



MINERALS COUNCIL OF AUSTRALIA

SUBMISSION

THE CLIMATE CHANGE AUTHORITY'S STOCKTAKE OF AUSTRALIAN AND INTERNATIONAL CLIMATE CHANGE POLICIES

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INTRODUCTION

The Minerals Council of Australia (MCA) welcomes the opportunity to provide input to the Climate Change Authority's (CCA) stocktake of domestic and international climate change policies.

MCA notes that this stocktake is one of three reports that the CCA plans to release in 2019, including a report on actions taken by Australian industry to position for a carbon-constrained future.

MCA provides this submission as a timely input into the CCA's future stocktake of industry climate actions which will also help inform future policy advice that the CCA may provide to the Australian Government on meeting its international emissions reduction pledges.

While acknowledging the breadth of the CCA's stocktake, it should also be informed by a deeper understanding of previous and current actions in Australia to further develop and deploy cleaner fossil energy solutions such as carbon capture, utilisation and storage (CCS/CCUS), high efficiency low emission (HELE) electricity generation, and fugitive emission abatement technologies.

The CCA's report depicts a comprehensive domestic regime to support the development and deployment of renewables. Cleaner fossil energy technologies, however, attract two sentences in the report despite the reality that fossil energy does and will continue to make a significant contribution to the nation.

MCA does not consider this adequately reflects the scope or depth of national and sub-national commitment to and support for the development and deployment of cleaner fossil energy technologies for both coal and gas.

MCA and its members strongly and publicly acknowledge that sustained global action is required to reduce the risks of human-induced climate change and to help meet Australia's emissions reduction pledges under the United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreement.

MCA is helping its members address the transitional and physical risks and opportunities associated with climate change, not only through applying its Enduring Value framework for sustainable development but also through the development of its Climate Change Action Plan.

This includes forging clear linkages between Australia's mining sector and the UN Sustainable Development Goals (SDGs), which explicitly include acting on climate change in a manner consistent with achieving the Paris Agreement. This is being supported in part by a renewed emphasis on Environment, Social and Governance (ESG) issues including sustainability reporting and disclosure (i.e. Task Force on Climate-related Financial Disclosure criteria).

MCA supports technology neutrality for all low emissions energy sources (i.e. where no one technology is favoured to the exclusion of others) and believes that the development and deployment of all low and zero emissions technologies should be equally supported according to their respective phases of innovation.

Only this approach can secure reliable and affordable energy while meeting Australia's international emissions reduction commitments.

AUSTRALIAN STOCKTAKE

In 2009, the Australian Government made an enduring endorsement of the G8's *Declaration on Responsible Leadership for a Sustainable Future* stating that the development and deployment of innovative technologies such as carbon capture and storage (CCS) are expected to contribute substantially to reducing emissions.

It also reaffirmed the 2008 G8 (Toyako) commitment for the launch of 20 large-scale CCS demonstration projects globally by 2010, with a view to beginning broad deployment of CCS by 2020.

In doing so, it recognised a need to:

- Accelerate the design of policies, regulatory frameworks and incentive schemes focused on the development and deployment of CCS technology
- Work to identify sources of financing for CCS demonstration projects
- Identify investment needs and overcome obstacles, including the potential development of innovative partnerships with multilateral financial institutions.

The Australian Government's support for low emission technologies for fossil fuels (LETFF) has been operating for over a decade with most if not all program funding committed. Its programs currently include:¹

- [National Low Emissions Coal Initiative \(NLECI\)](#)
- [Carbon Capture and Storage Flagships \(CCSFS\)](#) including the CCS Research Development and Demonstration Fund
- Low Emissions Technology Development Fund (LETDF)
- [Coal Mining Abatement Technology Support Package](#)
- [Hydrogen Energy Supply Chain Pilot Project](#).

These programs have been subjected to ongoing reductions in the total amounts of funding available (i.e. around half the original NLECI program funding and around 75 per cent of the CCSFS).²

The LETFF specifically aims to:

- Reduce the amount of CO₂ generated by burning fossil fuels
- Provide for greater capture of CO₂ released during the combustion processes
- Support low emissions coal technology deployment over time to enhance energy security and coal's contribution to Australia's economic growth
- Explore options to store CO₂ including through geosequestration (i.e. geological storage).

Due to these reductions, the implicit focus of government funding has focused on what must be done domestically compared to what can be adopted from overseas lessons and experiences to help establish a localised CCS industry. As a consequence, government priorities have been the 'firming-up' of domestic CO₂ storage capabilities rather than research and development on the capture and transport of CO₂. This geologically-specific focus will identify the most economic storage sites and those that show potential for enhanced oil recovery.

There is also currently a bill before the House of Representatives to extend the Clean Energy Finance Corporation (CEFC) funding mandate to include support for CCS. On 8 May 2018, the Senate Environment and Communications Legislation Committee formally submitted to the Senate its recommendation that the bill be supported by the Parliament.

¹ For a detailed summary of projects funded under NLECI and CCSFS see The Auditor-General ANAO Report No.20 2017-18 Performance Audit, page 16

² The Auditor-General ANAO Report No.20 2017-18 Performance Audit, page 9 and <https://www.industry.gov.au/funding-and-incentives/mining/low-emissions-technologies-for-fossil-fuels>

Australia is soon to host the world's largest CCS project in Western Australia – the Gorgon Carbon Dioxide Injection Project – which when operational will inject and store more than 3.4 million tonnes of carbon dioxide (MtCO₂) per annum from natural gas processing facilities on Barrow Island (categorised as an 'A-class' reserve which is the highest level of conservation protection available for Crown land in Australia – another testimony to the safety and reliability of CCS operations). This is being supported through the LETDF.

LETDF also awarded \$63 million to the [Callide Oxyfuel Project](#), which was conceived in 2003 as a COAL21 initiative, launched in 2008 and completed in March 2015. The project confirmed that carbon capture technologies can be applied to existing Australian coal-fired power stations to generate electricity with almost no emissions (along with other waste gases such as oxides of nitrogen [NO_x], oxides of sulphur [SO_x], and heavy metals in condensate form from a power station). The results from the project are also relevant to future low emission projects worldwide aimed at producing cleaner and affordable electricity from fossil fuels.

The Callide project was a joint venture partnership between CS Energy, ACALET (now COAL21), Glencore, Schlumberger Carbon Services, and Japanese participants J-Power, Mitsui & Co., Ltd and IHI Corporation with additional funding from the Japanese and Queensland governments, and technical support from JCOAL. Another large CCS project being supported under the CCSFS and by the Victorian Government is the CarbonNet Project, which will implement a multi-user CO₂ capture and storage network in the Latrobe Valley.

The project aims to initially capture, transport and store 1 to 5 MtCO₂ per annum, with the potential to increase capacity significantly over time. The network could integrate multiple CO₂ capture projects in the Latrobe Valley (including hydrogen production facilities, coal generation, and gas production) transporting CO₂ via a common-use pipeline and injecting it deep into offshore storage sites in the Gippsland Basin (in Commonwealth waters). The Hydrogen Energy Supply Chain Pilot Project is also strongly linked to CarbonNet to produce low emission hydrogen from brown coal.

The CCSFS in conjunction with the Western Australian Government also supports the [South West Hub CCS project](#). The project's feasibility study into storing industrially-generated CO₂ deep underground in the Lesueur Sandstone formation reinforces its suitability as a permanent storage reservoir for CO₂ across a range of scenarios including an injection rate of 800,000 tCO₂ per annum for a period of 30 years. The CO₂ would remain within the reservoir for at least 1000 years.

[CO2CRC](#) (which was previously funded under the Cooperative Research Council program and has funding contracts with both the Australian and Victorian governments) has demonstrated that Australia's deep saline aquifers present the most feasible geological storage opportunities. The Australian potential for permanent CO₂ storage sites exists within sedimentary basins and is estimated to be about 417 GtCO₂.³

As an indication of scale, if the year to September 2018 emissions levels of Australia's power sector (180 MtCO₂-e), stationary energy sector excluding power (102 MtCO₂-e) and industrial emissions (35 MtCO₂-e) could be captured and injected into saline formations, then this would be sufficient to hold more than 1,300 years of associated emissions.⁴

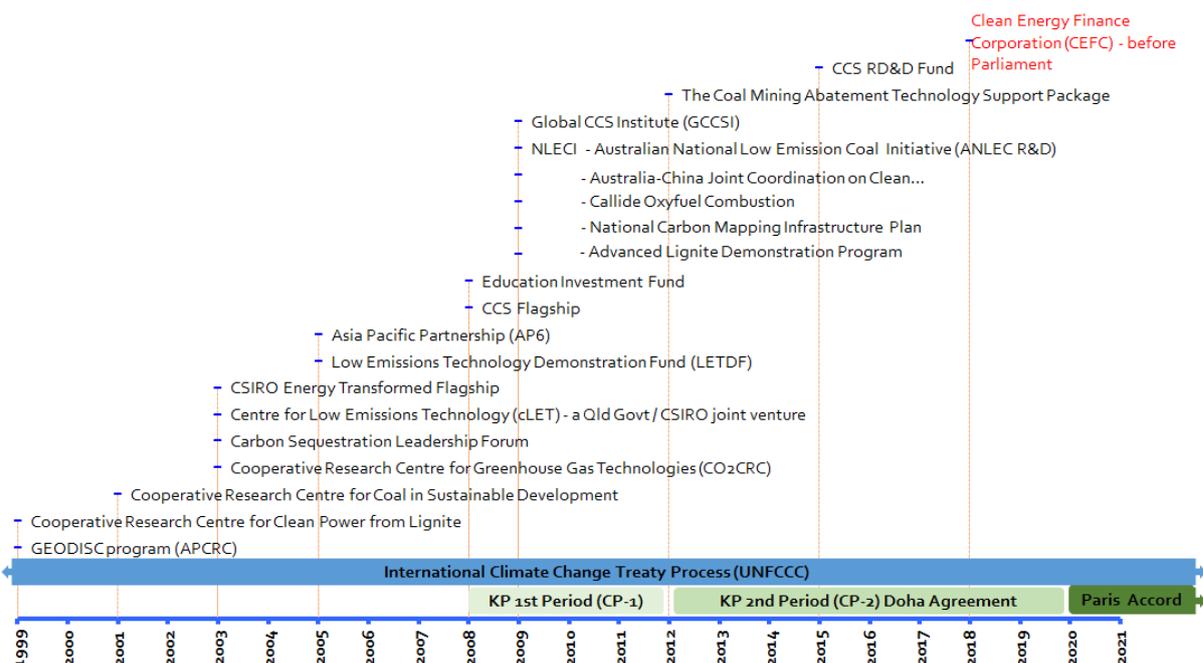
A limiting factor to utilising individual storage sites is the injection rate, but there is high scientific confidence that the east of Australia has aquifer storage capacity of 70 to 450 years at an annual injection rate of 200 MtCO₂ and that the west of Australia has capacity of 260 to 1,120 years at an injection rate of 100 MtCO₂.

The respective ongoing research programs of CSIRO and Geoscience Australia continue to contribute valuable geological data and knowledge to realise the full potential of Australia's CO₂ storage prospects as well as lowering the cost of capture.

³ https://www.industry.gov.au/Energy/Documents/cei/cst/Aus_Potential_co2_Brochure.pdf

⁴ <http://www.environment.gov.au/system/files/resources/4391288e-fc2b-477d-9f0b-99a01363e534/files/nggi-quarterly-update-sept-2018.pdf>

The following chart outlines government supported programs and organisations where CCS activities have received assistance.



Source: MCA, 2019

The mining sector is also providing substantial ongoing support for the development of cleaner fossil energy technologies. [COAL21](#) is a significant investment of A\$555 million by the Australian black coal industry in the demonstration of low-emissions coal technologies such as CCS. It is supported by a voluntary levy on coal production and includes 26 investors from among Australia's black coal producers.

COAL21 primarily invests in the development of low-emissions technologies for the coal-fired power generation sector and in emissions reduction from coal mines (fugitive emissions with co-funding from the Commonwealth), though other industries that use coal are also considered for investment.

COAL21 is also conducting studies to provide an evidence-based case for coal to remain a key part of Australia's future energy supply while developing the capability to reduce emissions in the future. The COAL21 Board recognises the vital importance of accelerating the deployment of these technologies and has agreed to a further 10 years of COAL21's activities in 2017.

A particular focus for COAL21 is assessing the potential for a CCS Hub in Queensland's Surat Basin. Central to this are two projects jointly funded by COAL21 and the Commonwealth Government. Firstly, the CTSCo Project is planning a trial injection of CO₂ in the Surat Basin as a step towards the commercial development of the basin for CO₂ storage. Secondly, the University of Queensland's *Carbon Storage Assessment* is undertaking a detailed assessment of the greater Surat Basin to evaluate the feasibility of large-scale CCS. Proven storage from these projects would provide a pathway to establishing an emissions reduction option for coal, oil and gas, ethanol and hydrogen production in Queensland, including enhanced oil recovery.

Like COAL21, [ACARP](#) is an Australian industry-led mining research program that has been operational since 1992. It is entirely owned and funded by all Australian black coal producers through a A\$0.05 per tonne levy paid on saleable coal. In 2018, ACARP funded 242 research projects with a gross financial commitment of A\$69.65 million, with a further A\$18.15 million awarded to new research.

INTERNATIONAL STOCKTAKE

There are currently 18 large-scale CCS facilities operational globally with five more projects under construction.⁵ Collectively these facilities capture some 40 MtCO₂ per annum for the purposes of geological storage and enhanced oil recovery. Relative to the G8's CCS goals, which have all but been delivered, the global rollout of CCS is still on track.

However, its current scale of deployment and global footprint both fall well short of making a meaningful contribution to the climate challenge. This generally reflects inadequate and insufficient policy settings and incentives for low emissions technologies rather than technology failure.

Multilateral and bilateral forums and associated collaboration are important to advancing the deployment of low emissions technologies through their knowledge generation and sharing (i.e. positive spillover effects of learning by doing as well as showcasing international legitimacy) but are considered peripheral to more localised policy settings, incentives, and developments.

The Australian Government actively participates in several important multilateral forums to exchange information and expertise as well as to promote and leverage opportunities offered by cleaner fossil energy technologies internationally. The Australian Government's support for CCS in Australia has and is generating many positive spillover effects associated with 'learning by doing', and continues to assist and inform all of the CCS projects currently operating or under construction globally.

This knowledge is being shared through the following arrangements:

- [Carbon Sequestration Leadership Forum](#) (which the Australian Government was instrumental in helping the US Department of Energy establish in 2003)
- [Mission Innovation](#)
- [Asia-Pacific Economic Cooperation \(APEC\) Expert Group on Clean Fossil Energy](#) (EGCFE)
- The United Nations Framework Convention on Climate Change (including [Technical Expert Meetings](#), the Technology Executive Committee, and the Green Climate Fund)
- [Clean Energy Ministerial](#) (CEM).

MCA is encouraged that the CEM has established the [CCUS Initiative](#), however it notes that the Australian Government is currently not a participant in it (its membership comprises of Canada, China, Japan, Mexico, Norway, Saudi Arabia, South Africa, United Arab Emirates, United Kingdom, and the United States).

As an associate member of the Global Carbon Capture and Storage Institute (GCCSI), MCA acknowledges the Australian Government's key strategic role and substantial investments in the establishment of the organisation. MCA believes the GCCSI has an important mandate to improving the understanding of the role of CCS and CCUS in Australia and the Asia-Pacific.

Australia also works closely with key bilateral partners — such as China, Japan, and the United States — to develop and deploy cleaner fossil energy technologies. Most recently, COAL21 participated in the Australia-China Joint Coordination Group on Clean Coal Technology and highlighted ongoing collaborative work on CCS in the Surat Basin and power generation technology.

MCA welcomed the February 2018 White House announcement of the establishment of the US-Australia Strategic Partnership on Energy, a key initiative that will promote low emissions technologies in the Indo-Pacific. Implementation of the Partnership has since been initiated as part of high-level group meetings with government officials.

In 2018, the US Government approved a federal tax credit (lowering tax liabilities) called 45Q to incentivise the commercial deployment of CCUS. The tax credit provides US\$10 tCO₂ (ramping up to US\$35 by 2024) to deploy enhanced oil recovery and US\$50 tCO₂ for CCS. MCA encourages further investigation of this incentive as one option to support and accelerate the domestic deployment of low emission technologies such as CCS.

⁵ <https://www.globalccsinstitute.com/resources/global-status-report/>

FINAL OBSERVATIONS

In 2017, former Prime Minister Malcolm Turnbull stated that Australia had a vested interest in promoting cleaner fossil energy (i.e. coal and gas).

The significance of this statement has endured and grown over time. The MCA estimates that in 2015-16 alone, the aggregate subsidy paid to renewable electricity generators was almost \$3 billion⁶, while the Government indicates that a total of about \$590 million has been allocated to support clean coal technology research and demonstrations since 2009.⁷

This imbalance in support across the broad portfolio of available low-emissions technologies in Australia has and will continue to hamper the development, demonstration and deployment of alternate and economically viable technologies such as CCS.

The focus of future climate change policy going forward must be to facilitate the deployment of a broad portfolio of low emissions technology solutions at scale across the whole economy.

This priority applies universally to all sectors of the economy, with the desired mitigation outcomes only possible when the right incentives to support the deployment of technologies in a neutral and non-discriminatory manner are in place.

⁶ http://www.minerals.org.au/file_upload/files/reports/MCA-renewables-subsidies-8Jan2017-2.pdf

⁷ 2017 Address at the National Press Club and Q&A (<http://malcolmturnbull.com.au/media/address-at-the-national-press-club-and-qa-canberra>)