



Coal Innovation NSW Fund annual report 2023–24

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Cover image: Stage 2 drilling activities as part of the NSW CO₂ Storage Assessment Program.

Amendment schedule

Date	Version	Amendment
November 2024	1	First drafted

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Reducing coal emissions for the future

Coal Innovation NSW Fund

The Coal Innovation NSW Fund (the Fund) made key contributions to the research, development and demonstration (RD&D) of emissions-reducing technologies in during the 2023–24 financial year (FY). Through the Fund, the NSW Government drives progress to reduce emissions by supporting innovative and world-class emissions reduction technologies.

The key focus for the Fund for this financial year was ongoing analysis and evaluation of the 3 exploration wells in western New South Wales (NSW) as part of the NSW CO₂ Storage Assessment Program (the Program). The Program aims to identify a viable greenhouse capture storage site in NSW and support the NSW Government to achieve the goal of Net Zero by 2050.

The Fund has continued to sponsor Australian research institutions and industry to build knowledge to improve the commercial application of low emissions technologies. In particular, the Ventilation Air Methane (VAM) Abatement Demonstration Project, led by Illawarra Coal Holdings, moved from the pre-feasibility stage to the feasibility stage.

Two RD&D projects were progressed this year:

- water production from capturing carbon dioxide (CO₂)
- development and site trials of a novel pilot ventilation air methane catalytic mitigator.

These projects have provided excellent insight into opportunities for decarbonisation as NSW continues to reduce its emissions in line with stated targets.

Independent advice supports the Fund

The Fund is overseen by the Minister for Natural Resources. Coal Innovation NSW (CINSW) provided independent expert advice to the Minister on expenditure from the Fund. Membership of CINSW comprises independent representatives from industry and the NSW Government.

CINSW met 3 times during 2023–24 and provided advice on:

- funding projects that encourage the development of low emissions coal technologies
- policy to encourage the development and implementation of low emissions coal technologies
- opportunities for private and public sector organisations concerning interstate, national and international research projects involving low emissions coal technologies
- other matters concerning low emissions coal technologies.

Financial year 2023–24 snapshot

Expenditure



\$2,402,000

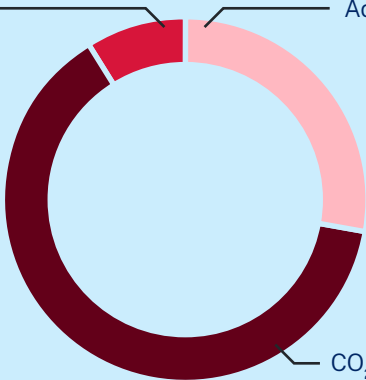
Spent



RD&D \$224,440



Administration \$589,264



CO₂ Assessment Program
\$1,542,696



1

Research institutions involved
in projects



2

RD&D projects completed



\$1,416,000

Revenue received*



\$25 m

Funding balance end FY

*Primarily from interest on the Fund

World-leading research to reduce emissions

RD&D of new low emissions technologies is key to reducing emissions. Investment from the Fund has focused on reducing emissions from coal mining and the use of coal in industries such as electricity generation, steel manufacturing and cement making.

Two RD&D projects were progressed this year, having been finalised and accepted by CINSW.

The NSW CO₂ Storage Assessment Program remains the state's lead carbon capture and storage program. Significant work for Stage 2 was undertaken, successfully progressing further modelling and analysis of the 3 well sites. This included initial drillcore analyses and formation evaluation.

The VAM Abatement Demonstration Project is central to the Australian coal mining industry's objective to reduce fugitive emissions from underground coal mining. CINSW has invested in the design and construction of a full-scale next generation VAM mitigation thermal reactor with improved safety and commercial viability at the Appin coal mine in southern NSW. Project success at full commercial scale would encourage broader industry uptake of this technology and drive emissions reduction from the sector, in line with their obligations under the Safeguard Mechanism. This project completed the pre-feasibility milestones in 2022–23 and focused on feasibility studies this financial year.



Research, development and demonstration

NSW CO₂ Storage Assessment Program

Led by NSW Resources

Purpose

To quantify the carbon storage potential of regional NSW.

Description

The Program is focused on developing carbon capture and storage (CCS) opportunities by locating large, safe carbon geosequestration sites in regional New South Wales. High-emission industries that face challenges in lowering emissions through traditional methods could greatly benefit from these CCS opportunities. Successfully commercialising any geosequestration sites identified in NSW could enable these industries to continue their economic contributions to the state while aligning with emissions reduction targets.

Stage 1 of the NSW CO₂ Storage Assessment Program was co-funded by the Commonwealth Government and Low Emission Technology Australia (LETA). This initial phase yielded promising results, identifying several porous sandstone reservoirs in the Darling Basin.

Stage 2 of the program included seismic survey and an exploration drilling campaign comprising three wells in the Darling Basin. Assessments from the data acquired during drilling and from drill cores is currently in progress. Based on a preliminary assessment, Pondie Range Trough storage capacity is in a range of 200 to 250Mt of CO₂. This assessment is considered more reliable than the Stage 1 storage capacity estimate as it is based on a more comprehensive data set. While the collected data and samples offer some confidence that these sandstones could be suitable for CO₂ storage, a flow test is necessary to accurately estimate the capacity and effectiveness of these reservoirs. A flow test provides essential information on how an underground reservoir will behave when CO₂ is injected and stored, and is crucial for validating these carbon storage resources.

Evaluation

In 2023–24, the Program progressed the Stage 2 data analysis and modelling.

Laboratory experiments on the drillcore acquired have been completed at the University of NSW. Drillcore data provided key reservoir characteristics such as porosity, permeability, capillary trapping and flow behavior of CO₂, seal integrity, rock strength, and mineral composition.

Petrophysical interpretation, static model, basic geomechanics and geochemical study of shallow bores and springs has been completed by Seal Energy with results received. All modelling work is to be completed by end of October 2024 with delivery of Seal Energy's final report by December 2024.

Analysis and modelling conducted on the acquired data so far suggest that the Pondie Range Trough has a thick, impermeable geological barrier (caprock) that can securely contain CO₂ in subsurface formations over the long term. Two sandstone units have been identified as potential reservoirs for storing the injected CO₂. These sequences indicate suitable geological requirements to ensure long term storage and prevent CO₂ leakage.

Water production from capturing CO₂

Led by CSIRO, P. Feron

Purpose

To improve the commercial viability of the post-combustion capture (PCC) process by reducing the water requirement.

Description

This project involved pilot plant demonstration of a desalination process integrated with an amine-based CO₂ capture process. The project was carried out on the post-combustion carbon capture pilot plant at Vales Point Power Station. The project investigated the integration of forward osmosis technology into the PCC process to provide additional water for a coal-fired power plant with CO₂ capture to reduce the absolute water-cooling requirements of the power station.

Evaluation

The project was completed in 2022–23 and CINSW accepted the final report as completion of this project at meeting 41.

The overall goal of the research was to improve the commercial viability of the CO₂ post-combustion capture (PCC) process.

The grantee undertook numerous laboratory experiments before progressing to the pilot scale at Vales Point Power Station. The process of concentrating freshwater (by forward osmosis) during the PCC process was successfully demonstrated at pilot scale, with the amino-acid salts found to be the best performing absorption liquid when used with a flat sheet membrane. While water recovery via membrane distillation at the absorber was demonstrated in the laboratory, it was not progressed to the Vales Point power station due to concerns around the performance of the membrane at that scale.

While successfully progressing both technological innovations, the techno-economic assessment highlighted both the need to continue to develop the technology, and its application in water constrained areas in Australia.

While this technology displayed technical merit, its technical readiness level remains low and further development is required to produce a commercial offering.

Status

Committed: \$1,347,874 (excl GST)

Commenced: January 2019

Completed: July 2023

Total paid: \$1,347,874 (excl GST)

Paid 2023–24: \$347,280 (excl GST)*

*funds transferred this year but accounted for in 2022–23



Experimental Forward Osmosis facility ready for acceptance testing at CSIRO in Pullenvale. Two Forward Osmosis modules shown on left hand side of skid. Photo courtesy of CSIRO.

Development and site trials of a novel pilot ventilation air methane catalytic mitigator

Led by CSIRO, S. Su

Purpose

To reduce fugitive emissions from coal mining.

Description

This project sought to develop a novel pilot ventilation air methane (VAM) catalytic reactor that destroys (oxidises) fugitive methane emissions, a potent greenhouse gas, from underground coal mines. CSIRO has previously successfully trialled a thermal (i.e. non-catalytic) VAM mitigator (VAMMIT) at the Appin coal mine in southern NSW, and this project aims to improve the performance and safety of this technology through the addition of catalysts. VAM has proven challenging for the coal industry because the air volumes involved are large, and methane is present in low concentrations. The improvements arising from this project, if successfully demonstrated, will allow the reactor to operate at lower temperatures and lower methane concentrations. The pilot plant was trialled at the coal mine site to reduce VAM emissions and demonstrate its performance.

Evaluation

This project was completed in 2023–24 with the final report being accepted by CINSW at meeting 42.

A pilot-scale VAMMIT system comprising a catalytic reactor and pipework to deliver ventilation air for the trials was built and installed at the Illawarra Coal Holdings Appin mine in southern NSW.

The performance of the pilot plant was tested for a total of 476 hours using mine ventilation air at various VAM concentrations ranging from 0.08 to 0.38% and ventilation air flow rates ranging from 0.33 to 0.67 m³/second. The catalytic VAMMIT was self-sustaining at 0.13% VAM and ventilation air flow rates of 0.50 and 0.67 m³/second with a methane destruction efficiency in the range of 84–90%. Importantly, the reactor temperature remained stable at 440–550°C (i.e. approximately half that of a conventional non-catalytic reactor), as did catalyst performance, with no notable deterioration in performance.

Although testing found that the methane destruction efficiency of catalytic conversion systems was slightly lower than that achieved with conventional systems, the reasons for the reduction were identified and the predicted advantages of catalytic conversion were demonstrated.

This has been the first on-site demonstration of a catalytic reactor capable of self-sustainably processing 0.1% VAM. This is significantly lower than the minimum VAM concentration currently required by conventional reactors. Hence, the catalytic VAMMIT potentially provides a technical solution for mine sites with low VAM concentrations.

This study has aided the development and optimisation of catalytic oxidation technology necessary for commercial-scale implementation.

Status

Committed: \$1,496,424 (excl GST)

Total paid: \$1,496,424 (excl GST)

Commenced: January 2020

Paid 2023–24: \$389,727 (excl GST)*

Completed: November 2023

***funds transferred this year but accounted for in 2022–23**

Ventilation Air Methane Abatement Demonstration Project

Led by Illawarra Coal Holdings

Purpose

To reduce fugitive methane emissions from underground coal mining.

Description

As part of this project Illawarra Coal Holdings will design and construct a full-scale ventilation air methane (VAM) abatement plant with improved safety and commercial viability. Long-term testing of the technology and safety system will be conducted, with results summarised and presented to the NSW Government and mining industry.

CSIRO has previously successfully trialed smaller-scale VAM technology at the Appin coal mine in southern NSW. Project success at full commercial scale would encourage broader industry uptake of this technology and drive emissions reduction from the sector.

VAM thermal reactor technology works by oxidising almost all the methane (>99%) in a combustion chamber heated to approximately 1,000°C. At this temperature the methane is converted to water and CO₂, which has a significantly lower global warming potential than methane. A key feature of the technology is its ability to be self-sustaining as it does not need additional energy to maintain the temperature in the combustion chamber.

The project is co-funded by Illawarra Coal Holdings and the NSW Government.

Evaluation

The project completed the pre-feasibility milestones in 2022–23 and focused on feasibility studies this financial year. This included progress on detailed engineering and project planning, and consent approvals.

Studies carried out to support the engineering design of the demonstration plant included rigorous analysis of safety requirements through risk assessment, and site assessments of air quality, geotechnical soil and rock properties, predicted construction and operational noise levels, and visual impact. As part of this work a review of the most suitable site for location the demonstration plant progressed and remains ongoing. Engineering of the VAM abatement reactor also progressed though further evaluation of the reactor type to ensure the most suitable technology for abating fugitive emissions is deployed.

The grantee is seeking a modification to existing project approvals to develop the demonstration project at the Appin coal mine. The modification includes constructing the VAM abatement plant adjacent to an existing ventilation system with ancillary infrastructure and site preparation. The modifications are considered minimal and approval is expected next financial year.

A community consultation plan was also developed with a range of engagement tools to be used to keep stakeholders informed as the project develops. These include, for example, letters to nearby landowners, information sessions, fact sheets, briefings with relevant government authorities, community newsletters and social media posts.

CINSW Secretariat

Purpose

To ensure the quality and efficient administration of the CINSW Fund.

To support CINSW in providing its advice and recommendations to the Minister. To deliver the NSW CO₂ Storage Assessment Program effectively and efficiently.

Description

The CINSW Secretariat from the Department of Primary Industries and Regional Development, NSW Resources group undertakes several functions in relation to the CINSW Fund and CINSW. The Secretariat manages the allocation and technical oversight of funded projects and carries out research and development projects on behalf of CINSW, including the NSW CO₂ Storage Assessment Program.

Evaluation

In 2023–24, the CINSW Secretariat:

- continued to manage current CINSW Fund projects through various administrative and governance tasks, including working with researchers towards project completion and final research reports
- conducted quarterly and stage gate assessments of research and development projects to ensure project objectives are met. The CINSW Secretariat also critically reviews final reports from researchers prior to making recommendations to CINSW.
- developed plans, budgets and funding options for the Fund's future programs
- maintained dialogue with industry, state and commonwealth governments on low emissions coal technologies to support achieving the NSW Government emissions reduction targets
- provided advice to the Minister on proposed allocation from the CINSW Fund and CINSW advice
- organised and prepared papers as required for 3 CINSW meetings (41, 42 and 43)
- provided expert and technical advice to CINSW as required
- continued to deliver Stage 2 of the NSW CO₂ Storage Assessment Program, successfully progressing further modelling and analysis of the three well sites.
- oversaw the continuation of the VAM Abatement Demonstration Project, led by Illawarra Coal Holdings, to demonstrate cutting-edge technology to reduce fugitive emissions from coal mining.

Governance

Coal Innovation NSW Fund

The Coal Innovation NSW Fund is created and allocated in accordance with the *Coal Innovation Administration Act 2008* (the Act).

The purpose of the Fund is to provide funding for:

- research into, and development of, low emissions coal technologies
- low emissions coal technology demonstration projects
- increasing public awareness and acceptance of the importance of reducing greenhouse gas emissions through the use of low emissions coal technologies
- commercialisation of low emissions coal technologies.

Coal Innovation NSW

The Act creates Coal Innovation NSW, an advisory council which is independently chaired and provides advice and recommendations to the Minister.

The functions of CINSW include:

- making recommendations to the Minister responsible for the administration of the Act
- advising the Minister and making funding recommendations on projects and other activities for the purposes of the Fund, including advice about funding priorities
- advising the Minister on policies to encourage the development and implementation of low emissions coal technologies
- making recommendations to the Minister concerning opportunities for involvement by private and public sector entities in interstate, national and international research projects involving low emissions coal technologies
- advising the Minister on other matters concerning low emissions coal technologies that the Minister may refer to CINSW.

Membership of CINSW is prescribed by the Act which sets out the membership, including:

- an independent chairperson
- 2 members from government
- 2 representatives of the NSW black coal industry
- up to 4 independent members with relevant qualifications or experience.

Coal Innovation NSW

Members

Independent Chairperson

Professor Michael Dureau AM

Warren Centre for Advanced Engineering, University of Sydney

Government members

Ms Georgina Beattie

Deputy Secretary, NSW Resources, Department of Primary Industries and Regional Development

Vacant

Government representative (position to be appointed)

NSW black coal industry representative members

Mr Mark Jacobs

Executive General Manager, Environment and Community, Yancoal Australia Ltd

Mr David Frith

Director Policy, NSW Minerals Council

Mr Andrew Roxburgh

General Manager, Business Development and Technical Services, Glencore Coal Assets Australia

Other members

Professor Dianne Wiley

University of Newcastle

Dr Noel Simento

Managing Director, Australian National Low Emissions Coal R&D

Outgoing members

Mr Mick Buffier

Group Executive, Global Coal Assets, Glencore

Note: Mr Buffier stepped down in November 2023 as a member of CINSW after 14 years of dedicated membership on the board.

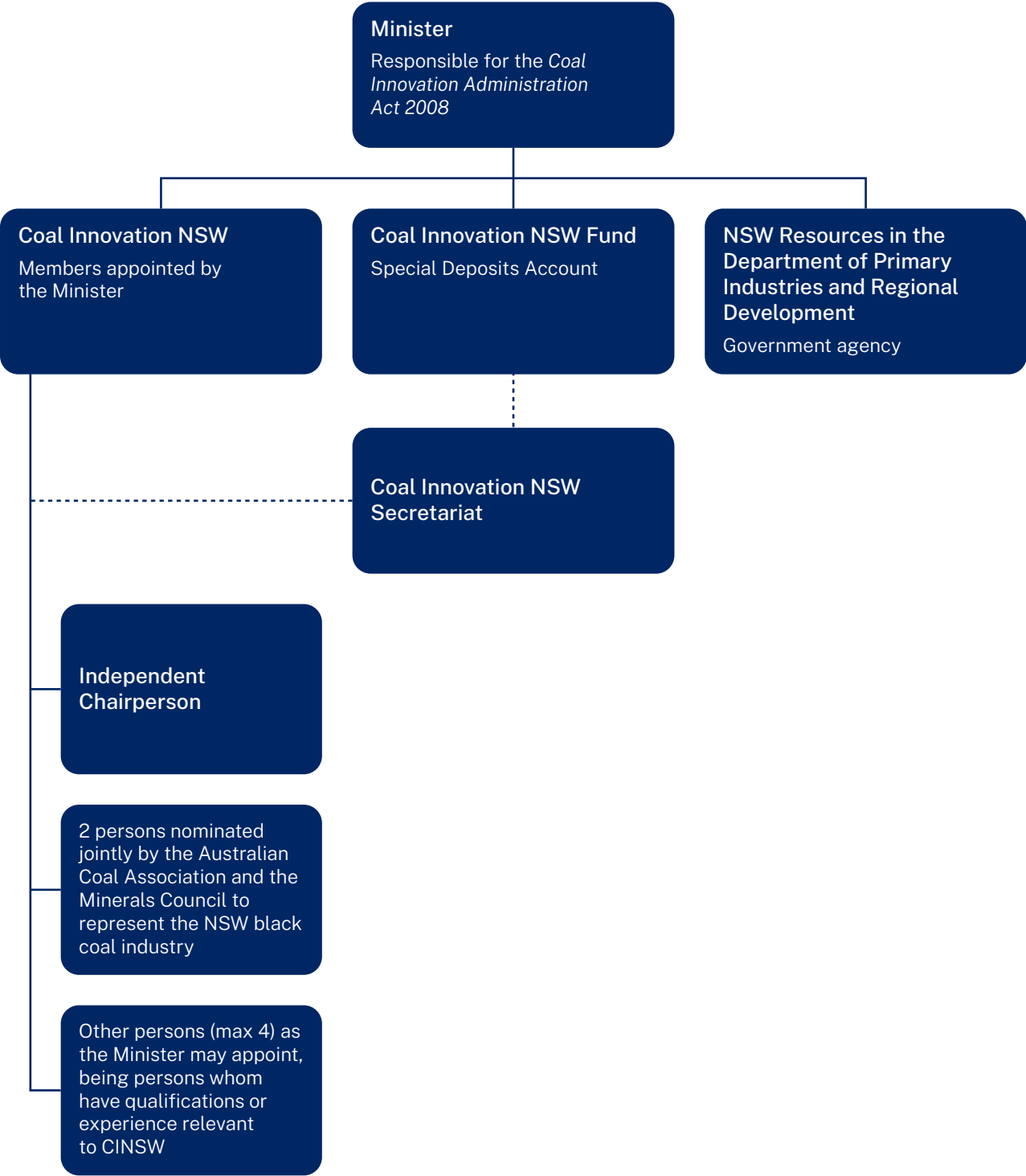
Meetings

There were 3 CINSW meetings held in 2023–24.

Meeting attendance

Meeting 41 – 16 Aug 2023	Meeting 42 – 15 Nov 2023	Meeting 43 – 18 June 2024
Members		
Professor Michael Dureau AM, Chairperson	Professor Michael Dureau AM, Chairperson	Professor Michael Dureau AM, Chairperson
Dr Noel Simento – independent	Dr Noel Simento – independent	Dr Noel Simento – independent
Professor Dianne Wiley – independent	Professor Dianne Wiley – independent	Professor Dianne Wiley – independent
Mr Mark Jacobs – coal industry	Mr Mark Jacobs – coal industry	Mr Mark Jacobs – coal industry
-	Mr Mick Buffier – coal industry	-
Mr David Frith – coal industry	Mr David Frith – coal industry	Mr David Frith – coal industry
Mr Andrew Lewis – government	Mr Andrew Lewis – government	-
-	-	Mr Andrew Roxburgh – coal Industry
Ms Georgina Beattie – government	Ms Georgina Beattie – government	Ms Georgina Beattie – government
Guest presenters		
Dr Paul Feron, CSIRO	Dr Yonggang Jin, CSIRO	Mr Luca Rocchi, Illawarra Coal Holdings
-	Dr Liang Liu, CSIRO	Mr Ben Fitzsimmons, Illawarra Coal Holdings
Observers		
The Hon. Courtney Houssos, Minister for Finance, Minister for Domestic Manufacturing and Government Procurement, and Minister for Natural Resources	-	Mr Marwan El-Chamy, Executive Director Business Operations and Programs, NSW Resources, Department of Primary Industries and Regional Development
-	-	Mr Kevin Ruming, Director Assessment & Advice, NSW Resources, Department of Primary Industries and Regional Development
Coal Innovation NSW Secretariat		
Mr Tully Mathews, Manager	Ms Elspeth Pottie, Manager Policy	Ms Elspeth Pottie, Manager Policy
Mr Lewis Brent, Project Officer	Dr James Knight, Senior Project Officer	Dr James Knight, Senior Project Officer
-	-	Mr Harris Khan, Senior Geoscientist

Governance structure



Risk management

CINSW operates under a governance framework to manage risks associated with the use and administration of the Fund. All activities of CINSW are carried out under the *Coal Innovation Administration Act 2008*, which clearly sets out the functions of CINSW and its powers.

The 2 key documents of the governance framework are the Code of Conduct for members of CINSW and the CINSW Grants Administration Policy. Risk is further managed on a program and project basis through hazard identification and risk registers.

The Code of Conduct sets out specific requirements for personal and professional behaviour, communications, handling of government and sensitive information, fraudulent and corrupt behaviour, conflicts of interest, gifts, use of public resources and record keeping. All members of CINSW are required to agree to abide by the Code of Conduct.

CINSW members are also required to familiarise themselves with their responsibilities under the:

- *Government Sector Employment Act 2013*
- *Independent Commission Against Corruption Act 1988*
- *Public Interest Disclosures Act 1994*
- NSW Government Boards and Committees Guidelines (2013).

The Grants Administration Policy provides a framework for the administration of CINSW grants and outlines the systems and processes used when administering grants. The policy includes a number of key principles that apply to the entire life cycle of a grants program and cover:

- robust planning and design
- collaboration and partnership
- proportionality
- outcome orientation
- achieving value with public money
- governance and accountability
- probity and transparency.

The policy also sets out the roles and responsibilities of the Minister, CINSW, technical working groups and NSW Resources in the administration of the Fund. A key control of the policy is that the Minister is required to approve all grant expenditures.

Each grant program also has specific guidelines. 'Program Administrative Guidelines' provide specific details of eligibility requirements and the selection criteria and framework for assessing applications. Risk assessment and control implementation is conducted in relation to each round of grants and is consistent with the department's Risk Management Framework.

Financial information for 2023–24

Income

Interest

Interest earnings of \$1,406,000.

This was deposited directly into the Fund's bank account. The interest was calculated on the daily balance of the bank account and paid at the cash rate, on a monthly basis, using the Westpac Interest Apportionment Service.

Grants, contributions and other revenue

Grants and contributions totalled \$0. Other revenue received totalled \$10,000.

Summary

Description	Value (\$) excl GST
Interest	1,406,000
Grants and contributions	0
Other revenue	10,000
Total income	1,416,000

Expenditure

Total expenditure from the Fund was \$19,402,000. Note that the CINSW Fund operates on an accrual accounting system and thus only includes expenses incurred in 2023–24.

NSW CO₂ Storage Assessment Program

Expenditure focused on analysis of samples and modelling of data from the 3 exploration wells in western NSW.

Water production from capturing CO₂

Payment for the completion of the project.

Development and site trials of a novel pilot ventilation air methane catalytic mitigator

Payment for completion of the project.

VAM Abatement Demonstration Project

No payments have been made for this project during this financial year.

CINSW Expenses

Remuneration of the CINSW Chairperson.

Fund and CINSW administration

Expenditure incurred to administer the Fund and support CINSW. This includes the CINSW Secretariat (salaries, costs, travel, staff development), legal fees, telecommunications, office supplies and contracts supporting the administration of the Fund.

Audit fees

Independent annual financial audit and governance audit.

Stage 2 drilling activities as part of the NSW CO2 Storage Assessment Program.



Summary

Description	Value (\$) excl GST
NSW CO ₂ Storage Assessment Program	1,542,696
Water production from capturing CO ₂	0
Development and site trials of a novel pilot ventilation air methane catalytic mitigator	224,440
VAM Abatement Demonstration Project	0
CINSW expenses	15,000
Fund and CINSW administration	589,264
Audit fees	30,600
NSW Treasury Revenue Legislation Amendment Act 2023	17,000,000
Total	19,402,000

Totals

Extract from the CINSW financial statement	Value (\$) excl GST
Opening balance as of 1 July 2023 (credit)	43,034,000
Interest and other revenue	1,416,000
Total	44,450,000
Less expenditure	19,402,000
Total on 30 June 2024 (credit)	25,048,000

Financial reports

Coal Innovation NSW Fund **Statement by the Chief Executive Officer** for the year ended 30 June 2024

I declare, on behalf of the Coal Innovation NSW Fund (the Fund) that in my opinion:

1. The accompanying financial report presents fairly the Coal Innovation NSW Fund's financial position, financial performance and cash flow for the year ended 30 June 2024: and
2. The financial report has been prepared in accordance with Treasurer's Directions TD23-24 SDA Account financial reports.

Further, I am not aware of any circumstances which would render any particulars included in the financial report to be misleading or inaccurate.



Georgina Beattie
Responsible Manager
Deputy Secretary, NSW Resources
Department of Primary Industries and Regional Development
Date: 22 November 2024

Coal Innovation NSW Fund
Statement of income and expenditure
for the year ended 30 June 2024

		2024	2023
	Notes	\$'000	\$'000
Revenue			
Grants and Contributions	1(c)	-	5,697
Interest revenue	1(c)	1,406	1,637
Other revenue		10	474
Total revenue		1,416	7,808
Expenses			
Auditor's remuneration - audit of financial report		31	29
Research and development grants	1(d)	1,796	25,951
Professional expenses		-	41
Salaries and wages (including recreation leave)		464	665
Superannuation		53	66
Payroll tax and fringe benefits tax		30	40
Occupancy		-	60
Other expenses – transfer to the Crown		17,000	-
Other operating expense		12	106
Legal fees		-	36
Travel		16	232
Total expenses		19,402	27,226
Net result		(17,986)	(19,418)
Total Comprehensive Income		(17,986)	(19,418)

The accompanying notes form part of the financial report.

Coal Innovation NSW Fund

Statement of net assets

as at 30 June 2024

		2024	2023
	Notes	\$'000	\$'000
ASSETS			
Current assets			
Cash and cash equivalents		25,038	45,406
Receivable from Department of Regional NSW	1 (f)	10	-
Prepaid expense		-	44
Other receivables		-	3
Total current assets		25,048	45,453
Total non-current assets		-	-
Total assets		25,048	45,453
LIABILITIES			
Current liabilities			
Payable to Department of Regional NSW	1 (f)	-	2,419
Total current liabilities		-	2,419
Total non-current liabilities		-	-
Total liabilities		-	2,419
Net assets		25,048	43,034

The accompanying notes form part of the financial report.

Coal Innovation NSW Fund

Statement of cash flows

as at 30 June 2024

		2024	2023
	Notes	\$'000	\$'000
Cash flows from operating activities			
Payments			
Payments approved by the Minister for the purpose of the Fund		(4,178)	(26,392)
Administrative expenses incurred in relation to the Fund or CINSW		(606)	(1,235)
Return of ConFund per Treasury and Revenue Legislation Amendment Act 2023		(17,000)	-
Total payments		(21,784)	(27,627)
Receipts			
Proceeds of the investment of money in the Fund		1,406	1,637
All money directed or authorised to be paid into the Fund by or under this or any other Act or Law		10	6,626
Total receipts		1,416	8,263
Net cash flows from operating activities		(20,368)	(19,364)
Net Increase / (Decrease) in cash		(20,368)	(19,364)
Opening cash and cash equivalents		45,406	64,770
Closing cash and cash equivalents	2	(21,784)	(27,627)

The accompanying notes form part of the financial report.

1. Statement of material accounting policy information

(a) Reporting entity

The Coal Innovation NSW Fund (the Fund) is a not-for-profit fund, and the Fund does not have a cash generating unit.

The Fund has been established and is governed under the *Coal Innovation Administration Act 2008* (the Act). Part 2 Section 4 of the Act establishes the Fund as a special deposits account.

The financial report has been prepared on the basis that the Fund is not a reporting entity under the Australian Accounting Standards. The financial report for the Fund is therefore a special purpose financial report with the financial year being from 1 July 2023 to 30 June 2024.

This financial report for the year ended 30 June 2024 has been authorised for issue by the responsible manager, Deputy Secretary, NSW Resources, Department of Regional NSW (the Department), on the date the accompanying Statement by the Deputy Secretary of NSW Resources was signed.

Key activities

Part 2 Section 5 of the Act establishes the purpose of the Fund as follows:

- a) to provide funding for research into, and development of low emissions coal technologies,
- b) to provide funding to demonstrate low emissions coal technologies,
- c) to provide funding to increase public awareness and acceptance of the importance of reducing greenhouse gas emissions through the use of low emissions coal technologies, and
- d) to provide funding for the commercialisation of low emissions coal technologies.

Funding sources for the Fund

Part 2 Section 6 of the Act states that:

- 1) There is payable into the Fund:
 - a. all money advanced by the Treasurer to the Fund, and
 - b. all money appropriated by the Parliament for the purposes of the Fund, and
 - c. the proceeds of the investment of money in the Fund, and
 - d. all money directed or authorised to be paid into the Fund by or under this or any other Act or law, and
 - e. all money received for voluntary contributions to the Fund made by any person or body.
- 2) A voluntary contribution to the Fund may be made on the condition that the contribution is to be used only for a specified purpose.

Payments out of the Fund

Part 2 Section 7 of the Act states that:

- 1) There is payable from the Fund:
 - a. payments approved by the Minister of Natural Resources for the purpose of the Fund, and
 - b. administrative expenses incurred in relation to the Fund or Coal Innovation NSW (CINSW), and
 - c. payments directed or authorised to be paid from the Fund by or under this or any other Act or law.
- 2) Any money paid into the Fund on the condition that it is to be used only for a specified purpose, including any proceeds of the investment of that money in the Fund, is only payable from the Fund for the specified purpose and a proportionate share of the administrative expenses payable from the Fund.

Statement of material accounting policy information (continued)

(b) Basis of preparation

This financial report is a special purpose financial report that has been prepared on an accruals basis and in accordance with:

- Applicable Australian Accounting Standards (AAS) (which include Australian Accounting Interpretations),
- Section 7.8 of the Government Sector Finance Act 2018 (GSF Act) and,
- Treasurer's Direction 23-24 SDA Account financial reports.

Judgements, key assumptions and estimations management has made are disclosed in the relevant notes to the financial report.

All amounts are rounded to the nearest one thousand dollars and are expressed in Australian currency.

The accounting policies applied in 2023-24 are consistent with those of the previous financial year. The following new Australian Accounting Standards have been complied with as per TD 23-24 SDA Account financial reports.

- AASB 101 Presentation of Financial Statements
- AASB 107 Statement of Cash Flows
- AASB 108 Accounting Policies, Changes in Accounting Estimates and Errors
- AASB 1048 Interpretation of Standards
- AASB 1053 Application of Tiers of Australian Accounting Standards
- AASB 1054 Australian Additional Disclosures
- AASB 1057 Application of Australian Accounting Standards

(c) Income recognition

Income is measured at the fair value of the consideration or contribution received or receivable. Additional comments regarding the accounting policies for the recognition of income are discussed below.

Interest Revenue

Interest income is recognised using the effective interest rate method. The effective interest rate is the rate that exactly discounts the estimated future cash receipts over the expected life of the financial instrument or a shorter period, where appropriate, to the net carrying amount of the financial asset.

(d) Research and development grants

Research and development grants relate to payments to grantees for research projects aligned with the purpose of the Fund, these research and development activities engage contractors to conduct work for site preparation, drilling, engineering, project management research activities and peer review of research results. This activity is classified as being in the research phase for the project and no expenses have been capitalised. An asset will not be recognised until clear and quantifiable future benefit is established. However, there is acknowledgement that any grant is from the Fund and any future economic benefits (assets) arising out of it may belong to NSW Government and/or the research partner.

(e) Receivables

Trade receivables and other receivables that have fixed or determinable payments that are not quoted in an active market are classified as receivables. Receivables are measured at amortised cost using the effective interest method, less any impairment. Changes are recognised in the net result for the year when impaired, derecognised or through the amortisation process.

Short-term receivables with no stated interest rate are measured at the original invoice amount unless the effect of discounting is material.

Statement of material accounting policy information (continued)

(f) Receivables from / (Payables) to Department of Regional NSW

The Fund is not a separate legal entity and therefore operates under the Department. All purchase orders and invoices are in the name of the Department. All suppliers are therefore paid by the Department, and the Fund reimburses the Department for these costs. The receivables / (payable) at year end represents the amount the Department has received from the Fund / paid on behalf of the Fund.

(g) Personnel services

The Fund does not have any employees and received administrative, secretarial support and operational assistance from the Department during the year. The Fund had an arrangement with the Department to reimburse the Department for personnel services expenses and other costs incurred on behalf of the Fund.

2. Reconciliation of cash flows from operating

	Notes	2024 \$'000	2023 \$'000
Net cash used on operating activities		(20,368)	(19,364)
Increase/(decrease) in receivables		(37)	(509)
Increase/(decrease) in creditors		2,419	455
Net results		(17,986)	(19,418)

3. Events after the reporting period

There are no other known events that would impact on the state of the Fund or have a material impact on the financial report.

End of audited financial report.

Independent audit report

CINSW spent \$30,600 on audit fees, which was split between an annual financial audit and governance audit.

Annual financial audit

The *Public Finance and Audit Act 1983* mandates the Auditor-General audit the Coal Innovation NSW Fund as it is a Special Deposits Account. The independent auditor's report is included in Appendix 3 and contains the Auditor-General's opinion on the financial report.

Worker and vehicle underground at Centennial Coal's Myuna colliery



Appendix 1

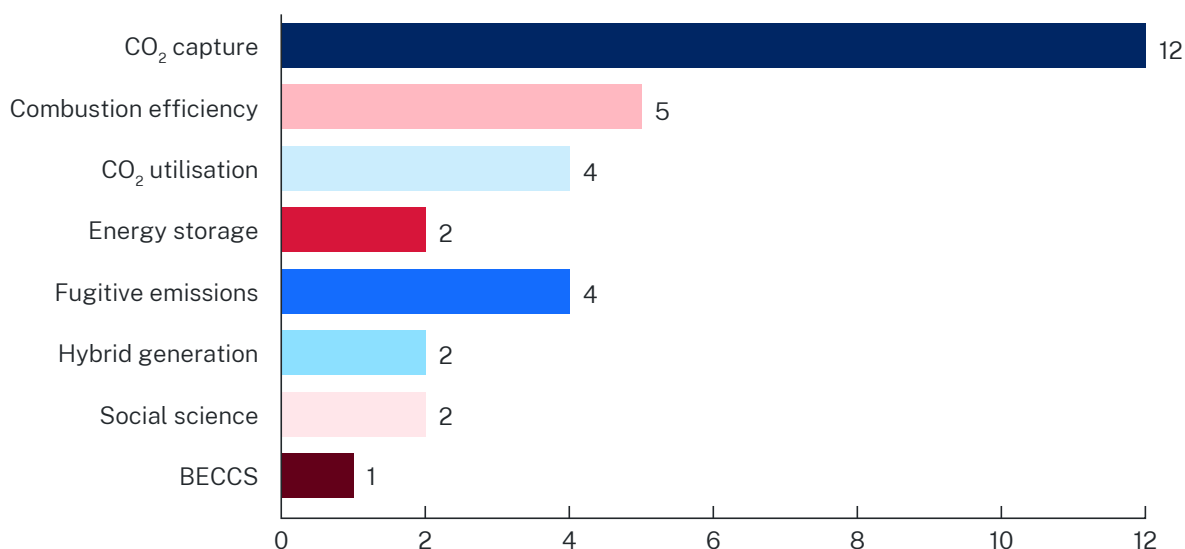
Summary of grant allocations from Fund

Project title	Organisation	Funding committed (excl GST)	Funding paid (excl GST)	Status
Permanent large-scale CO ₂ storage by mineral carbonation in NSW	University of Newcastle – Mineral Carbonation International	\$3,040,000	\$3,040,000	Complete Jun 2013 – Aug 2021
Greenhouse gas abatement facility demonstration	Centennial Mandalong Pty Ltd	\$2,200,000	\$2,196,526	Discontinued Mar 2011 – Apr 2019
Advanced aqueous ammonia-based carbon capture technology	CSIRO	\$2,000,000	\$2,000,000	Complete Jan 2017 – Feb 2020
Development of a 1 kW modular direct carbon fuel cell demonstration plant	University of Newcastle	\$1,643,001	\$1,642,768	Complete Jun 2017 – Aug 2021
Further development of an aqueous ammonia process for post-combustion capture of CO ₂ in the NSW power sector	CSIRO	\$1,300,000	\$1,582,000	Complete Feb 2011 – Feb 2015
Rotating liquid sheet contactor pilot scale testing project	CSIRO	\$1,274,045	\$1,274,045	Complete Jan 2017 – Apr 2019
Membrane gas-solvent contactor demonstration project	C02CRC	\$1,216,900	\$1,259,473	Complete Dec 2016 – Aug 2019
Ventilation air methane catalytic mitigator	CSIRO	\$1,496,424	\$1,496,424	Complete Jan 2019 – Nov 2023
300–200 MW ultra supercritical hybrid solar/coal R&D pathway study	Toshiba	\$946,500	\$946,500	Complete Jan 2019 – Apr 2021
Third generation membrane material development	University of New South Wales	\$862,803	\$862,803	Complete Jan 2017 – Apr 2019
Water production from CO ₂ capture	CSIRO	\$1,347,874	\$1,347,874	Complete Commenced Jan 2019
A novel chemical looping-based air separation technology for oxy-fuel combustion of coal	University of Newcastle Priority Research Centre for Energy	\$886,618	\$851,296	Complete Dec 2010 – May 2014
Aerosol formation pathways in liquid absorption-based CO ₂ capture process	CSIRO	\$687,252	\$687,252	Complete Jan 2017 – Feb 2021
Managing clean coal technology project risk: the role of public awareness	University of Newcastle	\$618,930	\$655,795	Complete Dec 2010 – Jul 2013
Site trials of novel CO ₂ capture technology at Delta Electricity	CSIRO	\$613,711	\$613,795	Complete Feb 2011 – Feb 2015

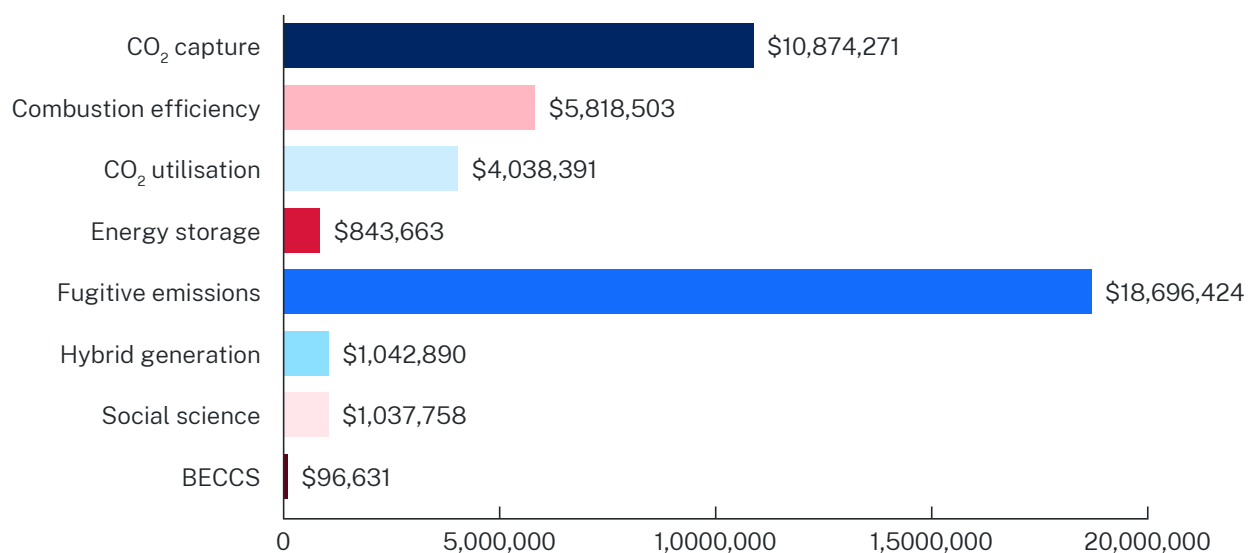
Project title	Organisation	Funding committed (excl GST)	Funding paid (excl GST)	Status
Energy harvesting from a CO ₂ capture process	CSIRO	\$578,991	\$578,991	Complete Jan 2017 – Feb 2019
Development and optimisation of the direct carbon fuel cell	University of Newcastle	\$608,719	\$564,738	Complete Dec 2010 – Aug 2016
A novel platform for highly integrated solar heat in carbon capture technology	CSIRO	\$505,145	\$505,145	Complete Jan 2019 – Sep 2021
Low emission coal in the manufacture carbon fibres	University of Newcastle	\$753,468	\$717,535	Complete Jan 2019 – Mar 2022
Battery storage system at Vales Point Power Station	Sunset Power International Pty Ltd (trading as Delta Electricity)	\$460,000	\$460,000	Complete Jan 2019 – Jul 2020
Combining redox energy storage with coal-fired power generation	University of Newcastle	\$383,663	\$383,933	Complete Jan 2017 – Feb 2019
Reduction in GHG emissions in steel production	CO2CRC	\$387,550	\$379,326	Complete Jan 2019 – Sep 2020
Low emissions advocacy coalitions	University of Melbourne	\$418,828	\$411,215	Complete Commenced Sep 2019
Harvesting energy with CO ₂ utilisation – a feasibility study	CSIRO	\$154,923	\$154,923	Complete Jan 2019 – Dec 2020
Retrofitting calcium carbonate looping to an existing cement plant for CO ₂ capture: a techno-economic feasibility study	CSIRO	\$100,000	\$100,000	Complete Jan 2019 – May 2020
An in-depth assessment of geothermal power generation for NSW coal-fired power plants	University of Newcastle	\$99,165	\$99,165	Complete Jan 2019 – Dec 2019
Feasibility assessment of bioenergy carbon capture and storage (BECCS) deployment with municipal solid waste co-combustion at NSW coal power plants	University of Sydney	\$96,630	\$96,631	Complete Jan 2019 – Jul 2020
Optimal design of solar photovoltaic and concentrated solar power system for coal-fired power plants in NSW	University Technology Sydney	\$96,390	\$96,390	Complete Jan 2019 – Jun 2020
Deployment of silica gels for improved CO ₂ containment and risk mitigation	University of New South Wales	\$90,000	\$71,756	Complete Jan 2019 – May 2021
Enhanced fugitive emissions drainage from open cut coal mines	CSIRO	\$100,000	\$39,451	Discontinued Feb 2011 – Dec 2012
Demonstration of ultra clean coal in a diesel engine	UCC Energy	\$2,581,000	\$38,174	Discontinued Feb 2011 – Nov 2013
Full-scale ventilation air methane abatement facility	Illawarra Coal Holdings	\$15,000,000	\$871,000	Ongoing Commenced Apr 2022

Appendix 2

Grant allocations by technology (number of projects)



Grant allocations by technology (amount)



Note: graphs include all grant allocations 2008–present.

Appendix 3



INDEPENDENT AUDITOR'S REPORT

Coal Innovation NSW Fund

To Members of the New South Wales Parliament

Opinion

I have audited the accompanying special purpose financial report (the financial report) of the Coal Innovation NSW Fund (the Fund), which comprises the Statement by the Deputy Secretary, the Statement of income and expenditure for the year ended 30 June 2024, the Statement of net assets as at 30 June 2024 and the Statement of cash flows, for the year then ended, and notes to the financial report, including a Statement of material accounting policy information, and other explanatory information. The financial report has been prepared by the Deputy Secretary, NSW Resources, Department of Primary Industries and Regional Development (the Deputy Secretary) using the basis of accounting described in Note 1(b) to the financial report.

In my opinion, the financial report:

- has been prepared in accordance with section 7.8 of the *Government Sector Finance Act 2018* (GSF Act) and Treasurer's Direction TD 23-24 'SDA Account financial reports' (the Treasurer's Direction)
- presents fairly the Fund's financial position, financial performance and cash flows.

My opinion should be read in conjunction with the rest of this report.

Basis for Opinion

I conducted my audit in accordance with Australian Auditing Standards. My responsibilities under the standards are described in the 'Auditor's Responsibilities for the Audit of the Financial Report' section of my report.

I am independent of the Fund in accordance with the requirements of the:

- Australian Auditing Standards
- Accounting Professional and Ethical Standards Board's APES 110 'Code of Ethics for Professional Accountants (including Independence Standards)' (APES 110).

Parliament promotes independence by ensuring the Auditor-General and the Audit Office of New South Wales are not compromised in their roles by:

- providing that only Parliament, and not the executive government, can remove an Auditor-General
- mandating the Auditor-General as auditor of public sector agencies
- precluding the Auditor-General from providing non-audit services.

I have fulfilled my other ethical responsibilities in accordance with APES 110.

I believe the audit evidence I have obtained is sufficient and appropriate to provide a basis for my audit opinion.

Emphasis of Matter - Basis of Accounting

Without modifying my opinion, I draw attention to Note 1(b) to the financial report which describes the basis of accounting. The financial report has been prepared for the purpose of fulfilling the Fund's financial reporting responsibilities under section 7.8 of the GSF Act and the Treasurer's Direction. As a result, the financial report may not be suitable for another purpose.

Deputy Secretary's Responsibilities for the Financial Report

The Deputy Secretary is responsible for the preparation and fair presentation of the financial report in accordance with the GSF Act and the Treasurer's Direction, and for such internal control as the Deputy Secretary determines is necessary to enable the preparation and fair presentation of the financial report that is free from material misstatement, whether due to fraud or error. The Deputy Secretary has determined that the basis of accounting described in Note 1(b) is appropriate for the purpose of fulfilling the Fund's annual financial reporting obligations under the GSF Act and the Treasurer's Direction.

In preparing the financial report, the Deputy Secretary is responsible for assessing the Fund's ability to continue as a going concern, disclosing as applicable, matters related to going concern and using the going concern basis of accounting.

Auditor's Responsibilities for the Audit of the Financial Report

My objectives are to:

- obtain reasonable assurance about whether the financial report as a whole is free from material misstatement, whether due to fraud or error
- issue an Independent Auditor's Report including my opinion.

Reasonable assurance is a high level of assurance, but does not guarantee an audit conducted in accordance with Australian Auditing Standards will always detect material misstatements. Misstatements can arise from fraud or error. Misstatements are considered material if, individually or in aggregate, they could reasonably be expected to influence the economic decisions users take based on the financial report.

A description of my responsibilities for the audit of the financial report is located at the Auditing and Assurance Standards Board website at: www.auasb.gov.au/auditors_responsibilities/ar4.pdf. The description forms part of my auditor's report.

The scope of my audit does not include, nor provide assurance:

- that the Fund carried out its activities effectively, efficiently and economically
- about the security and controls over the electronic publication of the audited financial report on any website where it may be presented
- about any other information which may have been hyperlinked to/from the financial report.



Min Lee
Director, Financial Audit

Delegate of the Auditor-General for New South Wales

25 November 2024
SYDNEY

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