on Coal Seam Gas and Large Coal Mining Development. Advice to decision maker on carbon capture and storage project. Page 2.
[7] Glencore. Surat Basin Carbon Capture and Storage Project. March 2024. Page 8.
[8] Ibid. Page 9.
[9] Ibid. Page 9.

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disclosed other annual costs, which total A$576,589, reflecting the increased road transport crash risk and environmental externalities, to a total of A$1.73 million over the life of the project.[10]

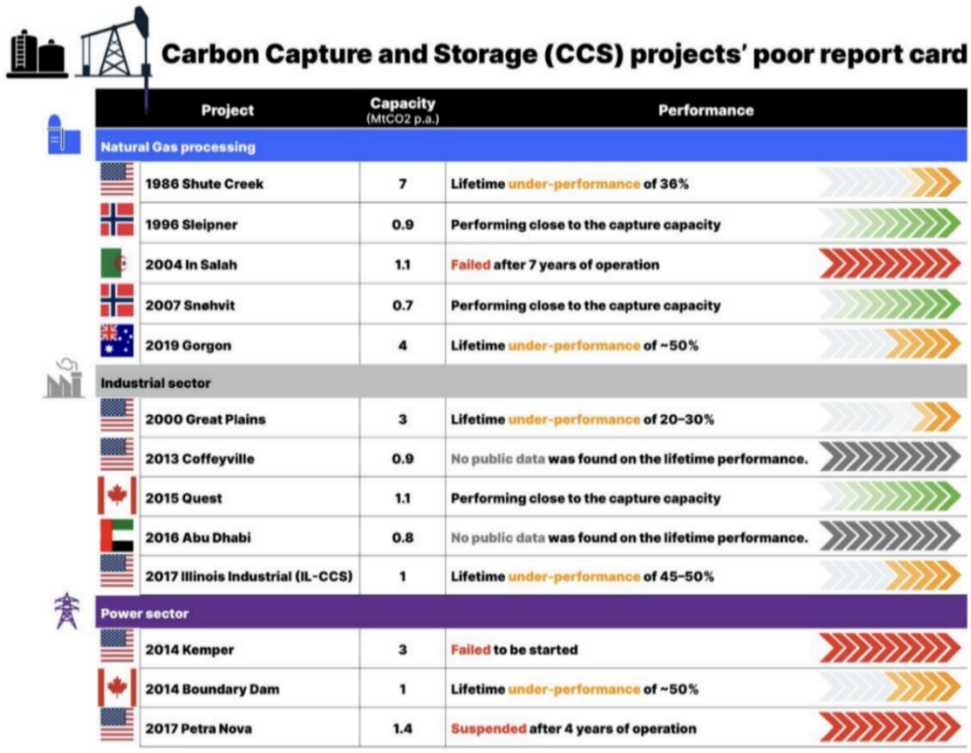
This equates to a reported project cost of A$46.44 million, reflecting construction and annual operating costs over the three years, for the net storage of 57,032 tonnes of CO_2, or a cost of A$866.92 per tonne of carbon dioxide equivalent (CO^2e). Glencore could have a greater impact on reducing emissions by spending this sum on methane reduction practices at its coal mines.

The proponents are proposing to spend A$46.44 million over three years to potentially capture and store 0.003% of the power station's annual CO_2 emissions.

3. CCS has a long history of failure and underperformance.

CCS has been around for 50 years and has continuously failed to achieve the expectations promoted by fossil fuel producers. In 2022, IEEFA research showed that, out of 13 flagship, large-scale CCUS projects globally, five had materially underperformed, two were suspended, one was mothballed and two didn't provide data that allowed performance to be assessed. [11]

Figure 1: The poor track record of key CCS projects globally



Source: IEEFA.

According to Bloomberg New Energy Finance (BNEF), CCUS currently captures just 0.1% of global emissions despite decades of implementation efforts.[12] The International Energy Agency

[10] Glencore. Surat Basin Carbon Capture and Storage Project. March 2024. Page 13.
[11] IEEFA. The carbon capture crux: Lessons learned. 1 September 2022.
[12] Bloomberg New Energy Finance. Global Carbon Capture Capacity Due to Rise Sixfold by 2030. 18 October 2022

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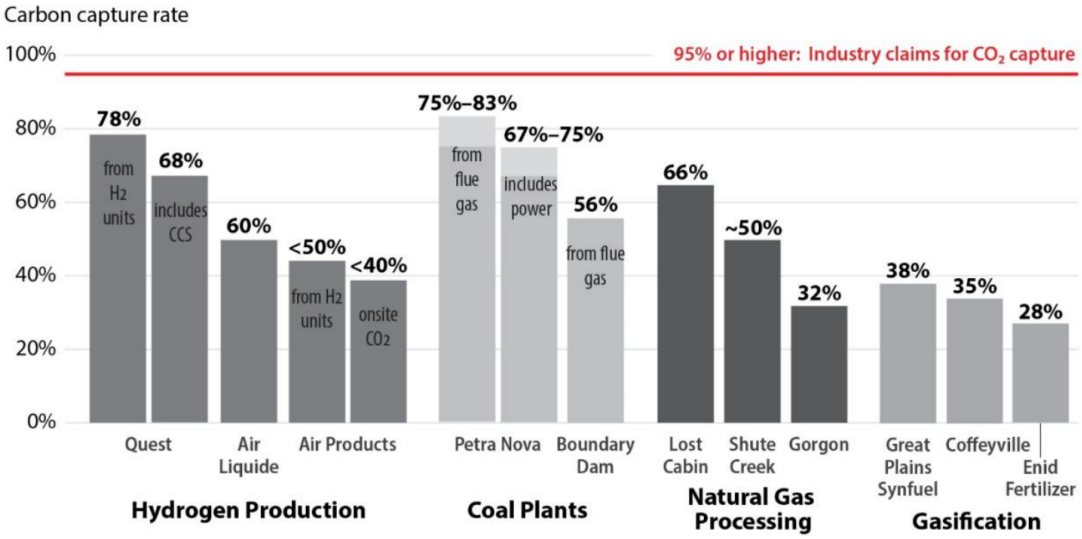
(IEA)'s updated 2023 Net Zero Roadmap report noted that: "The history of CCUS has largely been one of underperformance."[13]

The amount of CO_2 captured by existing plants is significantly lower than the 85%-95% that the industry claims is achievable. There is no evidence that existing commercial-scale carbon capture projects can reliably achieve anywhere close to the 95% of CO_2 that they claim to capture in power, industrial or hydrogen production facilities (Figure 2).[14],[15]

Figure 2: CO_2 real-world capture rates at commercial-scale hydrogen production, coal-fired power plants, natural gas processing and gasification facilities



Source: IEEFA.

Despite CCS technology having been around for decades, the Global CCS Institute is tracking just 41 commercial-scale CCS projects in operation globally, and 26 in the construction stages.[16] There are 325 additional projects in development stages; however, carbon capture's track record of technical failures since 2000 suggests a large proportion of these may never reach commercial operation.[17]

Since 2000, close to 90% of proposed CCS capacity in the power sector has failed at the implementation stage or was suspended early.[18]

4. **Investing in CCS projects allocates resources and capital away from alternative projects and technologies that do have proven track records of supporting decarbonisation efforts.**

[13] International Energy Agency. Net Zero Roadmap: A Global Pathway to Keep the 1.5°C Goal in Reach. September 2023. Page 15.
[14] Smith School of Enterprise and the Environment. Assessing the relative costs of high-CCS and low-CCS pathways to 1.5 degrees. 4 December 2023. Page 17.
[15] IEEFA. Blue hydrogen: not clean, not low carbon, not a solution. 1 September 2023. Page 17
[16] Global CCS Institute. Global Status of CCS 2023 Report. November 2023, statistics current as of July 2023.
[17] IEEFA. Carbon capture for steel? CCUS will not play a major role in steel decarbonisation. 17 April 2024. Page 5.
[18] IEEFA. The carbon capture crux: Lessons learned. 1 September 2022. Page 73.

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The cost of carbon capture implementation has hardly reduced in 40 years while the cost of alternative technologies like renewable energy and battery storage has plunged, with further reductions to come.[19]

To compete in a competitive electricity market context, the high cost of CCS/CCUS will need to be compensated by:

- selling the captured CO_2;
- receiving government incentives; or
- charging a premium price to consumers.

IEEFA believes there is no economic case for public funds to be allocated for such a speculative project. So far, the Surat Basin CCS Project has been given a A$5 million grant under the Australian government's A$50 million CCUS Development Fund.[20] Glencore reported net income attributable to equity holders of US$4.3 billion in calendar year 2023, and has adequate finance to fund such a venture rather than Australia taxpayers.[21] Furthermore, Glencore is a significant contributor to global GHG emissions as one of the world's largest thermal coal exporters, has been slow to reduce its own GHG emissions, and has faced no penalties for its lack of action.[22]

Government incentives would likely achieve greater emissions reduction goals flowing into fast-growing, efficient, and clean renewable energy technologies and the battery and storage sectors.[23] Renewables, efficiency, electrification and reducing fugitive methane emissions can address more than 80% of the world's decarbonisation needs by 2030, according to the IEA and the Intergovernmental Panel on Climate Change (IPCC).[24]

> **"The role of carbon capture in reducing emissions from fossil fuel power plants has also diminished" – International Energy Agency 2023.**

In its Net Zero Roadmap 2023 update, the IEA states that, "the role of carbon capture in reducing emissions from fossil fuel power plants has also diminished" compared to the 2021 version of the net zero emissions (NZE) scenario.[25] The IEA states that the 2023 update to the NZE scenario shows that solar PV capacity additions in 2030 are 30% higher than in the 2021 version, "reflecting recent market acceleration and the rapid scaling up of manufacturing capabilities".[26]

[19] IEEFA. Carbon capture for steel? CCUS will not play a major role in steel decarbonisation. 17 April 2024. Page 5.
[20] Low Emission Technology Australia. Glencore receives $5M in federal govt funding for Qld CCUS project. 8 June 2021.
[21] Glencore. Preliminary results 2023. 21 February 2024.
[22] Australasian Centre for Corporate Responsibility (ACCR). Investor Bulletin: Response to Glencore's updated climate plan. 22 March 2024.
[23] IEEFA. The carbon capture crux: Lessons learned. 1 September 2022. Page 73.
[24] Ibid.
[25] IEA. Net Zero Roadmap: A Global Pathway to Keep the 1.5°C Goal in Reach. September 2023. Page 84
[26] Ibid. Page 83

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5. Transportation and storage of CO_2 in secure, dedicated geological sites pose significant challenges, the net CO_2 captured and stored will likely be far lower than proposed by the project.

IEEFA's analysis has found only three CCS projects globally to be performing close to proposed capacity. However, these projects continue to face challenges regarding the significant risk of CO_2 leakage during transportation and the security of long-term geological storage.[27]

CCS is susceptible to significant financial, technological and environmental risks, made worse by uncertainty over the long-term effectiveness of geological CO_2 storage.[28] Transportation and storage of CO_2 in secure, dedicated geological sites pose significant challenges, requiring detailed studies for each project individually. Transporting CO_2 over large distances to storage sites also entails significant additional costs and risks.[29]

Some projects have faced major technical issues, causing delays in their operation, such as the Gorgon project in Western Australia. The In Salah project in Algeria serves as an example of the challenges associated with transportation and storage after operations were halted due to concerns about CO_2 leakage.[30,31]

The uniqueness of each CCS project limits technological learning and cost reductions.[32] The permanency of CO_2 storage must be regularly checked through monitoring and field surveillance to detect potential leakage and ensure that stored CO_2 does not return to the atmosphere.[33] The process entails extra expense for decades even after the closure of projects.[34]

The proponent has not detailed the leakage risks during the transportation of CO_2 to the injection site, and the risks associated with long-term CO_2 storage.

The net GHGs buried by the Glencore CTSCo project will likely be far lower than proposed by the project due to the carbon emissions intensity associated with the process of carbon capture from the Millmerran Power Station, transporting the CO_2 by truck to the proposed injection site (a distance of 260km), and the injection of the CO_2 into an aquifer 2.3km beneath the surface.[35]

Glencore has disclosed a net CO_2 storage of 57,032 tonnes of CO_2 for the project over its three-year period, or 17% of the total emissions it originally planned to store from the project. In turn this equates to 0.003% of Millmerran's annual emissions.[36]

Glencore also disclosed it will consume around 7.37 million litres of diesel over the three-year life of the project to transport the CO_2 to the injection site via road. There is also coal-fired electricity and liquefied petroleum gas (LPG) consumed in converting the CO_2 into a cryogenic liquid form, and then converting the CO_2 from a cryogenic liquid to a supercritical fluid for injection.

[27] IEEFA. Norway's Sleipner and Snøhvit CCS: Industry models or cautionary tales? 14 June 2023.
[28] IEEFA. The carbon capture crux: Lessons learned. 1 September 2022.
[29] IEEFA. Carbon capture for steel? CCUS will not play a major role in steel decarbonisation. 17 April 2024. Page 13.
[30] IEEFA. The carbon capture crux: Lessons learned. 1 September 2022.
[31] IEEFA. The Good, the Bad and the Ugly reality about CCS. 12 March 2024.
[32] IEEFA. Carbon capture for steel? CCUS will not play a major role in steel decarbonisation. 17 April 2024. Page 5.
[33] Vista Projects. Carbon Capture and Storage Projects: Monitoring, Measurement, and Verification. Last updated 28 March 2022.
[34] IEEFA. Norway's Sleipner and Snøhvit CCS: Industry models or cautionary tales? 14 June 2023.
[35] Glencore. Glencore's CTSCo Carbon Capture and Storage (CCS) Project. March 2023.
[36] Glencore. Surat Basin Carbon Capture and Storage Project. March 2024. Page 15.

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6. CCS only addresses Scope One CO_2 emissions and does not address upstream or downstream Scope Three emissions, including upstream coal mine methane emissions.

In the case of the proposed Glencore CTSCo project, the upstream Scope Three emissions include CO_2 and methane released as a result of the coal mining process and the transportation of coal to the power station. The downstream Scope Three emissions of the power station, which are also not addressed by the proposed CCS project, include the distribution and transmission losses in the electricity supply chain.

If all technical deficiencies in CCS technology can be overcome, it can still only provide a minimal contribution to decarbonisation. If all announced CCS projects globally achieved their stated capture rates, this would only account for about 2.4% of the world's carbon mitigation by 2030, according to the IPCC.[37]

The allocation of capital and resources into CCS projects perpetuates the production of fossil fuels, which are major contributors to global GHG emissions each year. Global energy-related CO_2 emissions totalled 37.4 gigatonnes in the calendar year 2023[38], whereas CCS sequestered around 50Mt of CO_2 in 2022[39]. This equates to a rounding error in the totality of emissions released each year.

The funds proposed for this project could be allocated for more effective emissions reduction results by investing in methods to reduce upstream Scope Three emissions, such as the proponents' coal mine methane emissions.

7. The Australian coal industry has not had much success with CCS in Australia despite decades of promises and the use of taxpayer funds to finance such projects.

Former Australian prime minister Kevin Rudd jointly hosted the launch of the Global Carbon Capture and Storage Institute (GCCSI) in July 2009, with pledges to fund the Institute for A$100 million a year and a further A$2 billion for the construction of CCS demonstration projects in Australia.[40]

In the late 2000s there were many CCS plants proposed for coal-fired power stations. The largest of these was ZeroGen, a A$4.3 billion project led by the Queensland government's state-owned electricity utility Stanwell. ZeroGen planned to sequester 60Mt of CO_2 over the project's lifetime from a yet-to-be-built 400MW coal-fired plant.[41] Stanwell launched ZeroGen in 2006, but it was abandoned in 2011.[42] The then Queensland deputy premier Andrew Fraser said the technology was not financially viable.[43]

Several CCS projects were proposed at the time of ZeroGen, including the CarbonNet Project, which is owned by the Victorian state government and established in 2009. After 15 years, it is still at the concept stage today. CarbonNet's ambitions are to capture 6 million tonnes per annum (Mtpa) of CO_2 from coal-fired power stations in Victoria.[44]

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[37] IPCC. AR6 Synthesis Report. March 2023. Section 4.5 and Figure 4.4.
[38] International Energy Agency (IEA). CO2 emissions in 2023 – A new record high, but is there light at the end of the tunnel? Page 3.
[39] IEA. Carbon Capture, Utilisation and Storage (CCUS). CO2 Capture.
[40] PM Transcripts. Global Carbon Capture and Storage Institute launched . 10 July 2009.
[41] CSIRO report prepared for GCCSI. Case study of ZeroGen Project. 20 September 2011. Page 5.
[42] Australian Financial Review. Peter Beattie: Qld 'crazy' not to back clean coal. 26 February 2017.
[43] ABC. Clean coal project in liquidation . 28 October 2011.
[44] CarbonNet Project. About the CarbonNet Project.

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The Collie Southwest Hub CCS project was also touted at the time, before its funding from the CCS Flagship was cut.[45] This project had planned to store up to 3.3Mtpa of CO_2 from coal-fired power stations in the Collie region, Western Australia.

The Wandoan Power Plant in Queensland was another project promoted by Stanwell in a partnership with GE Energy.[46] The Wandoan plant plans to generate 334MW and store up to 2.5mtpa of CO_2.[47]

The high-profile failures of CCS ventures connected to coal-fired power stations, and the gradual acceptance that Australia's fleet of coal-fired power stations will close and be replaced by renewable energy firmed by batteries and gas-fired power plant, have seen the shift in CCS project proposals shift to upstream gas projects.

8. Australia hosts the world's largest CCS project, and it has underperformed on its targets by around 50%.

Australia currently hosts the world's largest CCS project – at the Gorgon liquefied natural gas (LNG) plant in Western Australia – which captured less than 4% of total emissions from the project in 2022-23. As of 30 June 2023, Chevron, ExxonMobil and Shell have spent A$3.2 billion (US$2.14 billion) on the Gorgon CCS project since it began operations five years ago.[48]

During its first five years the Gorgon CCS project has failed to deliver, underperforming its targets by about 50%. In FY2022-23, it injected just 34% of the 5Mt of CO_2 it captured. Globally, the maximum capture rate achieved by CCS to date appears to be 83%, well below the 90%-95% presented as feasible by the oil and gas industry.[49]

Chevron's Gorgon CCS venture is part of its 15.6Mtpa Gorgon LNG project.[50] The Gorgon CCS venture provides a good illustration of the underperformance of CCS. The Gorgon CCS project has a design rate to capture around 4mtpa of CO_2. Chevron and its Gorgon partners buried a total of 8.5Mt of CO_2 in the period from August 2019 to October 2023.

Figure 3: Global carbon capture and storage performance

Year	Volume of CO2 removed	Volume of CO2 injected	Target 80% of CO2 removed	Shortfall from target
2016-17	1	0	0.8	0.8
2017-18	3.5	0	2.8	2.8
2018-19	3.7	0	3	3
2019-20	3.9	2.7	3.1	0.4
2020-21	3.2	2.2	2.5	0.4
2021-22	5	1.6	4	2.4
2022-23	5.05	1.72	4.04	2.32
Total	**25.35**	**8.5**	**20.24**	**12.12**
Summary	**16.85mt pumped into atmosphere**	**(33% of total)**	**(42% of target)**	**(58% of target)**

Source: Chevron

[45] Bunbury Mail. South West carbon capture project doomed. 29 May 2014
[46] Global CCS Institute. Wandoan Power Project Pre-feasibility Study Knowledge Sharing Report. June 2011
[47] CSIRO report prepared for GCCSI. Case study of ZeroGen Project. 20 September 2011. Page 9.
[48] Chevron. Gorgon Gas Development and Jansz Feed Gas Pipeline. Environmental Performance Report 2023. 7 November 2023 Page 63.
[49] IEEFA. Fact Sheet: Carbon Capture and Storage (CCS) has a poor track record. 8 February 2024.
[50] Chevron. Reducing greenhouse gas emissions for a lower carbon future.

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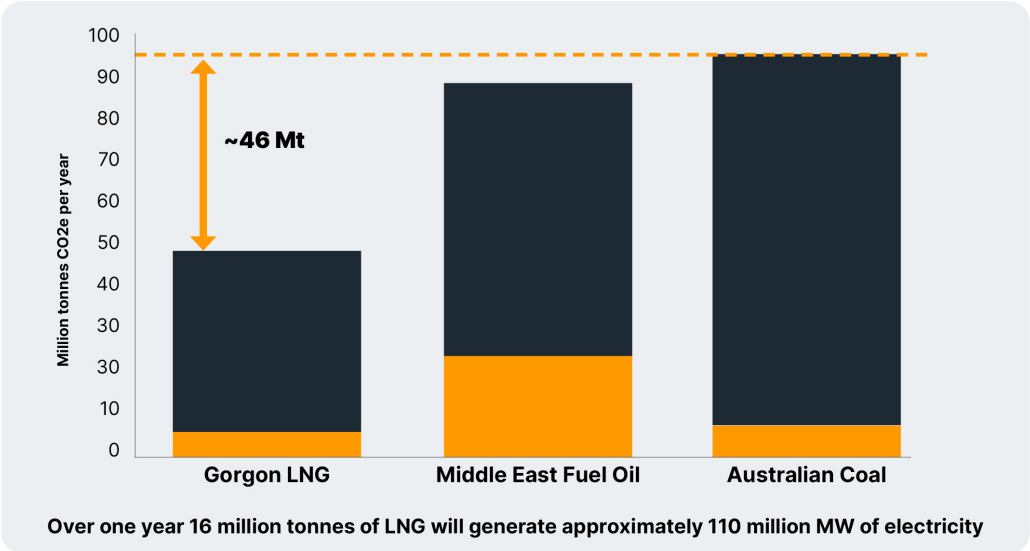
Figure 3 shows the CO_2 capture rates for Gorgon CCS, which amount to 33% of the total CO_2 removed from the Greater Gorgon fields, which has an CO_2 content of 14%.[51] This CO_2 represents Scope One emissions – it does not include Scope Two emissions, which are generated at the gas plant to remove the CO_2 and liquefy the gas or freeze it before it can be loaded onto LNG carriers.

The combined CO_2 emissions from the Gorgon field reservoirs and the Gorgon LNG liquefaction plant were 8.19Mt of CO_2 in the 2022-23 fiscal year, according to data from the Clean Energy Regulator.[52] When both Scope One and Two CO_2 emissions are considered, the Gorgon CCS is capturing less than 20% of these combined emissions.

Chevron is under no obligation to report its Scope Three emissions, which are the emissions when the gas is combusted. One of the few estimates for Gorgon's Scope Three emissions that is publicly available comes from Gorgon's planning documents and is based on a scenario of the Gorgon gas been used for generating electricity in Asia. This shows total emissions from the Gorgon CCS project, which is the combination of Scope One, Two and Three, and is around 50Mtpa of CO_2. This means that the 1.72Mtpa of CO_2 captured in the CCS in 2022-23 represented around 3.4% of the total emissions captured.

In other words, 96.6% of the emissions from Gorgon are pumped into the atmosphere, doing nothing to achieve the reductions in CO_2 required to stabilise the climate.

Figure 4: Gorgon LNG and Scope Three emissions



Source: Chevron

[51] Worley. Expanding CCS at an LNG facility in Australia. 8 February 2024.
[52] Clean Energy Regulator. Safeguard facility reported emissions data. 4 April 2024.

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(a) the environmental impact assessment process and the adequacy of the project's approval by federal and state regulatory bodies, including the decision not to classify the project as a controlled action under national environment law

9. The project should be classified as a controlled action project under the Environmental Protection and Biodiversity Conservation (EPBC) Act 1999.

The Australian Government's decision that the project is not a controlled action under the EPBC Act and therefore does not require assessment and approval under the EPBC Act is based on a ten-day assessment process where "no public comments were received on the referral".[53]

IEEFA is of the view that that the Glencore CCS project should be classified as a controlled action project under the EPBC Act. This view is based on what defines a controlled action under the EPBC Act Section 67: "'Controlled actions' are those actions that the Minister decides have, will have or are likely to have a significant impact on one or more protected matters and therefore require assessment and approval under the Act. The protected matters upon which the action may have a significant impact are called the 'controlling provisions' or 'triggers' for assessment and approval under the Act, for that controlled action."[54]

IEEFA has noted that Glencore has stated that: "In January 2022, CTSCo referred the project to the Australian Government under the Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act), to determine whether or not the Project is considered a controlled action. In February 2022, the Australian Government gave notice of their decision that the Project is not a controlled action under the EPBC Act and therefore does not require assessment and approval under the EPBC Act."[55]

However, the Australian government stated that public comments on the CTSCo proposal were invited for ten business days, which seems an inadequate period for a comprehensive consultation. The government said "no public comments were received on the referral".[56] This may reflect that interested parties were unaware that the project was open to public submissions, rather than a lack of interest in such a contentious project.

The lack of comments may also reflect the fact that the government was supportive of the project at the time.[57] However, there has been vocal opposition to the project, particularly from the agricultural community.

The National Farmers Federation opposes the project, citing concerns that injecting coal mine waste into the Great Artesian Basin puts food production at risk.[58] AgForce, the peak body for Queensland's rural producers, said pumping CO_2 into the Great Artesian Basin will lead to

[53] Department of Climate Change, Energy, the Environment and Water. Statement of reasons for a decision on not controlled action under the Environment Protection and Biodiversity Conservation Act 1999. 21 February 2024.
[54] Department of Climate Change, Energy, the Environment and Water. Independent Review of the EPBC Act.
[55] Glencore. CTSCo Project Environmental Impact Statement Fact Sheet. December 2022
[56] Department of Climate Change, Energy, the Environment and Water. Statement of reasons for a decision on not controlled action under the Environment Protection and Biodiversity Conservation Act 1999. 21 February 2024.
[57] ABC. Carbon capture storage trial in Queensland to demonstrate Morrison's promise to reduce emissions via 'technology' 2 November 2021.
[58] National Farmers Federation. The NFF opposes proposal to inject coal waste into farm water supply. 29 November 2023.

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"potentially irreparable damage to aquifers […] resulting in devastating consequences for the water used for general urban and industrial uses, including agriculture".[59]

(d) the potential socioeconomic impacts on agriculture and regional communities, relying on the Great Artesian Basin for water, including an assessment of the project's impact on existing and future water use rights

10. The present and future environmental and economic costs of the project as a result of the impact on groundwater sources have not been adequately addressed in the EIS.

The EIS ignores the opportunity costs of the affected groundwater sources and the impact on present and future regional economies reliant on Great Artesian Basin water sources. Barb Madden, president of the Australian Lot Feeder's Association (ALFA), the peak body for some of Australia's biggest beef producers, said the proposal was a "major threat" to the Great Artesian Basin.[60]

In IEEFA's view, it seems inconceivable that Glencore's CCS project to inject CO_2 into the Great Artesian Basin would not have some sort of long-term or irreparable impact on the environment and other water users. If the project does go ahead and there are resulting negative consequences, there should be a clear line of procedure to claim compensation from Glencore for the damages it has caused to a resource that is so vital for Australian industry and communities both now and into the future.

An economic study on the Great Artesian Basin commissioned by the Australian government stated that: "...most of the economic activity in GAB [Great Artesian Basin] regions is dependent on access to GAB water resources. Without GAB water, economic development in many areas would not have been able to occur. It is also hard to imagine much of the town/urban water use and domestic water use in GAB regions being possible without access to GAB water. In many localities, alternative water supplies are prohibitively costly and total reliance on surface water would significantly reduce liveability."[61]

The report estimated that the consumptive use of Great Artesian Basin water is integral to at least A$12.8 billion of production annually. The water uses by pastoral and intensive farming, irrigation, and mining, electricity and gas industries are all of high economic value. "The use of the GAB water resource provides economic value-add to regional resources (land and minerals), and underpins much of the economic activity and employment across the GAB region."[62]

[59] AgForce. Time to give the Great Artesian Basin the respect it deserves. 21 February 2023.
[60] ABC. Groundwater concerns grow as Glencore pushes ahead with plan to store waste CO2 in Great Artesian Basin. 16 February 2023.
[61] Frontier Economics. Economic output of groundwater dependent sectors in the Great Artesian Basin. August 2016.
[62] Ibid. Page V.

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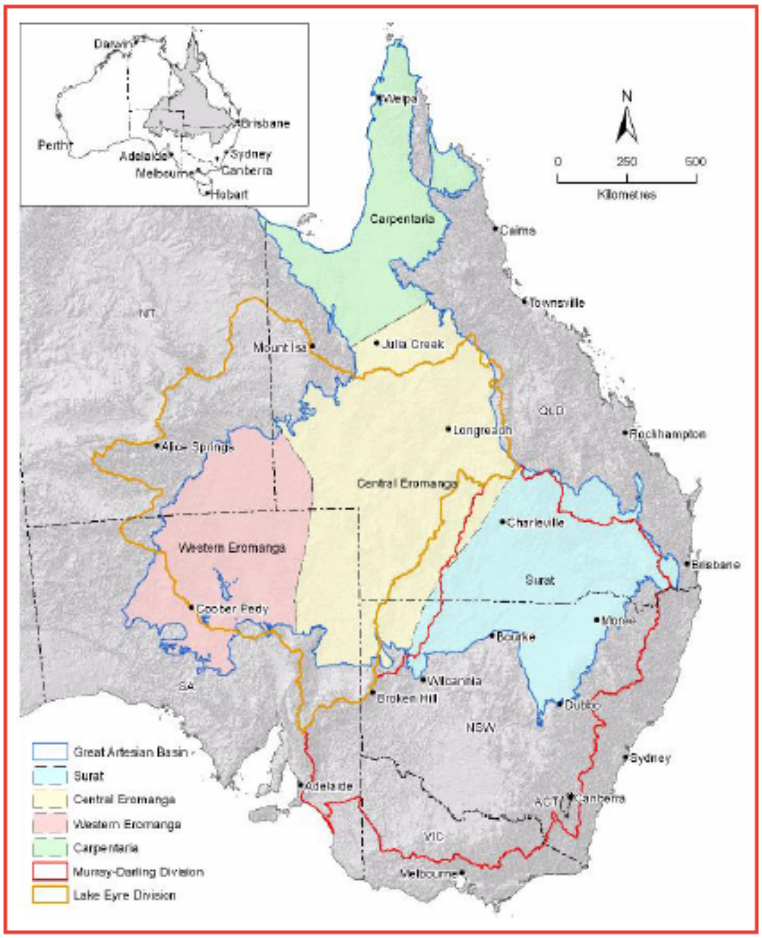
Figure 5: Regions of the Great Artesian Basin



f) the potential precedent set by allowing CCS projects within the Great Artesian Basin and its implications for future projects, considering Australia's strategic interests in preserving its largest groundwater system

11. An approval of Glencore's Surat Basin CCS project would set a poor precedent. It could endanger the economics of rural Australia as well as the livelihoods of thousands of people and impact the cultural way of life for many.

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About IEEFA

The Institute for Energy Economics and Financial Analysis (IEEFA) examines issues related to energy markets, trends and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy. www.ieefa.org

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