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Performance Audit

Low Emission Technologies for Fossil Fuels

Department of Industry, Innovation and Science

Australian National Audit Office

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Australian National Audit Office

Canberra ACT

12 December 2017

Dear Mr President
Dear Mr Speaker

The Australian National Audit Office has undertaken an independent performance audit in the Department of Industry, Innovation and Science titled *Low Emission Technologies for Fossil Fuels.* The audit was conducted in accordance with the authority contained in the *Auditor-General Act 1997*. Pursuant to Senate Standing Order 166 relating to the presentation of documents when the Senate is not sitting, I present the report of this audit to the Parliament.

Following its presentation and receipt, the report will be placed on the Australian National Audit Office's website—http://www.anao.gov.au.

Yours sincerely

Grant Hehir
Auditor-General

The Honourable the President of the Senate
The Honourable the Speaker of the House of Representatives
Parliament House
Canberra ACT

AUDITING FOR AUSTRALIA

The Auditor-General is head of the Australian National Audit Office (ANAO). The ANAO assists the Auditor-General to carry out his duties under the *Auditor-General Act 1997* to undertake performance audits, financial statement audits and assurance reviews of Commonwealth public sector bodies and to provide independent reports and advice for the Parliament, the Australian Government and the community. The aim is to improve Commonwealth public sector administration and accountability.

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Summary and recommendations

Background

1. Electricity generation is a major source of greenhouse gas emissions, accounting for around 35 per cent of Australia's national emissions in 2016.[1] Burning fossil fuels such as coal, natural gas and oil, including to produce electricity, releases carbon dioxide (CO_2) and other greenhouse gases into the atmosphere. In order to support the development of greenhouse gas emission reduction technology, the Australian Government is funding the research and development of technologies under a suite of Low Emission Technologies for Fossil Fuels (LETFF) programs. The LETFF comprised a number of initiatives including: the Carbon Capture and Storage (CCS) Flagships program; the National Low Emissions Coal Initiative (NLECI); the Low Emission Technology Demonstration Fund; and the Coal Mining Abatement Technology Support Package. This ANAO audit focused on two of these initiatives: the NLECI and the CCS Flagships programs.

2. The NLECI program was announced as a $500 million election commitment in November 2007, to contribute to the Government's goal of reducing greenhouse gas emissions. The program was established in the 2008 Federal Budget with the aim of accelerating the development and deployment of low emission technologies and carbon dioxide (CO_2) transport and storage infrastructure. The NLECI program included five specific funding commitments, with the remaining funding to be allocated to projects that supported the program objective. As at 30 June 2017, all NLECI program funding had been expended—approximately $233 million.

3. The CCS Flagships program was announced as part of the Clean Energy Initiative[2] in the 2009 Federal Budget to support the construction and demonstration of large-scale integrated CCS projects in Australia. The program was allocated $2 billion[3] to fund between two and four projects and, to the extent possible, demonstrate a range of low emission technologies. As at 30 June 2017, approximately $217 million had been expended on the program.

4. The Department of Industry, Innovation and Science (DIIS) is responsible for the legislation, policy and program delivery for the NLECI and CCS Flagships programs.[4]

1 Department of the Environment and Energy, *Quarterly Update of Australia's National Greenhouse Gas Inventory: June 2016*, 2016, p.9 as cited in *Independent Review into the Future Security of the National Electricity Market: Blueprint for the Future*, Commonwealth of Australia, 2017.

2 The 2009 Federal Budget allocated $4.5 billion to the Clean Energy Initiative to support clean energy technologies and industries.

3 This included $200 million from the Education Investment Fund over four years. This audit did not examine the Education Investment Fund.

4 These programs were established under the former Department of Resources, Energy and Tourism (RET). On 18 September 2013, RET was abolished and the resources and energy functions were transferred to the Department of Industry. In September 2015, the department was renamed the Department of Industry, Innovation and Science.

5. The objective of the audit was to assess the effectiveness of the Department of Industry, Innovation and Science's implementation and evaluation of the Low Emission Technologies for Fossil Fuels (LETFF) program. To form a conclusion against the audit objective, the ANAO adopted the following high level criteria:

- has program funding been allocated effectively;
- has the department responded effectively to the changing policy and funding environment; and
- have LETFF program outcomes been monitored, evaluated and reported on.

Conclusion

6. The National Low Emissions Coal Initiative (NLECI) program and the Carbon Capture and Storage (CCS) Flagships program have been operating for almost a decade, during which time the department's approach to governance has improved. However, key performance measures for the programs provide limited insight into the extent to which the programs are achieving the LETFF strategic objective of accelerating the deployment of technologies to reduce greenhouse gas emissions.

7. Funding under the **NLECI program** was originally directed towards five election commitments, three of which were unable to be fulfilled due to technical and/or financial reasons. The selection of replacement projects was not supported by a clear strategy, and therefore their alignment to the original election commitments is unclear.

8. Key program governance documents, such as program guidelines and risk management plans, were not developed at the commencement of the NLECI program, however improved governance arrangements were put in place later on in the program.

9. The process designed to assess and select projects under the **CCS Flagships program** was sound, and was supported by clear eligibility and selection criteria; technical and commercial advice; and risk management and probity arrangements. Process transparency would have been improved with earlier communication to applicants on the selection criteria weightings.

10. The CCS Flagships projects are yet to reach the stage of deployable technology as originally envisaged in the program design. It is unclear whether the program is capable of delivering on its strategic policy objective as the program is due to close in 2020, and all program funding is currently committed.

11. There have been ongoing reductions in the available funding for each of the NLECI and CCS Flagships programs which have not been supported by a strategic approach to applying remaining funding across the projects. Additionally, although both programs were designed on the premise of receiving funding contributions from participating states and territories as well as private sector entities, this was not achieved to the level originally envisaged.

12. The department reports at a project level on progress and the funds expended. However, this reporting does not provide visibility and oversight of program achievements against its strategic objectives. In addition, the department has not applied its evaluation strategy to the LETFF programs. Consequently, reporting and evaluation does not provide insights into the programs' contribution to advancing/accelerating the demonstration of low emission technologies; nor does it inform decisions on the future of the programs.

Supporting findings

National Low Emissions Coal Initiative program

13. At the time the program commenced, relevant governance documents such as program guidelines and plans had not been developed. One of the later projects under the program, the Advance Lignite Development Program, was supported by program guidelines.

14. Risk management plans for the program were not identified until the first quarter of 2011–12, despite the program commencing in 2008.

15. The NLECI program was not supported by an overarching strategy to guide the selection of projects under the program. In addition, an independent assessment panel to assess and select projects was only established for one project—the Advanced Lignite Development Program. Recommendations from the National Low Emissions Coal Strategy and requirements to fulfil specific program components were used to guide the selection of other projects.

Carbon Capture and Storage Flagships program

16. Appropriate program governance documents were developed for the CCS Flagships program, including program guidelines, conflict of interest arrangements, and risk management plans.

17. None of the CCS Flagships projects met the original timeframe or reached the stage of deployable technology as originally envisaged in the program design. It is therefore unclear whether the program is capable of delivering on its strategic policy objective as the program is due to close in 2020 and all funding is currently committed.

18. The department established a clear framework for assessing and selecting projects for the CCS Flagships program, including eligibility criteria and selection criteria. However, the transparency of the process would have been improved by earlier communication to applicants on the weightings that would be applied to the selection criteria.

19. The department established a multi-stage process to assess and select the projects to be funded, based on the eligibility and selection criteria to enable regular assessment of the merits of projects. The assessment and selection process was undertaken by independent assessors, supported by technical and commercial advisors.

Program funding and reporting

20. Over the life of both programs, funding was significantly reduced—to around half the original NLECI program funding and around 75 per cent of the CCS Flagships program funding. The program was not supported by a framework for monitoring the impact of the changing funding environment. As a consequence, when the funding envelope for both programs was reduced, there was no clear strategy for determining how the reduced funding would be applied across the programs. Both programs were designed on the premise of contributory funding from state governments and other parties, however, the NLECI program did not achieve this intended outcome. For the CCS Flagships projects, given the projects have not reached the expected level of completion, it is not clear whether they would have achieved the level of contributory funding expected.

21. Currently, there is no transparent framework in place to publicly report program outcomes. The department has established one performance measure for each program, related to the number of projects supported (NLECI) and the number of companies supported (CCS Flagships). However, these measures provide limited insight into whether the program is achieving its strategic policy objectives.

22. The departmental oversight and internal reporting arrangements for the CCS Flagships Program and the NLECI Program are generally effective at a project level. However, the absence of sufficient program level reporting on performance limits visibility and oversight of both programs' achievements, and the ability for Government to make decisions on the future of LETFF programs and CCS technology more broadly**.**

23. An evaluation strategy was not developed at the commencement of the programs. The NLECI program has been subject to several internally focussed reviews since 2009, which identified opportunities to improve its governance arrangements. The CCS Flagships program has not been evaluated since its inception, with the exception of an internal audit.

Recommendation

Recommendation no. 1
Paragraph 4.44

That the department undertake an evaluation of the programs to identify the extent to which the programs have achieved their strategic policy objectives.

Department of Industry, Innovation and Science's response: *Agreed*.

Summary of entity responses

24. The summary response from the Department of Industry, Innovation and Science is provided below, with the full response provided at Appendix 1.

> In agreeing with this recommendation I note that the department has a robust evaluation strategy and plan in place to regularly assess the performance of policies and programmes against their objectives. This involves taking a strategic, risk-based, whole-of-department approach to prioritising evaluation effort and ensuring appropriate program governance. The department introduced the 'Evaluation Ready' process in 2016 to ensure all new and existing programs are prepared for evaluations well in advance, with identified objectives, key performance indicators and data collection strategies in place early in their implementation. All existing and new programs will be subject to this process over the next year. The establishment of the Business Grants Hub also ensures there are appropriate governance and risk management plans in place from program inception.
>
> An evaluation of the LETFF programs was scheduled for 2017 but was delayed due to the ANAO's audit. The evaluation is now scheduled in early 2018.
>
> The proposed report notes that the overall strategic objective of the LETFF programs evolved over time, and that the department's efforts are strategically focused on deepening the understanding of Australia's carbon capture and storage resources and LETFF capabilities to support longer-term commercial development and deployment.
>
> Australia has made significant contributions to national and global research and development efforts to better understand LETFFs which are technically complex. Learnings and outcomes from individual projects will contribute to Government's ongoing consideration of LETFF policy.

Key learnings for all Australian Government entities

25. Below is a summary of key learnings and areas for improvement identified in this audit report that may be considered by other Commonwealth entities when administering grant funding for research and development programs.

Program implementation

- Entities should develop program guidelines, and appropriate and reliable performance indicators, at the commencement of a program, to provide a sound and transparent basis for grant funding allocations, project selection and subsequent evaluation.

Governance and risk management

- Where programs are not the subject of specific rules under the Commonwealth resource management framework, there is still a general obligation on accountable authorities to ensure procurements, grants and other commitments of Commonwealth resources achieve value-for-money.
- Where long-term programs are the subject of Machinery of Government changes, the entity assigned responsibility for the program should undertake a 'health check' to ensure key governance elements are in place and operating effectively. In these circumstances, sound record keeping, including documented rationales for key decisions, can also assist in providing continuity in program administration.
- For large-scale, long-term projects, with a high degree of uncertainty, there is a need for continuity in risk management and ongoing review to ensure programs are continuing to meet their objectives in the context of a changing policy or funding environment.

Performance and impact measurement

- Where program co-contributions are envisaged as part of the program design, entities should take an active role in monitoring if the program is achieving these objectives to enable transparency and appropriate oversight of funding.
- An effective performance and reporting framework can provide transparency of program performance and support decision making processes. This is of particular importance to long-term research and development programs that operate in an uncertain environment, to enable decisions on program funding to be made in a timely manner, and for performance to be evaluated over time.

Audit findings

1. Introduction

Background

1.1 Electricity generation is a major source of greenhouse gas emissions, accounting for around 35 per cent of Australia's national emissions in 2016.[5] Burning fossil fuels such as coal, natural gas and oil, including to produce electricity, releases carbon dioxide (CO_2) and other greenhouse gases into the atmosphere. In order to support the development of greenhouse gas emission reduction technology, the Australian Government is funding the research and development of technologies under a suite of a Low Emission Technologies for Fossil Fuels (LETFF) programs that would:

- reduce the amount of CO_2 generated by burning fossil fuels;
- provide for greater capture of CO_2 released during the combustion process;
- support low emissions coal technology deployment over time to enhance energy security and coal's contribution to Australia's economic growth; and
- explore options to store CO_2, including through geosequestration.[6]

1.2 LETFF technologies comprise those technologies or processes that could result in a measurable reduction in greenhouse gas emissions, either through carbon capture, avoidance or by substantially improving efficiency. Carbon Capture and Storage (CCS) is one type of low emissions technology. CCS is the process of isolating CO_2 from stationary emission sources such as power stations, industrial facilities, or natural gas production and injecting it deep underground into suitable geological formations.[7]

Key policy changes

1.3 The Australian Government's commitment to fund research and development of low emissions technologies for fossil fuels occurred within a broader suite of energy policies and reforms, aimed at reducing CO_2 emissions and promoting the development and take-up of renewable energy sources. Policy changes over the last decade are likely to have affected the operation of LETFF programs. Table 1.1 outlines some of these key policy changes.

5 Department of the Environment and Energy, *Quarterly Update of Australia's National Greenhouse Gas Inventory: June 2016*, 2016, p.9 as cited in *Independent Review into the Future Security of the National Electricity Market: Blueprint for the Future*, Commonwealth of Australia, 2017.

6 Geosequestration refers to the storage of carbon dioxide in underground geological formations.

7 Department of Industry, Innovation and Science, https://industry.gov.au/resource/LowEmissionsFossilFuelTech/Pages/Carbon-Capture-Storage-Legislation.aspx [accessed 6 June 2017].

Table 1.1: Key Australian Government policy changes relating to low emission technologies

Date	Policy change
December 2007	Australia signed the Kyoto Protocol—an international agreement to limit greenhouse gas emissions.
September 2008	The Australian Government announced the establishment of the Global Carbon Capture and Storage Institute (GCCSI) to accelerate the development, demonstration and deployment of CCS
November 2008	The Australian Government passed the *Offshore Petroleum and Greenhouse Gas Storage Act 2006* to allow for the establishment of a regulatory framework for environmental and safety requirements to enable the exploration, injection and storage of CO_2.
May 2009	The 2009–10 Budget included changes to climate change policies, such as a new target to reduce emissions by 60 per cent on 2000 levels by the year 2020. The Budget also provided funding for the *Clean Energy Initiative* to support the development of low emissions technologies.
November 2011	The Emissions Trading Scheme Legislation (*Clean Energy Act 2011*) was passed by the Parliament.[a]
July 2012	A price on carbon emissions came into effect.
July 2014	Carbon emission price mechanism was repealed.
April 2016	Australia signed the Paris Agreement.[b]

Note a: This legislation was first introduced into parliament in May 2009.

Note b: The Paris Agreement builds on the Kyoto Protocol. Under the Agreement, all signatory countries are required to put forward emission reduction targets every five years to contribute to the international effort to limit the global temperature rise from pre-industrial levels to two degrees or less. This agreement was ratified in November 2016.

Source: ANAO analysis of departmental and publicly available information.

Low emission coal technologies initiatives

1.4 The National Low Emission Coal Council (NLECC) was established by the Australian Government in July 2008 with the purpose of bringing together key stakeholders to develop and implement a national low emissions coal strategy and a national program for low emission coal research and development. Specifically, the NLECC was tasked to: address the goal of ensuring that low emissions technologies for coal, including CCS, are demonstrated at a commercial scale from 2015; are available for commercial deployment by 2020 and; are deployed as they become commercially available. The NLECC also initially proposed eligibility and selection criteria for a large-scale CCS program in its January 2009 *Interim National Strategy Report* and provided advice to the Minister for Resources and Energy on the technological priorities for demonstration in Australia. In developing the eligibility and selection criteria, the NLECC considered the technological priorities for Australia and the scale and cost challenges for CCS demonstration projects.

National Low Emissions Coal Initiative program (NLECI)

1.5 The NLECI program was announced as a $500 million election commitment in November 2007, to contribute to the Government's goal of reducing Australia's greenhouse gas emissions. The program was established in the 2008 Federal Budget, and aims to help accelerate

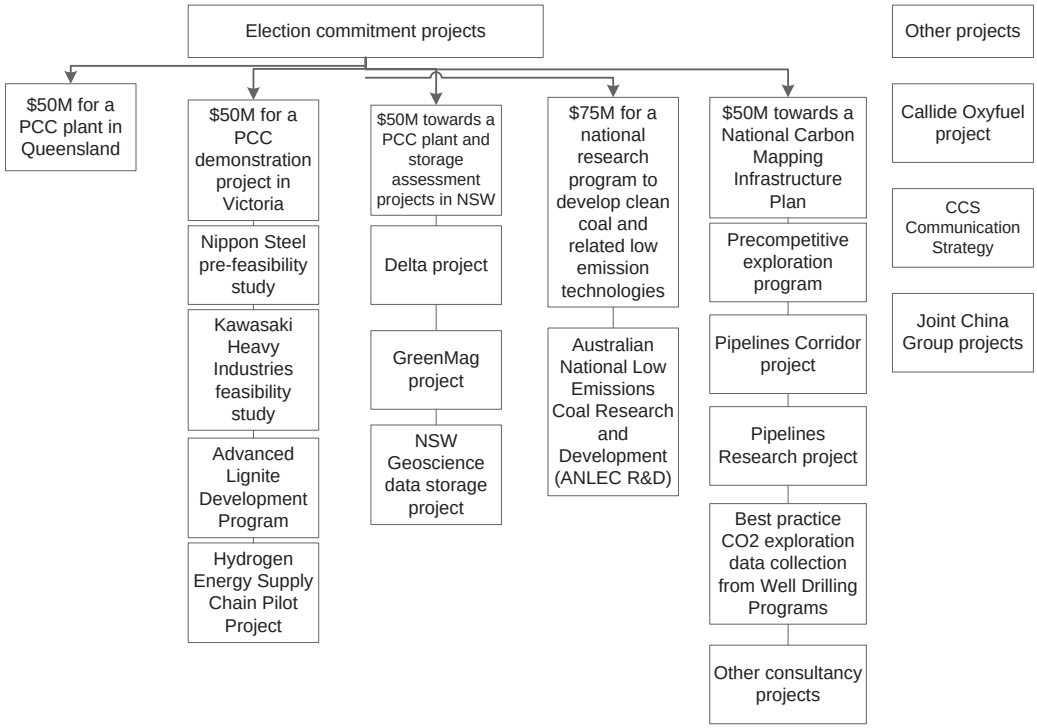
the development and deployment of low emission technologies and CO_2 transport and storage infrastructure.[8] NLECI included specific funding commitments of:

- $50 million for a pilot coal gasification plant in Queensland;
- $50 million for a post combustion capture demonstration project to be retro-fitted to an existing brown coal fired power station in Victoria's Latrobe Valley;
- $50 million towards a $150 million demonstration project that involves CO_2 geological storage assessments and a retrofit of a post combustion power plant on an existing coal fired power station in New South Wales that would capture in excess of 50,000 tonnes of CO_2 per annum;
- $75 million for a national research program to develop clean coal and related low emission technologies; and
- $50 million towards a *National Carbon Mapping and Infrastructure Plan* to identify large scale geological storage sites for carbon dioxide.

1.6 These commitments were the main components of the NLECI program. The remaining $225 million in funding was to be allocated to other projects that supported the program objective of accelerating the development and deployment of low emissions technologies and CO_2 transport and storage infrastructure. The projects undertaken to support these commitments and other NLECI projects are shown in Figure 1.1.

8 Department of Industry, Innovation and Science, https://industry.gov.au/resource/LowEmissionsFossilFuelTech/Pages/National-Low-Emission-Coal-Initiative.aspx [accessed 21 June 2017].

Figure 1.1: Projects supporting NLECI commitments and other NLECI projects



Note: The department advised that $900 000 from both the Queensland election commitment and the New South Wales election commitment was moved to contribute to the CCS Communications Strategy.

Source: ANAO analysis of Department of Industry Innovation and Science (DIIS) information.

Carbon Capture and Storage Flagships program

1.7 Australia committed to the July 2009 overall G8 Summit[9] goal of reducing global emissions by at least 50 percent by 2050, with developed nations to reduce their emissions by at least 80 per cent in that timeframe. The Australian Government announced that Australia would take a leadership role in driving the global goal of launching at least 20 large-scale, integrated CCS demonstration projects globally by 2010, for broad deployment of CCS by 2020.

1.8 The $3.5 billion *Clean Energy Initiative* (CEI) was announced in the May 2009 Federal Budget to support the growth of clean energy generation and new technologies, and to reduce carbon emissions.[10] As part of this initiative, the CCS Flagships program was established in

9 The G8 Summit was an annual meeting between leaders from eight of the most advanced economies. Their aim is to try to tackle global problems by discussing globally significant issues and planning what action to take. The leaders from those countries meet in a different member country each year with the leader of the host country acting as the president for that year.

10 Media release—*$4.5 billion Clean Energy Initiative*, 12 May 2009. See <http://archive.industry.gov.au/ministerarchive2011/carr/MediaReleases/Pages/45BILLIONCLEANENERGYINITIATIVE.html> [accessed 23 October 2017]. The initiative also included funding for solar technologies and the establishment of Renewables Australia to support technology research.

May 2009 to support the construction and demonstration of large-scale integrated CCS projects in Australia. The 2009 Federal Budget allocated $2 billion[11] over nine years to the program to fund between two and four projects and to the extent possible, demonstrate a range of low emission technologies.

1.9 The CSS Research Development and Demonstration Fund (CCS RD&D Fund) is a sub-program of the CCS Flagships program and commenced on 1 July 2016 for a four year period. The program aims to provide up to $25 million under a competitive grants program, to support research, development and demonstration activities on CCS, and in particular, for activities related to transport and storage of CO_2. The Fund has its own set of program guidelines. This audit did not examine the grant selection and assessment process for the CCS RD&D program.

Administrative arrangements

1.10 The Department of Industry, Innovation and Science (DIIS or the department) has responsibility for legislation, policy and program delivery for low emissions fossil fuel technologies (LETFF) initiatives.[12] These initiatives include the CCS Flagships and the NLECI programs which are the focus of this audit.

1.11 As at 30 June 2017, approximately $217 million had been expended on the CCS Flagships program[13], and approximately $233 million on the NLECI program.[14]

Audit objective, criteria and methodology

Audit objective and criteria

1.12 The objective of the audit was to assess the effectiveness of the Department of Industry, Innovation and Science's implementation and evaluation of the Low Emission Technologies for Fossil Fuels (LETFF) program.[15]

1.13 To form a conclusion against the audit objective, the ANAO adopted the following high level criteria:

- has program funding been allocated effectively;
- has the department responded effectively to the changing policy and funding environment; and

11 This included $200 million from the Education Investment Fund over four years. This audit did not examine the Education Investment Fund.

12 Both programs were designed and implemented by the then Department of Resources, Energy and Tourism (RET). On 18 September 2013, RET was abolished and the resources and energy functions were transferred to the Department of Industry. In September 2015, the department was renamed the Department of Industry, Innovation and Science. The programs are now administered by the Department of Industry, Innovation and Science (DIIS). For simplicity, the term 'the department' will be used throughout this report to refer to the present administering department as well as its predecessor, unless otherwise specified.

13 See Tables 4.1 and 4.2 for further detail.

14 Projects under the NLECI program were due to conclude in July 2016. There are some projects still ongoing under the program, however all program funding has been expended.

15 The LETFF included a number of initiatives: the CCS Flagships program; the NLECI; the Low Emission Technology Demonstration Fund; and the Coal Mining Abatement Technology Support Package. The ANAO audit focused on two of these initiatives: the NLECI and the CSS Flagships program.

- have LETFF program outcomes been monitored, evaluated and reported on.

Audit methodology

1.14 In undertaking the audit the ANAO:

- reviewed and analysed departmental files and program documentation;
- reviewed external reporting on the program; and
- interviewed and received written input from departmental staff.

1.15 The audit was conducted in accordance with ANAO auditing standards at a cost to the ANAO of $363 490.

1.16 The team members for this audit were Tara Rutter, Jillian Blow, Samuel Meredith and Andrew Rodrigues.

2. National Low Emissions Coal Initiative program

Areas examined
This chapter examines the project selection process for the National Low Emissions Coal Initiative (NLECI) program.

Conclusion
Funding under the NLECI program was originally directed towards five election commitments, three of which were unable to be fulfilled due to technical and/or financial reasons. The selection of replacement projects was not supported by a clear strategy, and therefore their alignment to the original election commitments is unclear.

Key program governance documents, such as program guidelines and risk management plans, were not developed at the commencement of the NLECI program, however, improved governance arrangements were put in place later on in the program.

Area for improvement
For future programs, there would be benefit in the department developing appropriate program governance arrangements at the program's inception to guide program activities, funding decisions and measure the achievement of objectives, as well as risk management frameworks.

2.1 As outlined in paragraph 1.5, the National Low Emission Coal Initiative (NLECI) program primarily consisted of five election commitments which were the main components of the program. Remaining program funding was allocated to projects that supported the program objective of accelerating the development and deployment of low emissions technologies and carbon dioxide (CO_2) storage and transport infrastructure. The program was comprised of grants, technical consultancy work, and funding to third parties to undertake activities in support of the NLECI program.

Were appropriate program governance arrangements in place?

At the time the program commenced, relevant governance documents such as program guidelines and plans had not been developed. One of the later projects under the program, the Advance Lignite Development Program, was supported by program guidelines.

Risk management plans for the program were not identified until the first quarter of 2011–12, despite the program commencing in 2008.

Program guidelines

2.2 Program guidelines for the assessment and selection of projects were not developed for the NLECI program.[16] The department advised that the program comprised a number of specific projects that were based on specific requirements set by the Government. One of the later projects under the NLECI program—the Advance Lignite Development Program (ALDP), was supported by program guidelines. An overarching program management plan was also not developed for the NLECI program.[17]

2.3 The department advised the ANAO that, as the three state-based election commitments were unable to be fulfilled as originally intended due to technical and financial reasons, other projects were undertaken for each state as alternative projects to the election commitments. However program guidelines were not subsequently developed to provide advice to departmental staff on project selection, decision making processes, and applicant requirements.

Conflict of interest arrangements

2.4 Specific conflict of interest arrangements were not in place at the commencement of the program. Currently, conflict of interest matters for departmental staff are managed through the viewing of an online video on potential conflicts of interest and completing a conflict of interest declaration form where relevant. The department advised that where staff move divisions, they are required to declare any potential conflicts of interest within four weeks. The department was able to provide evidence that declarations were made for all staff working on the NLECI program from 2014–15 onwards. The department advised it was not aware of any potential or actual conflict of interest issues being identified or raised during the program.

Risk management

2.5 The ANAO reviewed the available risk management plans for the NLECI program. The risk management plans identified the key risks to the program, including risks related to projects not being able to be completed within the funds available under the program and the program not achieving its objectives. The mitigation strategies for these risks primarily related to regular reporting to the senior officers and the Minister.

2.6 Additionally, the risk management plans identified key internal stakeholders/officers in the management of the program risks and outlined their risk management role and responsibilities as well as risk escalation/delegation protocols. Despite the program being in operation since 2008, the first risk management plan for the program was not completed until the first quarter of 2011–12.

16 As noted in ANAO Audit Report No.36 2011–12, *Development and Approval of Grant Program Guidelines*, p. 36, Finance Minister Instructions issued in December 2007 included new requirements applying to the administration of grant programs, including that this was the first time there was a requirement for the development and approval of guidelines for grant programs, rather than the development and promulgation of guidelines being promoted as better practice.

17 The absence of program guidelines was also identified in other departmental reviews of the NLECI program. These are discussed further in Chapter 4.

Was there a sound basis for project selection?

The NLECI program was not supported by an overarching strategy to guide the selection of projects under the program. In addition, an independent assessment panel to assess and select projects was only established for one project—the Advanced Lignite Development Program. Recommendations from the National Low Emissions Coal Strategy and requirements to fulfil specific program components were used to guide the selection of other projects.

Project selection

2.7 Projects under the program were selected by the department at various times to address the specific program commitments and the broader NLECI objective. There were no funding rounds for the NLECI program and no specific eligibility criteria developed for the overall NLECI program.

2.8 For the projects in New South Wales (NSW), Victoria and Queensland, the relevant state government was responsible for planning and developing the respective projects along with industry partners and then submitting their proposals to the department for approval prior to funding being provided. The day-to-day management of those projects became the responsibility of the relevant state government.

2.9 The National Low Emissions Coal Council (NLECC) and the Carbon Storage Taskforce (CST) were established as part of the NLECI program.[18] In line with the election commitment, the role of the CST was to develop a National Carbon Mapping and Infrastructure Plan (NCMIP) to assist with the prioritisation of developing suitable CO_2 storage sites to accelerate the deployment of CCS technologies in Australia. The NCMIP was presented to the then Minister for Resources, Energy and Tourism in September 2009.[19]

2.10 Also in September 2009, the NLECC published its National Low Emissions Coal Strategy, aimed at accelerating the development and demonstration of low emission coal technologies. The Strategy outlined key priorities to be addressed in order to ensure that low emissions technologies for coal, including CCS, were: demonstrated at a commercial scale from 2015; available for commercial deployment by 2020 and; deployed as they became commercially available. The department advised that when selecting projects to be supported under the NLECI program, the recommendations outlined in the Strategy were actions required to achieve the objective of the commercial-scale demonstration of CCS and were taken into account.[20]

2.11 For all the projects under the NLECI program, the department was responsible for the development and management of the funding agreements with the relevant state government or

18 Membership of the NLECC and CST included industry and technical experts.

19 The National CO2 Infrastructure Plan (NCI Plan) was the name of a subsequent New Policy Proposal to implement some of the recommendations from the NCMIP. Funding for the NCI Plan was sourced from the CCS Flagships program and transferred to the NLECI program.

20 For example, as shown in Table 2.1, a CCS communications strategy was undertaken as part of the NLECI program based on one of the recommendations under the Strategy that a national CCS communications strategy should be developed to assist with community acceptance of CCS.

other party.[21] The management of the projects was the responsibility of the relevant state/territory government, or other party.

2.12 Unlike the Carbon Capture and Storage Flagships program, the department advised that an Independent Assessment Panel (IAP) was not established to assess any NLECI projects, with the exception of the ALDP project.[22]

2.13 Table 2.1 shows the projects that were selected for the NLECI program. A total of $500 million was allocated to NLECI, with $275 million set aside to address specific election commitments and the remaining $225 million to be allocated to projects that would support the achievement of planned outcomes under the program.

Table 2.1: Commonwealth expenditure on NLECI program projects

Project name and description	State	Date of project	Project outcome	Planned allocation/contract amount per project ($)	Commonwealth project expenditure as at 30 June 2017 ($)
Election Commitment: $50 million for a Post Combustion Capture (PCC) plant and storage assessment in New South Wales[a]					
Delta project—project objective was to demonstrate integrated post combustion capture (PCC), transport and permanent geological storage of CO_2 from a black coal power station.	NSW	February 2010 to June 2014.	Project closed before completion. Project terminated in February 2014. The department advised a main challenge to the program was identifying a suitable storage site.	9 433 000	688 000
GreenMag project — provision of funding for a mineral carbonation demonstration plant.	NSW	June 2013 to June 2017.[b]	Ongoing.	3 040 000	3 040 000

21 The department was also responsible for the internal and public reporting of the program. This is discussed further in Chapter 4. This audit report did not examine the development or management of the funding agreements.

22 This is discussed further in Chapter 3.

Project name and description	State	Date of project	Project outcome	Planned allocation/contract amount per project ($)	Commonwealth project expenditure as at 30 June 2017 ($)
NSW Geoscience data storage project—to identify potential storage sites in NSW.	NSW	February 2010 to June 2015.	Project closed before completion due to difficultly identifying storage options.	18 100 000	9 700 000
Total Commonwealth expenditure in New South Wales					**13 428 000**
Total percentage of commitment spent					**27%**
Election Commitment: $50 million towards a PCC demonstration project in Victoria[c]					
Nippon Steel pre-feasibility study of coal gasification technology.	VIC	December 2010 to September 2011.	Completed.[d]	1 963 000	1 963 000
Kawasaki Heavy Industries pre-feasibility study of ECOPRO gasification project.	VIC	September 2011 to November 2011.	Completed.	96 000	96 000
Advanced Lignite Development Program—to support low emission projects in the LaTrobe Valley.	VIC	September 2011 to June 2019.	Ongoing.	44 320 680	25 649 000[e]
Hydrogen Energy Supply Chain Pilot project to investigate the development of a commercial scale Hydrogen Energy Supply Chain.	VIC	October 2016 to February 2018.	Ongoing.	2 000 000	2 000 000
Total Commonwealth expenditure in Victoria					**29 708 000**
Total percentage of commitment spent					**59%**

Project name and description	State	Date of project	Project outcome	Planned allocation/contract amount per project ($)	Commonwealth project expenditure as at 30 June 2017 ($)
Election Commitment: $50 million towards a Queensland Pilot Coal Gasification Plant					
Nil	QLD	N/A	N/A	N/A	
				Total Commonwealth expenditure in Queensland	**0**
Election Commitment: $75 million for a national research program to develop clean coal and related low emission technologies in Australian Capital Territory					
Australian National Low Emissions Coal Research and Development (ANLEC R&D)	ACT	March 2010 to June 2020.	Ongoing.	75 000 000	71 600 000
				Total percentage of the commitment spent	**95%**
Election Commitment: $50 million towards a National Carbon Mapping and Infrastructure Plan[f]					
Projects related to the National Carbon Mapping Infrastructure Plan	Developed by the Carbon Storage Taskforce and implemented through the National CCS Council.	2008/09 to 2014/15.	Completed.	45 281 000	45 173 000
				Total percentage of the budget commitment spent	**90%**
Other NLECI projects – total Commonwealth commitment of $225 million					
Callide Oxyfuel project – to undertake a low emissions demonstration project	QLD	March 2008 to October 2014.	Completed.	63 000 000	63 000 000
CCS Communication Strategy to raise public awareness of CCS.	N/A	August 2012 to October 2016.	Completed.	2 601 000	1 239 000

Project name and description	State	Date of project	Project outcome	Planned allocation/contract amount per project ($)	Commonwealth project expenditure as at 30 June 2017 ($)
Projects undertaken as part of the Australia-China Joint Coordination Group on Clean Coal Technology (JCG).	N/A	2012 to 2015	Completed.	20 011 000	8 451 000
Total Commonwealth expenditure on other projects					**72 690 000**

Note a: Of the $50 million committed to NSW, $20 million of it was to be directed towards identifying possible storage sites.

Note b: The department advised that the final payment was made to the GreenMag project in June 2017. The project will be closed when the final project report is provided (currently due in December 2017).

Note c: $43.5 million was initially committed to the Calera Carbonation project, but was later withdrawn due to the project not proceeding beyond preliminary investigations.

Note d: Completed projects refer to those projects that completed the requirements as outlined in the relevant funding agreement.

Note e: An agreement between the Victorian Government and the Australian Government was signed in July 2017 for the repayment of $10 million (plus interest) to the Australian Government due to one of the project components under the ALDP ceasing. The money will be repaid progressively by 30 June 2019.

Note f: The NCMIP $50 million commitment included a Government commitment of $5 million to Western Australia and $20 million to Queensland to map and test carbon storage sites.

Source: ANAO analysis of departmental information.

2.14 Project expenditure on the remaining two specified program components in Victoria and NSW have been lower than expected due to delays and projects being closed early, particularly in NSW due to a lack of storage options and delays in the passing of supporting legislation. In May 2012, the then Minister approved a re-allocation of $45 million from the original funding set aside for the election commitment in Victoria towards the ALDP project.

2.15 As noted in paragraph 1.5, part of the election commitment included $50 million for a pilot coal gasification plant in Queensland which the department attempted to complete as a component of the NLECI program. The Queensland Government initially requested $38 million of Commonwealth funding towards a project to develop a national coal gasification research centre. However the Queensland Government did not commit to provide the amount of contributory funding required under the NLECI program and the project did not proceed.[23] The department then proposed that the funding be redirected towards the Wandoan CCS Flagships project, however this project did not proceed past pre-feasibility.

2.16 As per the election commitments, a research program to develop clean coal and related low emission technologies (ANLEC R&D) was established and the NCMIP was completed.

23 The department advised that $900 000 of funding from the Queensland election commitment was moved to support the CCS Communications Strategy.

2.17 Expenditure on all specified program components was lower than originally planned. As discussed further in Chapter 4, a significant amount of program funding was returned to Government as part of savings measures or redirected to other Government priorities, resulting in a reduction to the program budget from what was originally announced.,

2.18 There are ongoing projects in both NSW and Victoria, as well as the ANLEC R&D project, however all funding for the NLECI program has been expended.[24]

24 This is discussed further in Chapter 4.

3. Carbon Capture and Storage Flagships program

Areas examined
This chapter examines the project selection process for the Carbon Capture and Storage (CCS) Flagships Program.

Conclusion
The process designed to assess and select projects under the CCS Flagships program was sound, and was supported by clear eligibility and selection criteria; technical and commercial advice; and risk management and probity arrangements. Process transparency would have been improved with earlier communication to applicants on the selection criteria weightings.

The CCS Flagships projects are yet to reach the stage of deployable technology as originally envisaged in the program design. It is unclear whether the program is capable of delivering on its strategic policy objective as the program is due to close in 2020, and all program funding is currently committed.

Areas for improvement
To improve transparency to potential applicants in future programs, the department should provide early communication as to how assessment criteria would be applied to enable applicants to appropriately balance their efforts when preparing the application.

Was the program supported by appropriate planning and governance frameworks?

Appropriate program governance documents were developed for the CCS Flagships program, including program guidelines, conflict of interest arrangements, and risk management plans.

None of the CCS Flagships projects met the original timeframe or reached the stage of deployable technology as originally envisaged in the program design. It is therefore unclear whether the program is capable of delivering on its strategic policy objective as the program is due to close in 2020 and all funding is currently committed.

3.1 As noted in paragraph 1.8, the Carbon Capture and Storage (CCS) Flagships Program was announced as part of the 2009–10 Federal Budget's Clean Energy Initiative to support the construction and demonstration of large-scale integrated CCS demonstration projects. At the time of the program's establishment, the construction estimates for CCS integrated power generation plants were uncertain as there was no commercial scale plant built at the time.

3.2 The Government's direction to the department was that the guidelines needed to account for high attrition rates of large-scale projects as projects may be delayed or abandoned based on a technical, legislative or economical basis. Given this expected attrition, advice from Government was provided that the selection process must start with as large a number of projects as possible. The 2009–10 Budget Papers set out the Government's design parameters for the program which outlined the intention that the $1.8 billion in funding for the CCS Flagships program would be subject to a competitive process for the demonstration of industrial scale projects with a CO_2 storage hub and the Government intention of contributing up to one-third of the non-commercial

costs of the selected project costs. Additionally, prior to the announcement of the CCS Flagships program, the National Low Emissions Coal Council (NLECC) was engaged to provide suggested criteria to guide the selection of large-scale CCS projects. The NLECC advised that:

- the development of storage sites could be a delaying factor in the commissioning of integrated projects[25];
- a portfolio of around three commercial scale demonstrations and a selection of smaller scale projects implies a funding need of the order of $14–15 billion over the next seven to eight years for their design, construction and commissioning[26];
- a portfolio of demonstration projects should incorporate a range of projects of different sizes and at different stages of development; and
- to meet the target timeframes for deployment, capture technologies must already be developed to the stage of pilot testing or later development.

3.3 Following the 2009 Budget announcement, the department wrote to NLECC to confirm the technological priorities for the program in relation to the funding that was announced. The NLECC reaffirmed the previous advice that a portfolio of projects, covering a range of capture technologies (in particular post combustion capture and integrated gasification combined cycle technologies), should be supported under the program.[27]

3.4 The original CCS Flagships proposal presented to Government was based on a costing of $4 billion for five to seven large scale projects that included a CCS project with China and a national storage site and pipeline infrastructure. Following a request from Government, a revised costing proposal of $2 billion was presented. This proposal did not include the CCS project with China and the national storage site and pipeline infrastructure project. Although the department sought additional funding from state/territory governments and the private sector, the total funding, including the Australian Government's contribution would have been insufficient to fund the intended two to four projects for the design, construction and commissioning stages based on NLECC's estimates. The department did not have an overarching strategy of how the funding would be managed across the potential projects. Instead, the department managed and monitored the funding on a project-by-project basis.

25 NLECC noted that based on conservative estimates from the Carbon Storage Taskforce, a 10 year lead time would be required to mature large greenfield sites with capacity to store commercial scale emissions.

26 The program was originally designed to fund between two to four commercial-scale demonstration projects.

27 The CCS Flagship projects chosen were based on the use of either post combustion capture or integrated gasification combined cycle technology.

3.5 The program was developed under a tight timeframe in order to support the global goal of having 20 large scale CCS demonstration projects operational by 2015. To meet the timeframe, project nominations needed to be sought from state and territory governments for projects that they were already considering and would jointly fund. Not all projects funded under the program were Flagship projects, with other small scale CCS projects subsequently also funded under the program.[28] Table 3.1 outlines the projects funded under the CCS Flagships program.[29]

Table 3.1: Projects funded under the CCS Flagships program

Project name	Date of the project	Project status
CCS Flagships projects		
CarbonNet	June 2010 to June 2020	The project is ongoing, with work being undertaken to ascertain carbon dioxide storage sites. The department advised that as all program funding is fully committed, no further funding is available for the project once the current funding agreement is completed.
South West Hub	March 2010 to June 2018	The project is ongoing. The main funding agreement was terminated in July 2015, following a review by the department. The project did not advance passed the feasibility phase of the project. A new funding agreement was implemented from May 2016 to analyse information collected prior to the first funding agreement being terminated.
ZeroGen	February 2010 to March 2011	Closed. At pre-feasibility, the North Denison Trough was found unsuitable for storage and exploration of the Surat Basin was considered as an alternative. ACALET and Queensland Government withdrew their funding commitments to the project and the project did not proceed to the feasibility stage.
Stanwell Corporation Ltd/Wandoan	May 2010 to Feb 2011	Closed. The Wandoan project involved a consortium of companies and prefeasibility studies were completed for a potential Integrated Gasification Combined Cycle power plant north west of Brisbane. The project was considered not financially viable and did not proceed through to the feasibility stage.
CTSCo Pty Ltd/Wandoan	May 2010 to December 2012	Closed. As above.
Other projects under the CCS Flagships program		
Australia-China Post Combustion Capture	July 2014 to Mid-2017	Closed. Phase 3 of a 3 phase study into the industrial scale CCS demonstration process was finalised.

28 The department advised that due to a reduction in program funding—discussed in Chapter 4—no further CCS Flagships projects were able to be funded. In 2014, remaining program funding was repurposed to fund some smaller scale projects.

29 Program funding is discussed in Chapter 4.

Project name	Date of the project	Project status
CO^2 CRC Otway	December 2014 to June 2020	Ongoing. CCS Flagships funding provided to keep the Otway geological storage and test facility open and to secure its storage programme.
CCS RoadMap for Australia	June 2016 to June 2017	Closed. The roadmap was published in 2017 to establish the viability of CCS technology in Australia and provide a plan for its deployment.
CCS Research Development and Demonstration program (7 projects)	Mid 2016 to Mid-2019	Ongoing. $23.7 million in funding provided over four years to support CCS research, development and demonstration activities with a particular focus on transport and storage. 7 funding agreements have been executed.

Source: ANAO analysis of departmental information.

3.6 As shown in Table 3.1 above, two of the CCS Flagship projects (CarbonNet and South West Hub) are still ongoing, although the South West Hub project scope has changed considerably from a large scale integrated capture, transport and storage project, to a smaller project to undertake analysis on information already collected. Further, none of the projects have met the original timeframe of the program. Reasons for this include: technical feasibility; absence of suitable storage options; and financial feasibility. Additionally, the CCS Flagships projects are yet to reach the stage of deployable technology originally envisaged in the program design, with the program due to close in 2020, with all program funding currently committed. The department advised the ANAO that the focus of the program had changed to proving up storage options for CCS. It is therefore unclear whether the program is capable of delivering on its strategic policy objective.

3.7 Following the budget announcement on 19 May 2009, the then Minister for Resources and Energy invited state and territory governments and Australian Coal Association Low Emissions Technology Ltd (ACALET)[30] in writing, to nominate projects to be considered for Australian Government funding support under the CCS Flagships Program. The invitation also outlined the commitments expected from the nominators. These were:

- support through the program would only be considered for projects that had commitments or the potential to obtain commitments from a state or territory government and an industry proponent which would facilitate and support the development of the project through the reduction of regulatory barriers;
- program funding intended to leverage equal contributions from state governments and industry, with industry funding primarily being obtained from the Coal 21 Fund—managed by ACALET, to mitigate the high cost and associated risks of large scale CCS projects. Therefore, projects needed to have a commitment from the state and industry to fund not less than two thirds of the projects non-commercial capital costs (discussed further at paragraph 4.9); and
- consideration of the provision of relevant infrastructure needed to be demonstrated.

30 ACALET is an industry body whose member companies are the black coal producers in Australia.

3.8 It was intended that invitations for nominations would be followed up with a more detailed conversation with the department to further outline these initial eligibility considerations. Records of these consultations were not retained by the department to substantiate what advice was afforded to the States from May 2009, when state and territory governments were invited to nominate projects, to the circulation of the draft program guidelines on 9 July 2009.

3.9 In addition to liaising with stakeholders to discuss the nomination and selection process, other early activities undertaken by the department included the development of an overarching Project Management Framework (the Framework) which included the program guidelines and associated documents, such as project and risk planning materials. A risk, communication and stakeholder management plan and an evaluation plan for the assessment of applications was also developed as part of the Framework.

3.10 The Framework was finalised in June 2010 and was to be reviewed annually. The department advised that reviewing the Framework was a recommended but not mandatory action under the former Department of Resources, Energy and Tourism procedures. The department was unable to confirm if the Framework was reviewed.

Risk Management

3.11 The department established and maintained a risk management framework for the CCS Flagships program. A comprehensive risk management plan was developed, requiring regular review was approved by the Clean Energy Initiative Program Management Committee (PMC) in May 2010.

3.12 The ANAO examined the risk management plans and register for the CCS Flagships program from its inception and its ongoing management by the department. The risk management plan appropriately identified key internal stakeholders/officers in the management of the program risks and outlined their risk management role and responsibilities as well as risk escalation/delegation protocols. The department reviews the plan through its regular reporting requirements and at major program milestones/gate review points.

3.13 Included with the risk management plan is a risk register that identifies potential risks that may arise during the program's implementation. The risk register addressed each risk's source, impact, risk levels both prior to and post treatment outlined the planned mitigation strategies and identified the risk owner/s and timeframes. The risk register was regularly reviewed and updated by the department from October 2009 to May 2013 and from 2015 to 2017. Updates reflect the progress of the program throughout the process of its implementation and included potential risks arising from the introduction and absence of a price on carbon and considered arising global financial market uncertainties. Additionally, risks for the program were reviewed and reported to the Executive along with the monthly program reports. [31]

Conflict of interest arrangements

3.14 Noting there was a high probability for individuals involved in the assessments having had or continuing to have contact with the project proponents through work associations in that

31 The department advised that due to the transfer of the program from RET to the department in September 2013, there was a lapse in risk registers being reviewed.

industry and/or areas of expertise, the department implemented arrangements to identify and manage potential conflicts of interest under the program and in particular, during the assessment and selection process. All relevant persons were required to disclose and update when necessary any current, prior or proposed association with any proponent that could possibly be construed as having potential to influence. A conflict of interest declaration register was also developed and updated regularly to support the process.

3.15 The ANAO reviewed the conflict of interest register and its maintenance during the project selection and assessment process and found conflicts were recorded and regularly reviewed. Any questions around the management of conflict of interests were deferred to the external probity advisor.

Development of the program guidelines

3.16 The Department sought advice on the development of the CCS Flagship program guidelines. The process for the development of the guidelines is outlined in Table 3.2 below.

Table 3.2: Carbon Capture and Storage Flagship Guidelines development

Development	Date
The department sought advice from the NLECC on the deployment of CCS technology, which subsequently contributed to the development of the CCS Flagships program guidelines.	September 2008 – January 2009
The then Minister for Energy and Resources requested NLECC's assistance in refining the selection process for the program, including the confirmation of technological priorities for the program in light of the funding level announced and providing nominations of qualified experts for the Independent Assessment Panel.	May 2009 Budget
The Department of Education, Employment and Workplace Relations (DEEWR) and the Department of Innovation, Industry, Science and Research (DIISR) were provided with a draft of the program guidelines for comment.	07 July 2009
Draft guidelines were provided to the States to guide their preparation of project nominations.	09 July 2009
CCS Flagship program guidelines were approved by Government[a] and the department distributed final guidelines to states and territories and industry stakeholders via email and on its departmental website.	21 July 2009
A supplementary *Guide to CCS Flagships Applicants* was circulated to stakeholders via email and placed on the department's website.[b]	07 August 2009
An amendment to the guidelines was issued and placed on the department's website; it provided additional information in relation to the Education Investment Fund component of the program.	13 August 2009

Note a: Commonwealth of Australia, *Commonwealth Grant Guidelines 2009*, Financial Management Guidance No.23, Department of Finance and Deregulation, section 3.22. The approval requirements for program guidelines were revised in September 2010, with program guidelines for high-risk programs to be approved by Government; medium-risk programs by the then Minister for Finance and Deregulation; and low-risk programs by the relevant Minister. The risks are to be assessed using Finance's Risk Potential Assessment Tool, available from <http://www.finance.gov.au/assurance-reviews/risk-potential-assessment-tool/> [accessed 07 September 2017].

Note b: As the 'Guide' was provided only seven days prior to the nomination deadline the department informed applicants that they were not expected to provide all of the required information by that deadline, however, supplementary information requests would be anticipated during the selection process to facilitate the consistent and uniform evaluation of nominated projects.

Source: ANAO analysis of departmental information.

3.17 Overall, the CCS Flagships program guidelines provided a summary of the program which included detail on the policy background, intended selection process, projected timetable and the eligibility and selection criteria. The guidelines established that the terms and conditions for project funding would be set out in the negotiated funding agreements with the Government. Departmental contact details and application lodgement instructions were also provided. However, the guidelines did not outline how the selection criteria would be weighted or how the proposals would be ranked (this is discussed further below at paragraph 3.23).

Was there a clear framework for assessing and selecting projects?

The department established a clear framework for assessing and selecting projects for the CCS Flagships program, including eligibility criteria and selection criteria. However, the transparency of the process would have been improved by earlier communication to applicants on the weightings that would be applied to the selection criteria.

Eligibility criteria

3.18 Criteria outlining eligibility should be straightforward, easily understood and effectively communicated to potential applicants to assist them when developing an appropriately considered proposal.[32] The CCS Flagships guidelines outlined six essential eligibility criteria to assess potential applicants against, which aligned with the objectives of the program. The eligibility criteria required demonstration of:

- state/territory government and industry support;
- project scale;
- project timeframe;
- project technologies;
- transport and storage of CO_2; and
- research infrastructure and partnerships.

3.19 The guidelines stipulated that all eligibility criteria had to be satisfied in order for applications to be put forward for assessment against the program's selection criteria. The use of the terminology *must* and *essential* within the eligibility criteria indicated to applicants there would be little to no discretion for projects that did not initially satisfy these requirements, however, the department did consider projects which met or had the potential to meet the eligibility criteria for the first stage assessment and short listing recommendations.

3.20 As noted in paragraph 3.7, letters to state and territory governments noted that when nominating potential projects for the program, that projects were required to have a commitment from the nominating state/territory and industry/private sector to fund two-thirds of the projects

32 *Commonwealth Grant Guidelines 2009,* op.cit., p. 22.

non-commercial capital costs. The guidelines however, noted that applicants need to have agreement (full agreement or in principle agreement) from the relevant state or territory government to provide 'an appropriate level of financial support', and 'significant support from industry' should the project be successful in securing Australian Government funding through the program.[33] The department advised that, as it was unlikely firm financial commitments would be given at the nomination stage of the project, the eligibility criteria was less explicit and allowed for in-principle commitments to avoid excluding projects that may have achieved the required two-thirds additional funding at a later stage. As discussed further in Chapter 4—the amount of contributory funding varied between the projects.

Selection criteria

3.21 The guidelines set out nine high level selection criteria and provided explanatory/general information outlining what would be expected to satisfy each criterion. The guidelines noted that proposals meeting the eligibility requirements would be ranked according to the merit selection criteria. The guidelines, however, did not indicate that at Stage 1 each criterion would be assessed against further sub-criteria (80) on a 1 to 5 sliding scale (1 = poor and 5 = high) with the each high level criterion receiving the average of those scores. Additionally, some (24) of the sub-criteria where determined to not be applicable until the detailed assessment and evaluation phase at Stage 2.

3.22 At Stage 2 of the selection process the Department provided a significantly more detailed and updated guide to applicants[34] which did detail 41 key selection sub-criteria and requirements. The Stage 2 guide, also outlined that the high level selection criteria would be prioritised according to the 'banding'[35] and that prior to further assessment the Independent Assessment Panel (IAP) would assign a specific weighting to each selection criteria, consistent with the banding.

3.23 Neither the guidelines nor the initial supporting materials clearly outlined to proponents the sub-criteria or banding that would be applied to actually assess applications. While acknowledging that more detailed information was provided later at Stage 2[36] of the selection process, clearly articulating all criteria within the guidelines or initial supporting materials would have provided greater transparency for applicants at the outset of the program and could have helped applicants to concentrate their efforts and reduce the potential costs from submitting an application that was ineligible or was unlikely to succeed.

Planned assessment and approval process

3.24 As highlighted at paragraph 3.17, the guidelines provided an overview of the planned assessment and selection process for the program. The guidelines set out the indicative timeline for the assessment and selection process outlined the key roles of stakeholders in the project selection decision making process and specified that the Australian Government would be the decision maker on projects to be shortlisted and funded under the program.

33 Department of Resources, Energy and Tourism, *CCS Flagships Program Guidelines Final*, 2009, p. 8.

34 Guide to Proponents on CCS Flagships Full Project Proposals (Stage 2 guide).

35 Weighting was assigned on the basis of banding applied to the selection criteria and is outlined in Appendix 1 to this audit report.

36 See Figure 3.1 for details on the selection process.

Complaints and appeal process

3.25 The CCS Flagships program guidelines did not include information on a complaint handling process or mechanisms for review/appeal of decisions and/or the outcome.[37] The department subsequently included an appropriate complaints and feedback process within their later guide to applicants that was provided at Stage Two of the program.

Were projects selected using the assessment and selection framework?

The department established a multi-stage process to assess and select the projects to be funded, based on the eligibility and selection criteria to enable regular assessment of the merits of projects. The assessment and selection process was undertaken by independent assessors, supported by technical and commercial advisors.

Independent assessment panel

3.26 All applications for the program were assessed and shortlisted by a six member IAP, appointed by the then Minister for Resources and Energy, with support from technical and commercial advisors.

3.27 The assessment process for the program was initially planned as a two stage process. Subsequently, a third stage[38] was added to the process to enable the assessment of two revised project proposals which were not initially selected as they did not meet the selection criteria at the end of Stage Two.[39] The IAP disbanded following the Stage Two evaluation process. The ANAO notes, that for the Stage Three evaluations of projects, as the obligations of the CCS Flagships IAP had ceased with the end of the Stage Two Evaluation, the department conducted a separate process and engaged two external assessors from the original IAP. Additionally, the department contracted an additional advisor from Geoscience Australia to provide the technical expertise on a needs basis.

3.28 The ANAO examined key aspects of the project assessment and selection process that was implemented by the department for the CCS Flagships Program. The CCS Flagship program underwent a multi-staged project selection and assessment process. The program assessment framework included three key stages:

- Stage One – initial eligibility and assessment;
- Stage Two – detailed assessment and evaluation; and
- Stage Three – assessment of two revised project proposals.

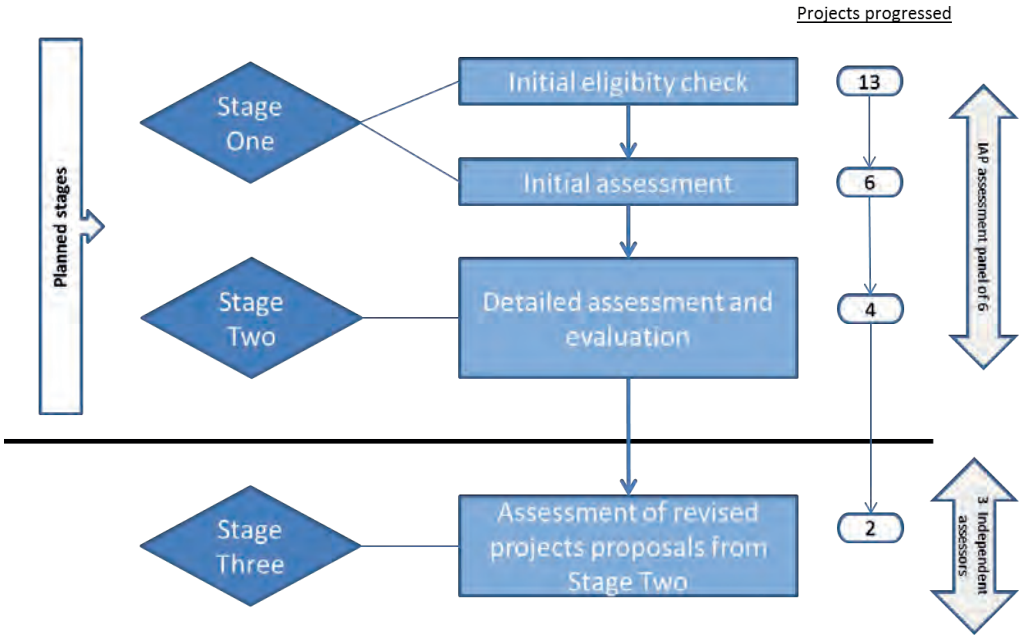
3.29 Figure 3.1 outlines the project assessment and selection framework for the CCS Flagships program.

37 The *Commonwealth Grant Guidelines 2009* noted that potential applicants should be provided with information regarding complaint handling procedures. Commonwealth Grant Guidelines 2009, p. 22.

38 The department referred to this as the post-stage two evaluation stage.

39 See paragraph 3.32 for further detail.

Figure 3.1: Project assessment and selection framework



Source: ANAO analysis of DIIS documentation.

3.30 As noted in Figure 3.1, a multi-staged approach was taken to assess and select projects for the CCS Flagships program. Following Stage Two, four projects were recommended to the Government. Funding was subsequently approved up to $120 million to support the prefeasibility studies for these four projects and progression to Stage Two of the selection process, as listed in Table 3.3 below.[40]

40 This amount was based on advice from the IAP's estimate of the work required for the projects to progress through the pre-feasibility stage and the assumption of matched funding from state governments and others.

Table 3.3: Successful short-listed project nominations from Stage 1

Project nomination	Description	State	Prefeasibility funding committed by Commonwealth ($)
CarbonNet	Large-scale, multi-user storage hub concept.	Victoria	26 456 000
South West Hub	Comprises storage site exploration proposal, storage hub concept and CCS-ready project (urea manufacturing plant)	Western Australia	500 000
Wandoan power	Commercial-scale intergrated gasification combined cycle (IGCC) power station with up to 90% capture. Potential storage site identified.	Queensland	15 600 000
ZeroGen	Commercial-scale IGCC power station with up to 90 per cent capture. Potential storage site identified.	Queensland	47 500 000
Total pre-feasibility funding			**90 056 000**

Source: ANAO analysis of CCS program information.

3.31 In October 2010, the IAP through its Stage Two Evaluation Report recommended that the Government allow all four projects to proceed, with final project selection for the next stage of funding to be postponed until early 2011. The recommendation was made on the basis that the IAP could not make specific recommendations without additional evidence regarding each of projects storage viabilities, costs and risk mitigation strategies.

3.32 The IAP identified the risk of only pursuing a single CCS Flagship project with only one potential storage site and subsequently presented three alternative options that were not constrained by the guidelines. The alternative options caveated the progression of the South West Hub project with the addition of:

(a) rephasing a portion of the program funding towards a national storage program, that supported the exploration and storage potentials of the Surat and Gippsland Basin; or

(b) progressing a restructured CarbonNet project and rephasing a portion of funding to support exploration and storage potential of the Surat Basin; or

(c) progressing a restructured CarbonNet project and progressing the Wandoan project with an alternative power configuration.

3.33 The IAP placed emphasis on the third alternative option arguing that it provided maximum flexibility through providing a selection of projects across different technologies and geographical locations.

3.34 On the basis of the IAP's recommendations the Government selected the Western Australian— Collie South West Hub project to proceed under a phased and gated approach, with the initial focus to be on proving up sufficient geological storage and agreed to the department continuing negotiations with the Victorian and Queensland Governments on the development of the CarbonNet and Wandoan projects with revised submissions to be provided in September 2011.

3.35 The Collie South West Hub project was allocated $52 million in Government funding with initial feasibility work to be focused on CO_2 storage exploration and appraisal. The total capital cost of the project was forecast to reach $1 billion.

3.36 Following the Stage Three Evaluation, the CarbonNet project was granted flagship status and awarded up to $70 million towards feasibility on the contingency that $30 million was committed by the Victorian Government. Additionally, it was agreed that the Wandoan project did not meet the CCS Flagships criteria and the decision to support the project was deferred for 12 months. The Government's reconsideration of the Wandoan project was contingent on program funding availability and the project meeting a number of specific conditions. The Government provided a funding commitment of up to $5 million to progress the Wandoan project towards the feasibility stage. Subsequently, the Government agreed to progress a revised Wandoan proposal with a Government funding commitment of $112 million. The department advised it commenced discussions with the project proponents, however an agreement was unable to be reached and the project did not proceed.

4. Program funding and reporting

Areas examined

This chapter examines the program funding, reporting and evaluation arrangements for the Carbon Capture and Storage Flagships program and the National Low Emission Coal Initiative program.

Conclusion

There have been ongoing reductions in the available funding for each of the NLECI and CCS Flagships programs which have not been supported by a strategic approach to applying remaining funding across the projects. Additionally, although both programs were designed on the premise of receiving funding contributions from participating states and territories as well as private sector entities, this was not achieved to the level originally envisaged.

The department reports at a project level on progress and the funds expended. However, this reporting does not provide visibility and oversight of program achievements against its strategic objectives. In addition, the department has not applied its evaluation strategy to the LETFF programs. Consequently, reporting and evaluation does not provide insights into the programs' contribution to advancing/accelerating the demonstration of low emission technologies; nor does it inform decisions on the future of the programs.

Area for improvement

The ANAO made one recommendation aimed at the department evaluating the programs, with a particular focus on the extent to which the programs have achieved their strategic objectives.

For long term projects, regular evaluation supports ongoing assessment of progress and risks and informs decisions relating to whether programs are still capable of delivering on their stated policy objectives and provides opportunities for adjustments where necessary. Given the impending closure of both programs, it would be timely to conduct an evaluation of the programs to inform future decision on CCS initiatives.

Did the department respond to a changing program funding environment?

Over the life of both programs, funding was significantly reduced: around half the original NLECI program funding; and around 75 per cent of the CCS Flagships program funding. The program was not supported by a framework for monitoring the impact of the changing funding environment. As a consequence, when the funding envelope for both programs was reduced, there was no clear strategy for determining how the reduced funding would be applied across the programs. Both programs were designed on the premise of contributory funding from state governments and other parties, however, the NLECI program did not achieve this intended outcome. For the CCS Flagships projects, given the projects have not reached the expected level of completion, it is not clear whether they would have achieved the level of contributory funding expected.

4.1 Funding for both the NLECI and CCS Flagships programs are sourced from administered appropriations. The expenditure for the NLECI program, as advised by the department, for the period 2007–08 to 2016–17 is outlined in Table 4.1.

Table 4.1: Expenditure on the NLECI program for the period 2007–08 to 2016–17

2007–2008	2008–2009	2009–2010	2010–2011	2011–2012	2012–2013	2013–2014	2014–2015	2015–2016	2016–2017	Total
$'000										
14 000[a]	8699[b]	32 287	47 630	25 612	22 424	43 812	31 631	4421	2602	233 118

Note a: This figure was previously advised by the department however the department advised it was unable to confirm the amount expended as the program was administered by the former Department of Resources, Energy and Tourism (RET) and they did not have access to the RET data for those years.

Note b: As noted in the RET Annual Report. The department advised they were unable to confirm the amount expended as the program was administered by the former Department of RET and they did not have access to the RET data for those years.

Source: DIIS information based on the department's General Ledger.

4.2 As shown in Table 4.1, around $233 million had been expended on the NLECI program as at 30 June 2017. The ANAO identified some discrepancies between the amounts recorded in the program expenditure tracking sheets and the department's general ledger. Departmental documentation shows that although there are three ongoing projects under the NLECI program, all available program funds had been expended. Table 4.2 outlines the expenditure on the CCS Flagships program, as advised by the department, for the period 2008–09 to 2016–17.

Table 4.2: Expenditure on the CCS Flagships program for the period 2008–09 to 2016–17

2009–10	2010–11	2011–12	2012–13	2013–14	2014–15	2015–16	2016–17	Total
$'000								
61 783	7132	6775	13 818	27 138	56 164	18 242	26 500	217 552

Source: DIIS information based on the department's General Ledger.

4.3 As shown in Table 4.2, around $218 million had been expended on the CCS Flagship program as at 30 June 2017. A further $42 million in funding has been committed to ongoing projects. The ANAO notes that there were some discrepancies identified between the amounts recorded in the program expenditure tracking sheets and the department's general ledger. Additionally, the ANAO identified approximately $40 million that was unaccounted for when funding reallocations (discussed below) were taken into account. The department advised that, during the course of this audit, it undertook a reconciliation of funding from 2014–15 (being the first full financial year since the Machinery of Government change took effect) with all amounts since that period accounted for. The department further advised that it was unable to undertake a reconciliation of funding prior to the program's transfer, and that the $40 million likely represented unutilised funding that had subsequently lapsed.

NLECI and CCS Flagships funding reallocations

4.4 The initial funding for the NLECI program allocated in the 2008–09 Budget was $500 million, with $21.5 million allocated for departmental funding for the life of both programs. During the life of the program, uncommitted funds have been re-allocated to other departmental and government priorities, including re-allocation to other broadly aligned emissions reduction policies or returned to the Government for re-prioritisation, as outlined in Table 4.3 below.

Table 4.3: Overall NLECI program funding reallocation

Year	Amount ($ million)	Reason reallocation was made
2008–09	100.0	Funding re-allocated to fund the Global Carbon Capture and Storage Institute.
2010–11	15.0	Funding for a FutureGen Alliance membership was announced in the 2207–08 Mid-Year Economic and Fiscal Outlook – this membership did not proceed due to the announcement of funding for the CCS Flagships program.
2011–12	14.768	Budget savings measure. Funding of $149.7 million remains available.
	3.232	Funding directed towards RET voluntary redundancies.
2012–13	5.975	Funding re-directed towards Government decision to provide $6 million over five years to appoint a Resources and Energy Counsellor in Beijing.
2013–14	88.200 over two years	Budget savings measure – Reforms to the Clean Energy Future package. Funding of $108.9 million available over three years from 2013–14.
2014–15	16.808 over two years	Budget savings measure. Funding of $96.9 million over four years available.
2015–16	3.400	Budget savings measure reduced funding for the ANLEC R&D project. Funding of $17.5 million over two years available.
2016–17	12.500	Budget savings measure.
Total	**259.883**	

Source: DIIS documentation.

4.5 Similarly to the NLECI program, uncommitted funding from CCS Flagships program was also re-allocated to other departmental and government priorities, as outlined in Table 4.4 below.

Table 4.4: Overall CCS Flagships program funding re-allocation

Year	Amount ($ million)	Reason reallocation was made
2010–11	65.293	Funding re-allocated for general funding for Geoscience Australia.
2011–12	90.0	Funding re-directed to offset the Queensland flood relief package.
	60.871	Funding re-directed to support the establishment of National CO2 Infrastructure Plan.[a] Program funding reduced to $1.6 billion.
2013–14	28.824	Budget 2013–14 estimates adjustment.
	500.0	Budget savings – Reforms to the Clean Energy Future package. This reduced funding for the program to $1 billion over seven years (from 2013–14) to enable at least one project to proceed beyond the feasibility stage with Government support.
	13.0	Funding re-directed to the NLECI program to extend the CS Energy – Callide Oxyfuel project.
	255.960	Budget savings-—The Mid-Year Economic and Fiscal Outlook reduced funding for the program to $735.4 million over seven years from 2013–14.

Year	Amount ($ million)	Reason reallocation was made
2014–15	459.300 over three years from 2017–18.	Budget savings measure. Funding of $191.7 million over seven years available to support existing projects.
	4.900	Funding returned to the Consolidated Revenue Fund due to the South West Hub project being closed.
2016–17	14.900	Budget Savings measure.
Total	**1 493 048**	

Note a: Budget Paper 2 of 2011–12 notes the Government will reduce funding for the program to provide savings of $420.9 million over five years from 2010–11 to be re-directed to other priorities including the establishment of a National CO_2 Infrastructure Plan, with funding of $260 million to be restored to the program beyond the forward estimates.

Source: DIIS documentation.

4.6 As shown in Table 4.3 and Table 4.4 a significant amount of funding has been re-allocated from both programs—around $259 million from the overall NLECI program budget, and around $1.49 billion from the CCS Flagships program. However the NLECI program did receive an additional $13 million in CCS Flagships funding for the CS Energy – Callide Oxyfuel project, and $2 million for the Kawasaki Heavy Industries project from the Greenhouse and Energy Minimum Standards program, equating to an overall reduction in NLECI program funding of around $233.6 million, taking into account department funding .

4.7 The department advised that for the NLECI program, the reduced funding for the program resulted in no new projects being funded, however existing project commitments were fulfilled.

4.8 Advice to the Minister noted that the $459.3 million reduction in the CCS Flagships funding in 2014–15 meant that the program would be unable to fund the two major projects that were ongoing at that time past the feasibility stages.[41] Currently, only one major CCS Flagships project remains ongoing—the CarbonNet project.[42] The CarbonNet project has completed two out of six stages, and is currently undertaking its third stage. The department advised the ANAO that the remaining $23 million in the current funding agreement will be paid to the project to finalise offshore appraisal activities at its preferred storage site. The department further advised that at the end of the current stage, and if required, there will be a natural pause point for the project until commercial investment and other arrangements are finalised for a commercial scale CCS project.

Funding co-contributions

4.9 As part of their design, both programs required (to varying degrees) states and territories and others to contribute to the cost of the programs. The then Department of Resources, Energy and Tourism (RET) 2007–08 Annual Report notes that the department was implementing the NLECI program with the funding intention of it being 'underpinned by a $500 million fund that will support activities and leverage investments worth approximately $1.5 billion'.[43] It was not

41 These two projects were the South West Hub project and the CarbonNet project.

42 The main funding agreement for the South West Hub project was terminated in 2015, however there is still another ongoing funding agreement for the project to undertake analysis on geological data that was collected.

43 Department of Resources, Energy and Tourism, *Department of Resources, Energy and Tourism Annual Report 2007-08,* p. 14.

specified that the funding had to come solely from the states and territories, allowing for private investment as well. It was also open to states and territories to meet their commitments through 'in-kind' contributions. For the CCS Flagships program, the 2009–10 Budget announcement for the program outlined the Government's intention to contribute up to one-third of the cost of selected projects over the life of the project. Advice to state and territory governments on nominating eligible projects for the program also noted that, in order to mitigate some of the risks and costs associated with large scale projects, the government would only consider supporting projects that had or would obtain state/territory government and or industry support for two-thirds of the project's non-commercial costs.

4.10 Table 4.5 and Table 4.6 show the funding co-contributions achieved for both the NLECI and CCS Flagships programs as at 30 June 2017.

Table 4.5: NLECI program funding co-contributions

Project name	Australian Government contribution ($)	State/territory government contribution ($)	Other contributions ($)	Australian Government contribution (per cent)
CCS Communications strategy	1 239 000	-	225 306[a]	84.6
Delta project	688 000	-	1 438 944	32.3
NSW data storage project	9 700 000	9 700 000	9 700 000	33.3
GreenMag project	3 040 000	3 040 000	3 040 000	33.3
Nippon Steel pre-feasibility study	1 963 000	2 000 000	2 000 000	32.9
Kawasaki Heavy Industries pre-feasibility study	96 000	-	-	100
Advance Lignite Development Program	25 649 000[b]	25 000 000	113 000 000	15.7
ANLEC R&D[c]	71 600 000		71 600 000	50
Projects in support of the National Carbon Mapping and Infrastructure Plan	45 173 000	18 950 000[d]	20 000 000	59.3
Callide Oxyfuel project	63 000 000	-	-	100
Hydrogen Energy Supply Chain pilot project	2 000 000	1 000 000	34 000 000	5.4
Projects under the Australia-China Joint Coordination Group on Clean Coal Technology[e]	8 451 000	-	1 072 000	88.7
Other projects	745 000	-	-	100
Total	**233 344 000**	**59 690 000**	**256 076 250**	**42.5**

Note a: In-kind contribution.

Note b: An agreement between the Victorian Government and the Australian Government was signed in July 2017 for the repayment of $10 million (plus interest) to the Australian Government due to one of the project components under the ALDP ceasing. The money will be repaid progressively by 30 June 2019.

Note c: Funding agreement based on dollar for dollar matched funding.

Note d: Includes funding from two states towards pre-competitive data exploration.

Note e: Includes the Post Combustion Capture of CO2 Technology Advancement project, the China-Australia Geological Storage project Phase 2, and the Australia-China JCG Partnership Fund.

Source: ANAO analysis of DIIS information.

4.11 As shown in Table 4.5, around $315 million was received from State governments and other contributors for the NLECI program compared to the $233 million invested by the Australian Government, significantly less than the $1.5 billion envisaged at the start of the program. The department advised the ANAO that monitoring of contributory funding was done at the project level, but not at a program level. Where program co-contributions are envisaged as part of the program design, the department should take a more active role in monitoring if the program is achieving these objectives to enable transparency and appropriate oversight of funding. Table 4.6 outlines the co-contributions from state governments and other contributors for the CCS Flagships program.

Table 4.6: CCS Flagships program funding co-contributions

Project name	Australian Government contribution ($)	State/territory government contribution ($)	Other contributions ($)	Australian Government contribution (per cent)
CCS Flagships projects				
CarbonNet	72 248 958	30 000 000	Nil	70.6
South West Hub	32 150 295	12 961 963	Nil	71.3
Stanwell Corporation Limited	7 895 442	-	7 800 000	50.3
ZeroGen	47 493 636	15 142 000	58 400 000	39.2
Wandoan project	3 216 535	4 990 000	5 010 000	24.3
Other CCS Flagships projects				
Otway	26 000 000	17 895 000[a]	12 530 000	46.1
Aus-China PCC	11 300 000	-	-	100
Other	8 689 731	-	-	100
CCS RD&D projects	5 570 206	-	-	100
CCS Roadmap for Australia	121 818	121 818		50
Total	**214 686 621**	**81 110 781**	**83 740 000**	**56.6**

Note a: Includes $11 620 000 of in-kind contributions.

Source: ANAO analysis of DIIS information.

4.12 As shown in Table 4.6, as at 30 June 2017, the CCS program received around $165 million from State governments and other contributors, as compared to the $214 million expended by the Government. While the intention was for the Government to contribute one-third of non-commercial capital costs over the life of the program, for four out of the five Flagship projects, the Government contributed significantly more than one-third for the initial phases of the projects. Given the Flagship projects did not reach the state of completion initially planned, it

is not clear whether the projects would have achieved the level of contributory funding expected. Overall, the Australian Government contributed around 56 per cent of total funding for the CCS Flagships program.

Is there a transparent framework for publicly reporting program outcomes?

Currently, there is no transparent framework in place to publicly report program outcomes. The department has established one performance measure for each program, related to the number of projects supported (NLECI) and the number of companies supported (CCS Flagships). However, these measures provide limited insight into whether the program is achieving its strategic policy objectives.

Performance measures

4.13 The performance measures for both the NLECI and CCS Flagships programs as outlined in the department's Portfolio Budget Statements have changed over time. Prior to 2014–15, the performance measures were primarily activity-based. In 2014–15, the department revised its performance measures to include a single measure for each program—related to the number of projects supported (NLECI) and the number of companies supported (CCS Flagships)—and a target to be achieved. Table 4.7 outlines the department's reported achievements against the performance targets since 2014–15 and the targets for future years.

Table 4.7: Achievement of performance measures

NLECI program						
Performance measure		2014–15	2015–16	2016–17	2017–18	2018–19
Number of projects supported for the development of low emissions coal technologies.	Target	8	2	1		
	Actual	8	2			
CCS Flagships program						
Number of companies supported for the development of carbon capture and storage technologies.	Target	None reported in PBS	5	11	9	8
	Actual	7	12			

Source: ANAO analysis.

4.14 As shown in Table 4.7, for the period 2014–15 to 2015–16, the department has met, and for the CCS Flagships program in 2015–16 exceeded, the performance targets set for the program.

4.15 Key performance measures should be relevant, reliable and complete, and provide a balanced assessment of overall performance, using both qualitative and quantitative measures. Table 4.8 sets out the results of the ANAO's assessment of the current performance measures for the NLECI and CCS Flagships programs against these criteria.

Table 4.8: Assessment of current NLECI and CCS Flagships performance measures

Criteria	Assessment
Relevant	Partially. Each measure is designed to measure something that is relevant to each program's objective.
Reliable	Partially. The measures are quantifiable to enable performance to be tracked over time, however the measures do not provide any information as to whether they are new or existing projects or companies each year making the measure unreliable over time.
Complete	No. The measure for each program only measures an aspect of the program—the number of companies/projects supported and does not measure outcomes against the program objectives.

Source: ANAO analysis of DIIS performance measures.

4.16 While the existing measures offer some insights into the performance of the programs, they do not provide a basis for assessing outcomes against the program objectives of accelerating the development and deployment of CCS technologies. Given the potentially high expenditure and long time frames for the programs, particularly for the CCS Flagships program, the department should have developed a more complete set of performance measures to provide insight into program performance.[44]

External reporting

4.17 The department reports publicly on both the NLECI and CCS Flagships programs through its annual report and its website. Annual reports for the period 2007–08 to 2013–14 outlined various activities that had been undertaken during the year, as well as specific reporting of program achievements. The annual reports for 2014–15 and 2015–16 only contained reporting on the achievement of the performance targets for the programs, with no performance information for the CCS Flagships program reported in 2014–15. The department's website contains a 'home' page on Low Emission Technologies for Fossil Fuels, with links to the individual program pages. The specific program pages contain the objective of the program; timeline for the program; and some of the projects that have been funded by the program. The program specific pages also contain external links to some of the project pages which contain more detailed information on the projects.

Are effective program oversight and internal reporting arrangements in place?

The departmental oversight and internal reporting arrangements for the CCS Flagships Program and the NLECI Program are generally effective at a project level. However, the absence of sufficient program level reporting on performance limits visibility and oversight of both programs' achievements, and the ability for Government to make decisions on the future of LETFF programs and CCS technology more broadly.

44 See Recommendation No.1.

Program oversight arrangements

Governance framework/committees

4.18 The CCS Flagships and NLECI programs are supported through a series of executive level committees and its officials, who review the program's performance and have reporting requirements to the Senior Executive—via the Executive Board(EB). The EB is regularly briefed through the Resources division executive team and the following executive level committees and forums: Programme Assurance Committee; a programme summary database; the programme risk plan review, programme management committee reports, and other departmental sub-committees and ad-hoc reporting.

4.19 The Program Assurance Committee (PAC) is the main committee currently through which reports are made to the Executive on the status of its major programs.[45] The PAC's oversight of programs helps to provide assurance to the Executive in relation to those programs it oversees and supports senior responsible officers to strategically design and deliver the programs. The PAC also meant to help to facilitate peer learnings through its monitoring of program performance with KPI's, identify significant or systemic issues, and provide guidance on the management of identified risks through the confirmation of appropriate risk and evaluation frameworks to apply. Program status and risk reports are submitted to the PAC regularly to complement its meeting schedule.

4.20 DIIS governance committees are also supplemented through departmental online reporting tools and the Programme Summary Database (PSD). Each program has its own 'landing page' in the database for status reporting on the program. The CCS Flagships and NLECI pages contain a summary of the program and its projects, an outline of the policy objectives to achieved, and its performance indicators, key deliverables, milestones and risks.

4.21 The ANAO reviewed the oversight arrangements established for both the CCS Flagships and NLECI programs, that were initially developed by RET and subsequently performed by DIIS. This included an examination of program frameworks and a selection of executive and sub-committee papers. The review substantiates that the CCS Flagships program and the NLECI program are considered regularly, risk ratings are applied and agreed actions documented, including relevant responsibilities and key dates.

4.22 The ANAO notes, however, that the program reports to the Executive contained nominal indicators on the future direction of the programs from the responsible areas in the form of 'traffic light' reports that focus on the details of the projects progress under the program, funds expended and issues arising. There was limited program level reporting, particularly in regards to overall program achievement of outcomes. The senior executive oversight of program would benefit from regular updates from its line areas that contain program-level successes or failures and achievements of overall outcomes to inform its future decisions on the likely commitment and funding profiles needed for the program/s.

45 The Program Management and Delivery Committee (PMDC) in RET, was the primary governance mechanism for programs delivered in the department at that time. ANAO's review also included reports to this committee.

4.23 The ANAO notes that oversight arrangements for the programs have varied over the long lifetime of the programs and departmental movements; resulting in a number of Portfolios Ministers, committees, senior executives and departmental officers guiding the programs strategic direction and delivery of outcomes.

4.24 The projects aligned with these programs also have their own oversight arrangements and reporting arrangements, with all CCS Flagships projects having steering committee/board oversight requirements. The funding agreements reviewed generally require that key stakeholders meet at defined intervals (stakeholder management framework) to ensure continued alignment of the project with overall program outcomes.

Ministerial briefs

4.25 The department regularly reported to the Secretary and the Minister on both of the programs, through a series of submissions and briefs, especially during the establishment of the programs.

4.26 Briefings and papers generally outlined the progress of the programs and the related projects; expenditure to date; funding redirection requests—typically due to the delays experienced in progressing projects; and results and next steps from project stage gate reviews.

Knowledge sharing requirements

4.27 An objective of the LETFF program is raising public awareness and acceptance of low emission and CCS technologies, consequently a key component of program reporting is the requirement for projects (in particular those under the CCS Flagship program) to participate in knowledge sharing of CCS learnings to the global community through regular reporting to the Global Carbon Capture and Storage Institute (GCSSI).

4.28 The GCSSI was established in 2009 through government funding[46] and is now an independent non-for-profit company that brings together a large network of CCS experts and stakeholders through knowledge sharing activities and advocacy work to encourage the development, demonstration and deployment of CCS technologies in Australia and overseas.[47]

4.29 Funding agreements reviewed for the CCS Flagships projects set out the requirement for participation and knowledge sharing reporting to the institute, with milestone reports reflecting the successful submission of such reports at defined intervals.

Program frameworks

4.30 The CCS Flagships and NLECI programs have not been included in the formal grants management system that underpins many of the department's other grant programs. DIIS advised that it was decided, when programs transferred over from RET during the MoG, they would not be retrospectively brought within DIIS' grant management systems/frameworks. The program areas manage the financial payments for CCS Flagships and NLECI projects through the departmental

46 A $100 million was re-allocated from NLECI funding to establish the GCSSI.

47 A key piece of work produced by the GCSSI each year is the Global status of CCS report, the most recent being their 2016 publication. A copy of this report is available at < https://www.globalccsinstitute.com/publications/global-status-ccs-2016-summary-report > [accessed 31 August 2017].

TechOne/financial management system, and manage the grant programs/projects and funding agreement requirements through a series of spread sheets and shared reporting systems.

Were programs evaluated against their objectives?

An evaluation strategy was not developed at the commencement of the programs. The NLECI program has been subject to several internally focussed reviews since 2009, which identified opportunities to improve its governance arrangements. The CCS Flagships program has not been evaluated since its inception, with the exception of an internal audit.

4.31 An evaluation strategy was not developed at the commencement of these programs. In 2015, the department developed a new departmental evaluation strategy to guide evaluation and performance measurement of programs and policies in the department.

Early review of NLECI

4.32 In mid-2009, the department requested a high-level review of a selection of programs to assess the systems and processes in place to manage the programs, including the NLECI program. The review was completed in October 2009. The review assessed that:

- The governance maturity of the NLECI program required additional attention, as most of the projects at the time of review were still at the development stage with uncertainty growing over the timeframes and feasibility of some projects.
- The frameworks required to support the eventual management of projects had also not been developed and documented.
- There was no documented process for the payments of project milestones and no specialised information management system in use.
- The review further noted there was no compliance plan or strategy in place for the program, and while a mid-term evaluation had been planned, no evaluation criteria had been considered to enable appropriate data to be collected.

4.33 The review made five recommendations, with three aimed at improving the administration of the program, and a further two recommendations aimed at improving broader departmental processes.[48]

NLECI mid-term evaluation

4.34 An internal mid-term evaluation of NLECI was conducted in 2012 and made nine recommendations. Key findings noted in the review were:

- The projects under NLECI all supported the broad objective of the program to accelerate the development of low emissions coal technologies.

48 The program specific recommendations related to: the program being subject to internal audits on a cyclical basis; evaluation criteria be considered to enable appropriate data to be collected; and relevant processes and procedures by documented. The recommendations that related to improving broader departmental processes were the implementation of a feedback register and the development of a specialised management information system.

- NLECI was a highly flexible program, however as a consequence of this flexibility, program governance was weak, including problems with approvals for payments and funding commitments and with record keeping.
- The program was aligned with Government policy and other related programs and was meeting its broad objective, although the review did note that the objective was not measurable and there were no Key Performance Indicators in place.
- Due to NLECI consisting of a number of pre-defined election commitments and requiring matched funding from state governments—this had hampered the department's ability to implement the projects if a project was not supported by the relevant state government.
- The allocation of funding to specific projects, at the time, reflected an optimistic view of the progress that could be made to develop CCS technology, and comparing the projects aimed at research and development and those aimed at pilot and demonstration projects, the research and development projects aimed to have made more progress, due to the complexities in developing pilot and demonstration projects.

4.35 This review noted that the three program-related recommendations from the 2009 review had not yet been implemented.

4.36 Weaknesses in the NLECI program governance arrangements were identified in two internal reviews, however these were not addressed.

CCS Flagships mid-term evaluation

4.37 There has been no formal evaluation or review of the CCS Flagships program. Departmental documentation notes Terms of Reference were developed for a mid-term evaluation of the CCS Flagships program and approved by the then RET Program Management Delivery Committee in October 2013, with the proposed evaluation to commence in November 2013. The Terms of Reference outlined that the evaluation would examine:

- the management of projects in accordance with funding agreements;
- the progress of projects against key performance indicators or project milestones;
- whether the program funding was sufficient to meet project objectives;
- the relevance of the program against current government policy objectives and priorities and the extent to which the department's involvement in the program contributed to progress towards the construction and demonstration of large-scale integrated CCS projects in Australia; and
- the monitoring and reporting being undertaken internally for the program.

4.38 However, this evaluation was never undertaken. The department advised that this was due to the Machinery of Government change[49] and the reduction of CCS Flagships funding due to only two of the Flagships projects remaining, which each had their own project specific planned reviews and evaluations.

49 See paragraph 1.10 for further detail.

Internal audit

4.39 In May 2014, the department commenced an internal audit to assess the financial management processes and activities of grants management within the department. The audit focussed on four grant programs, including the NLECI and CCS Flagships programs.[50]

4.40 This internal audit reported that:

- The department did not have a central business unit with responsibility to provide guidance and support on grants management and there was no overall grants management framework.
- All the grant programs examined were managed by Excel spreadsheets and manually updated by staff, although at the time of the audit the NLECI program was undertaking user acceptance testing in preparation for migration to the department's grant management system.
- The NLECI program did not have an overarching governance structure, communication plan or program guidelines for either applicants or departmental staff administering the program. Additionally, there significant budgetary issues that were identified by the department in late 2013, including the inadvertent omission of a number of projects in the programs 2013–14 Portfolio Budget Statements. This was due to a loss of corporate knowledge of the program and a lack of communication between financial management and program administration staff. The review further noted that these issues had been appropriately resolved by the department.
- The CCS Flagships program had a governance framework and program guidelines for applicants. However, there were significant delays in the achievement of project milestones leading to considerable underspends in the individual project (and therefore program) budget.

4.41 The audit made five recommendations, which the department advised the ANAO were all implemented by the end of 2015.

Future evaluations

4.42 As noted in paragraph 4.31, the department developed a new departmental evaluation strategy in 2015, however neither the NLECI program or the CCS Flagships program have been evaluated under this strategy. The department advised that both programs (including the CCS Research Development and Demonstration Fund) have been scheduled in its Departmental Evaluation Plan for 2017–18.

4.43 For long term projects, regular evaluation supports ongoing assessment of progress and risks and informs decisions relating to whether programs are still capable of delivering on their stated policy objectives and provides opportunities for adjustments where necessary. The CCS Flagships program has not been evaluated despite over eight years of operation. Further, although the NLECI program has been subject to a mid-term review, the absence of a measurable objective and key performance indicators has impacted the department's ability to identify the program's

50 The other two programs included in the audit were the Low Income Energy Efficiency Program and the Community Energy Efficiency Program.

progress in meeting its objective. As noted in Table 1.1, there were a number of key policies changes, as well as administrative changes that took place during the duration of the programs that provided potential opportunities for the department to undertake an evaluation of the programs. The absence of an evidence base relating to the effectiveness of the programs over time, has made it difficult to assess the extent to which the programs have made a contribution to their respective program objectives, as well as to the overall LETFF objective of developing technologies to reduce greenhouse gas emissions.

Recommendation No.1

4.44 That the department undertake an evaluation of the programs to identify the extent to which the programs have achieved their strategic policy objectives.

DIIS response: *Agreed.*

4.45 *In agreeing with this recommendation I note that the department has a robust evaluation strategy and plan in place to regularly assess the performance of policies and programmes against their objectives. This involves taking a strategic, risk-based, whole-of-department approach to prioritising evaluation effort and ensuring appropriate program governance.*

4.46 *The department introduced the 'Evaluation Ready' process in 2016 to ensure all new and existing programs are prepared for evaluations well in advance, with identified objectives, key performance indicators and data collection strategies in place early in their implementation. All existing and new programs will be subject to this process over the next year. The establishment of the Business Grants Hub also ensures there are appropriate governance and risk management plans in place from program inception.*

4.47 *An evaluation of the LETFF programs was scheduled for 2017 but was delayed due to the ANAO's audit. The evaluation is now scheduled in early 2018.*

4.48 *The proposed report notes that the overall strategic objective of the LETFF programs evolved over time, and that the department's efforts are strategically focused on deepening the understanding of Australia's carbon capture and storage resources and LETFF capabilities to support longer-term commercial development and deployment.*

4.49 *Australia has made significant contributions to national and global research and development efforts to better understand LETFFs which are technically complex. Learnings and outcomes from individual projects will contribute to Government's ongoing consideration of LETFF policy.*

Grant Hehir
Auditor-General

Canberra ACT
12 December 2017

Appendices

Appendix 1 Entity response

Australian Government
Department of Industry, Innovation and Science

Secretary

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Australian National Audit Office
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CANBERRA ACT 2601

Dear Ms Rauter

Thank you for your correspondence of 30 October 2017, seeking comment from the Department of Industry, Innovation and Science on the proposed audit report on *Low Emissions Technologies for Fossil Fuels* (LETFF).

I agree with the recommendation 'that the department undertake an evaluation of the programs to identify the extent to which the programs have achieved their strategic policy objectives.'

In agreeing with this recommendation I note that the department has a robust evaluation strategy and plan in place to regularly assess the performance of policies and programmes against their objectives. This involves taking a strategic, risk-based, whole-of-department approach to prioritising evaluation effort and ensuring appropriate program governance.

The department introduced the 'Evaluation Ready' process in 2016 to ensure all new and existing programs are prepared for evaluations well in advance, with identified objectives, key performance indicators and data collection strategies in place early in their implementation. All new and existing programs will be subject to this process over the next year. The establishment of the Business Grants Hub also ensures there are appropriate governance and risk management plans in place from program inception.

An evaluation of the LETFF programs was scheduled for 2017 but was delayed due to the ANAO's audit. The evaluation is now scheduled for early 2018.

The proposed report notes that the overall strategic objective of the LETFF programs evolved over time, and that the department's efforts are strategically focused on deepening the understanding of Australia's carbon capture and storage resources and LETFF capabilities to support longer-term commercial development and deployment.

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Australia has made significant contributions to national and global research and development efforts to better understand LETFFs which are technically complex. Learnings and outcomes from individual projects will contribute to Government's ongoing consideration of LETFF policy.

I advise that the comments in this letter are based on the penultimate proposed report (dated 30 October 2017), which contained further questions from the ANAO. The department has since provided responses to these questions. The department notes that it will not have an opportunity to provide further comments on any changes the ANAO may make in drafting the final report.

Yours sincerely

Heather Smith

Dr Heather Smith PSM

24 November 2017

Appendix 2 CCS Flagships program selection criteria and banding

Selection Criteria	Banding[a]	IAP Weighting[b]
Technical and commercial viability	2	5
Cost and schedule	1	8
Financing	1	10
Research infrastructure and partnerships	2	7
Water and wastes	2	5
Technology maturity [c]	1	9
Project delivery	1	8
Risk profile and management	2	7
Post-project use	3	3

Note a: Banding applied to the Selection Criteria at Stage 2 of the selection and assessment of applications. Band 1 was allocated the highest priority to reflect their importance in the assessment of Value for Money and Band 3 had the lowest importance.

Note b: 10 being the highest weighted and three the lowest.

Note c: The Stage 2 Proponent Guide separated the Technology Maturity selection criterion into two, Technology Maturity (excluding storage) and Technology Maturity – Viability of Storage Options, both of which received a banding of one.

Source: CCS Flagships Program, Program Management Framework as at June 2010.