Attachment 1: Abridge version of QCC's submission to the proponents EIS for their proposed project

The Chief Executive
Attn: The EIS Coordinator - Surat Basin Carbon Capture and Storage Project
Department of Environment and Science
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Date: 23 February 2023

RE: Submission on the Environmental Impact Statement for the Proposed Surat Basin Carbon Capture and Storage Project

Dear Sir or Madam,

The Queensland Conservation Council (QCC) welcomes the opportunity to provide the following comments and recommendations to the draft Environmental Impact Statement (EIS) for the Surat Basin Carbon Capture and Storage (SBCCS) Project as proposed by the Carbon Transport and Storage Corporation (CTSCo) Pty Ltd.

1. Failure to address the TOR for the EIS

Examples of the proponent's failure to address the TOR for the EIS includes, but is not limited to:

1.1 Assessment of cumulative impacts

Under section 8.3 of the TOR, the proponent is required to assess the cumulative impacts to environmental values and public health from the proposed project, in combination with adverse impacts potentially caused by other development activities and infrastructure proposals that are adjacent, upstream and downstream of the proponent's proposal in consideration of the combined scale, intensity, duration and frequency of the impacts.

In doing this, the TOR stipulates the proponent must make every effort to find information from all sources relevant to the assessment of cumulative impacts including from other major projects or development.

Despite this requirement, the proponent has not assessed the potential cumulative impacts from their project in combination with other potential carbon storage projects in the Surat Basin, which

has been identified by the 2009 National Carbon Storage Taskforce report and the Queensland Government CO2 Storage Atlas as a key geo-storage area with the potential to permanently store approximately three billion tonnes of CO2, including 1.3 billion tonnes in the Precipice Sandstone aquifer.

Given the primary purpose of the proponent's project is to gather data to inform the development of other underground CO2 storage projects, the proponents failure to assess the cumulative impacts to environmental values and public health potentially caused by their project in combination other potential underground CO2 sequestration projects in the Surat Basin is a gross failure to comply with section 8.3 of the TOR for the EIS.

Recommendation: Require the proponent to assess potential cumulative impacts to environmental values, public health and existing and future groundwater users from their proposed project in combination with adverse impacts potentially caused by other underground CO2 storage projects in the Surat Basin.

1.2 Remediation options

Under section 9.3.1 of the TOR, the proponent is required to develop a rehabilitation strategy which must include suitable options for remediation and or reinstatement of the groundwater resource and geological formations should the project fail to achieve defined outcomes.

Despite this requirement, the proponent has not provided any information in the draft EIS about suitable options for remediating impacts that occur to groundwater resources and geological formations if the project fails due to technical, economic, environmental or any other issues.

Recommendation: Require the proponent to provide information about options for remediating impacts to groundwater resources if the project fails due to technical, economic, environmental or any other issues.

1.3 Water quality

Under section 9.4.1 of the TOR, the proponent must operate the proposed project in a way that protects the environmental values of groundwater and any associated surface ecological systems.

Based on information provided in the EIS, the proponent's proposed project will permanently degrade the quality of groundwater in the Precipice Sandstone, which does not comply with the purpose of the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019* to protect the quality of Queensland's surface and underground water resources.

Recommendation: As it does not comply with the *Environmental Protection (Water and Wetland Biodiversity) Policy 2019*, the proposed project should not be approved under the *Environmental Protection Act 1994.*

1.4 Future use of groundwater

Under section 9.4.2 of the TOR, the proponent must describe present and potential users and uses of water in areas potentially affected by the proposed project, including municipal, agricultural, industrial, recreational and environmental uses of water.

Despite the requirement, the proponent has not provided sufficient information about the potential use of water from the Precipice Sandstone for future municipal, agricultural, Industrial, environmental or other purposes.

Recommendation: Require the proponent to provide information about the potential use of water from the Precipice Sandstone for future municipal, agricultural, Industrial, environmental or other purposes

2. Other matters that need to be addressed and considered

Other matters that need to be addressed and considered when assessing the proponents proposed project includes:

2.1 Monitoring

As the potential impacts to the receiving aquifer are likely to occur over an extended period of time, the proponent's proposal to monitor the project for a total of 3 years after ceasing to inject CO2 into the Precipice Sandstone is manifestly inadequate.

Given that it is permanent and that adverse impacts may not occur for some time into the future, it's essential that the proponent is required to monitor the effect of the CO2 plume on the economic, environmental and social values of the region for at least 100 years.

Recommendation: Require the proponent to monitor (and manage) the project site for at least 100 years.

2.2 Additional commitments

Along with the commitments contained in the draft EIS, the proponent must also commit to:

- Fully remediating groundwater resources if the project fails due to technical, economic, environmental or any other issues at any point in the future
- Monitoring and managing the project site in perpetuity,

Recommendation: Require the proponent to implement the above additional commitments if their project is approved

2.3 Chapter 3 of the Water Act

As the proponent's project is classified as a resource activity under section 107 (b) of the *Environmental Protection Act 1994* and is located within the Surat Cumulative Management Area, the proponent should be required to comply with Chapter 3 of the *Water Act 2000* to ensure that impacts to groundwater from their proposed project are managed in accordance with the framework that impacts to groundwater from other resource activities in the Surat Basin are managed.

Recommendation: Require the proponent to comply with Chapter 3 of the *Water Act 2000* if their project is approved

2.4 Section 41 of *Environmental Protection Regulation 2019*

Given that it will continue to degrade the quality of groundwater in the Precipice Sandstone into the future, the CO2 plume the proponent is seeking approval to inject into the Precipice Sandstone should be classified as a waste under the *Environmental Protection Act 1994.*

As a classified waste that will continue to degrade the environmental values of the receiving aquifer into the future, the proponent's application for an Environmental Authority should be refused under section 41 (2)(c) of the *Environmental Protection Regulation 2019.*

Recommendation: Refuse the proponents Environmental Authority application under section 41 (2)(c) of the *Environmental Protection Regulation 2019*

3. Fundamental issues with CCS

Key issues regarding the viability of CCS includes, but is not limited to:

3.1 CCS will be used to justify continued fossil fuel emissions

There are concerns that CCS will be a greenwashing tool that will be utilised to justify continued emission of fossil fuels, rather than investment in renewable energy technologies. Of particular concern are arguments made by coal and gas companies that CCS will be used to allow the continued operation of fossil fuel power plants long after they would otherwise have been shut down.

This is the case for the Surat Basin Carbon Capture and Storage Project. Although it is only a demonstration project that will operate over three years, it is clear that it will encourage continued fossil fuel emissions from the Millmerran Power Station, where it's proposed to be captured.

An application has been made to extend the operation of the Millmerran Power Station and associated Commodore Coal Mine until 2056, which if approved would allow the production of 4.0 Mtpa of thermal coal solely for the Millmerran Power Station. This would amount to approximately 170 million tonnes of CO2 generated over 32 years.

If this extension is approved, then CCS technology will be needed to ensure compliance with Queensland's and Australia's emissions reduction targets. Intergen, one of the joint owners of the Millmerran Power Station, has even stated that it is 'involved in the early stages of a carbon capture and storage project at Millmerran', clearly referring to the Surat Basin Carbon Capture and Storage Project.

It is therefore clear the SBCCS Project will be used to justify continued fossil fuel emissions from a coal-fired power station until 2056, which "would run entirely counter to the aim of achieving net zero emissions by 2050".

3.2 The long-term effectiveness of CCS is uncertain

There are concerns about the long-term effectiveness of CCS, particularly given that its being relied on to offset GHG emissions. This is particularly concerning in the context of the SBCCS Project, which only proposes to monitor the injected CO2 plume for 3 years.

In order to ascertain whether the CO2 plume will not cause any adverse impacts to economic, social and environment values into the future, the proponent should be required to monitor the CO2 plume in perpetuity.

3.3 CCS projects are resource intensive

Retrofitting CCS to existing power stations, whether coal or gas-fired, is highly resource intensive, making the use of energy from these power stations more expensive and less efficient. There are also outstanding questions about the efficiency of coal-powered retrofit technology, which suggest that such CCS facilities 'may not be as financially viable as predicted'.

This renders arguments that CCS technology can justify continued investment in these energy sources entirely counter-intuitive and unsustainable. For example, a 2020 desktop study by the Victoria Energy Policy Centre and Victoria University concluded that CCS applied to coal generation can be expected to cost at least six times as much as comparably firmed renewable generation. The gap between gas generation and CCS and comparably firmed renewable generation is even bigger.

The Surat Basin Carbon Capture and Storage Project involves the retrofitting of carbon capture facilities to the existing Millmerran Power Station, meaning it will be more costly and complex than other applications due to the diluted CO_2 in the flue gas stream.

Further, the CO_2 captured from the Millmerran Power Station will need to be transported 260km as a cryogenic liquid in B-double trucks. This is estimated to require 9 B-double trucks making 9 return trips per day, up to 6 days a week. Not only is it highly inefficient to transport CO_2 in this manner, but it is also significantly more costly and risky, and will involve the emission of significant amounts of CO_2 which do not appear to be quantified in the EIS.

The GHG stream will then need to be converted into a supercritical fluid for injection and piped along a 9.5km flowline to the injection site, creating further costs and greater risk of fugitive emissions from CO_2 leakage, which are also not quantified in the EIS.

It is clear that the Surat Basin Carbon Capture and Storage Project will be highly resource-intensive, even though it is merely a demonstration project, and will create significant inefficiencies both in terms of cost, complexity and emissions.

3.4 CCS Projects do not contribute meaningfully to carbon abatement

CCS projects generally focus on the volume of CCS captured. However, this value is an incomplete representation of the performance of CCS projects. This is because CCS projects also involve the emission of CO_2 into the atmosphere, through activities such as absorbance, dehydration, compressions, transportation and injection. As a result, many CCS projects are much less efficient at carbon abatement than they are promoted to be.

For example, the Surat Basin Carbon Capture and Storage Project will only inject 330,000 tonnes of CO_2, at a cost of approximately $210 million (AUD). However, the Scope 1, 2 and 3 emissions of the Project amount to 266,368 tCO_2-e, meaning that the Project will only reduce emissions to the atmosphere by 57,032 tCO_2-e – significantly less than the 330,000 tonnes of CO_2 captured.

While the SBCCS Project is only a demonstration project, it nonetheless fails to significantly abate the emissions that it produces, demonstrating instead that CCS will not contribute significantly to the achievement of net-zero or negative emissions that will be necessary to avoid the destructive impacts of climate change.

3.5 CCS has not been proven to be viable at scale

A major barrier to the viability of CCS, particularly CCS retrofitted to a coal-fired power station, is that there are very few successful examples of CCS implemented at the scale required to meet international emissions reduction targets.

It is estimated that to meet these targets, approximately 5.6 Gtpa of CO_2 will need to be captured and stored globally by 2050 using CCS technologies. However, as of 2020 only approximately 40 Mtpa of CO_2 is being captured globally.

What is needed to demonstrate the viability of CCS at these scales is not more demonstration projects – even the proponent acknowledges in the draft EIS for the SBCCS Project that 'the infrastructure, technology and monitoring techniques proposed by CTSCo are established and have proven successful in CO_2 geological storage projects worldwide and within Australia'. Instead of wasting $210 million on investigating the viability of CCS, which may encourage and create continued fossil fuel emissions, those funds should be used to install more renewable energy generation and storage infrastructure, such as large batteries.

4. Recommendation

Given that the proponent has failed to comply with the TOR for the EIS and the other matters raised in this submission, QCC is strongly opposed to the proponent's proposal to permanently store CO2 in the Precipice Sandstone, and as such we urge you to categorically reject the proponent's application for an Environmental Authority to undertake their proposed activity.

5. Conclusion

Please do not hesitate to contact me should you require any further information or clarification regarding the matters raised in this submission.

Yours sincerely,

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