

Carbon (dioxide) capture and storage is an important part of Queensland's emissions reduction future

Queensland is a major producer and user of coal and gas. These products and the industries behind them underpin much of the state's economic prosperity and are a vital source of ongoing employment, revenue and secure affordable energy for the state.

Globally the world will continue to use coal and gas as developing countries require reliable, secure and affordable sources of energy to grow their economies. Queensland is well positioned to provide high quality coal and gas exports to customers globally. Queensland will also continue to make use of its coal power, the lowest cost of any state in Australia.

In 2016–17, coal (77%) and gas (9%) accounted for a total 86% of total annual electricity generation in Australia.¹ In Queensland, coal and gas currently represents around 90% of total electricity generation capacity.

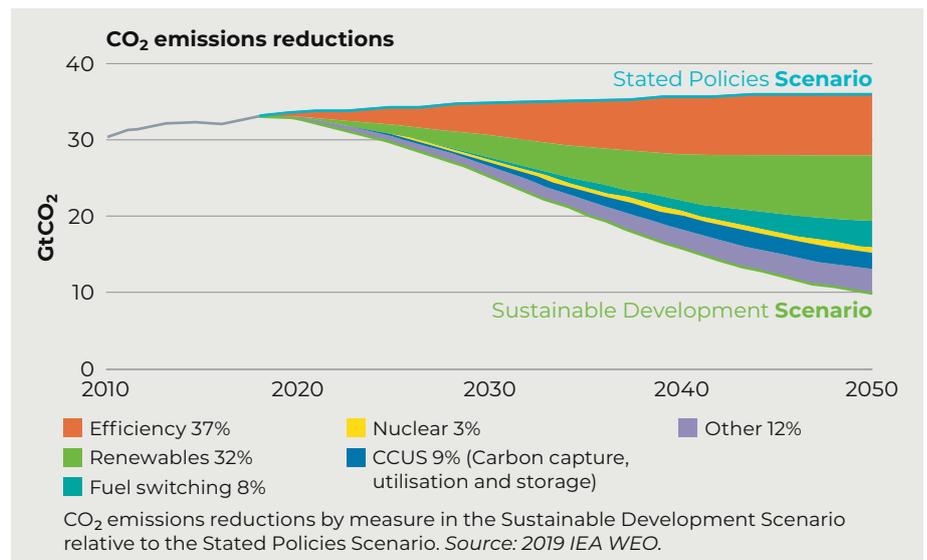
While coal and gas provide secure and affordable energy for households and industry in Queensland, there is a need to also responsibly manage and reduce the greenhouse gas emissions from using fossil fuels. Carbon (dioxide) capture and storage technology has the potential to significantly reduce emissions from fossil fuels used to generate electricity and other industrial processes such as chemicals and fertiliser manufacturing.

SOLUTIONS TO REDUCING CARBON EMISSIONS

There is no 'quick fix' or single technology solution to reducing global CO₂ levels. A broad suite of low emission technologies will be needed. Renewable energy from solar, wind and hydro will also play an important role in the future energy mix.

The International Energy Agency (IEA) reports that even with concerted action under the Paris Agreement's nationally determined contributions from each country, fossil fuels will still provide 60%–75% of the world's

¹ Source: Geoscience Australia



primary energy by 2040. The IEA has said that carbon (dioxide) capture and storage will play a 'unique and vital role' in the global reduction of greenhouse gas emissions from the use of fossil fuels.

QUEENSLAND AND AUSTRALIA NEED TO BE CARBON CAPTURE AND STORAGE READY

Carbon (dioxide) capture and storage combines safe and proven technologies which have been in use for decades. Carbon (dioxide) capture and storage is currently being used around the world and is cutting global CO₂ emissions, with 23 large-scale operational projects already capturing and storing more than 40 million tonnes every year, safely and efficiently. A further 28 pilot and demonstration-scale facilities are operational or under construction.

What we also know from all the work that has already been done is

that the rocks where CO₂ is stored deep underground is different in each location around the world. It is important to have a good understanding of the deep sub-surface geology in each location where CO₂ could be stored.

In 2009, both the Australian and Queensland Governments have had the foresight to develop Greenhouse Gas Storage Atlases to encourage greenhouse gas storage exploration.

There are many projects around Australia both offshore and onshore in varying stages of assessment and development. These projects are seeking to understand how carbon (dioxide) capture and storage can be deployed successfully to reduce carbon emissions and ensure reliable and affordable energy for all Australians.

Scientists, engineers and geologists have come together on several

exploration projects over several years to better understand the geology beneath the deep sub-surface – the rocks and their formations – and their potential suitability to safely receive, store and contain CO₂ over long periods of time.

CTSCo's Surat Basin Carbon Capture Storage study is one of these important projects that will hopefully help enable a responsible and sustainable emissions reduction carbon capture and storage industry in the future.

WHY CCS IS IMPORTANT TO QUEENSLAND'S FUTURE

CTSCo was formed as a project specific entity to bring together the skills required to demonstrate that carbon (dioxide) capture and storage can be deployed at an industrial scale in Queensland and provide a future pathway to reduce emissions from fossil fuel use from multiple industries without negatively impacting on Queensland's economic prosperity.

A wholly owned, grant funded subsidiary of Glencore in Australia, CTSCo will:

- Work with local communities to address any concerns and transparently and regularly communicate throughout each stage of the project.
- Work with Government and industry on an open book basis to facilitate these outcomes.
- Establish the basis of Licencing for long-term CO₂ storage in Queensland.
- Leverage known Surat Basin geology and technology to minimise technical risks.
- Provide a platform for a future industrial scale carbon (dioxide) capture and storage project.

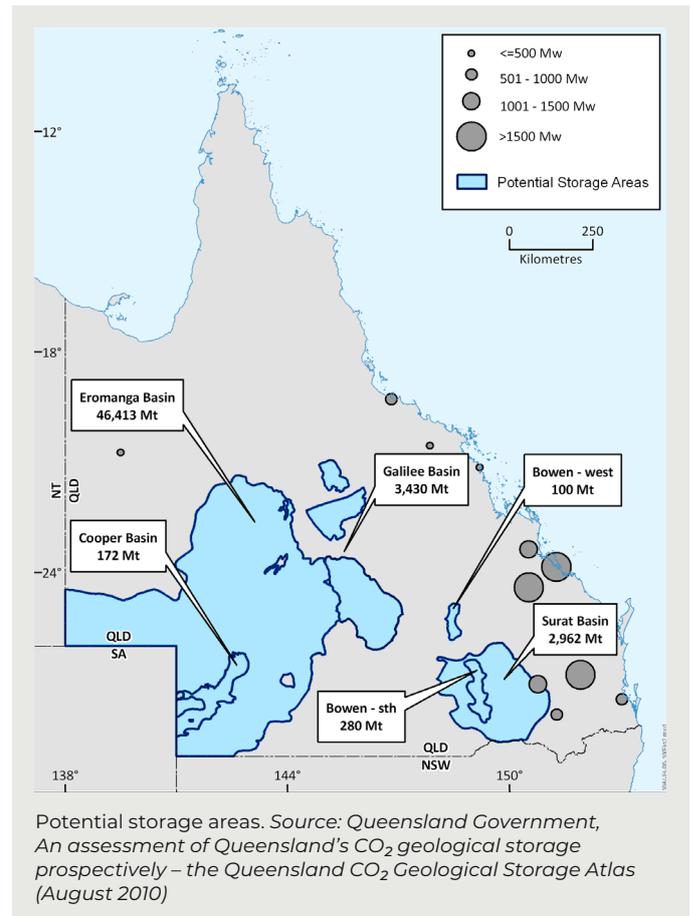
WHY IS THIS PROJECT IN THE SURAT BASIN

The Surat Basin is one of Australia's largest, and relatively untapped, energy resource areas, covering a geological area of approximately 300 000 square kilometres. It extends from central southern Queensland to central northern New South Wales.

The Surat Basin supports a range of primary production activities and has traditionally been a coal region, but several billion dollars' worth of projects have been developed over the past decade in resources ranging from coal seam gas (CSG) and liquid natural gas (LNG), to wind farming and solar generation.¹

The 2009 Nation Carbon Storage Taskforce report and the Queensland Government Greenhouse Gas Storage Atlas identified the Surat Basin as a key geostorage area. The report found almost three billion tonnes of CO₂ theoretical storage potential is available in the area. More specifically the precipice sandstone (aquifer) in the Surat Basin accounts for 1.3 billion tonnes of theoretical storage potential.

In addition to the storage potential of the Surat Basin, it is also home to a number of coal-fired power stations and other emission sources making it an ideal location for carbon capture storage.



The Queensland *Greenhouse Gas Storage Act 2009* allows for exploration and testing for the feasibility of storage CO₂. In 2012 CTSCo was awarded a permit by the Queensland Government under this Act authorising carbon storage exploration activities under an Environmental Authority for the northern part of the Surat Basin. In late 2019 an exploration permit for the southern part of the Basin was also awarded.

The objective of CTSCo's Integrated Surat Basin CCS Project is to demonstrate the viability of carbon capture from a coal-fired power station and the effective permanent storage for use of the captured CO₂.

The current permit that has been granted to CTSCo gives permission to find a suitable location to investigate storing CO₂. The permit does not authorise injection of CO₂. Injection of CO₂ will require further regulatory assessment and approval by the Queensland Government.

CTSCo is focussed on activity in the central southern part of the region more than 400 kilometres from Brisbane. The project team is committed to working with the local community and the Government to ensure the benefits of the project, and its potential operations, are clearly demonstrated to enable long-term sustainable economic growth.

¹ Source: Queensland Government's *Surat Basin Regional Planning Framework – A framework for a prosperous and sustainable community, 2011*