



CLIMATE
CHANGE
AUTHORITY

Review of the Emissions Reduction Fund

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CHAIR'S FOREWORD

The Climate Change Authority is pleased to present its 2020 review of the Emissions Reduction Fund (ERF).

This is the Authority's third statutory review of the ERF. The scheme is now maturing and is established as an integral component of the Government's emissions reduction policies. It forms the architecture for crediting and purchasing of low-cost abatement across the economy, lowering the overall costs to the economy of reducing emissions.

Following a robust start, project activity and Government purchasing under the scheme slowed in the period 2017 to 2019. This appears to have been caused by several factors, including some uncertainty over future funding for the ERF prior to the Government announcement in 2019 of the Climate Solutions Fund. Stakeholders have raised concerns about prices offered for Australian Carbon Credit Units (ACCUs) and low levels of demand deriving from compliance with the Safeguard Mechanism and from voluntary markets. The Authority also heard concerns about high costs of participating in the scheme and the lack of methods for some activities.

Last year the Government established an Expert Panel (the King Review) to provide advice on unlocking additional low cost abatement opportunities across the country, including through the ERF. The Expert Panel's report recommended measures to lift the level of abatement activity under the ERF and the Government is proceeding to implement those. Implementation by the Clean Energy Regulator of optional delivery contracts has been very positively received in the market. The Government has also recently announced significant additional funding for the Regulator to establish a new emissions reduction trading platform and to reduce the time it takes for ERF methods to be developed and for projects to be registered.

The Authority has identified several additional measures that build on these initiatives and will help ensure the continuing success of the ERF. These measures aim to give ERF participants greater confidence over the future market for ACCUs and more involvement in the range of activities to be included in the scheme and how they are implemented. Preserving the integrity of the scheme, and hence its environmental effectiveness and the strong reputation of ACCUs, also remains very important.

For this review, the Authority commissioned the CSIRO to analyse the risks that the impacts of climate change pose to storing and maintaining carbon in the landscape under ERF methods. This work represents a vital step in understanding how the changing climate will affect our efforts to reduce emissions. It highlights that risks are present and will continue to grow. The Authority recommends more work be undertaken to allow the Government and ERF participants to better understand and manage these risks.



Dr Wendy Craik AM
Chair, Climate Change Authority

9 October 2020

EXECUTIVE SUMMARY

The Climate Change Authority is an independent statutory agency, established to provide expert, evidence-based advice to the Government on Australia's climate change policy. The Emissions Reduction Fund (ERF) is an emissions offsetting scheme combined with Government purchasing of abatement. The Authority is required to review the ERF every three years.

This review builds on the Government's response to the *Report of the Expert Panel examining additional sources of low cost abatement* (the King Review), which contains many recommendations designed to lift the level of abatement activity under the ERF, and the Government's first Low Emissions Technology Statement, which presents a vision of a prosperous Australia and focuses Government investment on new and emerging technologies. The Authority also drew on its recent research reports. *Prospering in a low-emissions world: An updated climate policy toolkit for Australia*, considers the role of the ERF within the toolkit of policies for achieving Australia's emissions reduction goals, while *Economic recovery, resilience and prosperity after the coronavirus*, identifies measures that could contribute to a 'triple-win' economic stimulus package in response to the economic impacts of COVID-19. This review focuses primarily on the operation of the ERF.

The ERF has been in place since 2014 and is maturing, with administrators and many project proponents now benefiting from several years of experience working with the scheme. It is a foundational element of the Government's approach to reducing emissions – generating local, low-cost carbon offsets, and establishing a market for those offsets. It also provides an architecture to support: voluntary action; Australian exporters competing in global markets, where there is an increasing focus on low emissions supply chains; and the pursuit of broader environmental, social and productivity benefits.

The ERF has been successful in activating low-cost abatement from the agriculture, land and waste sectors. Landholders are reaping the rewards of a relatively new income stream. Australia's carbon services industry is growing and the voluntary market for Australian Carbon Credit Units (ACCUs) is small but also growing as more major emitters set voluntary net zero emissions targets. ACCUs meet the best international practice integrity principles for carbon credits and are recognised globally.

Since the Authority's 2017 review the ERF has, for a variety of reasons, not contracted significant new amounts of abatement. Stakeholders have identified concerns about uncertainty over the Government's intentions regarding the purchasing of ACCUs the prices offered at ERF auctions and low levels of private sector demand from the compliance and voluntary markets. The Authority has also heard about challenges potential ERF projects face in relation to obtaining finance, high costs of participating in the scheme and the complexity, and lack, of ERF methods for some activities.

The most recent (September 2020) ERF auction result is promising – a turnaround that appears mainly attributable to the introduction of optional delivery contracts, which give sellers the security of a contracted price for abatement delivered to the Commonwealth and an option to instead sell their ACCUs elsewhere. The Authority has identified opportunities for further enhancing the operation of the ERF, addressing stakeholder concerns and building on the ERF's foundations, to ensure Australian industries have the flexibility to access carbon offsets as climate policy settings and the broader operating environment evolve, and to position Australia to participate successfully as the global economy transitions to net zero emissions.

Strengthening the demand signal for ACCUs

Government purchasing currently dominates the ACCU market, accounting for 95 per cent of ACCUs sold. Uncertainty about Government funding for the ERF has affected confidence in future demand and impeded decisions to develop new abatement projects. The announcement in early 2019 of the

Climate Solutions Fund provided a strong signal of the Government's intent, however stakeholders remain concerned that the funding could be diverted from the ERF to other low emissions initiatives.

There are several steps the Government can take to bolster what is currently a weak demand signal and improve the confidence of potential investors in ERF projects. These include making a stronger commitment to maintaining ERF funding levels, publishing an indicative range of the quantity of abatement the Government will seek to purchase each year, and highlighting as part of its annual emissions projection the total contribution the ERF is estimated to make to Australia's emissions reductions to 2030, through all potential sources of demand.

ACCUs are currently used by big emitters to offset emissions liabilities under the Government's Safeguard Mechanism and can be used to achieve voluntary carbon neutral status under the Government's Climate Active program. The ERF facilitates further demand from the voluntary private sector and state and territory governments through its crediting architecture. Demand from voluntary purchasers is small and ACCUs compete with cheaper international units, but are nonetheless prized for their high integrity, Australian origin and (in some cases) co-benefits. Voluntary demand is likely to continue to grow as companies set their own targets to manage their climate risks and meet demand for low-emissions products.

As an open trading economy, our prosperity depends on continued access to overseas markets, which will increasingly favour low- and zero-emissions products and services. High integrity offsets such as ACCUs can support Australian exporters' voluntary decisions to respond to changing consumer and investor preferences and meet 'green' labelling requirements and net-zero standards.

Other government programs at both the federal and state level are linking with the ERF and expanding the sources of demand for ACCUs, in the pursuit of broader environmental benefits. The Queensland Land Restoration Fund is an example. State-based commitments to achieve net zero emissions and state regulatory requirements linked to development approvals could also lead to increased demand for ACCUs over time. For example, the Western Australian Environment Protection Authority's guidelines on considering emissions when assessing environmental impacts for development proposals allow for offsetting of emissions with ACCUs and some other carbon units.

Global demand for carbon offsets is likely to grow as more major emitters set voluntary net zero targets and governments around the world tighten climate regulations. In the future, Australia could export ACCUs to countries transitioning to net zero emissions. The IPCC has found that negative emissions technologies—systems that remove greenhouse gases from the atmosphere—will be needed to achieve the temperature limitation goals of the Paris Agreement. Reforestation and bioenergy carbon capture and storage will play an important role. Australia's large, geologically stable land mass and highly-regarded offsets mechanism offer [enormous] potential to contribute to the global decarbonisation goal.

Enhancing support for ERF projects

In responding to the King Review, the Government is developing several measures to reduce the costs of participating in the ERF, encourage the participation of a wider variety of activities, including those of a smaller scale, and help project developers with high project start-up costs. The Authority encourages the Regulator to continue to explore ways to streamline ERF administrative processes and reduce transaction costs for participants.

The King Review identified a range of ERF activities for which projects have high establishment costs but are slow to generate abatement, which can be a barrier to obtaining finance. The Government has said that it will consult with stakeholders on the best mechanisms to encourage such projects, on a method by method basis. The Authority considers that there are several innovative financial mechanisms, such as concessional loans, blended finance or revenue-contingent loans, which could be deployed to address this problem and contribute to the economic stimulus package in response to

COVID-19, without raising risks to the integrity of the scheme. For example, concessional loans and grants could incentivise the deployment of transformative technology under the Safeguard Mechanism with less complexity, lower administrative costs, greater co-investment and fewer risks to the ERF than the introduction of a new carbon market instrument.

The Clean Energy Finance Corporation (CEFC) is already very familiar with sources of abatement across the economy and is well integrated in the private finance and investment market. It should be well-positioned to catalyse private sector participation and co-investment in the ERF. Technologies at an earlier stage of development, not yet ready for deployment through ERF methodologies, could be accelerated through other policy mechanisms, such as the recently re-funded Australian Renewable Energy Agency (ARENA). Information, outreach and support could also help overcome barriers to participation in the ERF.

Abatement opportunities under the ERF are limited by the methodologies available. While projects are registered under 27 of the available 34 methods currently available, a considerable majority of contracted abatement is concentrated in just 5 methods types. Methods have proven to be slow to develop and the Government has very recently announced its intention to reduce the time taken to develop new methods to 12 months. This should more quickly expand the range of activities eligible to be rewarded under the scheme. Given the complex and resource intensive nature of method development, it is important that those activities which offer the best mix of abatement potential, cost effectiveness and deployment readiness are given the highest priority. The Authority recommends a statement of priority emissions reduction activities for method development be published in conjunction with the annual Low Emissions Technology Statement. The preparation of this statement should include a formal consultation process.

Streamlining governance and upholding integrity

Maintaining the integrity of the ERF — ensuring that it is delivering genuine emissions reductions — is vital for the ongoing success of the scheme from an environmental perspective, as well as ensuring the scheme contributes to Australia's progress towards its emissions reduction targets. Integrity also lies at the heart of the value of the ERF in the voluntary market and acceptance of ACCUs in a global market. The right balance must therefore be struck between avoiding over-crediting and committing taxpayer funds to activities that would occur in any event, and foregoing genuine opportunities by under-crediting. The Authority considers that the scheme's Offsets Integrity Standards are fit-for-purpose and should be retained as they are. However, more can be done to provide greater certainty to ERF participants as to how the Standards are interpreted and applied.

The Emissions Reduction Assurance Committee (ERAC) plays an important role in upholding the integrity of the ERF. Increasing its resourcing, participation in method development and variation processes and access to administrative information on the operation of the scheme would further empower the Committee in its role.

The Government recently announced that responsibility for supporting the ERAC, together with leading on method development and variations, will shift from the Department of Industry, Science, Energy and Resources to the Clean Energy Regulator. The Regulator is already responsible for registering ERF projects, running ERF auctions and ensuring compliance with the scheme. The Authority considers that consolidating public officials with the relevant expertise in one place and formalising the integration of industry and scientific knowledge has the potential to remove inefficiencies. The Regulator will need review its probity checks and procedures to address potential conflicts of interest that arise given its broadened responsibilities under the scheme.

Many submissions have raised the need for greater, more structured involvement of stakeholders and external technical expertise in ERF method development. Establishing a formal Steering Committee to advise on method processes could bolster resources and better harness valuable expert and scientific input. This can be combined with a stakeholder engagement plan for ensuring appropriate

participation from industry and other stakeholder and third-party experts, to ensure all relevant views are reflected in the course of method development.

ERF methods, rules and tools need to keep pace with developments in science and technology to ensure that estimates of emissions reductions are as accurate as is practical and the integrity of ACCUs is maintained. Some activities found to be additional now won't be in the future, as markets and technologies change, while some that do not meet additionality requirements may do so in the future. As a result, the activities that can currently generate genuine abatement and are eligible under the ERF will change over time. However, changes made by the Government to the scheme to reflect such developments can have a material impact on a project's abatement potential and business viability, thereby posing risks to project proponents and undermining confidence in the scheme. The Authority supports the Government's work to develop a robust and transparent framework for risk sharing between the Government and ERF project owners to address this issue. Such a framework would enhance the confidence of investors in ERF activities.

Building greater climate resilience

Australia is already experiencing the effects of a variable and changing climate on the agriculture and land sectors. Land-based sequestration activities are subject to natural processes and climate variations which affect their ability to accumulate and store carbon. The Authority engaged the CSIRO to examine the risks from climate change to storing and maintaining carbon in the landscape under ERF methods.

The CSIRO found that of the identified risks, drought-induced stress and mortality, heat stress limiting plant growth and contributing to mortality, and increased aridity/reduced soil water availability were the most commonly occurring risk factors. More research is needed on the potential impacts of pests and diseases, and changes to exposure to frost.

Among ERF activities, management of agricultural soils and the planting of new forests were found to be most at risk, followed by savanna fire management, management of intertidal ecosystems and re-establishment of native forest cover. The Authority recommends prioritising research efforts for these sectors and activities, including to identify whether the relevant ERF methods can be adjusted to further alleviate exposure to carbon loss.

The Government's Climate Compass framework could be used to assess risks of underperformance against expected abatement at the project and portfolio levels, as well as more broadly in relation to method prioritisation, development and review. The ERF scheme has mechanisms to manage some risks, such as a 'risk of reversal buffer' and 'permanence period discount'. These should be reviewed to ensure they are aligned with the best available science and are appropriately calibrated, within each method, to guard against risk of carbon losses in land-based sequestration projects. The Regulator can also play a role in helping project proponents to identify and manage risks.

LIST OF RECOMMENDATIONS

The Climate Change Authority's 2020 Review of the Emissions Reduction Fund is building on:

- the Government's response to the *Report of the Expert Panel examining additional sources of low cost abatement* (the King Review), which contains many recommendations designed to lift the level of abatement activity under the ERF
- the Government's first Low Emissions Technology Statement, which presents a vision of a prosperous Australia and focuses government investment on new and emerging technologies
- the Authority's recent research reports, *Prospering in a low-emissions world: An updated climate policy toolkit for Australia*, which sets out how Australia can further develop its policies to take advantage of the opportunities of a global low-emissions economy and *Economic recovery, resilience and prosperity after the coronavirus*, which identifies measures that could contribute to a 'triple-win' economic stimulus package in response to the economic impacts of COVID-19.

Recommendations

Chapter 4 The carbon credit market

Recommendation 1

To strengthen the market demand signal for ACCUs, the Government:

- incorporate within its annual emissions projections an estimate of the total contribution the ERF is projected to make to emissions reductions to 2030 through all potential sources of demand for ACCUs (e.g. Government purchasing, state and territory programs, compliance and voluntary markets)
- publish an indicative range for annual Government purchases of ACCUs for four years ahead, to be updated each year
- commit to maintaining announced aggregate funding levels for the ERF in rolling four year blocks.

Recommendation 2

To realise abatement opportunities in industrial facilities, leverage co-investment and avoid risks to the ACCU market, the Government's low-emissions technology incentive scheme make Safeguard Mechanism Credit - concessional loans bundled with grants and tax incentives - available to Safeguard-covered facilities undertaking transformative, below-baseline abatement projects.

If designed as a carbon market mechanism, and noting the King Review recommendation that the incentive scheme not be an offsets scheme, consideration be given to mitigating risks to the ACCU market by:

- ensuring below-baseline carbon credits (SMCs) are:
 - allocated for emissions reductions that meet a 'transformative project' threshold, for example by setting crediting baselines well below compliance baselines
 - saleable only to the Government and to entities under the Safeguard Mechanism for the purpose of complying with Safeguard obligations (and not otherwise fungible with ACCUs)
- allowing banking of SMCs for use in future years only after an assessment of the outcomes of the initial pilot phase
- funding any Government purchase of SMCs separately from amounts already allocated to the CSF for the purchase of ACCUs
- giving future consideration to implementing declining baselines with clear trajectories, to maintain demand for ACCUs and SMCs (for example, as technology evolves) and enhance co-investment in both schemes.

Recommendation 3

To enhance private demand for ACCUs, consider ways to incentivise voluntary purchasing, including for use under the Government's voluntary carbon neutral scheme, *Climate Active*. For example, in collaboration with industry representatives:

- develop a tiered labelling scheme similar to the Australian Made brand that would enable companies seeking to become carbon neutral to promote those offsets that were sourced from a) ACCUs or b) ACCUs with social/biodiversity co-benefits
- establish annual awards that recognise companies that source for voluntary mitigation action the most carbon offsets in the form of ACCUs.

Recommendation 4

To facilitate innovative co-financing of ERF projects, particularly those with high upfront costs, the Regulator, CEFC and ARENA collaborate to align the ERF with the broader suite of Commonwealth, state and territory government climate initiatives and the growing sustainable private finance market.

Recommendation 5

To facilitate market certainty and encourage industry participation, publish a statement of priority emissions reduction activities for method development, in conjunction with the annual Low Emissions Technology Statement.

For each prioritised activity, the statement should reference considerations for prioritising activities as set out in the published document *Making methods under the ERF*, namely:

- potential uptake of the activity and likely volume of abatement
- whether the activity is technology proven and commercially ready
- whether emissions reductions could be estimated with a reasonable degree of certainty in a cost-effective way
- whether the activity could have adverse social, environmental or economic impacts
- alternative ways to promote the activity more effectively and efficiently

The publication of the statement of priorities be preceded by a formal consultation process for stakeholders to be able to recommend priority activities to the Minister.

Recommendation 6

To inform and enhance its actions to reduce transaction costs and streamline administrative processes, the Regulator undertake a benchmarking exercise and publish information on indicative administrative and operational costs involved in establishing and undertaking different types of ERF projects. The benchmarking exercise should compare the transaction costs of projects under the ERF with those under other Government programs.

Recommendation 7

To encourage greater participation in the ERF, the Regulator continue to explore ways to streamline ERF processes and reduce transaction costs for scheme participants, while continuing to uphold the Offsets Integrity Standards.

Chapter 5 Maintaining integrity

Recommendation 8

To maintain the reputation of Australia's high integrity carbon offsets market, the Offsets Integrity Standards remain unchanged.

To promote certainty and transparency on how the ERAC interprets the Offsets Integrity Standards, the ERAC reference the Information Paper: '*Committee considerations for interpreting the Emissions Reduction Fund's Offsets Integrity Standards*' in its decisions and ensure it is readily accessible to stakeholders.

Recommendation 9

To enhance opportunities and flexibility for project proponents, the 'newness requirement' be amended to allow project activities to commence from the time of submission of a project application, rather than when the project is declared eligible.

Recommendation 10

To allow greater scope for project planning, the Regulator identify within methods (under development or variation) any planning actions to be excluded from the 'newness requirement', with the ERAC providing assurance that this does not jeopardise additionality.

Recommendation 11

To support potential ERF projects with high upfront costs while upholding the integrity of the scheme, the Government explore innovative financing approaches on a method by method basis, for example concessional loans (see also Recommendation 4), rather than using compressed crediting.

Chapter 6 Optimising governance for a mature Emissions Reduction Fund

Recommendation 12

To ensure ongoing confidence in the administration of the ERF under consolidated responsibilities, the Regulator build on its existing probity and governance measures by:

- maintaining separate decision makers, including at senior executive level, for each of its key functions – method development and variation; compliance and enforcement; and crediting and purchasing of ACCUs
- obtaining independent probity advice on the operation and separation of the key functions.

The Australian National Audit Office undertake a performance audit after the first two years of the consolidation of functions within the Regulator.

Recommendation 13

To give industry a greater opportunity to contribute to the development of new methods and increase transparency, the Government consider establishing a Steering Committee under a regulatory instrument to the CFI Act to oversee method development and variations. The Steering Committee should comprise representatives of the CSIRO, the Department (including from the National Greenhouse Gas Inventory team), the Regulator, the carbon industry, and as an observer, the ERAC.

To enable relevant industry, scientific, carbon market, carbon sequestration and emissions avoidance experts to participate, the Steering Committee convene working groups on a method specific basis.

To strengthen industry participation, the Committee develop and publish a stakeholder engagement plan.

Recommendation 14

To assist the ERAC to perform its functions and duties as set out in the CFI Act, the Regulator establish an enhanced agreement with the ERAC on the disclosure of requested information, including a timeline for provision of requested information and the manner in which to treat protected information.

Recommendation 15

To enable it to efficiently maintain the quality of ERF methods, the ERAC develop a framework for prioritising its periodic method reviews, taking into account the current and likely future uptake of the method, the complexity of the method, the likelihood of breaches of compliance with the Offsets Integrity Standards and any relevant legislative rule changes.

Recommendation 16

To enable crediting periods to be based on up-to-date information, the Government amend the CFI Act to allow the Minister to extend a crediting period, based on advice from the ERAC, regardless of whether the ERAC had previously advised against an extension.

Recommendation 17

To align with best practice, the Government, following a formal consultation process with Indigenous stakeholders, amend the CFI Act to ensure free, prior and informed consent from native title holders prior to the registration of area-based ERF projects on native title land.

Chapter 7 Method and tool variation risk sharing framework

Recommendation 18

To deliver fair outcomes as changes to methods are implemented, the Government's ERF risk sharing framework (currently under development) include guidance on the circumstances under which:

- variations and changes (to methods, rules, tools and guidance material) will apply to existing activities
- support will be made available to mitigate negative impacts cause by amendments that affect existing projects
- scheme participants will be required to transition to updated methods.

Chapter 8 Risk of under-delivery of contracted abatement

Recommendation 19

To encourage delivery on ERF contracts, the standard contractual terms for future fixed delivery contracts:

- apply commercial contractual damages where non-delivery was not a result of *force majeure*
- minimise variations in delivery without cause.

Recommendation 20

To incentivise new projects, the Government adopt contract terms that ensure new fixed delivery contracts are filled predominantly using ACCUs from new ERF projects rather than projects that have already fulfilled ERF contracts (post-contract supply).

Chapter 9 Climate risks to carbon sequestration under the Emissions Reduction Fund

Recommendation 21

To enhance climate risk management, the Department and the Regulator:

- undertake climate risk assessments of the ERF scheme using an iterative climate risk management framework such as the Government's Climate Compass framework.
- use the findings of these assessments and existing scientific information to prioritise investment in further data and research to help governments, scheme participants and businesses to understand and manage climate-related risk.

Recommendation 22

To manage costs associated with climate risk, assess whether the current risk of reversal buffer and permanence period discount are appropriately calibrated for different sequestration activities and regions, and adjust them as the climate continues to change and understanding of climate impacts improves. Risk factors should include activity type, geographic location and climate conditions.

Chapter 10 Building a climate resilient and sustainable Emissions Reduction Fund

Recommendation 23

To encourage more participation in the ERF and best practice implementation of ERF projects, including climate resilience:

- develop tailored, region-specific outreach programs for the land and agricultural sectors, in collaboration with other Government programs, for example the Future Drought Fund
- publish voluntary best practice guidance for ERF projects, including resilience, noting that these would need to be method and region specific.

CHAPTER 1: INTRODUCTION TO THIS REVIEW

1.1 About this review

The Climate Change Authority is an independent statutory agency, established to provide expert, evidence-based advice on Australia's climate change policy.

The Authority is required to review the Emissions Reduction Fund (ERF) every three years and previously reviewed the ERF in 2014 and 2017. The requirement to review the ERF is set out in the *Carbon Credits (Carbon Farming Initiative) Act 2011* (Cth) (CFI Act), which gives effect to the Emissions Reduction Fund. The CFI Act states that the Authority must conduct reviews of the operation of the Act, regulations and other instruments under the Act, such as ERF methods.

The ERF has three elements: crediting emissions reductions; purchasing emissions reductions; and the Safeguard Mechanism. This review covers the crediting and purchasing aspects of the ERF. The Safeguard Mechanism is covered by the *National Greenhouse and Energy Reporting Act 2007* and was reviewed by the Authority in 2018 as part of the legislative requirements of that Act. The Authority will review the Safeguard Mechanism again in 2023 and therefore only examines elements of the Safeguard Mechanism in this review insofar as they impact on the ERF.

In 2017, the Authority conducted a detailed operational review of the ERF and generally found it to be performing well at the time. This was due in a large part to the scheme's in-built mechanisms for ensuring environmental integrity and sound administration by the Clean Energy Regulator (Regulator). The Authority made 26 recommendations to further enhance and streamline the ERF. The Government accepted the majority of the Authority's recommendations from that review and has taken steps to enact them (Appendix C). The Authority has not revisited its recommendations from 2017 which are being addressed, unless there is a particular need to do so.

In this review, the Authority has examined the performance of the ERF by considering the extent to which the ERF is meeting its objectives to deliver emissions reductions. The Authority's consultation and analysis has led to a focus on three broad themes:

- increasing the ERF's contribution to reducing Australia's emissions, by bolstering the demand for, and the supply of, Australian Carbon Credit Units (ACCUs), while maintaining the scheme's integrity
- improving the operation of the scheme through enhancing the governance arrangements
- proactively managing risk including climate-related risk.

1.2 Interaction with other Government processes

Between 2017 and 2019, there had been a noticeable reduction in the amount of abatement added to the Government's ERF contract portfolio. The decline was likely due to several factors which are discussed in this report and are the subject of a number of recent Government processes, most notably an Expert Panel commissioned to examine additional sources of low-cost abatement (the King Review) and a work program underway by the Regulator to boost participation in the ERF.

In May 2020, the King Review was released together with the Government's response. The King Review made 26 recommendations that covered improving the ERF, unlocking new technologies, and incentivising voluntary action. Several King Review recommendations are consistent with what the Authority has previously recommended on the ERF, as shown in Appendix D.

In this review, the Authority has mainly focussed on issues that are not explicitly being addressed through other processes and has not duplicated analysis done by the King Review nor

comprehensively evaluated the King Review recommendations. This review presents the Authority's views on the implementation of some of the recommendations, especially where the Government has indicated further stakeholder consultation will be undertaken and/or the recommendations intersect with the key themes of this review or issues have been raised by stakeholders.

1.3 Principles for this review

The *Climate Change Authority Act 2011* (Cth) requires the Authority to have regard to the following principles when assessing the relative merits of emissions reduction policies:

- economic efficiency
- environmental effectiveness
- equity
- the public interest
- the impact on households, business, workers and communities
- support for the development of an effective global response to climate change
- consistency with Australia's foreign policy and trade objectives.

These principles guide this review of the ERF. Further desirable characteristics of emissions reduction policies were identified by the Authority in its recent report *Prospering in a low-emissions world: An updated climate policy toolkit for Australia* (CCA 2020a). The following desirable characteristics are particularly relevant to this review - that the ERF:

- is credible, durable and as simple as practical
- is coherent with other policies
- complements adaptation responses.

This is a review of the operation of the *Carbon Credits (Carbon Farming Initiative) Act 2011* (Cth) and its subordinate legislation, which means the objects of the CFI Act also provide guidance for the review. The objects are to:

- remove greenhouse gases from the atmosphere, and avoid emissions of greenhouse gases, in order to meet Australia's obligations under international agreements
- create incentives for people to carry on certain offset projects
- increase emissions reductions in a way that is consistent with the protection of Australia's natural environment and improves resilience to the effects of climate change
- authorise the purchase by the Commonwealth of units that represent emissions reductions.

1.4 Public consultation

The Authority consulted widely as part of this review and thanks all individuals and organisations that contributed, especially given the difficulties created by the COVID-19 pandemic.

Stakeholders contributed their views through roundtable discussions and individual meetings held via teleconference and videoconference.

Fifty-one submissions were received in response on the consultation paper released in April 2020 (Appendix A). Non-confidential submissions can be found on the Authority's website at <https://www.climatechangeauthority.gov.au/public-consultation>.

The Authority took account of earlier relevant consultation, including submissions to its *Prospering in a low emissions world* report, published in March 2020, and submissions made to the King Review that are publicly available or were provided to us by stakeholders.

CHAPTER 2: OVERVIEW OF THE EMISSIONS REDUCTION FUND

The ERF is a voluntary scheme designed to incentivise a range of organisations and individuals to reduce their greenhouse gas emissions. The *Carbon Credits (Carbon Farming Initiative) Act 2011*, together with the *Carbon Credits (Carbon Farming Initiative) Regulations 2011* and the *Carbon Credits (Carbon Farming Initiative) Rule 2015*, implements the crediting and purchasing elements of the ERF.

Under the crediting mechanism, registered projects that comply with an approved ERF method can earn Australian Carbon Credit Units (ACCUs) for emissions reductions. One ACCU is earned for each tonne of carbon dioxide equivalent stored or avoided by a project.

ACCUs can be sold to earn income. The Australian Government, through the Regulator, purchases ACCUs from registered projects. To date, the Regulator has purchased ACCUs through reverse auctions. ACCUs can also be sold on the secondary market.

The Safeguard Mechanism aims to set regulatory limits on high emitters so that emissions reductions secured through ERF crediting and purchasing are not offset by significant increases in emissions above business as usual levels elsewhere in the economy. While it is an element of the ERF, the Safeguard Mechanism functions largely as a separate scheme.

2.1 Overview of the Emissions Reduction Fund

The ERF evolved from the Carbon Farming Initiative (CFI)—a voluntary offsets scheme designed to support compliance with the Australian Government’s Carbon Pricing Mechanism. The CFI operated between 2011 and 2014. Companies could use offsets to meet their obligations under the Carbon Pricing Mechanism by purchasing ACCUs from the land sector and landfill projects under the CFI (Parliament of Australia 2011; CER 2015a). An ACCU represents one tonne of carbon dioxide equivalent (tCO₂-e) stored or avoided by a project.

In 2014, the Government repealed the Carbon Pricing Mechanism and amended the CFI legislation to establish the ERF. The ERF credits greenhouse gas abatement that results from additional, project-level action. The biggest change to the scheme was the shift in emphasis away from private purchasing of carbon credits. Instead demand would primarily come from the Government, which would purchase ACCUs via the ERF purchasing mechanism to help Australia meet its international commitments.

The scheme was opened up to a wider range of activities to drive abatement across different sectors of the economy. The Offsets Integrity Standards of the CFI remained to ensure the Government purchased genuine and additional abatement.

Crediting mechanism

Under the crediting mechanism, the ERF issues ACCUs to businesses, organisations, local councils and individuals that successfully undertake an emissions reduction project registered with the Regulator (Figure 2.1).

There are currently 34 approved methods under which projects can be registered (Appendix E). There are methods for the following types of activities:

- vegetation management
- agriculture

- savanna fire management
- waste and wastewater management
- energy efficiency
- industrial facilities
- mining, oil and gas
- transport.

ERF methods specify the type of emissions avoidance or carbon storage activities¹ that need to be undertaken by an ERF project and lay out the rules for estimating emissions reductions. The methods have been developed on behalf of the Minister by the Department of Industry, Science, Energy and Resources (the Department). However, the function of method development has recently moved to the Clean Energy Regulator (Regulator) and the Department retains its role in advising the Minister on making and varying methods (Chapter 6). The Minister then approves the method via a Ministerial determination, once the independent Emissions Reduction Assurance Committee (ERAC) confirms that the method complies with the legislated Offsets Integrity Standards (Chapter 5: Maintaining Integrity). All methods under the ERF accredit emissions avoidance or carbon storage that can be used to meet Australia's international emissions reduction commitments.

Projects must be registered with the Regulator to participate in the ERF and earn ACCUs (Figure 2.1). To be registered, a project must comply with the relevant legislative rules, including adhering to the particular ERF method governing the activity to be undertaken by the project. Projects must also comply with relevant state planning and environment laws. In addition, land-based projects must receive consent from Eligible Interest Holders, such as native title holders, governments (for projects on Crown land), and banks. Projects that are in the process of obtaining Eligible Interest Holder consent are able to be conditionally registered. If they subsequently fail to receive consent, then project registration is revoked (Chapter 6). Registration can also be revoked if projects fail to meet other requirements.

Purchasing mechanism

The second element of the ERF is the purchasing mechanism. The Australian Government can purchase ACCUs from scheme participants who have registered an ERF project with the Regulator.

To date, the Regulator has purchased ACCUs by contracting abatement through reverse auctions, although it can also purchase ACCUs through other means that meet the principles in the Act. For reverse auctions participants submit a bid to the Regulator that includes the price and volume of ACCUs and the timeframes for delivery. A bid's success is based on its contribution to lowest cost abatement, and successful bidders receive the price they specify in their bid. The Regulator has held 11 auctions since it began and contracted for approximately 200 million tonnes of abatement (CER 2020a).

The Regulator currently contracts with successful auction bidders using two types of contracts: fixed delivery and optional delivery contracts. Fixed delivery contracts have been used for all 11 auctions. In March 2020, for auction 10, an optional delivery contract was piloted. Following an evaluation of the pilot, this contract type was offered at auction 11 in September 2020 and will be offered at future auctions. The contract terms for the two types of contracts are set out in Table 2.1.

¹ Emissions avoidance activities refer to those activities that avoid greenhouse gases being emitted. Carbon storage (or sequestration) activities are those that remove greenhouse gases from the atmosphere by storing it in living biomass, dead organic matter or soil.

TABLE 2.1: CONTRACT TERMS FOR FIXED DELIVERY AND OPTIONAL DELIVERY CARBON ABATEMENT CONTRACTS

| CONTRACT TERMS | FIXED DELIVERY | OPTIONAL DELIVERY |
|---|----------------|-------------------|
| Multi-year contract | ✓ | ✓ |
| Fixed price | ✓ | ✓ |
| Obligated to deliver ACCUs to the Regulator | ✓ | - |
| Can deliver ACCUs derived from any ERF project | ✓ | - |
| Must deliver ACCUs from a single identified ERF project | - | ✓ |
| Only available for ERF projects that are new or have not been previously contracted | - | ✓ |
| Reduced total outstanding quantity where a scheduled delivery is not made | - | ✓ |
| Can have conditions precedent | ✓ | - |
| Short term and immediate delivery ² | ✓ | ✓ |

Source: CER 2020b

Safeguard Mechanism

The Safeguard Mechanism is designed to ensure that emissions reductions secured through ERF crediting and purchasing are not offset by significant increases in emissions above business as usual levels elsewhere in the economy. The mechanism is established in the *National Greenhouse and Energy Reporting Act 2007* (Cth) (NGER Act) and commenced on 1 July 2016.

The Safeguard Mechanism operates by setting baselines, or regulatory limits, for facilities that directly emit over 100,000 t CO₂-e a year in the electricity generation, mining, oil, gas, manufacturing, transport, construction and waste sectors. If a facility's direct emissions exceed its baseline, businesses are able to purchase ACCUs generated by ERF projects to offset emissions above the baseline. They can also take steps to reduce their emissions.

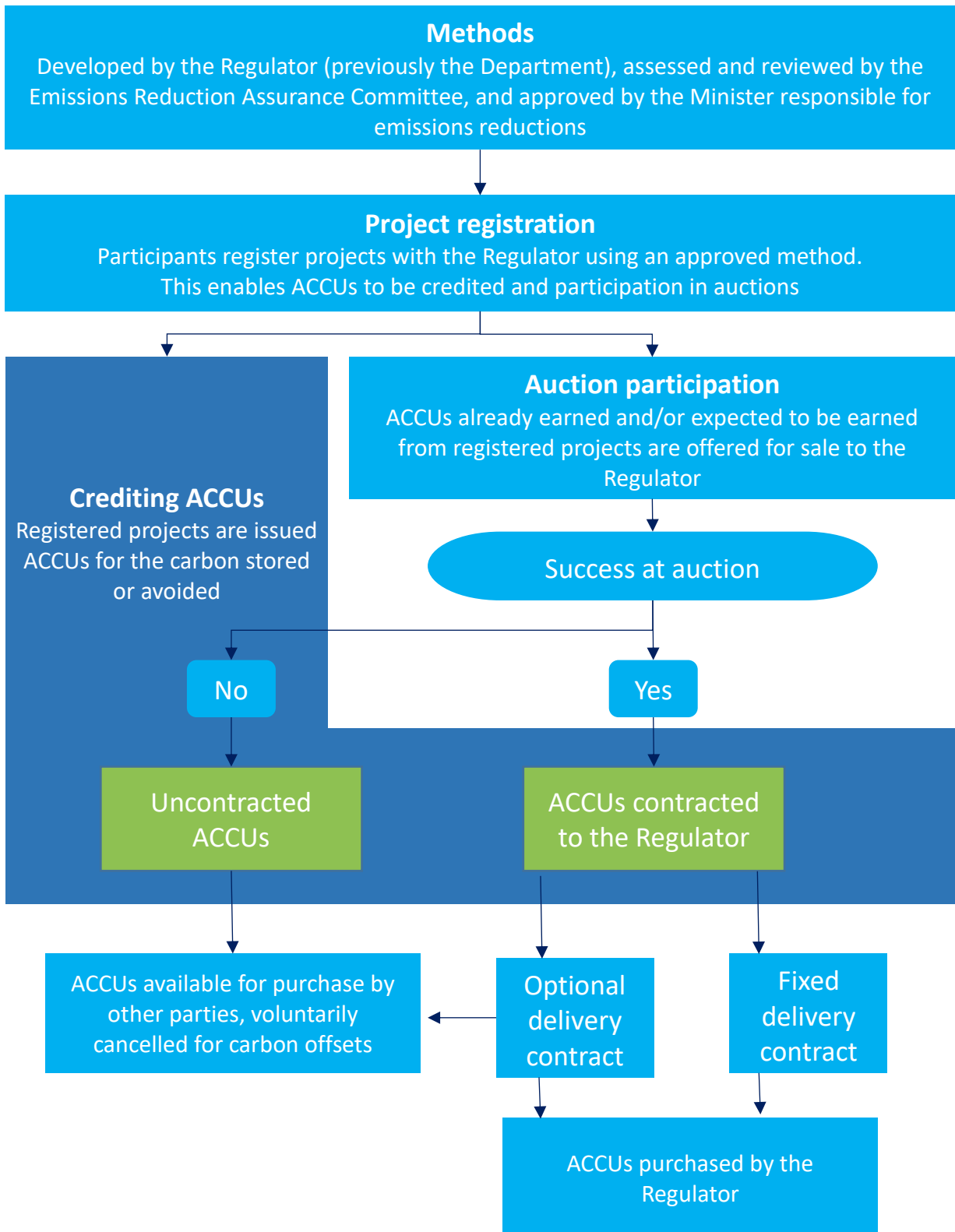
² A short-term contract refers to any contract term with multiple deliveries over a period less than the standard contract length of 7 or 10 years. An immediate delivery contract refers to an agreement in which the nominated ACCUs are available in the applicant's Australian National Registry of Emissions Units (ANREU) account at time of auction registration and will be delivered within 30 calendar days of the auction.

In 2018–19, the Safeguard Mechanism applied to 210 facilities³ and covered 144 Mt CO₂-e of emissions. All facilities complied with their Safeguard obligations, including through facilities surrendering ACCUs, representing 0.19 Mt CO₂-e (CER 2020c).

While it is an element of the ERF, the Safeguard Mechanism functions largely as a separate scheme. It is not considered in this review except insofar as it plays a role in generating demand for ACCUs.

³ This figure does not include grid connected electricity generators, which are covered by a sectoral baseline.

FIGURE 2.1: CREDITING AND PURCHASING MECHANISMS UNDER THE ERF



CHAPTER 3: PERFORMANCE OF THE EMISSIONS REDUCTION FUND

As of September 2020 the Regulator had a portfolio of 498 carbon abatement contracts to purchase approximately 200 million ACCUs at a committed cost of \$2.4 billion (CER 2020d). Eighty-two per cent of total contracted abatement is attached to projects from vegetation, agriculture and savanna burning activities; 13 per cent is from landfill and waste; and 5 per cent is from methods covering the rest of the economy.

There has been a revival in the growth of the contract portfolio in 2020. The Regulator has signed 47 contracts: 37 optional delivery contracts for 7.7 million tonnes, and a further one million tonnes is contracted to the Government under 10 fixed delivery contracts. This followed a significant slowing in growth of contracted abatement between 2017 and 2019. Since the 2017 ERF review a net 16 million tonnes of abatement (new contracts entered into less newly lapsed or terminated contracts) have been added to the Government's portfolio (8 per cent of the total).

Of the 200 million ACCUs committed under contract: 58.8 million tonnes (29 per cent) have been delivered and 141 million tonnes (71 per cent) are scheduled for delivery.

3.1 Crediting abatement

Methods and registration of ERF projects

At the time of publication, projects are registered under 27 of the 34 ERF methods (table 3.1).⁴ Since the Authority's 2017 review, five new methods have been made and five have been revoked, leaving the overall number of methods available the same as in 2017 (DISER 2020a; CCA 2017a).⁵ There has been a small expansion in the types of activities available under the ERF; although most new methods have updated and replaced previous similar methods.

As of 13 September 2020, there are 855 projects registered under the ERF. Since the Authority's 2017 review, 285 new projects have been registered and 113 projects have been revoked, leading to a net increase of 172 projects over the three year period (Table 3.1).⁶

⁴ There are another thirteen methods that currently have projects registered under them but are no longer open to new project registrations.

⁵ The new methods are for measured soil carbon in agricultural systems, savanna fire management (emissions avoidance), savanna fire management (sequestration and emissions avoidance), management of animal effluent and industrial equipment. The revoked methods are for measured soil carbon in grazing systems, savanna fire management and three methods on managing emissions from animal effluent.

⁶ 16 November 2017 to 13 September 2020.

TABLE 3.1: NUMBER OF CURRENT ERF METHODS AND REGISTERED PROJECTS

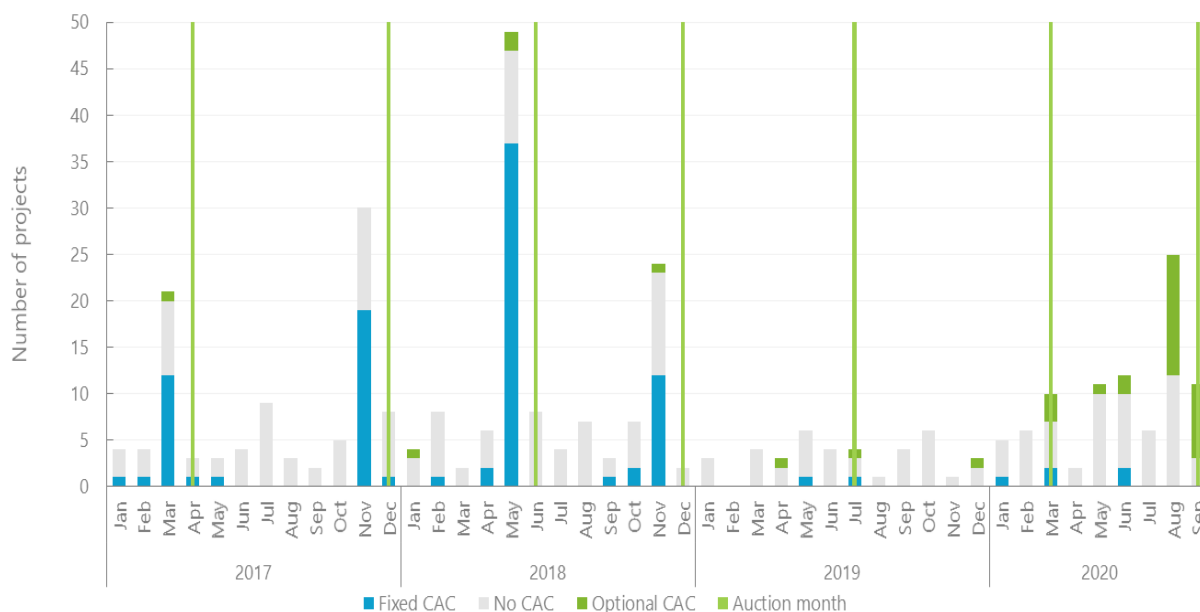
| Activities | Methods* | | Projects |
|----------------------|-------------------|---|---|
| | Number of methods | Number of methods without registered ERF projects | Number of registered projects (net change since 2017) |
| Vegetation | 9 | 0 | 494 (135) |
| Waste and wastewater | 4 | 0 | 141 (7) |
| Agriculture (soil C) | 2 | 1 | 64 (36) |
| Agriculture (other) | 5 | 4 | 20 (3) |
| Savanna burning | 2 | 0 | 76 (4) |
| Industrial fugitives | 2 | 1 | 9 (-5) |
| Energy efficiency | 7 | 1 | 44 (-7) |
| Transport | 2 | 0 | 5 (-2) |
| Facilities | 1 | 0 | 2 (1) |
| Total | 34 | 7 | 855 |

Note: Methods included in the first two columns of the table are those that are currently open to new projects. The last column includes projects for methods that are now closed to new projects, and excludes projects that have been revoked. The numbers in brackets are net change compared to November 2017, taking into account new projects and revoked projects. Data as at 13 September 2020.

Source: Climate Change Authority based on CER 2020e, DISER 2020a. Comparison is with Table 2 CCA 2017a.

In 2017 and 2018, project registration peaked in the lead up to an auction, but this was followed by a significant slowing of the rate of project registration in 2019 (Figure 3.1). Project registration has risen again before the second auction in 2020. This may reflect the higher average price offered for ACCUs at auction 10 in March 2020, the introduction of optional delivery contracts and the recent introduction of upfront payments for soil carbon projects which has driven an increase in soil carbon project registrations. Both of these developments were welcomed by stakeholders to this review (e.g. ICIN, EDL).

Figure 3.1. ERF projects registered by month 1 Jan 2017 - 1 September 2020



Note: Figure 3.1 indicates auction months and projects with and without carbon abatement contracts (CAC) excluding lapsed/terminated contracts. Three projects with both fixed and optional contracts are counted twice – they are in June 2020 and March 2020.

Source: MAG 2020.

ACCUs issued to registered ERF projects

As of 13 September 2020, 82.6 million ACCUs have been issued to approximately 60 per cent of registered projects (499 projects).⁷ The greatest volume of emissions reductions under the ERF comes from vegetation management, which accounts for 55 per cent of ACCUs issued to ERF projects. Most are from methods that credit carbon storage from regrowth of vegetation (human-induced regeneration) or from preventing land clearing (avoided deforestation). Other activities successful in driving down emissions include waste (31 per cent of ACCUs issued) and savanna burning (10 per cent of ACCUs issued).

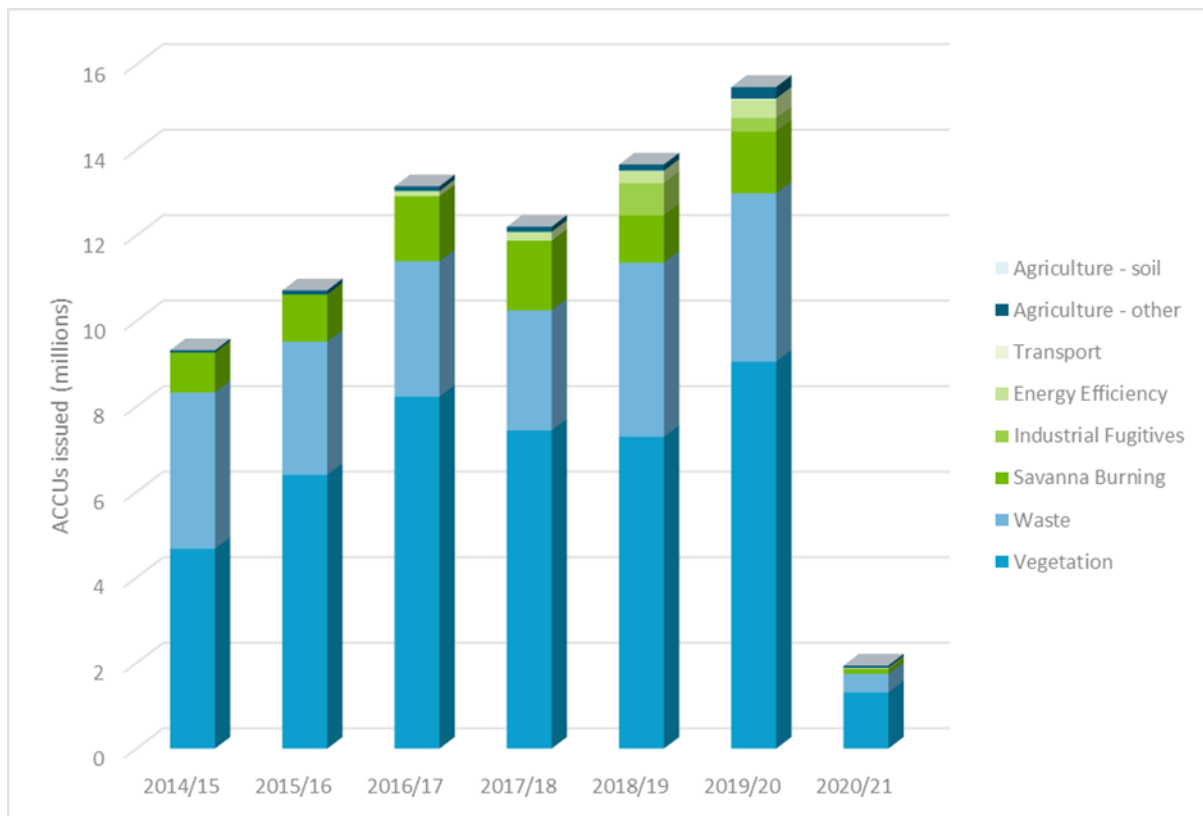
There has been little uptake or crediting under methods relating to transport, industrial fugitives and energy efficiency. Combined, these activities account for less than 3 per cent of ACCUs issued. Since the Authority reviewed the ERF in 2017, there has been a further concentration in the number of both registered and contracted ERF projects in vegetation activities (CCA 2017a, CER 2020e, CER 2020a).

The annual issuance of ACCUs has trended upwards from 9.3 million ACCUs in 2014-15 to 15.5 million ACCUs in 2019-20 (Figure 3.2).⁸ This is the highest issuance since the ERF began. The Regulator anticipates that for the 2020 calendar year more than 16 million ACCUs will be issued (CER 2020f).

⁷ This includes ACCUs generated under the original Carbon Farming Initiative from 2012. About 10 million ACCUs were issued under the CFI and many CFI projects transitioned to the ERF and continued to generate ACCUs under the ERF.

⁸ Around 10 million ACCUs were issued from 2012 until mid-2014 under the Carbon Farming Initiative (predecessor of the ERF).

FIGURE 3.2 VOLUME OF ACCUS ISSUED EACH YEAR BY METHOD TYPE



Note: Graph does not include relinquished units or ACCUs issued under the Carbon Farming Initiative in years 2012/13 and 2013/14.

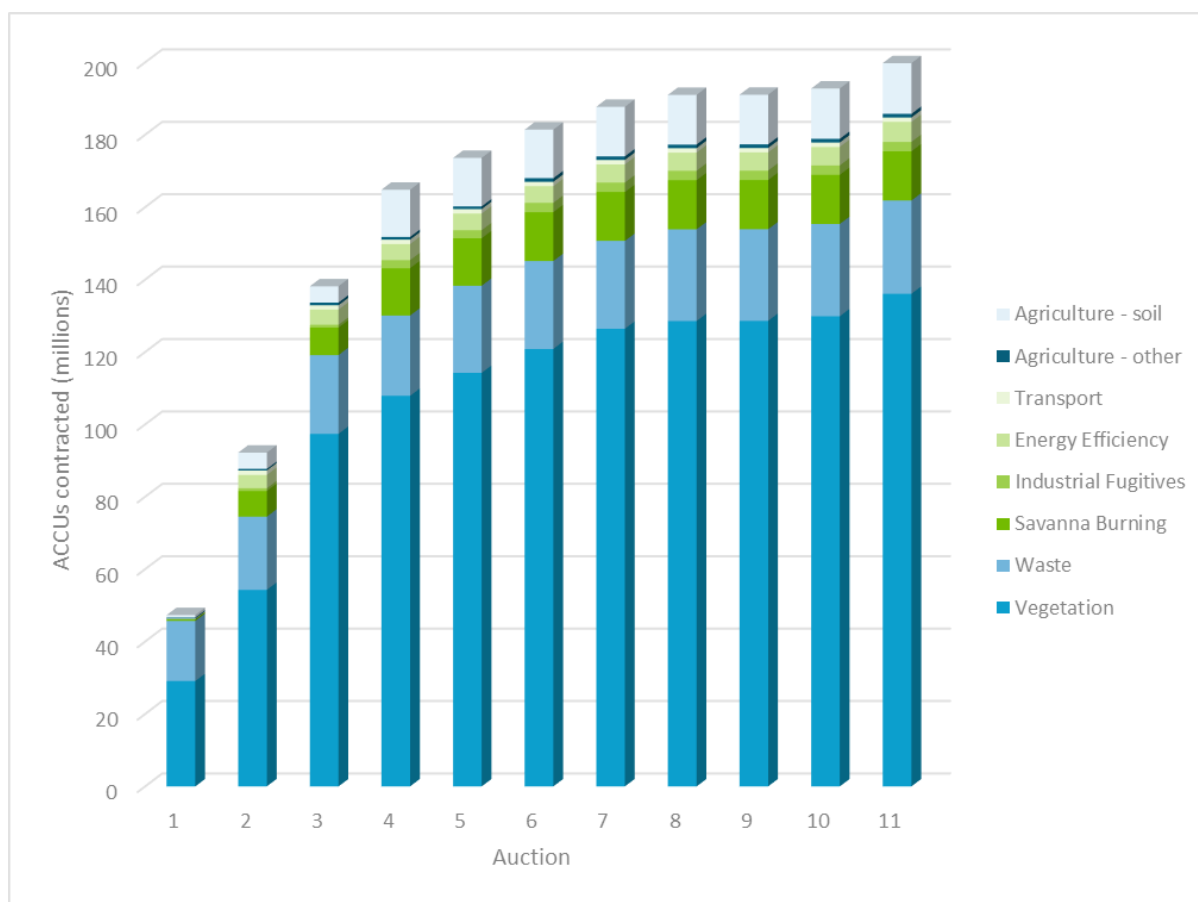
Source: CER 2020e. Data correct at 18 September 2020.

3.2 Government purchasing

Government abatement contract portfolio

As of 13 September 2020, following auction 11, the Regulator had a portfolio of 498 abatement contracts to purchase approximately 200 million ACCUs at a committed cost of \$2.4 billion (CER 2020d). Eighty-two per cent of total contracted abatement is attached to projects from vegetation, agriculture, savanna burning activities; 13 per cent is from landfill and waste; and 5 per cent is from methods covering the rest of the economy (Figure 3.3, CER 2020a).

FIGURE 3.3. CUMULATIVE VOLUME OF CONTRACTED ABATEMENT BY METHOD TYPE



Note: Excludes lapsed/terminated contracts. Graph shows fixed and optional delivery contracts.

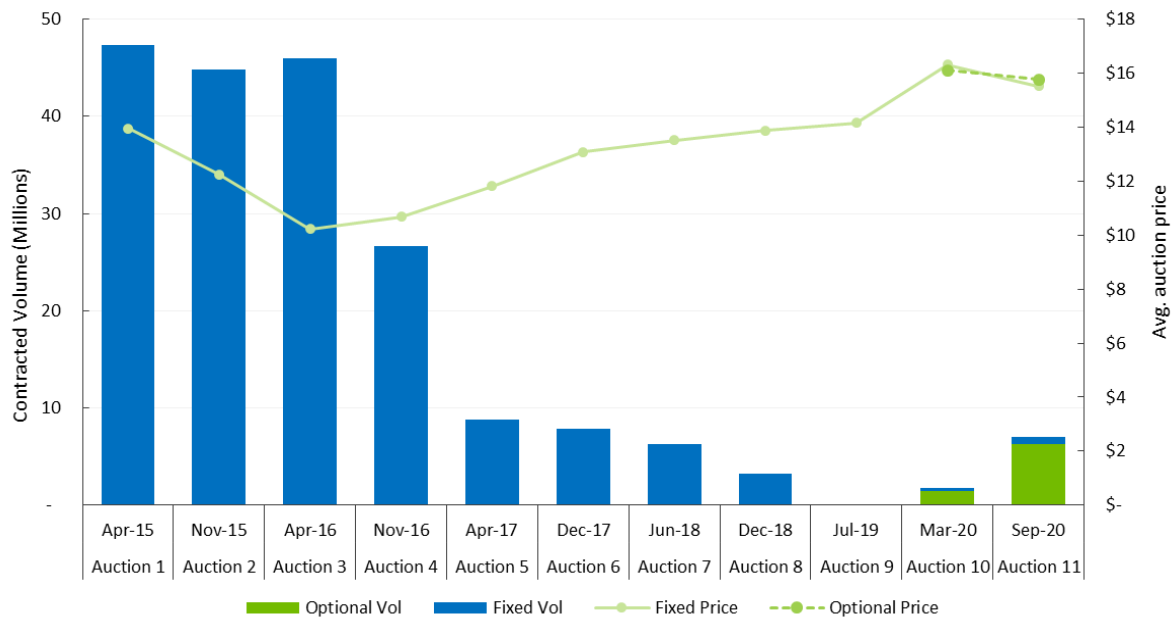
Source: MAG 2020, CER 2020a

When the Authority reviewed the ERF in 2017, 189 million ACCUs had been contracted for purchase at an average price of \$11.83 from the first 5 auctions held by the Regulator (Figure 3.4, CCA 2017a). Of this, nine contracts representing 5 million tonnes of abatement had lapsed, bringing the active portfolio in November 2017 to 184 million ACCUs (see Box 3.1, CER 2020a, CCA 2017a).

Since the Authority's 2017 review, after considering new contracts entered into and newly lapsed or terminated contracts, a further 16 million ACCUs (tonnes of abatement) (8 per cent) have been added to the Government's contract portfolio. Between December 2017 and September 2020, new Government contracts were entered into for 26.7 million tonnes of abatement (auctions 6-11 inclusive) at an average price of \$14.19. (Figure 3.4). At the same time, 22 contracts for 10.6 million ACCUs lapsed or were terminated (Box. 3.1, CER 2020a).

There has been a revival in the growth of the contract portfolio in 2020. The Regulator signed 47 contracts in auctions 10 and 11: 7.7 million tonnes were contract through 37 optional delivery contracts, and a further one million tonnes were contracted to the Government under 10 fixed delivery contracts. This followed a significant slowing in growth in 2019 (Figure 3.3, CER 2020a).

FIGURE 3.4. AUCTION RESULTS: VOLUME CONTRACTED ABATEMENT AND AVERAGE PRICE



Note: Exclude lapsed/terminated contracts.
Source: MAG 2020.

Box 3.1. Lapsed or terminated contracts

ERF contracts may lapse or be terminated due to pre-conditions to the contract not being met, such as consent from banks or state governments for projects on pastoral leases or state land. Other reasons contracts can be terminated include force majeure or both parties agreeing to terminate. Most proponents have up to 18 months to finalise the pre-conditions of their contract before a contract is revoked.

Since 2014, 31 contracts have been revoked for 15.7 million ACCUs. These contracts include: two large contracts under the environmental plantings method representing 8 million ACCUs; seven contracts under the coal mine gas method representing 3 million ACCUs; 12 contracts under the native forest regeneration methods representing 3.3 million ACCUs and a range of smaller contracts across several methods. The revoked contracts were conditionally awarded over the period November 2015 to June 2018 (auctions 2-7).

No credits were issued to these projects and no funds were paid under the contracts. Using the average auction 2-7 price of \$11.31 per tonne of abatement, the contracts would have been worth in the order of \$178 million and the funding originally allocated to these contracts has become available for new ERF contracts.

Delivery of ACCUs under Government contracts

Of the 200 million ACCUs committed under fixed delivery and optional delivery contracts:

- 59 million tonnes (29 per cent), have been delivered
- 141 million tonnes (71 per cent) are scheduled for delivery.

Seven per cent (36 contracts) of contracts have been fulfilled (CER 2020a).

The greatest annual volume of ACCUs delivered under contracts to date was 11.6 million ACCUs in 2019. The years 2021 through 2028 are all years of higher expected annual delivery for existing fixed delivery contracts (over 12 million ACCUs per year) (CER 2020f).

Figure 3.5 breaks down the amount of contracted abatement that has been delivered by contract type, contract size and activity type. In total, the following has been delivered:

- 27 per cent of contracted abatement from vegetation projects (36.9 million ACCUs)
- 60 per cent of contracted abatement from waste projects (15.4 million ACCUs)
- 27 per cent of contracted abatement from savanna burning projects (3.7 million ACCUs)

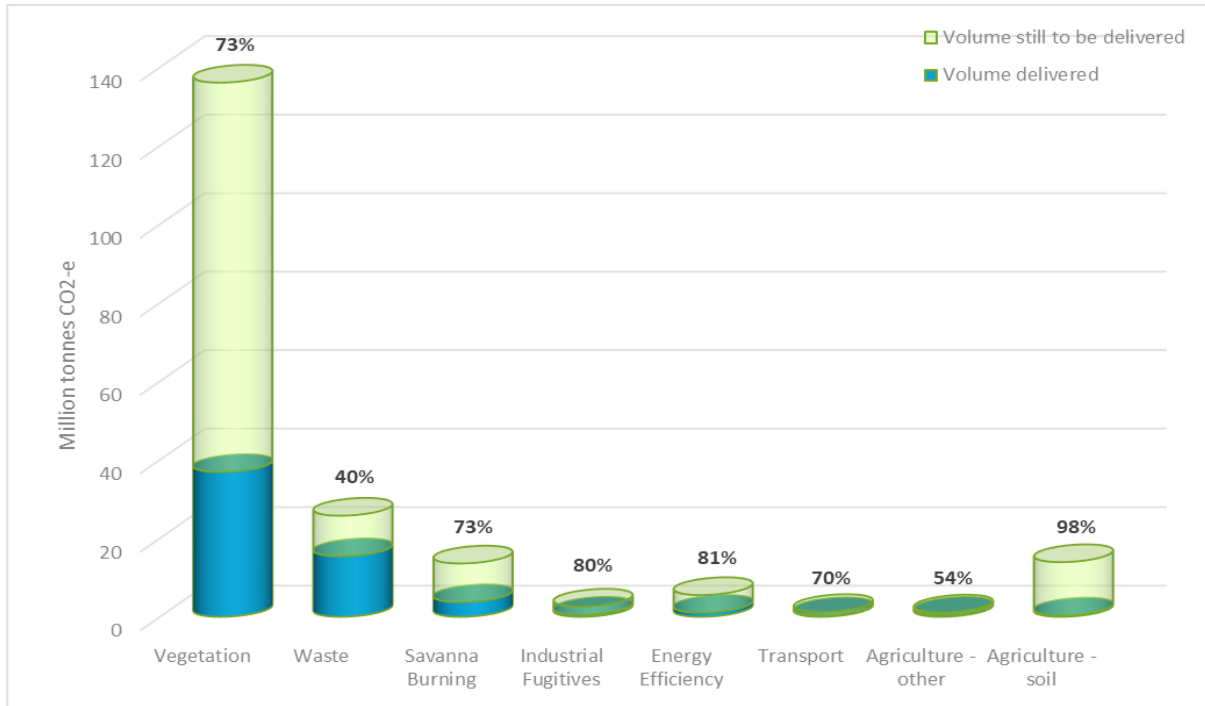
Contracts for vegetation, savanna and agriculture (soil carbon) activities are typically longer (up to 10 years) than waste projects (up to 7 years) and there can be a lag before sequestration projects deliver credits (CER 2020g).

Fixed delivery contracts can be and are being met using ACCUs purchased on the secondary market. Contracts associated with soil carbon projects account for 93 per cent (13.9 million ACCUs) of the abatement contracted from the agriculture sector, however only approximately 2 per cent (335,129 ACCUs) has been delivered under these contracts to date, and almost all (if not all) of these ACCUs would have come from the secondary market (CER 2020e). This may be due to the relatively recent registration (2015-2018) of these projects and the lag time involved before receiving ACCUs (up to five years).

Contracts associated with transport projects have delivered 364,261 ACCUs (30 per cent of the contracted commitment) as of 13 September 2020. However, only 46,671 ACCUs have been issued to all ERF transport projects. Accordingly, at least 87 per cent of ACCUs used to meet the contractual obligations would have come from the secondary market (CER 2020a,e).

Potential risks to the delivery of abatement under fixed Government contracts are discussed in Chapter 8.

FIGURE 3.5. CONTRACTED ABATEMENT, SHOWING ABATEMENT STILL TO BE DELIVERED BY METHOD TYPE



Source: Climate Change Authority based on CER 2020a,e. Data as at 18 September 2020.

CHAPTER 4: SIGNALLING DEMAND FOR EMISSIONS REDUCTIONS AND BOOSTING SUPPLY

The Australian Government accounts for most of the purchasing of emissions reductions under the ERF. A small amount of abatement is also purchased by industrial emitters to acquit liabilities under the Safeguard Mechanism, as well as state and territory governments and businesses voluntarily purchasing to offset their emissions.

A slowdown in the amount of abatement contracted by the Regulator under the ERF over the three preceding auction 11, had likely been the result of several factors. Some stakeholders identified concerns about uncertainty over the Government's intentions regarding the purchasing of ACCUs; the prices offered at ERF auctions; and low levels of demand from compliance and voluntary markets. The Authority has also heard about challenges potential ERF projects face in relation to obtaining finance, high costs of participating in the scheme and the complexity and (lack of) availability of ERF methods.

However, the ERF is now well established and ACCUs are highly regarded. The latest auction results are a promising sign, with the introduction of optional delivery contracts and upfront payments for soil carbon projects having been well received. The Government has also recently announced significant additional funding for the Regulator to establish a new emissions reduction trading platform and to reduce the time it takes for ERF methods to be developed. The scheme's foundations can be built on to ensure Australian industries have the flexibility to access local carbon offsets as climate policy settings evolve, and to position Australia to participate successfully as the global economy transitions to lower emissions.

4.1 Demand for ACCUs

The Australian Government is the primary purchaser of abatement under the ERF, with 58.8 million ACCUs delivered under contract to the Government cumulatively to 2020 (CER 2020a). In 2019, 95 per cent of all ACCUs sold were purchased by the Government. Other minor sources of demand include a small number of industrial emitters who have liabilities under the Safeguard Mechanism, state and territory governments, other government initiatives like the Queensland Land Restoration Fund and voluntary private sector purchasing. Notwithstanding the significant additional funding announced by the Government in 2019 for continued purchasing of ACCUs under the Climate Solutions Fund, future Government demand for ACCUs remains uncertain. The lack of binding obligations on industry to reduce emissions means compliance market demand is likely to remain subdued, although some state government measures may see this change over coming years. Voluntary market demand is growing but likely to remain relatively low for some time to come.

Certainty of demand for least cost abatement

Government purchasing of carbon abatement is legislated by Part 2A of the CFI Act and Part 2A of the *Carbon Credits (Carbon Farming Initiative) Rule 2015*. The Act enables the Regulator to purchase ACCUs. In doing so, the Regulator must have regard to purchasing principles set out in the Act and the purpose of which is explained as follows: *'The principles require the Regulator to, among other matters, design the purchasing process to deliver value for money, maximise abatement, minimise administrative costs and ensure the integrity of the purchasing process'* (Explanatory Memorandum to the Carbon Farming Initiative Amendment Bill 2014).

The legislation and principles require the Regulator to purchase carbon abatement at the least cost and maximise abatement. As the scheme matures and technology evolves, new and improved

methodologies as well as policy innovations could deliver new sources of low cost abatement. However, as the available low-cost opportunities under the scheme are exhausted, accessing abatement will require a move up 'the cost curve' and a willingness to purchase more expensive abatement.

To date, Government purchases of ACCUs have been carried out by the Regulator through reverse auctions. In 2016 the Regulator did sound out the market in a bid to source abatement directly, but this did not result in any purchases. For reverse auctions, bids are submitted to the Regulator to sell ACCUs through either a fixed or, beginning in 2020, an optional delivery contract (Table 2.1, Chapter 2). Bids to sell ACCUs must meet auction qualification and registration requirements (CER 2020b). Once a bid has met these requirements, all ACCUs offered for purchase are treated equally and ranked on price. The Regulator accepts auction bids up to the point that, in the sole discretion of the Regulator, the combination of bid price and volume offers the best balance between the principles of purchasing at the lowest cost and securing the highest volume (CER 2020b).

Stakeholders have told us that the price the Government has been willing to pay for ACCUs has been too low to incentivise large new supplies of ACCUs to come forward (Foresters of Australia, Jemena, ACF, ICIN, Carbon Neutral, Australian Energy Council). A 2019 AgriFutures report, *Improving Carbon Markets to increase farmer participation*, reported that the biggest barrier to farmer uptake was the low carbon price. The higher average prices offered in 2020 (auction 10 and 11) and the introduction of upfront payments for soil carbon projects have assisted in boosting the supply of projects.

In 2019 the scheme recorded the lowest volume of contracted abatement since its inception. Volumes have increased in the two auctions held in 2020, in conjunction with a moderate increase in the price the Regulator has been prepared to pay. In auction 10 (March 2020), the average weighted price of \$16.14 was a 14 per cent increase on the previous highest average auction price. Stakeholders told us they were encouraged by the higher price. New project registrations were higher leading up to auction 11 in September 2020, and significantly more projects have been registered in 2020 than in 2019 (Figure 3.4). The results of auction 11 achieved an average weighted price of \$15.74 (CER 2020d).

However, uncertainty and lack of transparency concerning the Government's funding allocation process appears to be affecting market confidence given its status as the dominant purchaser of ACCUs (AGL Energy, Biome5 submissions, Macintosh et al. 2019).

Of the \$2.55 billion the Government made available for the ERF in 2014, approximately \$150 million remains after the 11th auction (CER 2020d, CER pers comm. 2020). The Climate Solutions Fund was announced in February 2019 "to carry forward the work of the Government's Emissions Reduction Fund ... with an additional \$2 billion investment over the next ten years" (Morrison S 2019). Of that, \$189.1 million is to be provided over the four years from 2019-20 to 2022-23 for 'investments in low-cost abatement currently underway through the ERF' (Australian Government 2019a). In 2020-21 an initial \$16.6 million of these funds has been allocated to the Regulator, with \$14.7 million available for investment in low cost abatement (Australian Government 2019b).

In January 2020, the Commonwealth Government entered into a Memorandum of Understanding with the Government of New South Wales primarily concerning energy policy, but which also allocated \$450 million of the Climate Solutions Fund to NSW-based projects that support businesses, farmers and land managers to take practical, low cost abatement actions (Energy NSW 2020). The extent to which these will be ERF projects is unclear. The Authority understands that the Commonwealth is negotiating similar agreements with other states, but the details remain to be seen. The Government has also recently announced that \$95.4 million of the Climate Solutions Fund will be directed to a Technology Co-Investment Fund that was recommended in the King Review (Taylor A 2020). While these announcements are welcome, such reallocation of funds to other abatement activities creates uncertainty around the future demand for ACCUs from Government purchasing.

A number of peak bodies and organisations asked for a bolder direction to be set by Government through focussing on volume (AGL Energy Ltd, ACF, Australian Energy Council). AGL stated: *'In the near term, setting annual ERF volume targets linked to Australia's Paris commitments would be one way to improve confidence in the market (demand) trajectory and encourage wider project registrations'* (AGL submission p.1). The CMI notes the importance of a clear demand signal to incentivise uptake outside of the auction contracting process (CMI submission).

The Authority considers there are some relatively straightforward steps the Government could take to provide a more transparent and strengthened demand signal to the market, leveraging existing emissions projections and budgetary processes and without compromising the pursuit of least-cost abatement.

Including in the Government's annual emissions projections an estimate of the ERF's overall contribution to the achievement of Australia's 2030 emissions reduction target – not just from Government purchasing but also from state and territory programs, Safeguard Mechanism compliance and voluntary market purchases – would provide a sense to the market of the medium-term opportunities under the ERF. A stronger short-term demand signal could be communicated by the Government through the publication, several years ahead, of an indicative range for the Government's annual purchases of ACCUs. This would assist the market in planning to meet the demand for ACCUs, particularly while the Government remains the dominant purchaser. To help overcome the uncertainty around ongoing funding levels for the ERF, within its overall budget allocation to the ERF the Government could make a firm policy commitment to leave untouched ERF funding in four year rolling blocks – while retaining flexibility for the Regulator to vary the amount it commits to ACCU purchases each year in response to market conditions.

Recommendation 1

To strengthen the market demand signal for ACCUs, the Government:

- **incorporate within its annual emissions projections an estimate of the total contribution the ERF is projected to make to emissions reductions to 2030 through all potential sources of demand for ACCUs (e.g. Government purchasing, state and territory programs, compliance and voluntary markets)**
- **publish an indicative range for annual Government purchases of ACCUs for four years ahead, to be updated each year**
- **commit to maintaining announced aggregate funding levels for the ERF in rolling four year blocks.**

4.2 Compliance market demand

The Safeguard Mechanism is currently the primary mechanism for compliance market demand for ACCUs (see below).

However, regulatory requirements, such as those linked to development approvals, could create a significant market for ACCUs going forward. For example, the Western Australian Environment Protection Authority's guidelines on how it will consider greenhouse gas emissions in the environmental impact assessment process for development proposals allow for offsetting of emissions with ACCUs and some other carbon units (WA EPA 2020). The guidelines state that proposals exceeding 100,000 tonnes CO₂-e (scope 1 emissions) annually will be required to establish a plan to avoid, reduce and offset emissions towards the aspiration of net zero emissions by 2050 (WA EPA 2020).

The Safeguard Mechanism and below-baseline crediting

Under the Safeguard Mechanism, facilities that exceed their prescribed emissions baselines can use ACCUs to offset their emissions. The Safeguard Mechanism has generated a small amount of regulatory demand for ACCUs which has declined over the three years it has operated. In 2016-17, 379,792 ACCUs were surrendered to meet Safeguard obligations, whereas in 2018-19 only 58,731 ACCUs were surrendered.⁹ This is in part because facilities are able to use multi-year monitoring periods to allow additional time to comply with their prescribed baselines.

From 2020–21 onwards, in general, baselines will be determined on the emissions intensity of production, although to help manage the administrative disruption to businesses due to COVID-19, entities are being given a further year to apply for these baselines (CER n.d.a). These baselines will not generate demand for ACCUs unless an entity's production becomes more emissions intensive and exceeds its baseline (CER 2020h).

In the *Prospering in a low-emissions world* report, the Authority recommended an enhanced Safeguard Mechanism to incentivise industrial abatement with declining emissions baselines and, once baselines are binding, crediting of over-achievement for use against safeguard liabilities. Crediting of over-achievement against safeguard baselines would not require further additionality tests but should be recognised through a new form of tradeable unit eligible for use within the scheme to preserve the integrity of the ACCU market.

The Authority also recommended that Government purchasing should continue until an enhanced Safeguard Mechanism with declining baselines provides a strong source of demand for ACCUs (CCA 2020a). This approach aims to foster a deeper and more certain market for ACCUs generated via the ERF.

In order to help realise abatement opportunities in industrial facilities that are not being accessed by the ERF, the King Review has recommended a 'below-baseline crediting arrangement' for large facilities using the Safeguard Mechanism architecture. The Government has agreed to establish a low-emissions technology deployment incentive scheme to reduce emissions from Safeguard-covered facilities (Australian Government 2020a).

The design of the low-emissions technology deployment incentive scheme is at an early stage. A key design parameter of the King Review's recommendation is that the arrangement would not be an offsets scheme. However, the King Review recommended that Safeguard Mechanism Credits (SMCs)

⁹ These figures for safeguard mechanism surrender do not include deemed surrender. A 'deemed surrender' occurs when ACCUs issued under an ERF project at a Safeguard facility, in a particular year, are delivered to the Commonwealth under an ERF contract. In 2016-17 there was 68,305 deemed surrender and 379,792 sourced from the market. In 2018-19 there was 131,650 deemed surrender and 58,731 sourced from the market (CER 2020c).

be provided to facilities who reduce their emissions below their Safeguard baselines, and SMCs could then be purchased and used to meet compliance obligations under the Safeguard Mechanism (Australian Government 2020a). Stakeholders raised concerns that such a market-based model could further reduce demand for ACCUs from Safeguard entities, unless baselines also decline to increase demand and co-investment (CMI, Australia Institute, ICIN, Australian Conservation Council).

The King Review noted that, for industrial facilities, 'the most viable abatement opportunities involve the early replacement and/or upgrading of industrial or energy-related equipment' (Australian Government 2020b). The Authority supports the objectives of the King Review to incentivise Safeguard covered facilities to undertake transformative projects below current baselines in a manner that attracts co-investment, and is of the view that in the absence of declining and binding baselines an offsets scheme is not a suitable mechanism to incentivise the deployment of transformative technology under the Safeguard Mechanism for several reasons. The high capital costs of such projects, transaction costs, attracting co-investment and risks to Australia's ACCU market present significant design challenges.

Alternative mechanisms could achieve the same objectives with less complexity, at lower administrative costs and with fewer risks. For example, to maximise co-investment, the Government could make low interest rate loans available to large facilities undertaking transformative, below-baseline abatement projects. Concessional loans could also be bundled with grants and tax incentives where appropriate.

If not carefully designed, new carbon-related financial instruments such as SMCs could undermine the strong reputation of Australia's high integrity carbon offsets market, which is founded on the ERF's integrity standards, including additionality, and the measurement, reporting and verification system that ensures ACCUs represent a tonne of genuine abatement. In contrast, as SMC units are not likely to be subject to the same integrity criteria as ACCUs, or meet the same international standards for carbon units.

If SMC units are to be a feature of the low-emissions technology deployment incentive scheme, lesson from global experience with the design of market-based instruments could inform the design of the scheme. For example, banking of credits for use in the future should be considered after an initial pilot period to ensure the market is not flooded with units in an early stage. Similarly, a 'transformative project' threshold, determined by setting crediting baselines well below compliance baselines, could be used as the basis for rewarding leaders in transformative low-emissions technology deployment. In order to maintain the high integrity of ACCUs, the Government could ensure that SMC units are classed separately from, and not fungible with, ACCUs, and also not be tradable in the market outside of the Safeguard Mechanism and Government purchasing.

The Minister has indicated that the Government is not considering reducing baselines under the Safeguard Mechanism, and that it should rather continue to operate as a 'safety net' to ensure industry does not significantly increase emissions. However, since the scheme has been operating, entities have been able to increase their emissions in absolute terms, leading some industry stakeholders to question the overall purpose of the Safeguard Mechanism (ICIN, Australia Institute). If below-baseline crediting is implemented without declining baselines, there is some risk the new SMCs could undermine what are already low levels of private demand for ACCUs.

The King Review recommended that, in addition to SMCs being used to meet compliance obligations under the Safeguard Mechanism or purchased by the private sector, SMCs could be purchased by the Government through a new arrangement under the Climate Solutions Fund. This risks adding to uncertainty in the market on the Government demand for ACCUs.

Recommendation 2

To realise abatement opportunities in industrial facilities, leverage co-investment and avoid risks to the ACCU market, the Government's low-emissions technology incentive scheme make Safeguard Mechanism Credit - concessional loans bundled with grants and tax incentives - available to Safeguard-covered facilities undertaking transformative, below-baseline abatement projects.

If designed as a carbon market mechanism, and noting the King Review recommendation that the incentive scheme not be an offsets scheme, consideration be given to mitigating risks to the ACCU market by:

- **ensuring below-baseline carbon credits (SMCs) are:**
 - **allocated for emissions reductions that meet a 'transformative project' threshold, for example by setting crediting baselines well below compliance baselines**
 - **saleable only to the Government and to entities under the Safeguard Mechanism for the purpose of complying with Safeguard obligations (and not otherwise fungible with ACCUs)**
- **allowing banking of SMCs for use in future years only after an assessment of the outcomes of the initial pilot phase**
- **funding any Government purchase of SMCs separately from amounts already allocated to the CSF for the purchase of ACCUs**
- **giving future consideration to implementing declining baselines with clear trajectories, to maintain demand for ACCUs and SMCs (for example, as technology evolves) and enhance co-investment in both schemes.**

4.3 Voluntary market demand

Businesses are increasingly managing their emissions profile on a voluntary basis and purchasing offsets, but the voluntary market for ACCUs is still very small. The ERF scheme is not well understood and many private entities currently have little or no interaction with the scheme. Voluntary buyers and state and territory entities purchased approximately half a million ACCUs in 2019. The Government's Climate Active program, which issues carbon neutral certifications, was the biggest source of demand in the voluntary market for ACCUs at 215,475 ACCUs (Figure 4.1). While voluntary markets are growing, they represented less than 5 per cent of the demand for ACCUs in 2019 (CER 2020i).

Over the longer term, voluntary demand for carbon offsets is likely to increase as companies respond to rising consumer and shareholder calls for entities to manage emissions and address climate risks (CCA 2020a). Even as they faced the immediate challenges of the COVID-19 pandemic, stakeholders spoke to the Authority about their ongoing focus on the long term challenges and opportunities of the world moving to net zero emissions (CCA 2020b). However, the voluntary market appears to be contracting in 2020 due to the COVID-19-related economic downturn, particularly in the aviation sector (CER 2020f). The decline has already affected ERF projects that usually sell to the voluntary market, especially savanna burning and vegetation projects (ICIN submission).

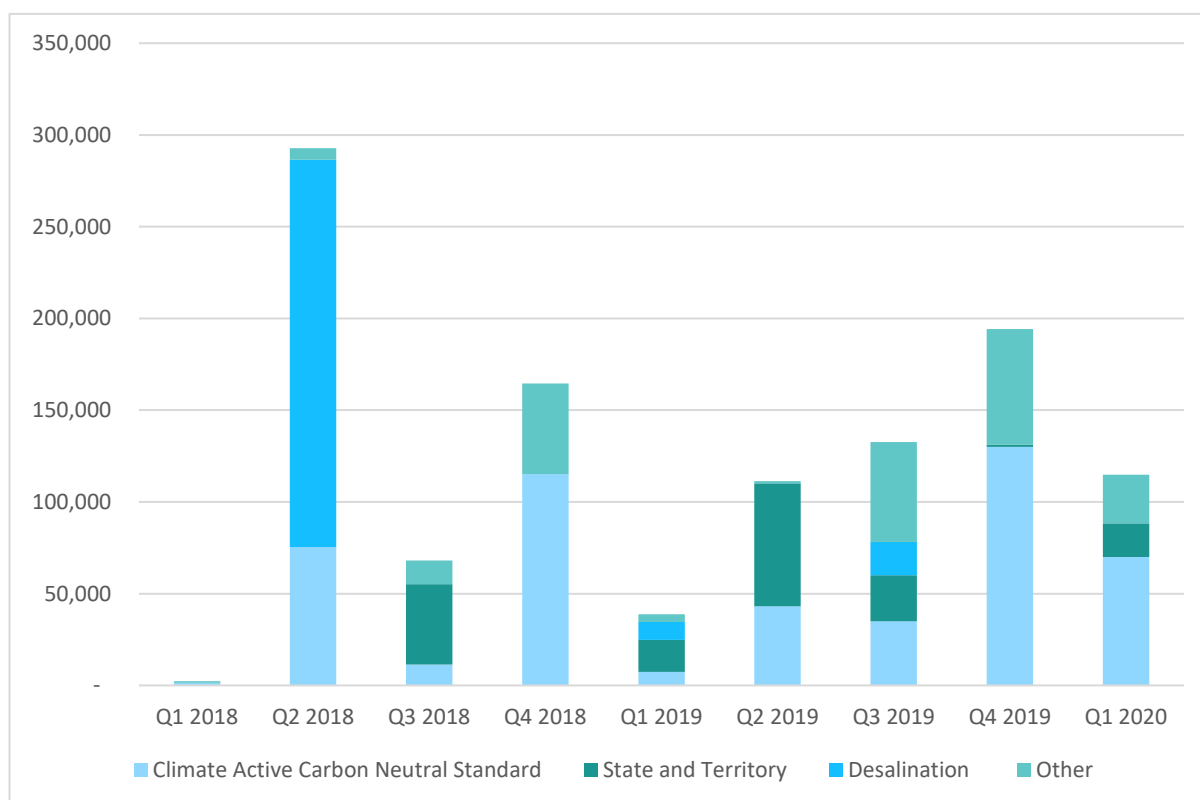
Voluntary demand for ACCUs is also tempered by the availability of cheaper international offset units. In 2019, ACCUs represented just 6 per cent of 3.96 million offsets contributing to Climate Active certifications; the remaining 94 per cent of offsets were other units. The integrity of ACCUs, Australian provenance and co-benefits associated with the projects, make it a premium product and the Authority recommends upholding the integrity of ACCUs (Chapter 5).

Mainstreaming the carbon offsets market and encouraging greater investment will also help facilitate voluntary private sector demand. In 2017 the Authority recommended more information be made public to support the secondary market (CCA 2017a). Since December 2019, the Regulator has

published quarterly market reports that provide information on ACCUs and on renewable energy certificates and have increased market information and transparency. To further improve the transparency of the secondary market, the Australian Industry Greenhouse Network (AIGN) has asked for more supply-side information such as an improved supply-side registry of ACCUs “to support market growth and price discovery” (AIGN submission p.4). The King Review recommended, and Government supported, work towards supporting a vibrant market for ACCUs, including the emergence of exchange-traded markets (Australian Government 2020a,b). The Government has since announced funding to establish an exchange platform for emissions reduction units to lower the costs to business of buying ACCUs. It is estimated that the reduction in transaction costs faced by business buying and selling ACCUs using an exchange platform could be in the order of \$100 million over the period to 2030 (Taylor A 2020a).

In 2019, state and territory governments demanded 138,627 ACCUs, mostly to offset emissions from fleet vehicles, state-owned desalination plants and to meet some state-owned company commitments (CER 2020i). Given the state-based commitments to net-zero emissions, states and territories may adopt compliance market mechanisms, further increasing demand for ACCUs.

FIGURE 4.1 VOLUNTARY, STATE AND TERRITORY GOVERNMENT DEMAND FOR ACCUS



Source: CER 2020p.

4.4 Innovative financing

Co-financing co-benefits

There is increasing interest from both the private and government sectors in investing in ERF projects with environmental, social and cultural co-benefits (CMI 2017, CCA 2020a). Investors in co-benefits pay a premium price for ACCUs from projects with co-benefits or make a separate payment (e.g. through funding from another government program) for the co-benefit attached to an ACCU. The market for co-benefits is not yet well-defined or developed. However there are several co-benefit

models emerging, for example Reef Credits (for improving reef water quality), which are currently being piloted and could be linked with an ERF project (Reef Credit n.d., GBRF n.d.).

Credits from savanna burning projects in northern Australia often attract a premium. ALFA noted that the “credits produced by Aboriginal projects are highly valued and currently sell well in the voluntary market” (ALFA p. 9). ICIN and members noted in their submission that revenue from ERF projects “is invested into local communities as directed by Traditional Owners, including into programs supporting land management, protection of sacred sights, community education, intergenerational exchange of traditional knowledge, cultural exchanges, training and research” (ICIN and members p. 2). To support this market, the Aboriginal Carbon Foundation has developed a framework for verifying the co-benefits associated with savanna burning projects

The King Review supported greater recognition of co-benefits and recommended the Regulator “accelerate its efforts to... support private quality branding of co-benefits associated with different abatement units” (Australian Government 2020b p.1). This has now been realised and account holders are able to identify the origin or provenance of ACCUs in the national registry, allowing buyers to verify that the ACCUs purchased match their requirements (including co-benefits, location and project proponent) and increasing market transparency. The Authority welcomes this development.

Stakeholder submissions proposed allowing Government purchasing based on a broader range of values to further open up the market. Suggestions included purchasing based on Total Economic Value (Foresters of Australia); tailoring auctions to reach multiple sectors (Australian Sustainable Built Environment, Bioenergy Australia, Jemena Gas Networks); and purchasing ACCUs with multiple benefits (Bioenergy Australia, Foresters of Australia, Trust for Nature, Carbon Neutral).

The lack of recognition of co-benefits in Government purchasing means that ERF projects with high overall value can miss out on Government support unless they are supported by complementary programs or funding:

‘The current policy of least cost abatement purchasing principles has no way of recognising and valuing multiple benefits, and in particular, the co-benefits associated with Indigenous participation in the carbon industry’ (ALFA p.9).

The \$500 million Queensland Land Restoration Fund is supporting ERF projects that deliver co-benefits as well as abatement. It is unlikely that these same projects would have been competitive under the ERF based on the cost of carbon alone (Queensland Government n.d.). The Land Restoration Fund will diversify the types of projects that contribute to ERF abatement, and the high-quality land management interventions can also assist to build climate resilience that is important to maintaining abatement (Chapter 10, Queensland Government 2020a).

The Authority has previously recommended better coordination of policies on emissions reductions, enhanced natural resource management outcomes and on-farm profitability, starting with the development of best-practice guidance and followed by the establishment of a community of practice (CCA 2018, 2020a). The aim of this is to support government funding to achieve better overall value from government investment in land-sector actions.

Government programs could also be used to harness greater private sector involvement in the market. Climate Active is the biggest single source of voluntary market demand. The Australian Government could build on this source of demand by offering additional recognition to companies and products that use ACCUs to meet their offset requirements, rather than only purchasing offsets generated overseas. This could be assessed based on the use of ACCUs as a proportion of a company’s total offsets and grouped into company size, so as not to favour companies with smaller carbon footprints where the burden of purchasing offsets is less costly and so larger companies with bigger budgets are not unduly favoured. Recognition could take the form of ‘Australian Made’ style Climate Active badging or other incentives and could be rolled out in collaboration with industry

representatives. There would be the possibility to extend these incentives in the future to also recognise co-benefits.

Recommendation 3

To enhance private demand for ACCUs, consider ways to incentivise voluntary purchasing, including for use under the Government’s voluntary carbon neutral scheme *Climate Active*. For example, in collaboration with industry representatives:

- **develop a tiered labelling scheme similar to the Australian Made brand that would enable companies seeking to become carbon neutral to promote those offsets that were sourced from a) ACCUs or b) ACCUs with social/biodiversity co-benefits**
- **establish annual awards that recognise companies that source for voluntary mitigation action the most carbon offsets in the form of ACCUs.**

Aligning carbon credits with the broader market

Accessing finance has been a barrier to ERF projects, particularly where projects involve high upfront costs. The King Review considered this issue and recommended issuing ACCUs ahead of when abatement occurs (compressed crediting) in some circumstances. This King Review recommendation is considered by the Authority in Chapter 5.

The Authority has previously highlighted the proven success of the Clean Energy Finance Corporation (CEFC) in overcoming barriers to the flow of private finance into cutting-edge renewable energy, low-emissions and energy efficiency projects. The CEFC works closely with ARENA to bring low emissions technologies that are ready for commercialisation to market. A good example of the potential complementarity of the CEFC and ARENA is the recently announced Technology Co-Investment Fund recommended by the King Review, which will deploy \$95.4 million through ARENA to support businesses in the agriculture, manufacturing, industrial and transport sectors to adopt new technologies that increase productivity and reduce emissions (Taylor A 2020).

The CEFC would be well placed to work with ARENA and the Regulator to commercialise these activities over time through the creation of new investment pathways using standard and innovative financial mechanisms like concessional debt, equity and blended finance mechanisms. CEFC funding unlocks the supply of low emissions activities and catalyses private sector participation and co-investment. Because of the CEFC’s investment mandate and market reach, it is strongly aligned with the supply of new abatement across the economy and is well integrated in the private finance and investment market. In *Prospering in a low-emissions world*, the Authority recommended expanding the remit of the CEFC to allow it to invest in emissions reductions technologies in all sectors to help overcome barriers to finance (CCA 2020a). The Authority welcomes the recent Government announcement to expand the low emissions investment mandate of both the CEFC and ARENA to new technologies in all economic sectors and sees this as an opportunity to facilitate innovative co-financing of ERF projects (Morrison S Taylor A 2020).

Currently the ERF operates as a stand-alone offsets scheme with demand primarily coming from Government purchasing. Aligning CEFC investment activities with prospective ERF projects would harmonise emissions mitigation investment across the economy. The CEFC is well positioned to attract participation and possibly co-investment from the private sector and to offer new ways to support potential ERF projects with high upfront costs, particularly those with high up-front costs.

Stakeholders have highlighted the finance sector’s lack of awareness and understanding of the ERF as another barrier to projects. Some have asked for information to be provided to regional bank

branches whose approval is often crucial for financing the project. Financial institutions do not always interact with the ERF scheme on a meaningful level and are often wary of the scheme, viewing ERF contracts as a liability rather than a source of potential income for project proponents (Macintosh et al. 2019).

The CEFC could enable better socialisation of ACCUs with banks and other financial institutions and provides options for innovation, such as upfront funding via concessional or income contingent loans, potential for more sophisticated contracts and blended financing options. This will in turn drive more supply and lower the overall cost of abatement. New financing approaches are favoured by some stakeholders. For example, Bioenergy Australia's submission favours upfront Government funding to help establish ERF projects with high capital costs and long-term benefits. This may be a better incentive than manipulating the issuance of ACCUs to credit abatement before it occurs (Chapter 5).

Industry stakeholders also asked for Government purchasing to create a market for diversified and transformative projects (Bioenergy Australia, Jemena Gas Network, AFPA). Although these projects are higher cost in the short-term, they drive long-term value and demonstrate technology pathways for achieving future mitigation of emissions (Jemena Gas Network). Woodside suggested private sector collaboration with ERF auctions, including through being able to purchase ACCUs at or above the auction price ceiling using the same process (Woodside submission).

Recommendation 4

To facilitate innovative co-financing of ERF projects, particularly those with high upfront costs, the Regulator, CEFC and ARENA collaborate to align the ERF with the broader suite of Commonwealth, state and territory government climate initiatives and the growing sustainable private finance market.

Prioritising methods that maximise abatement

The types of abatement activities under the ERF are limited by the methods available. There are currently 34 methods, but projects are registered under only 27 of them. Some stakeholders have said that ERF methods are not the most efficient or effective mechanism to incentivise some activities, particularly for large-scale abatement from the industrial and resources sectors and to drive energy efficiency activities in the built environment sector (Environmental Peak Bodies, AIGN). For example, a joint submission from built environment peak bodies, including the Australian Sustainable Built Environment Council and the Green Building Council of Australia, states that the ERF has not driven abatement in buildings. The submission identifies the following as barriers to abatement opportunities within the building sector:

- minimum bid sizes of 2000 tonnes of annual emissions savings
- major time-lags between auctions and transaction costs
- high transaction costs to prepare and aggregate bids and uncertainty about the price for abatement (p. 4).

The use of optional delivery contracts may help de-risk price uncertainty. The King Review has also stated that the design features of the ERF as an offsets scheme make it difficult for certain activities to participate, however, rather than changing the fundamental design features of the ERF, other policy mechanisms should be used for those activities not well suited to the scheme (Australian Government 2020b). The Authority agrees that other instruments are more suitable than an offsets scheme in many cases and welcomes the Government's recent announcement of a new \$95.4 million Technology Co-Investment Fund to support businesses in the agriculture, manufacturing, industrial and transport sectors to adopt technologies that increase productivity and reduce emissions (Morrison S, Taylor A 2020)).

Input from industry on what activities could work well under the ERF, and greater certainty on how methods are identified for prioritisation, would encourage greater participation and the realisation of better low-cost abatement opportunities.

International experience and practice indicates that offsets schemes are only well suited to a small number of activities predominantly in the land and agricultural sectors (World Bank 2020). The Authority has recommended that the ERF retain its focus on the land and agriculture sectors. Projects in these sectors can also deliver on the third objective of the CFI Act: to protect the environment and increase climate resilience. Several stakeholders have said that the ERF should remain focused on generating offsets in the agriculture and land sectors and look to enhance co-benefits (Greening Australia, NRM Regions Australia, ACF).

The King Review recommended the Government publish a formal policy governing the prioritisation and development of ERF methods in order to provide stakeholders with greater confidence about method development processes and the opportunities for consultation. The Government agreed with and the Authority supports this recommendation.

The Department has already published on its website an information document, *Making methods under the Emissions Reduction Fund*, which sets out the factors the Minister considers when determining priority activities for method development (Australian Government n.d.). This was published in response to the Authority's 2017 review recommendations. A Ministerial statement of priorities that references the Ministerial considerations set out in the current information document could provide greater clarity for stakeholders. The statement of priorities could be published in conjunction with the annual Low Emissions Technology Statement and be preceded by a formal process with an opportunity for consultation, enabling stakeholders to recommend activities for consideration by the Minister.

Recommendation 5

To facilitate market certainty and encourage industry participation, publish a statement of priority emissions reduction activities for method development, in conjunction with the annual Low Emissions Technology Statement.

For each prioritised activity, the statement should reference considerations for prioritising activities as set out in the published document *Making methods under the ERF*, namely:

- **potential uptake of the activity and likely volume of abatement**
- **whether the activity is technology proven and commercially ready**
- **whether emissions reductions could be estimated with a reasonable degree of certainty in a cost-effective way**
- **whether the activity could have adverse social, environmental or economic impacts**
- **alternative ways to promote the activity more effectively and efficiently**

The publication of the statement of priorities be preceded by a formal consultation process for stakeholders to be able to recommend priority activities to the Minister.

Reducing the cost of participating

The high costs of starting and running an ERF project are barriers to participation according to some peak industry bodies (CMI, Energy Savings Industry Association, NRM Regions Australia submissions, NFF submission to *Prospering in a low-emissions world*). The Australian Forest Products Association said further reform of 'burdensome transaction and audit costs' is needed (p.2).

The ERF is designed to recognise genuine abatement and issue units for activities that would not occur in the absence of the ERF. Integrity standards, methods, and measurement, reporting and verification requirements underpin the quality of ACCUs and ensure that public funds are always tied to real emissions reductions. However, there is a trade-off to be made between ensuring the quality of carbon units and accessing abatement at least cost. Stakeholders told the Authority, in consultation for both this review and *Prospering in a low-emissions world*, that these transaction costs can be too high and that they essentially preclude small projects from participating. Stakeholders asked for reporting and auditing requirements to be streamlined and for unnecessary complexities in methods to be removed or minimised (Carbon X, NRM Regions Australia, Australian Aluminium Council submissions, CCA 2020a).

In *Prospering in a low-emissions world*, the Authority recommended that the Government investigate how best to encourage smaller businesses to reduce emissions, including through assistance to participate in the ERF (CCA 2020a). Making information available on the indicative administration and operational costs involved in establishing and undertaking different types of ERF projects would create market transparency and help prospective project proponents, particularly smaller businesses with decisions on whether it will be viable to invest in an ERF project. In particular, whether the business will be able to absorb the ongoing administrative and operational costs into its future cash flow estimates, and what the likely return on an ERF project will be.

The Regulator has a strong focus on reducing transaction costs and is continuing to streamline scheme administration and reduce transaction costs, having consulted with stakeholders (CER n.d.b.). A benchmarking exercise on indicative administrative and operational costs involved in establishing and undertaking different types of ERF projects would help inform and enhance the Regulator's actions to reduce transaction costs and streamline administrative processes. The King Review made several recommendations to expand abatement opportunities, including streamlined purchasing for small-scale projects, facilitating method-stacking for multiple activities on a property, and streamlining auditing using 'big data' (Appendix D). In submissions to this report, stakeholders generally supported the King Review recommendations that sought to reduce barriers to participating in the ERF (Australian Sustainable Built Environment Council p. 4; Energy Savings Industry Association p. 3, CMI submission). These King Review recommendations are discussed further in Chapter 5. The Authority supports initiatives to encourage participation from small-scale projects and to reduce the costs and complexity of participating in the ERF while still maintaining integrity.

Recommendation 6

To inform and enhance its actions to reduce transaction costs and streamline administrative processes, the Regulator undertake a benchmarking exercise and publish information on indicative administrative and operational costs involved in establishing and undertaking different types of ERF projects. The benchmarking exercise should compare the transaction costs of projects under the ERF with those under other Government programs.

Recommendation 7

To encourage greater participation in the ERF, the Regulator continue to explore ways to streamline ERF processes and reduce transaction costs for scheme participants, while continuing to uphold the Offsets Integrity Standards.

CHAPTER 5: MAINTAINING INTEGRITY

Maintaining the integrity of the ERF means that it is delivering genuine abatement – the avoided emissions and carbon stored are real and additional to ‘business as usual’. Integrity is vital for ensuring the ongoing success of the ERF scheme, the value of ACCUs, and the responsible expenditure of public funds. The King Review stated that “the need for credits to represent additional abatement is a fundamental feature of all offsets schemes.”

The Offsets Integrity Standards underpin the integrity of the scheme and should be retained as they are. However, more can be done to provide greater certainty to ERF participants as to how the Standards are interpreted and applied.

With care, some integrity requirements could be implemented in a flexible manner without undermining the integrity of the scheme. A more flexible approach to the application of the ‘newness requirement’ should facilitate increased participation in the ERF, as should measures the Government has announced it is developing to encourage smaller ERF projects.

In other cases, flexibility imposes high risks to integrity and alternative approaches to helping potential ERF projects overcome high upfront costs, such as concessional loans, could be just as effective as ‘compressed crediting’ but pose less risk to the integrity of the scheme.

5.1 The importance of scheme integrity

While the reasons for maintaining the integrity of the ERF might seem obvious, it is nonetheless worth reviewing them as a precursor to examining proposals for changes to the ERF that could have some impact on either the perceived or actual integrity of the scheme.

Environmental effectiveness – emissions reductions incentivised by the ERF scheme need to be genuine and additional if the scheme is to contribute to the goal of reducing net greenhouse gas emissions.

Reduce the cost of reducing emissions – an offsets scheme is working well when genuine low cost emissions reductions are achieved before higher cost emissions reductions (CCA 2016). An offsets scheme generally does not by itself lead to a net decrease in overall economy-wide emissions. This is the case of the ERF, with government purchasing taking place in the absence of strict limits on emissions and ACCUs otherwise being purchased and used in sectors with obligations to limit their emissions that have bought the credits to allow them to emit by the same amount. Accordingly, the main role of an offsets scheme is to reduce the overall costs to the economy of reducing emissions. This also makes it more feasible to adopt more ambitious targets earlier.

Ensuring value for money for the taxpayer – the Government does not want to spend taxpayer money (through ERF auctions) on emissions reductions that are not genuine and additional.

Provide confidence for use in compliance and voluntary offset markets – maintaining integrity is important for market confidence in the scheme. Private buyers of ACCUs for compliance and voluntary purposes need confidence in their understanding of what ACCUs represent. Looking down the track to opportunities in a world shifting to net zero emissions, to maximise the likelihood of a future successful carbon offsets export industry we need to ensure ACCUs continue to be recognised for their high integrity.

The pursuit of integrity does pose challenges when applied to abatement activities across several sectors of the economy. Additionality is often difficult to assess, particularly where there are private benefits associated with carrying out a project, for example energy efficiency savings, energy generation or agricultural productivity benefits. Emission reductions are also often difficult to estimate

and verify, limiting the scope of activities that can be credited under the ERF. The measures adopted to ensure the integrity of the scheme must be cognisant of the risk of foregoing genuine emissions reduction opportunities. However, while efforts can be made to simplify methods and reduce unnecessary measurement or eligibility requirements where possible, it is also the case that some abatement activities are not well suited to an offsets scheme (Chapter 4).

5.2 Offsets Integrity Standards

The Offsets Integrity Standards contained in the CFI legislation underpin the integrity of the ERF scheme. The Offsets Integrity Standards require that ERF methods:

- should result in carbon abatement that is additional (unlikely to occur in the ordinary course of events) and genuine (measurable and capable of being verified)
- in determining the net abatement amount for a project, only take into account eligible abatement (table 5.1) from the project and deduct any material emissions that occur as a result of the project
- are supported by clear and convincing evidence
- adopt conservative estimates, projections and assumptions.

Several stakeholders stated in their submissions that maintaining the Offsets Integrity Standards is important for environmental integrity, investor confidence and scheme reputation (Hydro Tasmania, Australian Conservation Foundation, Woodside, ICIN and ALFA). Woodside stated in its submission that:

'The ERF is underpinned by the robust legislative and governance frameworks in the Carbon Credits (Carbon Farming Initiative) Act (CFI) and subsidiary legislation which ensure the integrity of Australian Carbon Credit Units (ACCUs) credited under CFI's methodologies... These high levels of integrity are particularly important to give confidence to the market relating to the creation, trading and surrender of ACCUs' (p.3).

A broader environmental integrity principle is that offsets schemes should also not cause harm through other adverse social or environmental impacts (ICROA 2020). The ERF aims to achieve this through provisions in individual methods and through the exclusion of activities on the 'negative list' for example, projects that plant weeds (CFI Regulations 2011 s 3.36).

The International Carbon Reduction and Offset Alliance (ICROA) has agreed to a set of best practice integrity principles for carbon credits, which were published in the latest World Bank annual report on the state and trends of global carbon markets (World Bank 2020). The ERF is recognised by ICROA as meeting the best practice principles through the application of the Offsets Integrity Standards (Table 5.1).

TABLE 5.1. BEST PRACTICE PRINCIPLES ON CARBON CREDITS (BASED ON ICROA)

| Best Practice Principles | Description | How the ERF achieves best practice |
|--------------------------|---|---|
| Real | All abatement and project activities shall be proven to have genuinely taken place. | <p>Projects must use approved methods that meet Offsets Integrity Standards, including that the method is supported by clear and convincing evidence.</p> <p>Project proponents report to the Clean Energy Regulator providing evidence of activities and abatement achieved.</p> <p>Carbon credits are only issued after the abatement has actually occurred and following the submission of a project report.</p> |
| Additional | Abatement shall be additional to what would have occurred in the absence of the scheme or project. | <p>Abatement must be additional according to the Offsets Integrity Standards.</p> <p>The project must also be new, and must not be required by law (regulatory additionality) or supported by some other Government programs (government program requirement).</p> |
| Measurable | All abatement shall be quantifiable, using recognised measurement tools (including adjustments for uncertainty and leakage), against a credible emissions baseline. | <p>Abatement must meet Offsets Integrity Standards to be measurable and capable of being verified, account for leakage and be conservative.</p> <p>This is supported by monitoring and record-keeping requirements.</p> |
| Permanent | <p>Carbon credits shall represent permanent emission reductions and removals.</p> <p>Where projects carry a risk of reversibility, adequate measures shall be in place to ensure that the risk is minimised and that, should any reversal occur, a mechanism is in place that guarantees the reductions or removals shall be replaced or compensated.</p> <p>The internationally accepted norm for permanence is 100 years.</p> | <p>Sequestration projects have a permanence period of 100 or 25 years.</p> <p>A 20 per cent reduction in the credits issued is applied to projects with a 25-year permanence period.</p> <p>Abatement accredited under the determination is 'eligible carbon abatement' (abatement due to the project that can be used to meet Australia's international mitigation obligations).</p> <p>In circumstances where a reversal of abatement occurs, due to an avoidable natural disturbance or deliberate conduct, a project proponent may be required to return (relinquish) a number of issued ACCUs.</p> |
| Independently verified | Abatement shall be verified to a reasonable level of assurance by an independent and qualified third-party. | Projects are required to undertake a minimum of three independent audits to ensure that the reported abatement is accurate. |

| | | |
|--------|---|---|
| Unique | No more than one carbon credit can be associated with a single tonne of carbon abatement (t CO ₂ -e). Carbon credits shall be stored and retired in an independent registry. | The CFI Act prohibits projects from being credited more than once for emissions reductions. This is referred to as the 'no double counting test'. ACCUs are issued and retired within the Australian National Registry of Emissions Units (ANREU). |
|--------|---|---|

Source: ICROA 2018 and Authority's own analysis.

5.3 Application of the Offsets Integrity Standards

The Emissions Reduction Assurance Committee (ERAC), is an independent, expert, statutory body established under the CFI Act (s 254) to assess whether methods meet the Offsets Integrity Standards and to provide advice to the Minister responsible for administering the ERF. The ERAC's functions include:

- assessing whether new methods comply with the Offsets Integrity Standards (s 255(d))
- undertaking periodic reviews of the methodology determinations to assess their ongoing effectiveness (s 255(e)) and
- carrying out reviews on whether to extend the crediting period for a method (s 255(ha)).

At the request of the Minister, the ERAC is required to provide advice on whether a methodological determination should be made, varied or revoked (s 123A). The Minister cannot make a method contrary to the ERAC's advice. The ERAC has the power to suspend a method for up to 12 months if the method no longer complies with the Offsets Integrity Standards.

In the period since the Authority's 2017 review, the ERAC has reviewed seven methods and a further eight are currently under review. As a result of these reviews, the ERAC has proposed amendments to methods to ensure they comply with the Offsets Integrity Standards.

To promote transparency and consistency in the application of the Offsets Integrity Standards, the Authority recommended in 2017 that the ERAC work with the Government to develop a legislative rule to provide guidance on how the ERAC interprets the Standards (CCA 2017a). The Government's preference was for an information paper to be prepared because it is 'able to be updated as required' (Australian Government 2019c). The ERAC subsequently released *Information Paper: Committee considerations for interpreting the Emissions Reduction Fund's Offsets Integrity Standards* in November 2019 (ERAC 2019a). It states that the ERAC will apply the Offsets Integrity Standards to achieve the objectives of the CFI Act, which includes creating incentives for people to undertake projects.

Submissions to this report rarely referred to the Information Paper. This may indicate that stakeholders are not generally aware of it. Instead, stakeholders continue to seek greater certainty in how the Offsets Integrity Standards are applied to methods (ACF, CIF, AAC, Bioenergy Australia, IFA & AFG).

Given the importance of the Offsets Integrity Standards, the concerns of scheme participants and the impact the application of the Standards has on project eligibility, the Authority considers there would be benefits in drawing further attention to the Information Paper and any subsequent updates. We consider that the Information Paper could be used by the proposed statutory Steering Committee in the development of new methods (Chapter 6). When assessing compliance of a method with the Standards, the ERAC should also make specific reference to the considerations in the paper and how they have been brought to bear on their decision.

Additionality

In assessing whether methods will result in emissions reduction that are 'additional', the ERAC considers whether:

- the activities covered by the method would occur in the absence of the incentive provided by the scheme (a project test); and
- what the emissions outcomes would be if the project activities were not undertaken (a 'baseline' test) (ERAC 2019a). Methods can use a number of mechanisms to manage additionality risks, including eligibility requirements and baselines' (ERAC 2019a).

The ERAC information paper indicates that while the ERAC seeks to apply the Offsets Integrity Standards consistently across methods, a method could use an alternative approach to address a standard compared to another method and both could still meet the integrity standards (ERAC 2019a). This is consistent with the ERF White Paper, which states that additionality can be achieved by applying different tools or approaches, which can be tailored to specific activities or sectors (Australian Government 2014).

Several stakeholders raised a concern that the current application of the additionality principle is preventing some worthwhile projects from participating in the ERF (AAC, CIF, NRM Regions Australia, and AIGN). In its submission, the Australian Industry Greenhouse Network (AIGN) proposes reviewing additionality requirements to find a *'suitable balance between incentivising abatement and maintaining environmental integrity'* (p.2). Box 5.1 examines the application of additionality for facilities and energy efficiency methodologies.

While several submissions provided recommendations on how to adapt additionality to different method contexts, the Australian Environment and Planning Law Group (AEPLG) expressed concern about losing integrity in efforts to encourage uptake. The submission notes that if *'additionality requirements create a barrier for technology innovation, then other mechanisms should be developed to support the technology development rather than diluting the integrity of the ERF.'*(AEPLG submission p.2).

The King Review notes that stakeholders identified the restrictive rules around additionality as one of the challenges to participating in the ERF. It concluded that additionality is both a fundamental feature of the scheme's design and that *'it is difficult to design additionality rules that do not have the unintended consequences of excluding some low-cost abatement activities'* (Australian Government 2020b p.30). The King Review found the challenges were most acute for activities that are financially viable without government support and that it is *'difficult to devise method-level rules that are able to distinguish between additional and non-additional activities.'*

The Authority agrees with the King Review that additionality is crucial to the ERF. The Offsets Integrity Standards are central to the scheme's integrity, as are the other mechanisms in the ERF which support best practice integrity principles for issue of carbon credits (Table 5.1).

The Government has designed the ERF with the intention of avoiding the need for project-by-project assessment of additionality, by having additionality considered when ERF methods are made. Bioenergy Australia stated in its submission that assessing additionality at the method level results in methods having *'more restricted eligibility criteria than schemes where additionality is assessed on a project-by-project bases'* (Bioenergy Australia submission p.2). The Authority considered this issue in its 2017 review of the ERF and observed the difficulty and costs associated with assessing additionality on a project-by-project basis (CCA 2017a). The difficulties of assessing additionality at a project level have also been noted in the Carbon Offset Guide (an initiative of the Greenhouse Gas Management Institute and the Stockholm Environment Institute) (Carbon Offset Guide n.d.).

Recommendation 8

To maintain the reputation of Australia's high integrity carbon offsets market, the Offsets Integrity Standards remain unchanged.

To promote certainty and transparency on how the ERAC interprets the Offsets Integrity Standards, the ERAC reference the Information Paper: '*Committee considerations for interpreting the Emissions Reduction Fund's Offsets Integrity Standards*' in its decisions and ensure it is readily accessible to stakeholders.

Box 5.1 - Case studies: Low uptake of methods

Facilities method

The facilities method encourages emissions reduction through a range of activities such as replacing or modifying boilers, improving control systems and processes, upgrading turbines and fuel switching. The method only has two registered projects and neither has been issued ACCUs.

The method was reviewed in 2019, and the ERAC received numerous submissions as part of its public consultation process. Many of these submissions focussed on the difficulty of using the method due to its restrictive additionality requirements. In submissions to this review, the Australian Aluminium Council and Cement Industry Federation reiterated the barrier created by the 'conservativeness' of how additionality is assessed. The method requires that a project '*would not*' occur in the ordinary course of events and the submissions propose adjusting this requirement to '*better reflect likely circumstances with industrial operations*', by allowing the statement to be broader, indicating the project was '*unlikely*' to occur (AAC submission p.3, CIF submission).

The ERAC advised as a result of the 2019 method review that:

'There are limited opportunities to simplify or relax the requirements in the Facilities Method without undermining its environmental integrity. In most cases, abatement opportunities associated with projects that potentially fall within the scope of the Facilities Method are ill suited to the Emissions Reduction Fund (ERF) program because of fundamental conflicts between the nature of the projects and the ERF requirements, particularly additionality and conservatism' (ERAC 2019b p2).

Subsequently, the King Review concluded that the ERF is not an effective mechanism to capture industrial sector opportunities due to a number of design features in the ERF, including the challenge of demonstrating that the replacement or upgrade of industrial equipment would not have occurred as part of business as usual. The King Review recommended establishing a separate crediting mechanism for large facilities covered by the Safeguard Mechanism architecture. This separate crediting mechanism would provide a new type of credit (separate from ACCUs) to facilities which reduce their emissions below their safeguard baselines by undertaking '*transformative abatement projects*.' The Government agreed with this recommendation and it is discussed in Chapter 4.

The Authority supports retaining the ERAC's preferred approach to additionality in the facilities method but instead considers the best means of pursuing large-scale emissions reductions in the industrial sector is through setting declining baselines for safeguard entities (Chapter 4, CCA 2020a). The Authority also supports the use of mechanisms outside the ERF to encourage the uptake of low emissions technologies, such as through ARENA and CEFC financing (CCA 2020a). This was also recommended by the King Review (Australian Government 2020b).

Energy efficiency methods

The energy efficiency methods achieve emissions reductions by reducing the consumption of electricity and natural gas. There are seven methods available for small energy users and larger industries seeking to improve the energy efficiency of their businesses. As of 6 September 2020, 44 projects have successfully registered under the energy efficiency methods and represent approximately 1.3 per cent of ACCUs issued (1 million ACCUs) (CER 2020e).

The AGL Energy and Bioenergy Australia submissions note that ERF energy efficiency methods are restrictive in terms of assessing additionality at the activity level. AGL Energy stated in its submission that *‘for energy efficiency improvements embedded within production processes where additionality is difficult to establish to the extent required for ACCU creation or where there are risks of interruption to industrial production processes during commissioning’* there may be scope for funding outside of ACCU purchase. AGL energy proposes creating a different class of offsets or incentivising uptake through a separate co-funding program.

A combined review of five of the energy efficiency methods is underway by the ERAC. The review recognises uptake of energy efficiency methods under ERF has been low and *‘will examine ways to make the methods more usable and applicable to future commercial building operations and households, while ensuring the methods meet the requirements under the Act’* (ERAC 2019c). The Authority supports the ERAC’s review.

Revisiting ‘newness’

As part of the additionality principle, s 27(4A) of the CFI Act requires all projects registered under the scheme to *‘not have begun to be implemented prior to the project being declared [registered] unless the method that covers the project specifies otherwise.’* The newness requirement was intended as a practical filter to ensure that only projects established in response to the ERF incentive would be eligible for ERF crediting and purchasing (CCA 2017a).

Currently, the Regulator assesses if a project is new by requesting a declaration or evidence that project activities have not begun until after it has been registered under the ERF, unless the method specifies otherwise. Actions that indicate a project has started include making a final investment decision in relation to the project, acquiring or leasing a tangible asset, commencing construction work and preparing a site for an activity, for example preparing soil for planting (CER 2017a, s 27(4C) of the CFI Act). The Regulator has 90 days to make a decision on an application to register a project (s 27 (14) of the CFI Act).

The Australian Forest Product Association (AFPA) noted that newness should apply from the date the application is submitted rather than from the date the project is declared eligible. This may resolve the barrier in uptake from forestry industries as they *‘require a long lead time for planning purposes and the current definition does not support this’* (AFPA submission p.6). Carbon X noted that starting a new farm management activity after the date a project is declared eligible under the ERF is also difficult *‘as it may require seasonal or weather breaks which may not align easily with the timing dictated’* (Carbon X submission p.3). Assessing newness at the time of registration application rather than registration declaration would provide flexibility for project proponents implementing projects with seasonal constraints or other deadlines, such as for financing, should the administrative process take some time.

However, if the project is not successfully registered and project activities have commenced, this may preclude the project from participating in the scheme in the future as it no longer meets the newness requirement. Project proponents would need to be made aware of this risk when beginning project activities after submitting an application but before a declaration is made.

Greening Australia stated in its submission that:

‘Additionality provisions such as newness and regulatory additionality have posed some limitations and challenges to developing projects but in general, their inclusion helps to support the integrity of the abatement generated. If these provisions were not there, then industry would have simply flooded the market with ACCUs.’

Recommendation 9

To enhance opportunities and flexibility for project proponents, the ‘newness requirement’ be amended to allow project activities to commence from the time of submission of a project application, rather than when the project is declared eligible.

Recognising that planning needs to occur before starting an ERF project, s 27 (4B) of the CFI Act and some methods specify planning actions that can commence without jeopardising the newness requirement. For example, section 32 of the plantation forestry method currently disregards the preparation of any management schedule from the newness requirement (*Carbon Credits (Carbon Farming Initiative—Plantation Forestry) Methodology Determination 2017*). In addition, section 21 of the soil carbon in agriculture systems method disregards the preparation of a land management strategy (*Carbon Credits (Carbon Farming Initiative—Measurement of Soil Carbon Sequestration in Agricultural Systems) Methodology Determination 2018*). Reviewing and applying method specific changes to ensure, for each method, that appropriate planning actions do not breach the newness requirement may address the restrictiveness of how the newness requirement is applied across different methods.

Recommendation 10

To allow greater scope for project planning, the Regulator identify within methods (under development or variation) any planning actions to be excluded from the ‘newness requirement’, with the ERAC providing assurance that this does not jeopardise additionality.

Method innovations and maintaining integrity

The King Review recommended promoting ERF project uptake through

- developing tailored small-scale methods for projects, such establishing shelter belts, which would have streamlined measurement, reporting and verification requirements to reduce costs.
- facilitating multiple methods being applied to a single property (known as ‘method stacking’). This could occur through allowing proponents to submit a single offsets report and audit that covers all the methods in a stacked project (Australian Government 2020b).

The Government agreed with both approaches (Australian Government 2020a) and stakeholders were broadly supportive of both King Review recommendations (CMI, NRM Regions Australia; Farmers for Climate Action and Greening Australia).

NRM Regions Australia said that current methods are too issue specific and do not take into account “the complexity of issues that land managers must take into account” (submission p.4). While welcoming the proposed removal of overlapping auditing and verification requirements by enabling multiple methods to be applied to a single property, NRM regions considered the King Review recommendations missed a ‘significant opportunity’ of creating method ‘modules’ that would allow for

multiple activities without overlapping measurement and data collection requirements. The King Review considered that this would be 'difficult to do with measurement requirements without sacrificing environmental integrity' (Australian Government 2020b). The Authority also recognises that while a modular approach would have benefits, it would be difficult to implement in practice. The Authority suggests the modular approach be explored through the proposed Steering Committee supporting method development (Chapter 6). The Steering Committee could determine whether this could be done effectively for specific areas of industry interest, such as stacking vegetation and agriculture method types, and for energy efficiency method types.

The development of a new small-scale method will trigger an assessment of whether it complies with the Offsets Integrity Standards (s 255(d) of the CFI Act), however rule changes do not need to be assessed by the ERAC. Many reporting requirements are specified in the CFI Rule 2015. If changes are made to the CFI rules in the future to facilitate truncated reporting or data collection for small-scale methods or method stacking, this could have a material impact on a method's compliance with the Offsets Integrity Standards. When prioritising periodic method reviews, the ERAC should prioritise reviews of methods that have a high likelihood of non-compliance with the Offsets Integrity Standards, including any relevant legislative rule changes (Recommendation 14, Chapter 6).

5.4 Crediting before abatement occurs

To encourage participation in the ERF, the King Review recommended issuing ACCUs ahead of when abatement occurs (compressed crediting) in some circumstances in order to more closely align the receipt of ACCUs with the upfront costs of establishing a project. The King Review recommended limiting the forward issuance of ACCUs to projects involving significant upfront costs, where abatement could be 'forecast with a reasonable degree of precision', and which did not rely on significant continuing resources for the abatement to be realised. Energy efficiency projects, tree planting projects and coal-seam gas (fugitive emissions) projects are provided as possible examples. Emissions avoidance projects would be issued credits over 1-2 years (instead of 7 years), and sequestration projects over 15 years (instead of 25 years). To manage the risk of crediting abatement that has not occurred, the King Review recommends that projects would need to meet 'gateway rules' through the project crediting period to continue to receive forward credits. ACCUs would also be required to be relinquished if abatement did not occur. Some stakeholders supported compressed crediting, saying that it would improve cash flow for projects (Greening Australia submission).

The introduction of compressed crediting would represent a different approach to that taken when the ERF was implemented in 2014, when the Government decided not to use an upfront deeming approach as used in some energy savings schemes. The 2014 White Paper states:

'On balance, the Government remains of the view that the Emissions Reduction Fund should provide payment for all emissions reductions as they occur. This will ensure that public funds are always tied to real emissions reductions and that projects are competing on the same basis' (Australian Government 2014 p.35).

Most carbon crediting schemes issue credits only after the abatement has occurred (Broekhoff et al 2019, CARB n.d, VCS 2020, UNFCCC 2020). One of the principles guiding the Authority's analysis of this proposal is environmental effectiveness. Environmental effectiveness places a higher value on abatement achieved now, compared to abatement in the future – all things being equal – as it is more effective in mitigating climate change. In the Authority's view, it is not environmentally effective if an ACCU represents abatement that will not occur for another 5 to 10 years, when it can be used now to offset emissions that have already occurred elsewhere in the economy. This has the potential to reduce the credibility of the scheme overall and could impact on the future ability of ACCUs to be traded internationally (CMI submission).

The compressed crediting model increases the likelihood of ‘moral hazards’ occurring because the project proponent could receive all the benefit from the project 5 to 10 years earlier than the abatement from the project occurs, with no further revenue acting as an incentive to guard against risks to the project. The ERF has in place a number of mechanisms to manage risks, including that the project proponent be a fit and proper person. The risk of reversal buffer, which discounts all sequestration projects by 5 per cent, is also a mechanism to guard against wrongdoing that cannot be remedied at the scheme-level, as well as risks from natural disturbance (Chapter 9). However, if these mechanisms fail, it could increase uncertainty in the market, especially if the ACCUs have already been traded in the secondary markets. There is also an increased risk, if the ACCUs have been sold to the Government, that taxpayer’s funds will be used to purchase ACCUs representing abatement that does not occur.

The Carbon Market Institute (CMI) has expressed support for exploring the use of compressed-crediting but said that the integrity of the scheme should not be undermined (CMI submission). It supported exploring whether a specific proportion of credits could be issued upfront and whether project contracting periods could be extended.

The Government acknowledged that for some ERF methods the ‘gap’ between revenue and high upfront costs can act as a disincentive for some projects to go ahead. It therefore agreed-in-principle to this recommendation and committed to consult with stakeholders on the best mechanisms to encourage projects with high upfront costs on a method by method basis.

The CMI said that consultation should consider whether other initiatives such as ARENA or CEFC co-investment could meet the same objectives as compressed crediting (CMI submission). The Authority agrees that there are other options that could provide the incentive for projects with high upfront costs to be developed that do not bring with them the risks associated with compressed crediting (Chapter 4).

Recommendation 11

To support potential ERF projects with high upfront costs while upholding the integrity of the scheme, the Government explore innovative financing approaches on a method by method basis, for example concessional loans (see also Recommendation 4), rather than using compressed crediting.

5.5 Duty of utmost good faith and Carbon Industry Code of Conduct

The King Review recommended, and Government agreed, that the need for proscriptive project eligibility rules could be lessened if project proponents were subject to a ‘duty of utmost good faith’ (duty). This duty is similar to s 13 of the *Insurance Contracts Act 1984 (Cth)*, which creates an implied provision in all insurance contracts requiring the parties to the contract to ‘act towards the other party, in respect of any matter arising under or in relation to it, with the utmost good faith.’ The King Review draws a parallel to requirements in insurance contracts because information asymmetries associated with carbon offset schemes are similar to those encountered in insurance contracts – with proponents generally holding superior information to scheme administrators on relevant facts. This duty would ‘*require ERF participants to act in the utmost good faith in their engagements with the scheme, including in relation to implementing projects, judging whether projects are additional, and measurement, reporting and verification*’ (Australian Government 2020b).

Similar to insurance contracts where a breach of this duty could result in cancellation of the insurance policy and/or non-payment of insurance claims, the King Review states that the proposed duty could be enforced through penalties for non-compliance including revocation of projects and relinquishment of ACCUs. However the King Review envisages that the primary *'aim in creating the duty would be to foster a collective responsibility for the reputation and durability of the scheme and to encourage the internalisation of norms regarding participating in good faith'* rather than strict enforcement (Australian Government 2020b).

The King Review recommends implementing the overarching statutory duty through the creation of additional mechanisms to reinforce ethical behaviour at key points of engagement with the scheme including:

- *a requirement for project proponents to pledge to act in good faith when registering projects and submitting offsets reports;*
- *a requirement for project proponents to describe how they have complied with the duty in their reports; and*
- *the publication of reminders of the duty and its function in scheme documents and online platforms* (Australian Government 2020b).

There are existing mechanisms in the ERF that already promote the integrity of participants, such as the 'fit and proper person' test. The test requires participants to declare any convictions or insolvencies and considers whether the person has the necessary capabilities and business practices to run a project (CFI Act, CFI Rule 2015, CER 2017b). The Authority noted in the 2017 review that the fit and proper person test applies to scheme participants, however intermediaries such as carbon service providers do not need to pass the test (CCA 2017a). The Authority recommended the test be extended to designated agents.

Introducing a 'duty of utmost good faith' into eligibility rules imposes a positive obligation on the person. However, the extent to which it captures actions by carbon service providers who are not participants would also need to be considered. Another limitation of the duty is that it would only apply to new actions and would therefore fail to address existing, ongoing compliance issues.

NRM Regions Australia noted in their submission to this review that *'at this point there is nowhere project participants can go for independent guidance, help or mediation. There is a clear need for a resourced independent contact point who will provide advice and follow-up these cases.'* They suggest the 'ombudsman' role could *'work with initiatives such as the market industry code of practice... to ensure market integrity and social support... is maintained'* (p.3).

The CMI, in its response to the King Review, identified an opportunity to integrate 'utmost good faith' with the industry-led Carbon Industry Code of Conduct (Code) by adding participation in the Code as a criteria for fulfilling the duty (CMI submission, CMI 2018). A similar requirement has been introduced to the Queensland Land Restoration Fund (QLRF). The QLRF has made signatory status a condition of entry to the scheme (CMI 2020a; Queensland Government 2020b). The Code aims to define industry best practice, promote consumer protection, provide guidance to scheme participants and promote market integrity (CMI 2018). An independent review of the Code was completed in August 2020. Implementing and exploring the 46 recommendations is currently underway (CMI 2020a,b).

The CMI has indicated the Code will *'scale up to play a more active role in supporting carbon market integrity, transparency and accountability as the carbon industry expands in the coming years'* and recognise that *'Indigenous communities, eligible interest holders and other landholders are engaged early and appropriately to provide appropriate consents'* (CMI 2020c).

The Authority notes that the Code could be used to extend to carbon service providers and other designated agents that are currently not captured by existing mechanisms that promote the integrity of participants such as the fit and proper person test. However, as noted in the Authority's 2017

review, as the Code is voluntary '*any rogue operators may just decide not to participate*' (CCA 2017a). This could be resolved by adding the Code as a criteria for fulfilling the duty, as suggested by CMI in their submission in response to the King Review (CMI submission), however requiring scheme participants to become a signatory may increase the cost and administrative burden of running an ERF project, especially for smaller projects. Currently, to become a signatory to the Code costs between \$2,500 and \$12,500 per annum (CMI 2018). The CMI has committed to review the fees annually to ensure lowest possible cost to signatories

Once the Code has matured, the Code Administrator could play a co-regulatory role with the Regulator that incorporates the duty while facilitating appropriate and open interaction with project owners and landowners. The Authority cautions the extent to which eligibility rules could be relaxed in methods will depend on the ability for the Regulator to enforce the duty and apply penalties in the event of breach, and will require participants to be clear about what the duty means and how it will be implemented and interpreted.

CHAPTER 6: OPTIMISING GOVERNANCE FOR A MATURE EMISSIONS REDUCTION FUND

The ERF is underpinned by a governance framework designed to maintain the integrity and effectiveness of the scheme. The King Review recommended the Government review these arrangements and as a result the responsibility for method development and variation has been consolidated within the Regulator. The move is intended to leverage the Regulator's practical experience in administering the scheme and reduce the need for duplication of expertise and resources between it and the Department.

In addition to its new method development and variation functions, the Regulator retains its responsibilities for project approval, compliance and enforcement functions, interpretative guidance and rules around project implementation, and the crediting and purchasing functions of the ERF. The consolidation of all the functions relating to the demand, supply and regulation of Australia's carbon abatement units creates a risk of real and perceived conflicts of interests arising. This will need to be carefully managed and independently monitored.

Many submissions have raised the need for greater, more structured involvement of stakeholders and external technical expertise in ERF method development. Establishing a formal Steering Committee to oversee method processes could bolster resources, better harness valuable input from industry and other third-party experts and mitigate the risk of perceived or actual conflicts in relation to the Regulator's multiple functions.

As its name implies, the Emissions Reduction Assurance Committee plays an important role in upholding the integrity of the ERF. Increasing its resourcing, access to information and giving it greater scope in several areas (including crediting period extensions) would further empower the Committee in its role.

6.1 Improving method development and variation

Prior to the recent announcements that ERF method development and variation functions will be consolidated in the Regulator, methods were developed by the Department with advice and input from Technical Working Groups (TWGs) and the Regulator (see section 6.2 below). Following advice from ERAC, once a method is approved by the Minister, the Regulator is then charged with assessing eligibility and registering projects using the method, in accordance with the CFI Act. The Regulator is also responsible for the monitoring, compliance and enforcement of projects, which can involve the development of guidance and tools for measuring abatement to support implementation of the method (s 286). Method variations were initiated within the Department, often on the recommendation of the ERAC. Prior to the consolidation of functions, method variations were drafted by the Department, with input from the Regulator (CER 2016).

Several stakeholder submissions raised concerns about method development and review processes being opaque and inefficient (EDL p. 2; Energy Savings Industry Association p.3; Carbon X p. 4), suggesting that the Department and the ERAC lack sufficient resources to undertake their legislative functions effectively (Greening Australia p 2; EDL p. 2). The Kimberley Land Council noted that the communication between the Department and the Regulator could be improved (KLC submission p.10).

As the ERF matures, the practical experience of the Regulator in administering the scheme has become increasingly valuable in the development of new methods and the variation of existing methods, as well as in the development of practical guidance to project proponents and application of abatement measurement tools. The registration, management, monitoring and compliance of ERF

projects necessitates a high level of technical skill and expertise. At the same time, the Department was required to maintain the technical skills necessary to undertake method development and variation, leading to a duplication of highly technical resources. The Government's decision to consolidate method development and variation functions in the Regulator (Taylor A 2020) is likely to optimise scarce resources and streamline these processes, negating the need to duplicate expertise across two distinct workforces. A number of stakeholders were complimentary of the administration of the ERF by the Regulator (Hydro Tasmania, Woodside, Carbon Friendly, GreenCollar).

However, in addition to its administrative functions, the Regulator also issues ACCUs to projects and purchases ACCUs via ERF auctions. Now that the Regulator has responsibility for method development and variations, in addition to approving projects, compliance and enforcement, creating interpretative guidance and rules around project implementation and the crediting and purchasing functions of the ERF, real and perceived conflict of interests could arise.

In particular, one of the primary considerations in the development and variation of a method should be compliance with the Offsets Integrity Standards. As explained in Chapter 5, the creation of genuine, additional abatement, is an essential component of an offsets scheme because the primary purpose of an offset is to replace higher cost emissions elsewhere. There is a fine balance to be struck between upholding the intent of the Offsets Integrity Standards in the development and variation of methods on the one hand and in the pursuit of more credits at a lower cost through ERF purchasing on the other. Consolidating these functions within a single institution could give rise to a perception of a conflict of interest, which could undermine the reputation of the scheme.

Robust probity measures will need to be maintained to ensure the proper operation of the different ERF functions – particularly method development and variation, compliance and enforcement, and crediting and purchasing. Within the Regulator, separate decision makers should continue to have responsibility for each of the key functions, including the new method development function, in order to ensure a clear separation of powers is maintained. The Regulator should obtain independent probity advice on the operation and separation of these key functions, building its on existing probity and governance measures. The Authority recommends that the Australian National Audit Office (ANAO) undertake a performance audit of the consolidated operations after two years to provide assurance over the Regulator's handling of its many responsibilities under the ERF.

Recommendation 12

To ensure ongoing confidence in the administration of the ERF under consolidated responsibilities, the Regulator build on its existing probity and governance measures by:

- **maintaining separate decision makers, including at senior executive level, for each of its key functions – method development and variation; compliance and enforcement; and crediting and purchasing of ACCUs**
- **obtaining independent probity advice on the operation and separation of the key functions.**

The Australian National Audit Office undertake a performance audit after the first two years of the consolidation of functions within the Regulator.

6.2 Establishing a Steering Committee for method processes

Technical Working Groups (TWGs) made up of industry and other experts and government representatives, including from the Regulator, have assisted the Department in the development of ERF methodologies (DEE 2015). The Explanatory Memorandum to the *Carbon Farming Initiative*

Amendment Bill 2014 describes the TWGs as a mechanism through which government can consult and work collaboratively with industry.

Submissions from stakeholders highlight that while TWGs continue to be established and utilised for the development of individual methods, opportunities for stakeholder input is not being fully realised (Greening Australia). The Australian Aluminium Council stated that in principle, industry expertise *'should be utilised as much as possible, to help optimise the practical application and update of these methods'* (p. 4). Several submissions also suggest that method prioritisation, development and review processes lack efficiency and transparency (Carbon X p. 4; Energy Savings Industry Association p. 3; EDL p. 2), in part owing to the fact that both the Department and the ERAC have limited resources to carry out the substantial and often technical work involved in methodology processes (Greening Australia p 2; EDL p. 2). Some stakeholders have recommended formalising arrangements for greater industry engagement (EDL p. 2; Greening Australia p. 2), pointing out that industry—from which extensive, up-to-date expert knowledge can be drawn—is already heavily invested in methodology processes (Energy Savings Industry Association p. 3).

Historically, under the Carbon Farming Initiative (CFI), third-parties were permitted to propose and prepare methods. Third-party proposed methods were assessed by the Domestic Offsets Integrity Committee (the precursor to the ERAC) and, if endorsed, would be formalised by the Department and Minister (CFI Act 2011 (superseded), ss 108; 112). This process was abandoned when the CFI was replaced by the ERF in 2014, partially on the basis that it had resulted in a diversion of scarce departmental resources toward methods that were often narrow in scope (Australian Government 2020b). While acknowledging this move had benefits, the King Review recommended that greater opportunities should be made available for third-parties to engage in developing methods while avoiding previous pitfalls (Australian Government 2020b). The Carbon Market Institute is supportive of the King Review recommendation and “welcomes avenues for industry and technical experts to be involved in ERF method development” (CMI submission p.6) as do other stakeholders (Farmers for Climate Action p.3, Australian Forest Products Association p. 5).

In response to the King Review’s recommendation, the Government agreed to investigate options for deeper industry involvement in method development with a focus on in-kind support, such as procuring new datasets to help certify the scientific integrity of a method. The Government has also recently announced it will seek to slash the time taken to develop new ERF methods from 24 months or more to less than 12 months, involving industry in a co-design process (Australian Government 2020a, Taylor A 2020). The Authority welcomes the Government’s announcement and sees value in establishing a more formal mechanism to optimise industry involvement and participation in method processes.

The management of fisheries under the *Fisheries Management Act 1991* (Cth), the administration and development of the Australian Building Codes and the Takeovers Panel, to advise on company mergers and acquisitions, under the *Australian Securities and Investments Commission Act* (Cth), are all examples of different ways industry, government and other experts can engage in a formalised, ongoing way to harness greater technical expertise (Box 6.1). Analysis of these models shows that, as complex and highly technical regulatory schemes mature, technical knowledge and expertise housed within industry becomes an increasingly valuable policy resource that can be and often is drawn heavily upon by government departments and regulatory agencies.

Box 6.1 Examples of formalised industry input on regulatory matters

The Takeovers Panel established under section 171 of the *Australian Securities and Investment Commission Act* (Cth) (ASIC ACT), comprises a panel of expert members based on their relevant professional knowledge and expertise in mergers and acquisitions. The members serve on a part-time basis for a period of three years and may be re-appointed. The panel is primarily drawn on to make decisions on Australian Company takeovers (Australian Government Takeovers Panel n.d.)

The Australian Building Codes Board comprises representatives from all levels of government and industry representatives to advise on the development and maintenance of Australia's building codes. The board is informed by Building Codes Committees that advise on proposals for change advanced by stakeholders (ABCB n.d.).

Management Advisory Committees (MACs) are statutory committees established under the *Fisheries Administration Act 1991* (Cth) (s 56). Each Commonwealth fishery is covered by a MAC comprising expert members drawn from industry, government, conservation, research, Indigenous and recreational groups (AFMA 2018). A MAC undertakes several core functions, including the provision of advice and reporting on scientific, economic and other information about a specific fishery to the Australian Fisheries Management Association (s 57).

Drawing on different models of how industry expertise has been used in complex regulatory environments, formalised industry involvement could take the form of a Steering Committee comprised of the representatives from industry, the Regulator, the Department, the CSIRO and the ERAC. The Steering Committee members would be appointed by Government for a specified (renewable) period and operate on a part-time basis. The Committee should comprise members with expertise in carbon markets, scientific knowledge, carbon sequestration and emissions avoidance expertise and the National Greenhouse Gas Inventory.

Unlike the Technical Working Groups, which are currently formed on an ad hoc basis when a particular method is being developed, the Steering Committee would oversee the method processes including guidance of how methods are applied and tools for measuring and monitoring them, and enable a process for additional relevant industry and other specialists to participate in targeted working groups on a method specific basis. To this end, the Steering Committee should develop a stakeholder engagement plan, which sets out a process for stakeholders to participate in the working groups for individual methods.

The Steering Committee would facilitate continuity of industry and expert input when methods are developed, varied and reviewed. It would also provide additional skills, resources and knowledge to method processes and help ensure better usability of methods. This will improve transparency on how methods are developed and varied, which currently has led to considerable market uncertainty (see Chapter 7). The ERAC could also call on the Steering Committee for information when undertaking method reviews. Importantly, the establishment of a formal Steering Committee to oversee and manage the method processes will alleviate some of the perceived and potential conflicts of interest in relation to the Regulators' multiple functions of developing method rules, purchasing abatement in accordance with the rules and enforcing the rules.

The Committee will impose an additional cost to Government, however, it could bolster technical expertise in the ERF scheme and facilitate better industry participation and market certainty, which could lead to the scheme operating more effectively and efficiently in the medium-to-long term. The Government would need to undertake a cost benefit analysis to assess whether the benefits of establishing such a Committee outweighs the additional cost to Government.

Recommendation 13

To give industry a greater opportunity to contribute to the development of new methods and increase transparency, the Government consider establishing a Steering Committee under a regulatory instrument to the CFI Act to oversee method development and variations. The Steering Committee should comprise representatives of the CSIRO, the Department (including from the National Greenhouse Gas Inventory team), the Regulator, the carbon industry, and as an observer, the ERAC.

To enable relevant industry, scientific, carbon market, carbon sequestration and emissions avoidance experts to participate, the Steering Committee convene working groups on a method specific basis.

To strengthen industry participation, the Committee develop and publish a stakeholder engagement plan.

To enhance the method development process, the King Review also suggested that a pilot method program be established to test new method ideas and expedite method preparation. This recommendation was supported by Government in its response to the King Review (Australian Government 2020b). Stakeholders including the AFPA [p.5], Farmers for Climate Action [p.4] and Australian Energy Council support this initiative (submissions). The CMI stated that allowing pilot activities to generate ACCUs, if the method is successful, would 'incentivise private sector investment partnerships and that when determining how this is done "as for all responses social and environmental integrity is paramount" (CMI submission p.6).

The Authority considers that a formal Steering Committee would be well suited to helping inform or advise on a pilot program, and that a pilot approach could be beneficial in order to test the feasibility and workability of methods prior to their adoption. This should be done in a way that upholds the integrity of the scheme.

6.3 Maintaining scheme integrity through the Emissions Reduction Assurance Committee

The ERAC is an independent body established under the CFI Act (s 254). It ensures that proposed and existing methods adhere to the Offsets Integrity Standards. It therefore plays a key and ongoing role in protecting the integrity of the ERF (ERAC 2019a). The Department and the Regulator may also provide information, advice, secretariat and other support to the ERAC for method reviews (s 269).

The Minister can only approve a proposed method if the ERAC determines that it adheres to the Offsets Integrity Standards (s 106(4B)). In undertaking method reviews, if there is reasonable evidence to suggest that a method no longer complies with the Offsets Integrity Standards, the ERAC may suspend that method for up to 12 months, during which time new projects cannot be approved (s 27A). The ERAC carries out two types of method review under the scheme: periodic method reviews and crediting period extension reviews. In addition to method reviews, the ERAC provides advice to the Minister on new methods, and on variations to or revocations of existing methods (s 123A).

Resourcing the ERAC

Under the CFI Act, the ERAC may be assisted by both the Department and the Regulator in reviewing a method. This assistance can take the form of information, advice, secretariat and related support (s 269). Prior to the Government's recent announcement to transfer the ERAC secretariat functions to the Regulator, the Department had been providing secretariat services to the ERAC.

In its recommendation to review the ERF governance arrangements for efficiency and effectiveness, the King Review proposed that the structure and staffing of the ERAC be specifically examined. In particular, it suggested an analysis be undertaken of whether the ERAC should be staffed and supported by officers from the Department, the Regulator or an alternate agency (R. 6.4). In making this recommendation, the King Review observed that information *'has not always been openly shared between the entities and the extent of collaboration has not always been optimal'* and discussed several likely reasons for this, including that the part-time nature of current board memberships leaves the ERAC heavily dependent on a secretariat to fulfil its statutory mandate (Australian Government 2020b).

Some stakeholder submissions also raised concerns about the efficiency and effectiveness of the methods review process (EDL p. 2; ESIA p. 3). EDL's submission expressly recommended additional Departmental and ERAC resourcing to address these concerns (EDL p. 2). These issues were clearly reflected in the King Review's recommendation.

In its review of the ERF in 2017, the Authority identified that a potential or perceived conflict of interest could arise from the Department being made accountable for both the ERAC secretariat function and the method development function (CCA 2017a). On this basis, it recommended that the senior executive accountable for the ERAC secretariat be different from the senior executive responsible for method development (R. 3). This was subsequently implemented by the Department. The King Review supported this analysis, pointing to the difficulties inherent in serving the ERAC independently and impartially when doing so may involve secretariat staff having to critique their own work and then provide that critique to their Minister. The King Review raised the option of moving the responsibility for the ERAC secretariat to the Regulator and seconding Departmental staff to the Regulator as required for reviews and other ERAC processes (Australian Government 2020b).

Based on consultations for this review, the Authority has concluded that the work of the ERAC is closely linked to the method development and variation processes, and the ERAC's resourcing shortfall cannot be pragmatically redressed by completely separating the ERAC secretariat from the method processes. Accordingly, the Authority supports the Government's decision to relocate the ERAC secretariat functions to the Regulator together with the method development and variations. This will help ensure the ERAC has the technical skills, knowledge and information necessary to undertake its functions. However, the Authority remains of the view that internal governance arrangements, which ensure a separation of senior executive responsible for the method processes and the ERAC secretariat, should be retained at the Regulator.

Notwithstanding the shift of the ERAC secretariat function to the Regulator, it may still require some technical skills and information currently housed in the Department. Where necessary the Department should continue to provide support to the ERAC for method reviews in the form of information and advice. The ERAC also requires access to the timely provision of information (including protected information)¹⁰ from the Regulator in order to fulfil its duties effectively during the sitting times of the ERAC. Under the Clean Energy Regulator Act (*Cth*) 2011, the Regulator is prohibited from disclosing protected information, unless specifically authorised. Section 44 of the Act allows the Regulator to disclose or use protected information if the disclosure is for the purpose of a climate change law — this is likely to cover disclosures to the ERAC.

The Regulator currently has a memorandum of understanding with the ERAC on the disclosure of requested information, however this currently does not cover protected information (CER pers

¹⁰ Protected information is defined in the Clean Energy Regulator Act, as information that is obtained by a person in their capacity as an official of the regulator, which relates to the affairs of a person other than an official of the Regulator.

comm.), which may be pertinent to the ERAC being able to undertake its duties. The memorandum of understanding between the ERAC and the Regulator should be expanded to ensure there is a clear authorising framework with timeframes for the request and provision of information, including protected information.

Recommendation 14

To assist the ERAC to perform its functions and duties as set out in the CFI Act, the Regulator establish an enhanced agreement with the ERAC on the disclosure of requested information, including a timeline for provision of requested information and the manner in which to treat protected information.

Of the 34 ERF methods that are available for new projects to use, 9 methods currently have few or no projects registered under them and are yet to generate meaningful abatement under the scheme (CER 2020e).¹¹ All available methods, regardless of whether there are projects registered, require the Department and the Regulator to retain a level of expertise and resources in relation to that method. Once a method is developed the ERAC also has the ongoing role of monitoring the compliance of the method with the Offsets Integrity Standard, again this is regardless of whether there are projects registered (s255).

To further ensure that the ERAC, Department and the Regulator's resources are allocated efficiently and effectively, the Minister could request the ERAC undertake an audit of existing methods to advise the Minister which methods should be revoked based on current and likely future uptake of the method, complexity of maintaining the method and whether the method is likely to continue meet the Offsets Integrity Standards. The ERAC could also have regard to whether there are other programs or policies under the Government's climate policy suite that would be better suited to incentivising abatement for a particular activity or technology. The Ministerial request could be made under s 123(2) of the CFI Act, which requires the Minister to request the ERAC to provide advice about whether the Minister should revoke the determination prior to doing so.

Revoking methods that have had little or no uptake and that are unlikely to generate any meaningful abatement in the future could alleviate the administrative burden associated with maintaining these methods, thereby freeing up valuable resources.

Periodic method reviews

The ERAC is required to periodically examine whether a method continues to comply with the Offsets Integrity Standards (s255). According to the *Emissions Reduction Fund White Paper*, the Government's original intention was for the ERAC to review each method at least once every four years (Australian Government 2014). There is currently no formalised schedule or rule for the prioritisation of method reviews.

Of the 34 new methods available for use in December 2017 (CCA 2017a), 15 have been reviewed or are currently under review by the ERAC (DEE 2020). The number of successive method reviews is placing strain on the ERAC's already limited resources, potentially limiting the extent to which the ERAC can undertake a thorough analysis of empirical evidence of actual projects and delaying when a review of a method is able to be undertaken.

In its submission to this review, EDL noted the difficulties in obtaining 'a clear picture from the Department as to how ERF-related reviews were being prioritised, timetabled and resourced' (p. 3).

¹¹ Methods for which contracted abatement is less than 0.05 million ACCUs at 13 September 2020 are taken to be generating less than meaningful abatement.

In order to ensure that it is able to undertake its responsibilities in the most efficient and effective manner with the resources it has available to it, the ERAC could establish a framework for the prioritisation of periodic method reviews, rather than reviewing methods on a 4-year cycle as proposed by the White Paper (Australian Government 2020b). This could help free up ERAC resources, allowing it to undertake more comprehensive reviews of how methods are operating on the ground, and prioritising reviews of methods that have a higher risk of non-compliance with the Offsets Integrity Standards as well as those methods that drive greater levels of emissions abatement. A prioritisation process would also provide stakeholders with more certainty and transparency in relation to the methods review process.

Recommendation 15

To enable it to efficiently maintain the quality of ERF methods, the ERAC develop a framework for prioritising its periodic method reviews, taking into account the current and likely future uptake of the method, the complexity of the method, the likelihood of breaches of compliance with the Offsets Integrity Standards and any relevant legislative rule changes.

Crediting period extension reviews

In conducting a crediting period extension review, the ERAC considers whether a method should be varied so as to extend the crediting period for eligible offsets projects covered by the determination by considering whether the emissions reduction activity continues to be additional (s 255(ha); 255A(1), 133(a)(1); ERAC 2018). The ERAC must ensure that it completes a review before a project using the method enters the last 12 months of its crediting period (s255A(4)), and is required to undertake such public consultation as it considers appropriate (s 255(hb); s255A(3)). The ERAC then advises the Minister of the outcomes of the review (s 255(hc)).

Currently, the Act prohibits the Minister from varying a method to extend crediting periods when the ERAC has previously advised the Minister not to extend a crediting period. This has led to a situation where the Minister cannot extend a crediting period based on subsequent ERAC advice which reflects the changed circumstances. This issue appears to have arisen in respect of the landfill gas method (Box 6.2).

Box 6.2 Case study: Review of the landfill gas method

Landfill gas is generated when organic material decomposes in landfill. The landfill gas method provides an incentive to install new landfill gas collection systems, upgrade existing systems or recommence operation of non-operational systems. Projects capture the gas and combust it, either through flaring or internal combustion. Landfill gas projects have been effective at driving emissions reductions in the waste sector. As of 22 June 2020, they are responsible for 30 per cent of total ACCUs issued (22.7 million tonnes of avoided CO_{2e}) and comprise 13 per cent of Commonwealth contracted abatement, against which they have successfully delivered 57 per cent.

The crediting period for most landfill gas projects expires in 2021. Under the CFI Act, only one crediting period is granted for projects (7 years, in the case of landfill gas). A crediting period review is required to extend the method to projects for a second crediting period. The ERAC's 2017 crediting period extension review of the landfill gas method recommended that the crediting period for electricity generation projects not be extended due to there being a high risk of crediting emissions reductions that were likely to occur in the ordinary course of events (ERAC 2018).

Since that review, industry stakeholders have questioned this finding and provided additional data for the ERAC to consider in support of its view that projects which generate electricity may not be viable without the financial support provided through the ERF. Industry has informed the Authority that it is timely that this information be considered, as the crediting period for a number of landfill gas projects will finish in 2020 or 2021. However, The Minister is not able to extend a crediting period irrespective of the merit of the new information, as the CFI Act does not allow the Minister to extend a crediting period where the ERAC has previously determined that it should not be extended.

An amendment to the CFI Act to allow the ERAC to re-open a crediting period extension review of a method, in circumstances where information becomes available that could materially change the ERAC's advice on a matter relevant to additionality, would enable the Minister to make a variation based on the most current ERAC advice (regardless of previous advice) and prevent industry stakeholders from being arbitrarily disadvantaged.

Recommendation 16

To enable crediting periods to be based on up-to-date information, the Government amend the CFI Act to allow the Minister to extend a crediting period, based on advice from the ERAC, regardless of whether the ERAC had previously advised against an extension.

Native title holder consent

Savanna burning projects and vegetation projects, as 'area-based projects', both require eligible interest holder consent to be obtained prior to ACCUs being issued to the project (CFI Act). However, area-based projects can currently be conditionally registered without this consent, with the requirement that the project proponent subsequently obtains eligible interest holder consent prior to the end of the first reporting period (up to five-years for sequestration projects). For projects that are being established on land with a recognised native title holder this will include consent from the holder. While submissions acknowledged the ERF scheme can provide opportunities for holders of native title rights, they also identified that when and how native title consent is obtained for ERF projects could be improved (ALFA, KLC, ICIN and members). Kimberly Land Council (KLC) noted in

their submission that *‘without proper checks and balances, underpinned by the principles of free prior and informed consent, there is a risk of projects resulting in disempowerment of Traditional Owners’* (KLC p.2). This issue has been primarily raised in relation to savanna burning projects.

In the 2017 ERF review, the Authority recommended that the Regulator seek to clarify expectations on consultation with Indigenous communities (CCA 2017a). Since the Authority’s 2017 review, the Regulator has published a guidance document that clarifies the law and practice of how projects under the ERF must consider the rights of native title groups and state and territory law (CER 2018a). In its submission to this review, the Indigenous Carbon Industry Network (ICIN) welcomed the guidance document for taking *‘more proactive steps towards protecting the rights and interests of native title holders’* (p. 4). However, it also noted more improvements could be made to *‘ensure that the carbon industry is best practice’* (p. 4). Submissions to this review also reflected positively on interactions with the Regulator and acknowledged improved consultation with the Indigenous carbon industry (ALFA, KLC, ICIN submissions). In their submissions, ICIN, KLC and Arnhem Land Fire Abatement recommend implementing legislative and policy changes to ensure carbon projects can no longer be registered prior to obtaining consent from native title holders, as is currently the case for new areas being added to existing projects (s23(1)(c) CFI Rule). KLC stated in their submission to this review:

‘Remove the ability to ‘conditionally’ register projects on native title lands (prior to obtaining Indigenous consent), thereby preventing delivery of carbon and co-benefits being delayed and land being ‘locked up’ by conditional project declarations that do not generate carbon credits; and implement legislative and policy change to ensure carbon projects can no longer be declared prior to obtaining consent from native title holders’ (p. 4).

Seeking consent prior to project registration is considered industry best practice. The Administrator of the Australian Industry Code of Conduct (the Code) encourages signatories to apply the ICIN best practice guidance for carbon project developers seeking free, prior and informed consent (ICIN 2020). A recent review of the Code recommended that it be clarified that receiving consent prior to project registration is a requirement for a carbon service provider to meet ‘best practice’ standards (Administrator of the Code 2020).

The Authority notes that while there have been improvements through Government guidance documents and legislative rule changes, work still needs to be done to foster positive Indigenous participation and ensure there is free, prior and informed consent before ERF projects are registered and allowed to bid for a fixed delivery contract at auction.

Recommendation 17

To align with best practice, the Government, following a formal consultation process with Indigenous stakeholders, amend the CFI Act to ensure free, prior and informed consent from native title holders prior to the registration of area-based ERF projects on native title land.

CHAPTER 7: METHOD AND TOOL VARIATION

RISK SHARING FRAMEWORK

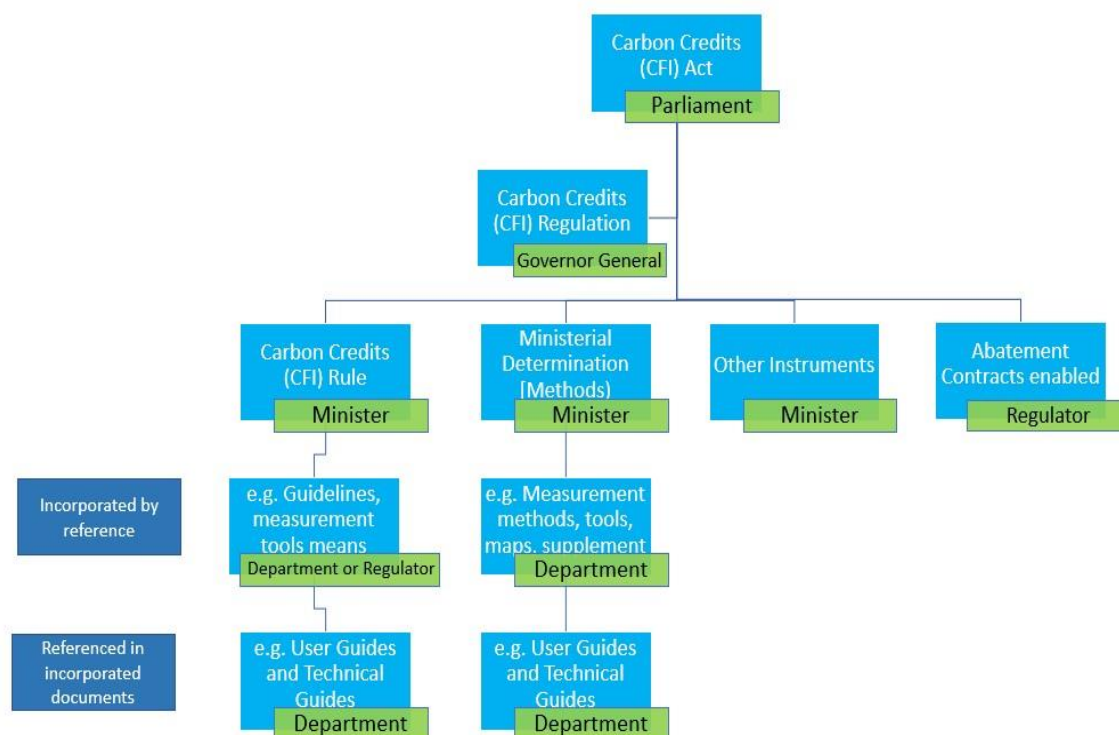
ERF subordinate legislation, tools and supporting guidance documents need to keep pace with developments in science and technology to ensure that estimates of emissions reductions are as accurate as is practical and the integrity of ACCUs is maintained. However, changes made by the Government to these instruments may result in material changes to a proposed or existing project's abatement potential and business viability.

Changes to the scheme, that impact on the value of existing and future ERF projects, can be managed through development of a robust and transparent framework for risk sharing between the Government and ERF project owners.

7.1 Method and tool variation

The ERF is governed by the CFI Act and subordinate legislative instruments including CFI Regulation, CFI Rule and Ministerial determinations made under the Act. The methods which set out the rules for how to implement emissions reduction projects are made via Ministerial determination. Several other documents and information on methods are incorporated through reference in the subordinate legislative instruments. These include tools, calculators, guides and scientific literature (Figure 7.1).

FIGURE 7.1. HIERARCHY OF THE LEGISLATIVE FRAMEWORK FOR THE EMISSIONS REDUCTION FUND



The ERF and CFI design envisaged that methods would need to change and evolve over time with developments in estimation techniques, the science underpinning abatement (particularly for the land sector with its natural systems and inherent variability) and, with respect to additionality, in light of changes in technologies and practice (CCA 2017a p. 30) (Box 7.1). The White Paper intended

'estimates of emissions reductions must be as accurate as practical... Where methods rely on models, these must be unbiased and based on credible scientific evidence or data' (Australian Government 2014).

Reviewing methods, including the crediting period of abatement under a method, is the responsibility of the ERAC. The ERAC has a statutory obligation to periodically review each method, which it does with the assistance of the Government and the Regulator. ERAC reviews examine whether the method continues to comply with the Offsets Integrity Standards, in particular whether the activity under the method is still additional (ERAC 2019a; CCA 2017a).

Box 7.1 Example of where methods could evolve over time with developments in estimation techniques and the science underpinning abatement

Land-based projects are subject to natural processes that affect carbon pools (vegetation and soil carbon) that are being credited (CSIRO 2020). For example, scientific research has shown that the ability of soils to sequester carbon is more influenced by factors like rainfall, soil type and topography of the land than the management action taking place on the land (Rabbi et al. 2015; Badgery et al. 2020). The CSIRO states in its report that *'further work is required to tease apart the relative sensitivities to soil carbon loss and gain for each climate impact factor'* (CSIRO 2020).

ERF methods and measurement tools are designed to credit for long-term management changes in carbon storage that distinguish shorter-term natural variation. This is embedded in abatement calculations within the methods.

There may be cases where new studies on natural processes that affect carbon pools challenge the additionality of the activities of a method. As new science emerges, methods will need to be updated to reflect changes in potential abatement.

Since 2017, the ERAC has reviewed seven methods, a further eight are currently under review, and a number have subsequently been varied to incorporate the ERAC's recommendations. The Department and the Regulator, on behalf of the Government, also publish and update supporting resources such as guidelines, supplements, calculators and/or emissions factors. While these supporting resources are incorporated through reference in legislative instruments, changes do not necessarily coincide with ERAC reviews.

The CFI Act protects an existing project from variations or revocations to a method – the method continues to apply unchanged to projects that were registered prior to the variation or revocation taking effect, unless the project proponent applies to the Regulator to switch (ss 125; 130 of the CFI Act). Scheme participants may be incentivised to move across to new methods if they provide benefits, including increased abatement, increased flexibility or reduced measurement and reporting costs. They are unlikely to switch over to a varied or new method if it provides them with fewer ACCUs and less financial return (CCA 2017a).

While this approach enhances certainty for project investors, it comes with the risk of undermining the integrity of ACCUs if projects are perceived to be receiving more ACCUs than would be the case under the revised method. The Government bears the risk if it purchases low integrity ACCUs. Additionally, a loss of market confidence in the integrity of ACCUs will adversely affect the Australian carbon industry (Woodside p. 3; ICIN p. 4; ESIA p. 4 submissions).

An analysis of emissions avoidance and carbon sequestration opportunities from rural land use by CSIRO in 2009 cautioned that there will be fast and continuing improvements in the ability to quantify the volume of emissions reductions and sequestration and said *'Accordingly the trading policies and terms enacted should be couched in forms that can be readily and routinely updated and upgraded to*

accommodate improvement in the science without disadvantaging early bona fide investors' (CSIRO 2009).

When variations are made outside of methods, such as to the statutory rule or other supporting resources, the risk of any commercial impact is borne by existing scheme participants unless the Government decides otherwise at the time of the variation. Stakeholders have raised this as a significant issue (Box 7.2). Kimberley Land Council and ICIN recommended removing *'uncertainty created by potential changes to the Technical Guidance Document [of savanna burning projects]... in order to provide certainty to proponents'* (KLC p. 8). In most cases, changes to guidance and tools outside of the method are retrospective, unless the Government decides otherwise at the time. For example, recent updates to the Full Carbon Accounting Model (FullCAM) includes two options; existing projects can use either the 2020 or 2016 option within the 2020 FullCAM version (CER 2020j). The 2016 option 'grandfathers' the model version from 2016. The case study in Box 7.2 describes the impact on native forest regeneration projects due to variations made outside of the methodology determinations.

The Authority considered this issue in its 2017 review of the ERF and recommended the Minister make improvements to methods to maintain their alignment with the Offsets Integrity Standards and require scheme participants to move to the new method within two years if a variation is made (CCA 2017a Rec. 4). The Government notes requiring projects to transition to new or varied methods would help support the integrity of the scheme, but that it must be balanced with considerations of fairness to existing participants (Australian Government 2019c).

The King Review noted this approach would reduce the integrity risks associated with method errors and science improvements. However, it would *'exacerbate the concerns surrounding retrospective rule changes... This could deter participation in the scheme, while also potentially acting as a barrier to method improvements, as proponents and aggregators of existing projects would be likely to oppose any variations'* (Australian Government 2020b).

The King Review suggested, but did not formally recommend, a solution for method variations incorporating the following elements:

- amend the CFI Act to require proponents to transition to new methods within two years,
- amend the CFI Act to enable the inclusion of transitional arrangements in varied methods, or
- establish a risk sharing framework in the Regulations to govern the development of transitional arrangements.

The ERAC has previously stated its support for *'further consideration be given to how the risks associated with method errors can be shared between the Government and proponents'*. They gave their view that there is *'a need for a risk sharing framework that strikes an appropriate balance between the need for flexibility to address method errors and maintain high integrity, while also providing proponents with sufficient certainty to invest in projects'* (ERAC 2019d).

The Authority remains of the view that 25 years is a long time to allow projects to keep generating ACCUs if a problem is identified with a method (CCA 2017a). Developing an adaptive risk sharing framework to incorporate changes in subordinate legislative instruments, and other documents/tools incorporated through reference, will help strike the balance between maintaining integrity of the scheme and provide certainty to scheme participants. This is discussed further in Section 7.2 below.

Box 7.2 - Case study: Variations to native forest regeneration projects

The most prevalent projects under the ERF are those that regenerate native vegetation using one of two methods:

- human-induced regeneration of permanent even-aged native forest (HIR)
- native forest from managed regrowth (NFMR).

Together, projects using these methods contribute approximately 51 per cent (98,7 million) of total contracted abatement (based on CER 2020e as at 22 June 2020).

In its 2017 ERF review, the Authority recommended the ERAC examine estimation and project requirements for HIR and the additionality of project activities and baselines for NFMR (CCA 2017a Rec. 5). Since the Authority's 2017 review, updated guidance has been issued, the methods have been reviewed, there have been rule changes, and an updated tool for measuring abatement (FullCAM) has been introduced. The changes are set out in the table below.

VARIATIONS AFFECTING NATIVE FOREST REGENERATION PROJECTS UNDER THE ERF

| DATE PROCESS WAS COMPLETED | PROCESS | CHANGE | APPLIED TO NEW, EXISTING OR ALL PROJECTS |
|-------------------------------|---|--|---|
| November 2017 | Regulator issues interim guidance | Clarified method requirements for stratifying project areas to exclude areas that do not have forest potential or are unable to achieve forest cover. | All |
| November 2018 and March 2019 | Change to <i>Carbon Credits (Carbon Farming Initiative) Rule 2015</i> | More directly linked continued crediting to attainment of forest cover. Required enhanced evidence of growth. | All |
| March 2019 | ERAC review of both methods | ERAC found the methods satisfy the Offsets Integrity Standards due to additional guidance and change to the rules and made 13 recommendations to further improve integrity and workability of the methods. | New |
| May 2019 | Regulator issues updated guidance | Supported the changes made to the carbon rule. Included requirement for proponents to provide information at 5-yearly intervals to demonstrate vegetation is regenerating. | All |
| December 2019 (launched 2020) | Transition arrangements for use of updated carbon model (FullCAM) | Grandfathered existing projects so they could choose to continue to use the 2016 version of FullCAM. | Existing |
| September 2020 | 2020 version of FullCAM launched | The updated FullCAM modelled changes to growth rates of native forest regrowth and other changes to enhance accuracy. | Existing projects that choose this option or new projects registered after 1 September 2020 |

Sources: CER 2017c; CFI Amendment Rule 2018; CFI Amendment Rule 2019; ERAC 2019e; DAWE 2019; CER 2019; CER 2020j; DISER 2020b.

These changes addressed a number of the concerns raised by the Authority in 2017 and improved the integrity of the methods. The changes had the following implications for many existing projects:

- more stringent and consistent data must be used to demonstrate attainment of forest cover

- project areas must be re-stratified to meet the new guidance and rules. In some cases areas were removed from projects as they did not meet the required characteristics, for example where continuing regeneration towards forest cover could not be demonstrated on the land.

This cycle of method improvement is necessary and important (ERAC 2019d). Without these improvements, there were risks of forward-crediting (crediting before the forest growth was achieved) and over-crediting (crediting abatement that was not real).

However, the numerous review processes have been very time consuming and disruptive for stakeholders. Consultation for each process and each change required stakeholders to familiarise themselves with the proposed changes and the potential impact these could have on their businesses. The process added costs to existing projects and caused project proponents to pause the development of new projects (carbon service providers pers comm.). The rule changes and publication of the stratification guidance have also impacted the ACCU delivery schedule for several large projects associated with Government contracts (discussed in Chapter 8.1). The Regulator agreed to changes in the timing of delivery milestones (CER 2020f).

Following the tightening of rules and guidelines, the Government updated the FullCAM carbon model tool. The update reflects a significant advance in the science now part of the calculations used for Australia's national carbon accounts (DAWE 2019). The new version of FullCAM changed the abatement estimates for some projects. When all ERF projects are considered over their lifetimes, the net result is expected to be an increase in abatement (DAWE 2019). The Government's preliminary analysis of the effects of the updated FullCAM on native forest regeneration projects estimated a delay in abatement using the latest science due to slower growth rates in young vegetation. Some projects, may continue to have lower estimates for the entire project and some projects may have higher overall growth as the vegetation matures (DAWE 2019). The Government made the decision to continue to allow existing projects to use the 2016 option in the updated 2020 FullCAM version in order to balance environmental integrity with the need to provide market certainty to those investing in these ERF projects (CER 2020k; DISER 2020b).

The ERAC's review of the native forest regeneration methods recommended varying both methods to enhance their integrity, consistency and useability (ERAC 2019d). This included recommending that the human-induced regeneration method be varied to strengthen the evidence required for demonstrating that projects will result in additional abatement. During public consultation, the Authority heard some anecdotal concerns around whether native forest regeneration projects were being credited for genuine management changes, or for growth happening regardless of management due to natural regeneration associated with climate cycles. One way to investigate the validity of such concerns would be to compare native forest regeneration occurring inside and outside of projects areas, for example using remotely-sensed data. The Authority supports the variation of the regeneration methods as recommended by ERAC.

7.2 Risk sharing framework

A recommendation from the ERACs reviews of the native vegetation methods, was for the Government to develop a risk-sharing framework between project proponents and the Government. A risk-sharing framework would enable changes to be made to methods and tools in the future in a way that maintains high integrity and provides sufficient certainty to invest in projects (ERAC 2019d). The numerous overlapping processes also show the importance of properly resourcing and managing these changes including making provision for transitional arrangements between old and new methods. The Government has consulted stakeholders on this approach. The Authority supports the

development of a risk sharing framework to deliver fair outcomes as changes and method variations are implemented.

The regulatory risk-sharing framework being developed by the Government in consultation with scheme participants could include:

- an identification of the reasons why amendments are made and when changes will be considered including:
 - updated understanding of the science
 - adjustments required to meet changes to international greenhouse accounting standards
 - innovations and improvements to measurement tools and technology
 - clarifying misinterpretations or unintended applications of provisions in the scheme
 - government policy changes
 - improvements to the integrity of the scheme including the application process, measurement, reporting and compliance with methods.
- set out factors the Government will take into account when determining whether the variation should apply to existing projects
- set out ways potential additional costs on existing projects will be managed, including transitional arrangements, discounting or a cap on downside risk
- set out a formal process for consultation with scheme participants who are likely to be affected
- set out when and how scheme participants will be required to transition to updated methods.

Recommendation 18

To deliver fair outcomes as changes and method variations are implemented, the Government's ERF regulatory risk sharing framework (currently under development) include guidance on the circumstances under which:

- **variations and changes (to methods, rules, tools and guidance material) will apply to existing activities**
- **support will be made available to mitigate negative impacts cause by amendments that affect existing projects**
- **scheme participants will be required to transition to updated methods.**

CHAPTER 8: RISK OF UNDER-DELIVERY OF CONTRACTED ABATEMENT

The purchase by the Government of abatement at least cost is a central pillar of the ERF. Large amounts of low cost abatement have been purchased on behalf of the Government by the Regulator under long-term fixed delivery contracts. The price differential between the low fixed-price at which some abatement is contracted for and the current market price could — in the absence of well calibrated damages provisions for non-delivery — create a disincentive to deliver ACCUs under current fixed delivery contract terms.

In coming years, new fixed delivery contracts could increasingly source ACCUs from established projects whose contracts have ended (known as ‘post-contract’ supply) instead of establishing a new ERF project.

Post-contract supply is a valuable source of units for the secondary market, however if not managed, there is a risk that Government could effectively ‘mop up’ post-contract supply from established projects and crowd out new projects, rather than incentivise new projects.

The Authority has recommended the Government adopt new fixed delivery contract terms to ensure it incentivises new projects.

8.1 The Government’s fixed-contract portfolio

The first objective of the ERF is to reduce emissions and store carbon to meet Australia’s international emissions reduction obligations.

The Regulator has a portfolio of fixed contracts for the delivery of 192.1 million ACCUs between 2015 and 2032 (auctions 1-11).¹² As of 18 September 2020, 58.8 million ACCUs (31 per cent) have been delivered under fixed delivery contracts. This section analyses the risk of non-delivery of contracted abatement under fixed delivery contracts and suggests ways to mitigate and manage this risk.

The Regulator currently holds a portfolio of 461 fixed delivery contracts at a fixed-price, 36 of which are completed (CER 2020a). Fixed delivery contracts vary in size, length and delivery profile (when abatement is scheduled to be delivered) -

- The largest contract awarded is for 15 million ACCUs and the smallest for just under 3,500 ACCUs. The median contract size is for 184,000 ACCUs.
- Contracts can be awarded for a standard length, of 7 or 10 years (for the delivery period), or for a shorter period, including for immediate delivery (CER 2020l).
- Some contracts have delivered all contracted abatement in a short period and others have not yet delivered ACCUs against contracts awarded in 2015 or 2016.

The differences in contract sizes and timing of delivery are partly explained by the different business models that contract holders are using to deliver against their contracts. Smaller contracts mostly deliver abatement from the project associated with their contract. Larger contracts are often known as ‘aggregate contracts’, whereby one contract involves multiple projects, or one contract involves one project as an ‘anchor’ point with more projects added to meet the contracted volume of abatement. The latter approach seems to have been used by some carbon service providers as a way to grow their businesses by first securing a Government contract and then sourcing the abatement projects.

¹² As of 18 September 2020, optional delivery contracts may deliver up to a further 7.7 million ACCUs to the Government. This section does not analyse delivery of optional contracts, as there is no obligation on optional contract holders to sell ACCUs to the Government.

All fixed delivery contracts are also able to purchase ACCUs on the secondary market to supply their contracted volume of ACCUs.

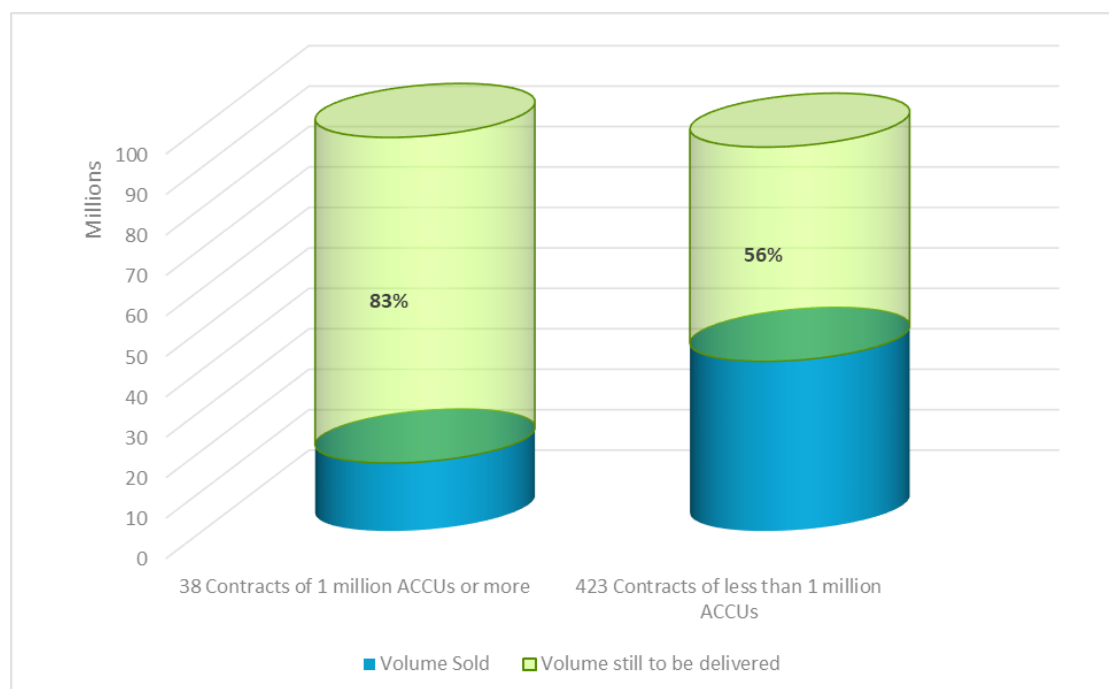
Anticipated delivery of fixed contracts

The portfolio of 461 fixed delivery Government contracts, while ranging greatly in size, is highly concentrated in a number of large contracts. There are 38 contracts in the Government portfolio with obligations to deliver over one million ACCUs, and these contracts are responsible for delivering 97.3 million ACCUs – over half the total contracted abatement. Contracts of this size are likely to involve aggregating ACCUs from several projects to meet contract delivery schedules. These contracts were awarded between 2015-2017 (auctions 1-6) (CER 2020a).

As of 18 September 2020, the 38 large contracts have delivered a total of 16.8 million ACCUs (17 per cent of their contracted amount). Of these large contracts, those that have delivered most of their contracted abatement (67 per cent; 6.4 million ACCUs) are associated with waste projects. These projects were also registered under the original Carbon Farming Initiative scheme, which then transitioned to the ERF. The fact that the waste projects were established prior to the contract being awarded may have assisted with timely deliveries, because the generation of ACCUs to fill the contracts did not rely on the establishment of new projects.

The remaining 423 fixed delivery contracts (both active and completed) of less than one million ACCUs each are responsible for the remaining contracted abatement (94.7 million ACCUs). These contracts have delivered a total of 42.0 million ACCUs (44 per cent of amount to be delivered by these contracts). When the Authority analysed the average proportion of abatement delivered from these 423 contracts, it found that overall, the larger ‘aggregate contracts’ have delivered on average less than smaller contracts (Figure 8.1).

FIGURE 8.1. ACCUS STILL TO BE DELIVERED TO THE GOVERNMENT UNDER FIXED DELIVERY CONTACTS

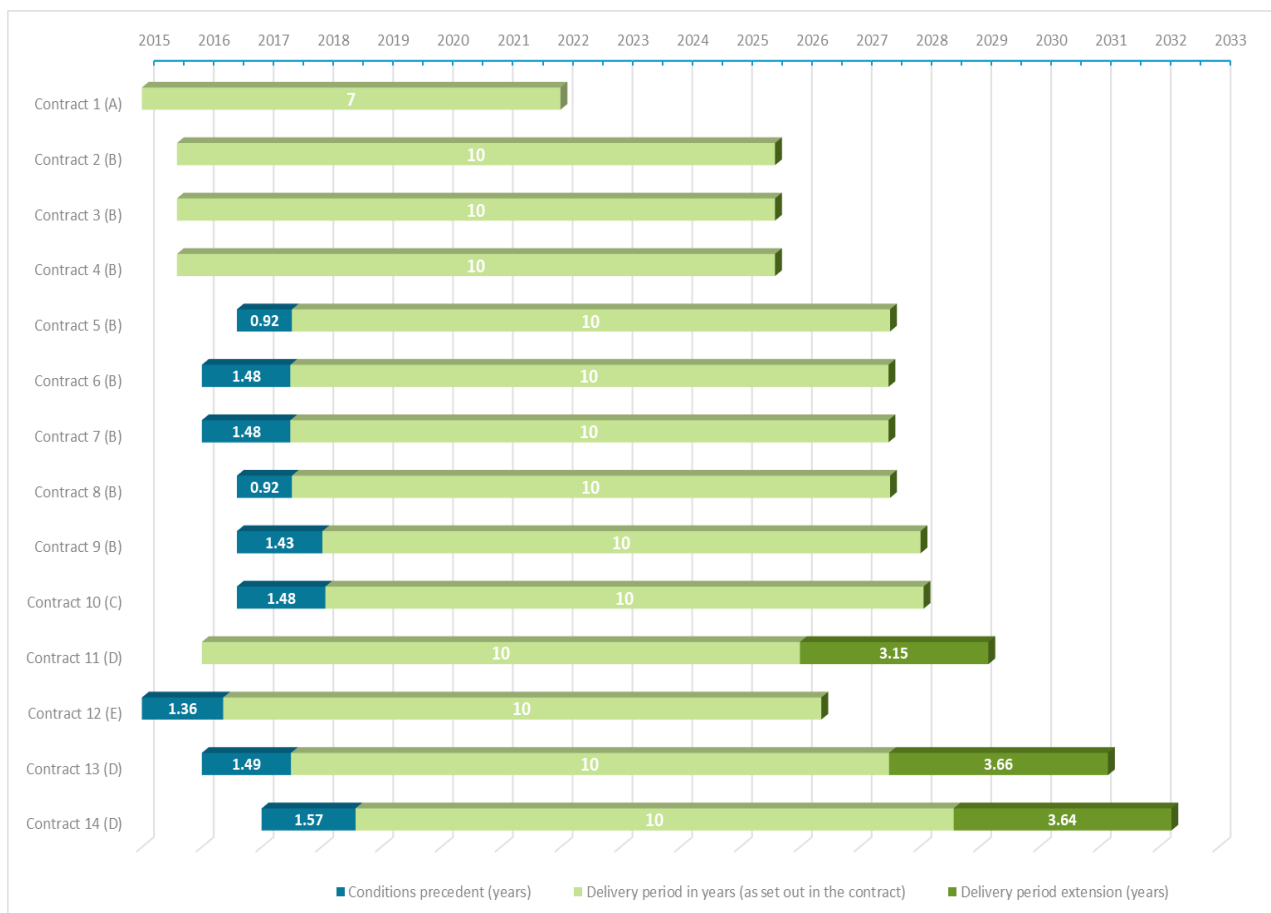


Note: Figure compares ACCUs delivered and remaining to be delivered from the 38 largest contracts (97.3 million contracted) compared to 423 remaining contracts (94.7 million contracted).

Analysis (Figures 8.2 and 8.3) of the 14 largest contracts, each for the delivery of 2.5 million ACCUs or more and representing a third of the total Government contracted abatement (62.9 million ACCUs), reveals:

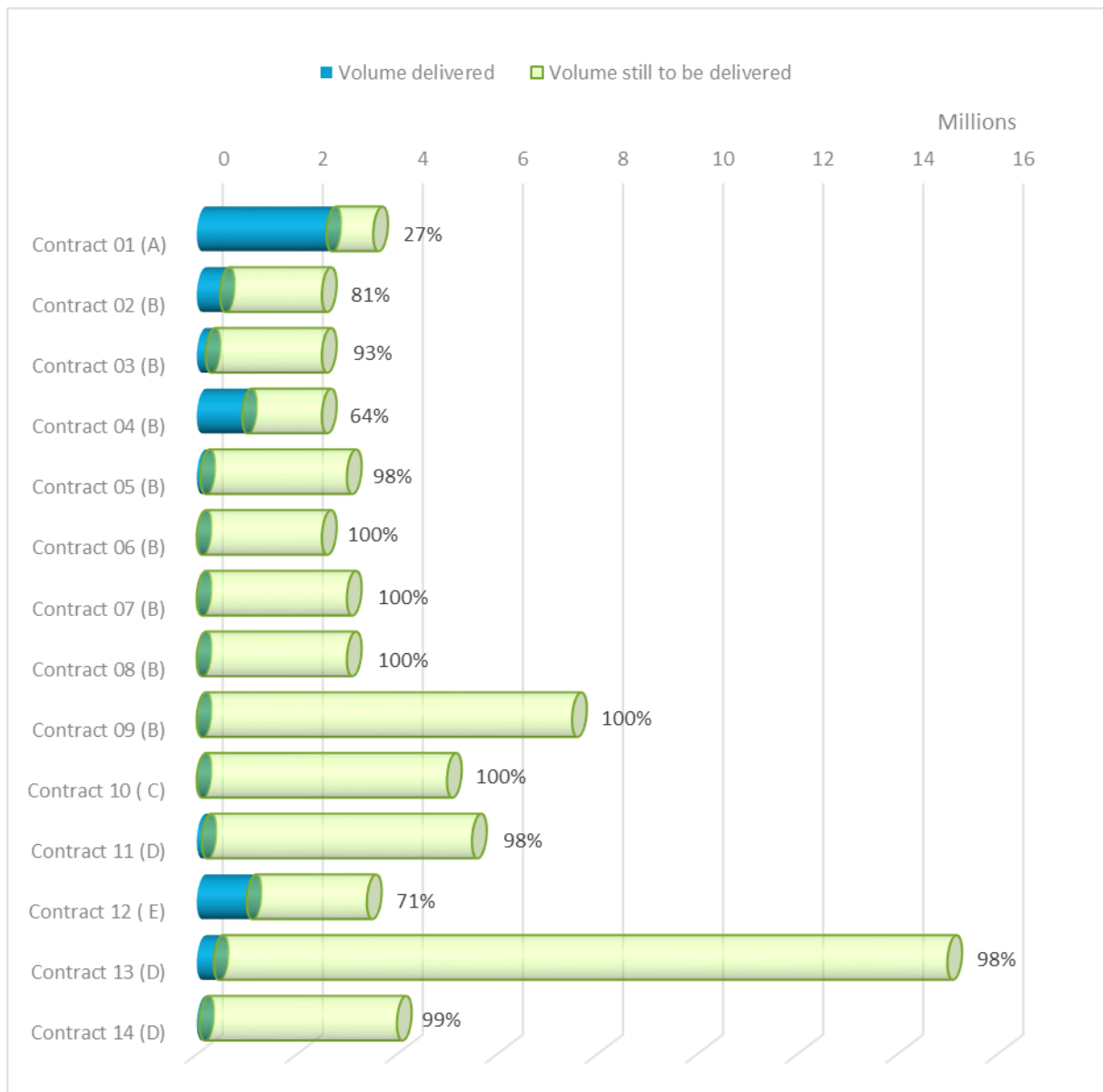
- this abatement is concentrated with a small number of project proponents¹³
- all these contracts were signed between 2015 and 2017 (auctions 1-5) at an average price of \$11.12 per ACCU (compared to the average fixed price of \$16.32 and \$15.53 for auctions 10 and 11 respectively)
- three of these contracts have been granted extensions beyond the standard 10 year contract delivery period.
- less than 10 per cent of abatement has been delivered (with almost half the volume delivered from a single contract associated with waste projects), while five contracts representing 21 million ACCUs have not delivered anything to date.

FIGURE 8.2: CONTRACT DELIVERY SCHEDULES, CONDITIONS PRECEDENT AND EXTENSIONS: LARGEST 14 CONTRACTS



¹³Each contract in Figures 8.2 and 8.3 is assigned a letter. That letter represents the project proponent. As indicated in the figures, the 14 contracts are held by only 5 project proponents, who each hold multiple large contracts. For example project proponent B holds 8 of the 14 contracts for 24 million ACCUs.

FIGURE 8.3: CARBON ABATEMENT DELIVERED AND REMAINING (ACCUS): LARGEST 14 CONTRACTS



The Authority understands there are several reasons for the apparent lag in abatement being delivered among these large fixed delivery contracts. Some carbon service providers have established, or are establishing, new projects to meet the delivery requirements of large contracts. There is some evidence of this through the registration of a number of human-induced regeneration (HIR) projects and soil carbon projects since May 2017 (following auction 5) which do not have contracts (CER 2020e). Unless abatement from the contracted projects, and these new projects increases, contracts will need to be met using offsets purchased from other projects on the secondary market.

The secondary market plays an important role in helping project proponents to meet fixed contract delivery obligations. The Authority notes that several submissions asked for the timely publication of information about holdings of ACCUs for prospective purchasers and a regular statement of opportunities to signal when new investment is needed (AIGN, Woodside submissions). The Regulator's June 2020 quarterly market report included information on ACCU holdings for the first

time, which indicated the secondary market is becoming more liquid, with 13 per cent of ACCUs being held by intermediaries in June 2020 compared to 0.3 per cent of ACCUs at the start of 2018 (CER 2020f). The Authority agrees the risk of an ACCU shortfall could be further reduced if this type of information continues to be shared in the future to facilitate a more transparent and liquid secondary market.

Effect of optional delivery contracts on fixed contract delivery

In March 2020, the Regulator introduced optional delivery contracts. Unlike the standard fixed delivery contracts, optional delivery contracts allow project proponents to deliver abatement on the secondary market if the price is more favourable than what is agreed in the abatement contract with the Government. Unlike fixed delivery contracts, the project proponent must deliver ACCUs from a single identified ERF project rather than being able to deliver ACCUs from any ERF project sourced from the secondary market. The optional delivery contract also enables the total outstanding quantity to be reduced where a scheduled delivery is not made (Table 2.1, Chapter 2).

Stakeholders support the new optional delivery contract (CMI, ICIN, Bioenergy Australia submissions) and the market has responded positively. At the 11th auction held in September 2020, there were 35 contracts awarded to 33 projects (two projects secured both an optional and fixed delivery contract): Twenty-nine of the contracts were optional delivery contracts for 6.3 million tonnes at an average price of \$15.77 per tonne, and 6 were fixed delivery contracts for 0.7 million tonnes at an average price of \$15.53 per tonne (CER 2020d).

The optional contract seems to have encouraged the increased registration of new projects for auction 11, possibly due to their being no downside to a project proponent who enters into an optional delivery contract as it provides protection against downside risk without locking in an obligation to sell at the fixed contract price. In the future, if enough ERF projects are associated with optional contracts, it may introduce a de facto floor price, below which sellers would not seek to sell on the secondary market.

Optional contracts may (if the price differential remains) make it harder for existing fixed delivery contracts to profitably meet the delivery requirements of their contracts if they need to purchase ACCUs on the secondary market. The price difference between older fixed delivery contracts and the current ACCU price raises the possibility that existing fixed delivery contract holders may seek to enter into agreements with some landholders to purchase ACCUs below the current market price to enable them to fill their Government contract. In section 5.5 of this report the Authority discusses the importance of industry self-regulation, through the industry code of conduct, to help ensure that all parties to an ERF project are fully informed. The code requires signatories to effectively communicate with clients and disclose relevant information including pricing (CMI 2018).

Some stakeholders have asked for existing fixed delivery contract holders to be able to transition to an optional delivery contract in order to maximise opportunities (e.g. ICIN, ALFA submissions). However, on balance, the Authority does not support this approach because the two types of contract are not interchangeable – they have different eligibility requirements, constraints and obligations (Table 2.1, Chapter 2).

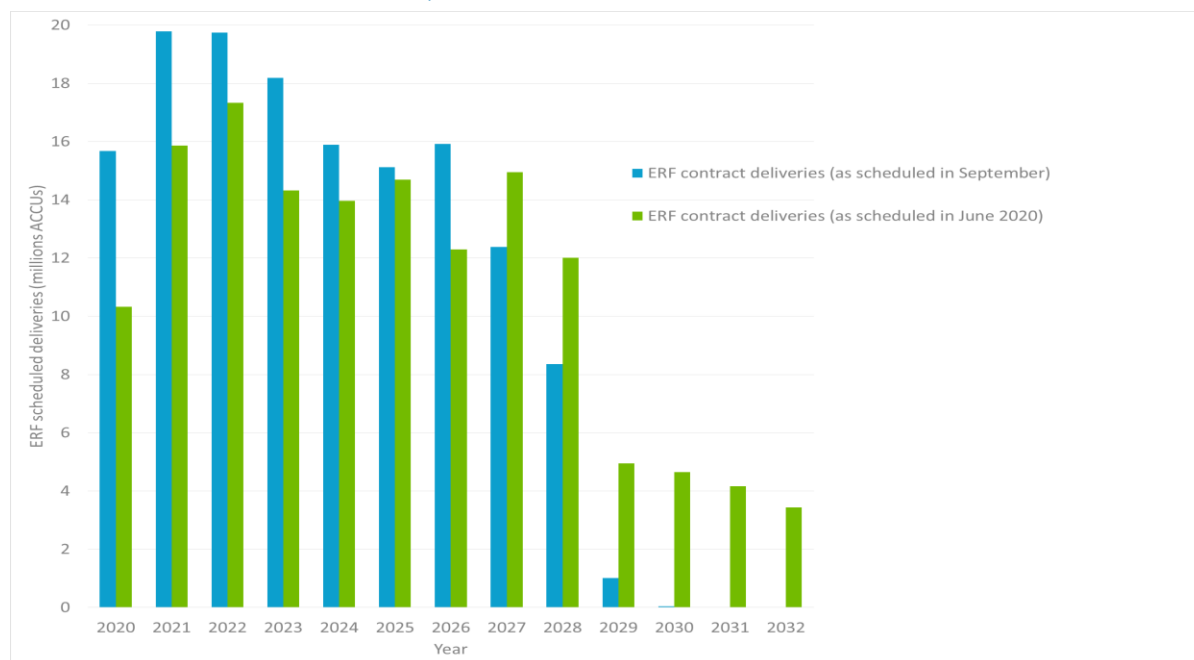
Changes to delivery schedules

All contracts have an abatement delivery schedule that is initially set at the point of auction registration by the applicant. The current Regulatory guidelines state that '*The delivery schedule should broadly reflect the abatement generation profile of the identified ERF project and should not be unduly weighted towards the end of the contract period (known as backloading)*' (CER 2020b). Since 2017, the auction qualification and registration processes including setting contract delivery schedules have been refined based on the Regulator's growing experience of managing contracts and projects (CER pers. comm.).

The Regulator encourages contract holders to meet their delivery schedules and states that it “takes delivery failure seriously” (CER 2017d). Changes to delivery schedules once a contract is entered into must be negotiated with the Regulator, in accordance with the Contract Code of Common Terms (CER 2020m, CER 2018b, CER 2015b,c). Damages apply for a shortfall in delivery; however, up to a 20 per cent under-delivery of ACCUs is allowed at every scheduled delivery without triggering damages and adjustments to delivery schedules of up to 100 per cent per contract milestone with the mutual agreement of the scheme participant and the CER. If fewer ACCUs are delivered than expected, the delivery schedule for the contract is adjusted so that the outstanding ACCUs are due later in the contract. This shortfall adjustment applies up until the contract end date, when contract holders must deliver the contracted volume of ACCUs in full or pay damages on the full outstanding amount. The shortfall adjustment provides flexibility for contract holders, for example, it allows them to manage uncertainty in the abatement generated by projects due to environmental variability. There are also separate provisions for *force majeure*. The Regulator is also open to receiving ACCUs earlier than scheduled, within the same financial year (CER 2020b).

Analysis of published data from the Regulator shows that the contract delivery schedules are not static and that they are being adjusted year to year (Figure 8.4). In the 9 month period between September 2019 and June 2020, the delivery schedule for the Government portfolio as a whole has changed so that ACCUs are to be delivered later, although the same volume of ACCUs are to be delivered overall. Fewer ACCUs are now scheduled to be delivered between 2020 and 2026 and more ACCUs will now be delivered from 2027 to 2032. This pushes the delivery of some abatement beyond the Government’s 2030 target. Some of this change occurred within the allowable delivery shortfall arrangements (CER 2020k,n,o,p). However, changes to the delivery schedules also went beyond the 20 per cent buffer in 2020, where agreed between the parties (Figure 8.4). The impact of the amended guidelines for native forest regeneration methods (Box 7.2, Chapter 7) on 7 contracts is the primary reason given by the Regulator for the change in delivery schedules (CER 2020f). These 7 contracts (including three of the largest contracts) have also had their end date extended to manage the impact of the amended guidelines (Figure 8.2, CER 2020a).

FIGURE 8.4. GOVERNMENT CONTRACT PORTFOLIO SCHEDULE OF DELIVERY (SEPTEMBER 2019 AND JUNE 2020)



Source: CER 2020n,o.

If contracted abatement under fixed delivery contracts is not delivered, the Government retains its funds and can seek damages for a default. Fixed delivery contracts contain 'make good' provisions and damage provisions for non-delivery. Buyer's damages for non-delivery of ACCUs are currently capped at the contract price (plus interest and reasonable costs incurred by the CER).

If too many projects default, the Government may need to source abatement at a higher cost to meet its commitments. To address this risk, the Authority recommends increasing buyer's damages for new fixed-delivery contracts and reducing the deferral of scheduled deliveries without good reason.

The Authority recommends the standard contract terms for new fixed delivery contracts apply commercial contractual damages where non-delivery was not due to *force majeure*. Commercial contractual damages would typically oblige the defaulting party to pay damages equivalent to the cost of replacing the abatement. The Regulator should also consider making changes to the scheduled delivery allowances by either allowing a smaller amount of non-deliveries to be carried over from year to year or introducing a greater requirement to 'show cause' why deliveries are not being met in accordance with the agreed schedule. These recommended changes would enhance certainty of the delivery of ACCUs towards the Government's international emissions reduction obligations and discourage participants from defaulting on their contracts.

If the market preference for optional delivery contracts continues beyond auction 11, the issues with potential non-delivery will likely be minimised as most new contracted abatement will be through optional delivery contracts, with abatement tied to a registered project.

Recommendation 19

To encourage delivery on ERF contracts, the standard contractual terms for future fixed delivery contracts:

- **apply commercial contractual damages where non-delivery was not a result of *force majeure***
- **minimise variations in delivery without cause.**

8.2 Future role of fixed delivery contracts

When the Government introduced the ERF purchasing mechanism in 2015, it was intended *that 'once a project has been successful at auction, it will not be able to seek additional funding through a future auction'* (Australian Government 2014). This was to ensure that Government purchasing incentivised new abatement activity rather than being used to credit existing activities. Although it was acknowledged that projects could continue to generate ACCUs beyond the contract period, which could be sold to other businesses (including those with Government contracts), the White Paper stated *'proponents will nonetheless typically aim to recover their project costs and achieve an appropriate commercial return within the contract period'* (Australian Government 2014).

Fixed delivery contracts in their current form have no limits on the number of ACCUs that can be purchased from the secondary market to fulfil their contract delivery schedule. Contracts are expected to proceed, for example, even if the project registered at auction is subsequently revoked (Explanatory Memorandum CFI Amendment Bill 2014).

In coming years, new fixed delivery contracts could increasingly source ACCUs from established projects whose contracts have ended (known as 'post-contract' supply) rather than from new abatement projects. For example an entity with established projects could enter into a new Government contract and, instead of establishing a new ERF project, predominately use ACCUs from earlier projects to deliver against the new contract. Post-contract supply is a valuable source of units

for the secondary market, however if not managed, there is a risk that Government could effectively 'mop up' post-contract supply from established projects rather than incentivising new projects. Government purchasing of post-contract abatement could in fact crowd out new projects because projects operating on a post-contract supply business model will be cheaper and therefore outcompete new projects at auctions.

The intent of Government purchasing is for tax-payer money to be used to incentivise new abatement activity to help meet Australia's international emissions obligations. This is being achieved through Government contracts stimulating the supply of new ERF projects. There is a risk going forward that the current format of fixed delivery contracts, which allows contracts to be filled using ACCUs from the secondary market including from 'post-contract' supply, will not continue to support the development of new ERF projects. This issue does not arise for option contracts because the terms of the option requires project proponents to deliver ACCUs from the project identified in the contract.

Recommendation 20

To incentivise new projects, the Government adopt contract terms that ensure new fixed delivery contracts are filled predominantly using ACCUs from new ERF projects rather than projects that have already fulfilled ERF contracts (post-contract supply).

CHAPTER 9: CLIMATE RISKS TO CARBON SEQUESTRATION

Land-based sequestration activities are subject to natural processes and climate variations which affect their ability to accumulate and store carbon pools. The Authority engaged the CSIRO to assess and report on the risks from climate change to storing and maintaining carbon in the landscape under ERF methods.

Of the identified risks, drought-induced stress and mortality, heat stress limiting plant growth and contributing to mortality, and increased aridity/reduced soil water availability were the most commonly occurring risk factors. More research is needed on the potential impacts of pests and diseases, and changes to exposure to frost.

Among ERF activities, management of agricultural soils and planting of new forests were found to be most at risk, followed by savanna fire management, management of intertidal ecosystems and re-establishment of native forest cover. The Authority recommends prioritising research efforts on these sectors and activities, including to identify whether the relevant ERF methods can be adjusted to further alleviate exposure to carbon loss.

The Government's Climate Compass framework could be used to assess risks of under performance against expected abatement at the project and portfolio levels. The current risk of reversal buffer and permanence period discount, which aims to address these risks, should be reviewed to ensure they are appropriately calibrated to guard against risk of carbon losses in land-based sequestration projects.

9.1 CSIRO's technical review of biophysical risks to carbon sequestration under the ERF

Climate change has and will continue to bring about increased variations in climatic conditions over the course of this century. Land-based ERF sequestration activities are subject to natural processes and climate variations, which affect their ability to accumulate and store the carbon pools (vegetation and soil carbon) being credited under the ERF scheme. ERF land based sequestration projects include vegetation management activities, soil management activities, savanna fire management activities (sequestration component) and the proposed blue carbon method.

Several stakeholders raised concerns around risk to the ERF from the impacts of climate change. The ICIN in their submissions noted that '*climate change presents a risk to future abatement from savanna fire management as it causes a trend in more extreme weather conditions which in turn causes hotter more widespread fires, even with fire management programs in place*' (ICIN, p7). They state that: '*there is currently no recognition of the impacts of climate change upon savanna burning project methodologies or in the investment model of the ERF*'. Similarly the ACF stated that '*recent bushfires provided a stark example of the kind of loss that can occur and is increasingly likely to occur due to the accelerating impacts of climate change. Vegetation projects, for example, occur in marginal lands that will increasingly be impacted by climate change through drought, fire and other extreme events*' (ACF p.5).

Stakeholders also raised concerns over the appropriateness of the scheme's current risk mitigation mechanisms, including the flat 5 per cent risk of reversal buffer, given the likelihood that risks to permanence will increase with climate change (AEPLG, ACF submissions).

Understanding and identifying the likely impacts of climate change on particular ERF project types and regions is necessary to manage climate risks and identify opportunities to build resilience. Effective management of climate risk will ensure ERF sequestration projects can continue to play a

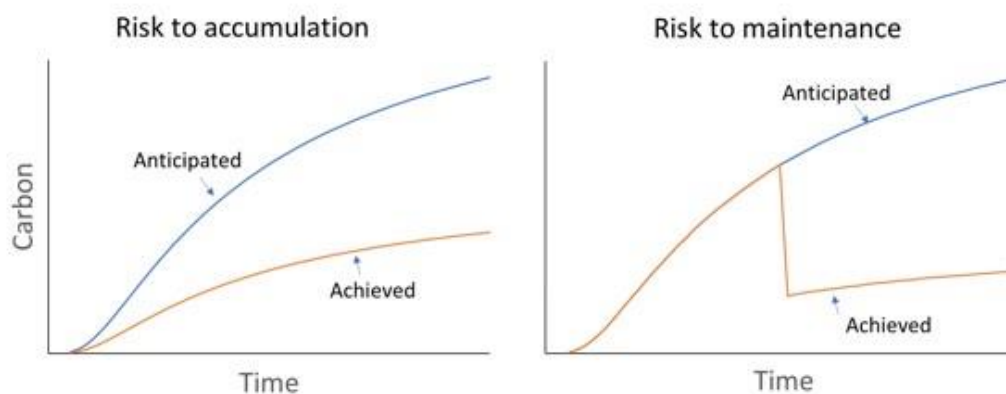
meaningful role in helping Australia meet its international emissions reduction commitments and transition to a low emissions economy.

The Authority commissioned the CSIRO as part of this review to undertake an assessment of the biophysical risks to carbon sequestration activities under the ERF - *Technical review of physical risks to carbon sequestration under the Emissions Reduction Fund* (CSIRO 2020, available via the Authority's website). The scope, methodology and a summary of findings are set out in this chapter followed by an analysis of the opportunities to effectively manage the risks to the accumulation and maintenance of carbon in land under ERF sequestration activities.

Scope

The overall aim of the CSIRO study was to provide information on the biophysical risks associated with achieving abatement from carbon sequestration activities using ERF land sector methods. This includes risks to ERF sequestration projects accumulating the anticipated levels of carbon sequestration and the ability of ERF projects to maintain carbon in soils and vegetation (Figure 9.1).

FIGURE 9.1 RISKS TO CARBON SEQUESTRATION: ACCUMULATION AND MAINTENANCE



Source: (CSIRO 2020, p.1)

A second aim of the study was to assess the co-benefits associated with ERF sequestration activities, and provide a review of the potential for these co-benefits to contribute to farm resilience and climate change adaptation, as well as identifying other activities that are consistent with ERF project management, and that could confer farm-scale adaptive capacity. These findings are discussed in Chapter 10.

The CSIRO report analysed physical climate risks to carbon sequestration under current ERF land sector methodologies, including the proposed 'Blue Carbon' methodology. Twelve methodologies were identified that include sequestration as either all or part of their recognised abatement (Table 9.1). Savanna burning has both emissions avoidance and sequestration components and was therefore considered as part of this review, with only the sequestration component taken into account for the evaluation of risk. For the purposes of analysis these twelve methodologies were classified into six broad classes, on the basis of similarity in underlying management activity, and thus likely similarity in risk profile.

TABLE 9.1: LIST OF ERF METHODOLOGIES INCLUDED IN THE CSIRO ANALYSIS

| ACTIVITY CATEGORY | ERF METHODOLOGY |
|---|---|
| Re-establishment of native forest cover | Human-Induced Regeneration of a Permanent Even-Aged Native Forest (2013) Native Forests from Managed Regrowth (2013) |
| Planting of new forests | Reforestation by Environmental or Mallee Plantings – FullCAM (2014) Reforestation and Afforestation (2015) Plantation Forestry (2017) Measurement Based Methods for New Farm Forestry Plantations (2014) |
| Protection of existing forests | Avoided Deforestation (2015) Avoided Clearing of Native Regrowth (2015) |
| Management of agricultural soils | Measurement of soil carbon sequestration in agricultural systems (2018) Estimating Sequestration of Carbon in Soil Using Default Values (2015) |
| Savanna fire management | Savanna Fire Management Sequestration and Emissions Avoidance (2018) |
| Management of intertidal ecosystems | Blue carbon (proposed new method) |

Source: CSIRO 2020, p. viii.

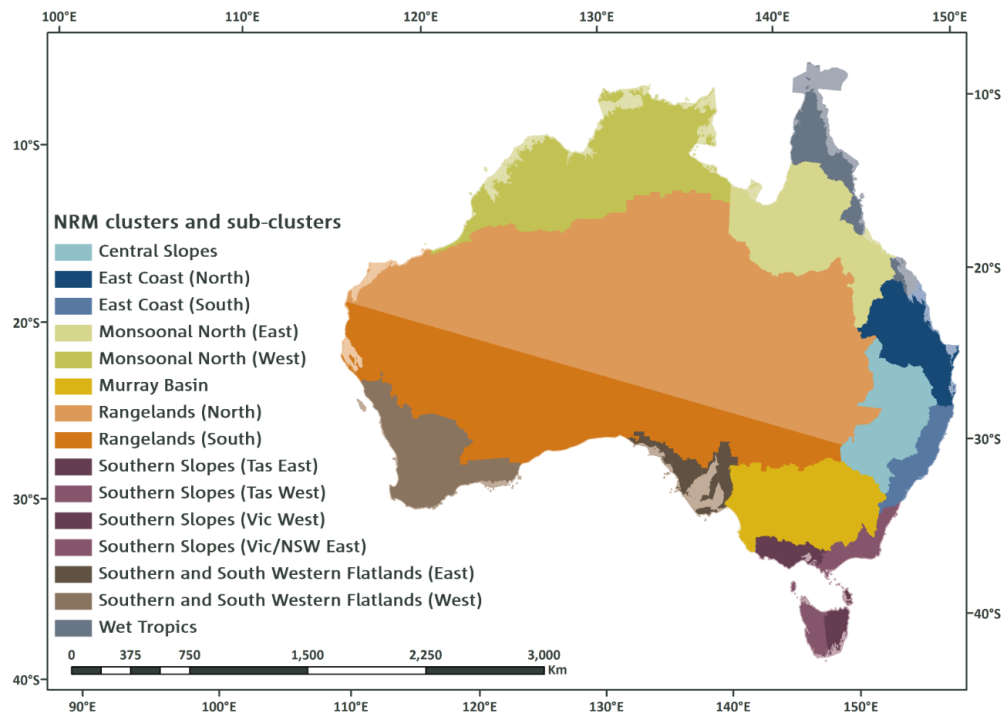
Methodology

The CSIRO's analysis involved a literature review followed by a qualitative assessment of risk across six sequestration activity types under the ERF. The primary risks considered were those associated with current and future projected climate drivers, including ecological disturbances such as drought, fire, and pests and diseases. Eighteen risks factors were identified, with eight associated predominantly with changes in climatic variables that typically have direct impacts on sequestration (such as projected changes in temperature, frost exposure etc.), and ten associated primarily with the indirect impacts due to environmental disturbances (such as fire and storm damage).

Twenty-one climate variables were obtained from a summary of up to 40 Global Circulation Model (GCM) projections, as provided by the Climate Change in Australia research program to inform the assessment of the identified risk factors (CSIRO and BOM 2015). The timeframe for analysis was focused on 2050 (with climate change summaries typically integrated over the period 2040-2059), consistent with the 25-year crediting period specified for the majority of the sequestration methods. Implications for projected climatic changes up until the end of the century were also briefly discussed.

For the purposes of looking at regional variability in climate drivers across Australia, the NRM-regional based classification (Figure 9.2) from the Climate Change in Australia synthesis was used (Whetton et al. 2015). For each of the six ERF methodology classes, the relevant NRM regions of activity (regions where the activity is currently or likely to be carried out) were identified, and the climate projection information for each obtained to inform the risk assessments.

FIGURE 9.2: REGIONAL CLASSIFICATIONS BASED ON NRM CLUSTERS AND SUB-CLUSTERS.



Source: CSIRO 2020, p. 10.

To guide the analysis, a formal risk assessment method was used that combined, for each identified risk factor, an estimate of its probability of occurring (the 'likelihood') (Table 9.2), together with an estimate of its 'consequence' for sequestration (Table 9.3). The resulting risk priority matrix yielded a four-class classification of risk for each factor - 'Low', 'Medium', 'High' or 'Extreme') (Table 9.4). These risk factors were based on the certainty associated with the model projections for each factor and on the scientific evidence associated with the impact of each factor. Where possible, an indication of the level of scientific certainty associated with each rating was also given.

As noted in Box 9.1 the nominal losses in Table 9.3 should not be interpreted as predictions of actual sequestration outcomes as they were introduced primarily as a mechanism for allowing visualisation of what each category might correspond to in real terms. Actual quantification of sequestration losses or shortfalls is beyond the scope of the qualitative analysis presented in the CSIRO report.

TABLE 9.2 THREE CLASS CLASSIFICATION OF THE LIKELIHOOD OF IDENTIFIED RISK FACTORS

| Rating | | Project-level risks | Portfolio-level risks |
|-------------------------------|--------------------|---|--|
| Likely | >66% probability | Likelihood of individual projects being impacted, but risk factors not necessarily coordinated in time or space | Likelihood of risk factors impacting sequestration simultaneously across space or time, with greater opportunity for portfolio-wide consequences |
| About as likely as not | 33-66% probability | | |
| Unlikely | <33% probability | | |

Source: CSIRO 2020, p. 8.

TABLE 9.3 FIVE-CLASS CLASSIFICATION OF THE CONSEQUENCES OF IDENTIFIED RISK FACTORS

| Rating | Abatement accumulation | Abatement maintenance |
|----------------------|--|--|
| Catastrophic | <20% of expected abatement achieved, and/or lost capacity to re-establish activity | >80% of all previously sequestered abatement lost back to the atmosphere, and/or lost capacity to re-sequester lost carbon |
| Major | 20-50% of expected abatement achieved, with potential to re-establish activity | 50-80% of sequestered abatement lost, with potential to re-establish activity |
| Moderate | 50-80% of expected abatement achieved, with potential to re-establish activity | 20-50% of sequestered abatement lost, with potential to re-establish activity |
| Minor | 80-95% of expected abatement achieved, with potential to re-establish activity | 5-20% of sequestered abatement lost, with potential to re-establish activity |
| Insignificant | >95% of expected abatement achieved | Abatement maintained through time with no material losses (< 5%) |

SOURCE: CSIRO 2020, P. 7.

Table 9.4. Risk priority classification arising from combinations of consequence and likelihood.

| Likelihood | Consequences | | | | |
|------------------------|---------------|-------|----------|--------|--------------|
| | Insignificant | Minor | Moderate | Major | Catastrophic |
| Likely | Low | Low | Medium | High | Extreme |
| About as likely as not | Low | Low | Medium | High | Extreme |
| Unlikely | Low | Low | Low | Medium | High |

SOURCE: CSIRO 2020, P. 8.

Summary of findings

Of the identified risk factors, drought-induced stress and mortality, heat stress limiting plant growth and contributing to mortality, and increased aridity/reduced soil water availability were the most commonly occurring.

Changes to fire regimes were also a commonly identified risk factor, although only for new forest planting and savanna fire management were the risks considered higher than 'Low'.

Risk factors associated with the potential impacts of pests and diseases, and changes to exposure to frost, were generally considered uncertain. These were identified by the CSIRO as knowledge gaps requiring further research.

To integrate the findings across all risk factors a simple index was formulated that summed up, for each class of activity, the risk ratings:

- risk ratings of 'Low' were assigned a value of 1
- risk ratings of 'Medium' were assigned a values of 3
- risk ratings of 'High' were assigned a values of 6.

This index therefore combines a measure of both how many risk factors were identified for each class of activity, and the relative magnitude of those factors (Table 9.4).

The index (Figure 9.3a) suggests management of agricultural soils and planting of new forests have the highest composite risk rating, followed by savanna fire management, management of intertidal ecosystems and re-establishment of native forest cover, which have intermediate values, and protection of existing forests as having the lowest risk profile. Appendix F summarises the CSIRO report findings for each of the six ERF activity categories in Table 9.1. In general, differences in climate projections between NRM regions within an ERF class were relatively consistent, and hence the risks tended to be relatively consistent.

The index in (Figure 9.3b) suggests that risks vary between accumulation and maintenance phases of projects for some activity types. For instance planting new forests has a relatively high accumulation risk due to the vulnerability of saplings to climate risk factors. The risk for the maintenance phase of projects, where trees have reached maturity, is significantly lower. In comparison management of intertidal systems and management of agricultural soils has similar risk profiles for both accumulation and maintenance, owing to relevant risk factors applying consistently across the full duration of projects for these activities.

The CSIRO states that the report's conclusions based on 2050 projections are likely to generally hold in the longer term as projections to 2100 indicate that climate risk factors will generally (84 per cent of risk factors) continue on trend and intensify.

Although the index cannot be used as a basis for quantifying potential carbon losses, in conjunction with the more detailed information in Table 9.5, this ranking could be used as a basis for prioritising methodologies and associated risk factors. This could include further investigation of the policy settings underlying each methodology to determine if they could be modified to reduce the risks of further losses, and to prioritise further research efforts on those sectors and activities deemed to be most at risk.

Box 9.1 Note on interpreting risk ratings

Table 9.5 and Figure 9.3 should not be interpreted as predictions of actual sequestration outcomes, as they were introduced by CSIRO primarily as a mechanism for allowing visualisation of what each category might correspond to in real terms. Actual quantification of sequestration losses or shortfalls is beyond the scope of the qualitative analysis presented in the CSIRO report.

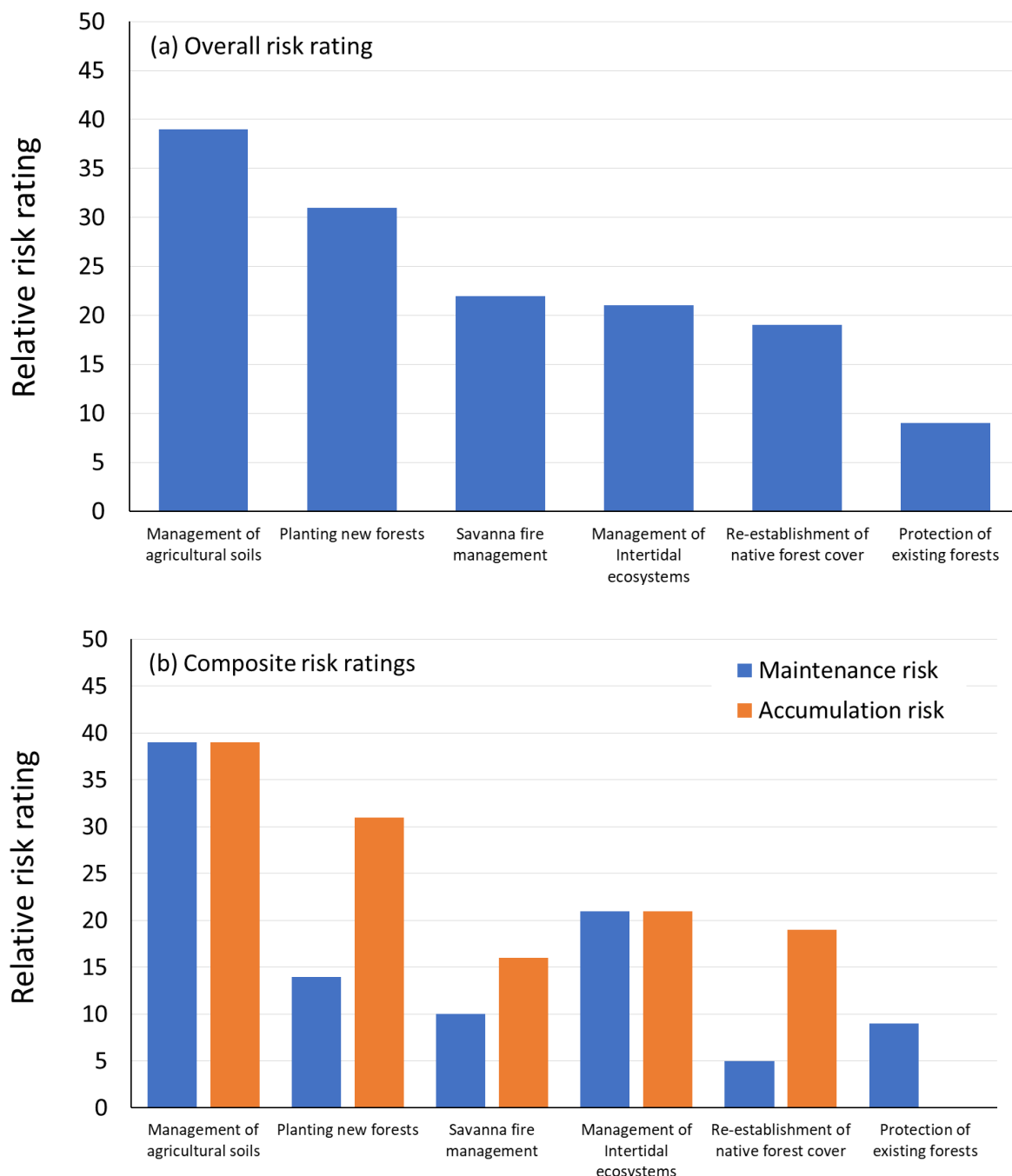
It should also be noted that the consequences are environmental in nature, that is not financial or other risks, and that risk treatments outside of method restrictions and requirements were not considered.

TABLE 9.5 RISK ASSESSMENT SUMMARY

| Individual risk ratings | Composite risk score | Combined risk | | | | | |
|--|--|---------------------------|----------------------|-------------------------|-----------------------|----------------------------------|--------------------------|
| | | Manage agricultural soils | Planting new forests | Savanna fire management | Intertidal ecosystems | Re-establish native forest cover | Protect existing forests |
| <p>Not rated (0)</p> <p>Low (1)</p> <p>Medium (3)</p> <p>High (6)</p> | <p>≤10</p> <p>11-20</p> <p>21-30</p> <p>>30</p> | | | | | | |
| Direct impacts via primary climate change variables | | | | | | | |
| Heat-stress limiting plant growth and increasing mortality rates | | High | High | High | Low | High | Low |
| Reduced soil water availability, leading to reduced crop and tree growth and greater potential for plant stress. | | High | High | High | Low | High | Low |
| Persistent increase in temperature, exceeding species climate envelope for optimal growth | | High | High | High | Low | High | Low |
| Changes in timing/occurrence of suitable conditions for tree and crop establishment | | High | High | High | Low | High | Low |
| Increased frost damage associated with increased dryness / reduced opportunities for frost hardening. | | ? | ? | | | ? | |
| Decreased frost days with implications for increased seed dormancy and reduced germination rates | | ? | ? | | | ? | |
| Changes to soil respiration and soil microbial processes | | High | | | Low | | |
| Changes to timing/seasonality of crop growth | | High | | | Low | | |
| Increased flooding, with implications for establishing crops and trees; greater susceptibility to pests and diseases | | Low | Low | | High | Low | Low |
| Flood-related soil erosion and deposition | | Low | Low | | High | Low | Low |
| Mechanical damage from wind and storms | | | Low | | High | Low | Low |
| Coastal storm surges with implications for blue carbon stability | | | | | High | | |
| Direct impacts via secondary climate change variables | | | | | | | |
| Sea level change, with implications for blue carbon stability | | | | | High | | |
| Drought-induced plant mortality, with possibility of recruitment failure. | | High | High | High | High | High | High |
| Increased fire danger weather; Decreased landscape moisture content, with implications for fire risk | | Low | High | High | High | Low | Low |
| Indirect impacts via climate change impacts on weeds, pests and diseases | | | | | | | |
| Increase in invasive weeds | | | Low | High | | | |
| Increase in browsing by feral animals | | | Low | High | | | |
| Extended range of pests/diseases; Increased over-wintering resulting in faster build-up in the growing season | | ? | High | | ? | ? | ? |
| Overall rating | | 39 | 31 | 22 | 21 | 19 | 9 |

Source: CSIRO 2020, p. i. Note: Blank squares mean the risk factor was not identified for the activity type. Whereas '?' means the risk is likely to be applicable but there is insufficient information.

Figure 9.3. Relative risk rating for each activity class.



Source: CSIRO 2020, p. i.

9.2 Opportunities to manage climate risk effectively

The CSIRO report is the first climate risk assessment of the ERF based on existing synthesised climate model projections and scientific research on climate responses on carbon processes credited under the ERF. The findings are not a predictor of likely outcomes at a quantitative level and therefore should not be used to predict actual abatement outcomes. The findings and the information contained in the report are nevertheless highly useful for indicating relative risks for Government, ERF project proponents, farmers and landowners. The report also identifies key unknowns as areas for further research.

The information contained in the report should be built on over time, with the Government coordinating the inclusion of new information and aligning research to address key risks and uncertainties.

The report clearly indicates that climate change is a risk to the ERF scheme achieving its estimated abatement potential. While project proponents will continue to address climate risk at a project level as a matter of project viability, significant risk of loss of abatement remains, for example where losses occur outside the permanence obligation period or where abatement is not able to be recovered despite reasonable efforts by project proponents. If the risks to land-based sequestration activities become too great, the underlying integrity of ACCUs will be diminished, which would affect the compliance and voluntary markets and the Government's ability to meet its international commitments through the ERF scheme.

Developing a framework for adaptive management of climate risk

In *Prospering in a low-emissions world: An updated climate policy toolkit for Australia*, the Authority recommended that the Government fully integrate consideration of emissions and climate change risks in decision making about government programs, assets and services through frameworks such as Climate Compass (DEE 2018). Climate Compass has been developed by the Australian Government for use by public officials to manage risks to programs, assets and services. It is an iterative framework that consists of three cycles of increasing detail and specificity (DEE 2018):

- Scan: a high-level pass to prioritise further work or scope the other cycles
- Strategy: a formal climate risk assessment of a particular area of work (for example a policy area), to develop a defensible climate risk management strategic plan
- Project: detailed climate risk management for specific projects, including operational planning and decision-making

In the context of using the Climate Compass framework, the CSIRO report can be used as an information source to help identify risks for prioritising further work to better understand risks and planning for mitigating risks. Similar to how the private finance and investment sector is standardising the assessment and reporting of climate risk through the Taskforce on Climate-related Financial Disclosures (TCFD n.d.), a climate risk assessment using the Government's Climate Compass framework will help to transparently and coherently communicate to the carbon market and the general public how climate risk is being considered by the government, thereby building confidence in the scheme and the market for ACCUs.

The CSIRO report also provides a clear indication of where key knowledge gaps exist. The report could be used together with the findings from a climate risk assessment to identify areas for priority investment in further data and research. For example, future impacts associated with changing frost days and pests and diseases were noted as particular areas requiring further investigation (CSIRO 2020).

Recommendation 21

To enhance climate risk management, the Department and the Regulator:

- **undertake climate risk assessments of the ERF scheme using an iterative climate risk management framework such as the Government's Climate Compass framework.**
- **use the findings of these assessments and existing scientific information to prioritise investment in further data and research to help governments, scheme participants and businesses to understand and manage climate-related risk.**

Managing risks to land-based abatement

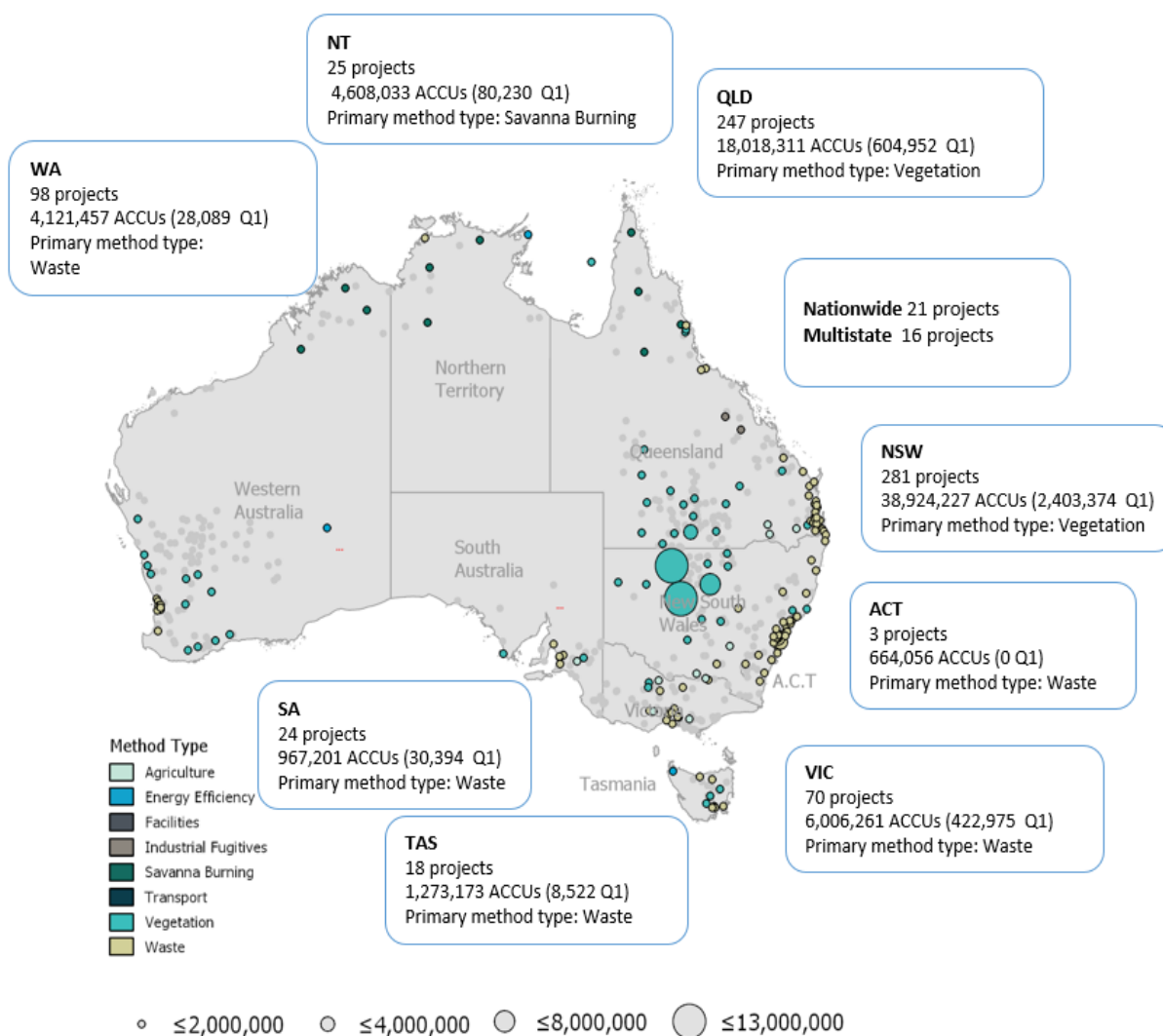
The CSIRO report indicates that the risk profile varies across method/activity type and the region where projects are located. Currently there is little recognition of these differences in the scheme wide mechanisms that are designed to mitigate this risk. Land-based sequestration activities are at greater risk than other activities from climate change. Climate risks to the accumulation and maintenance of these types of carbon sequestration activities could impact Australia's progress towards its emissions target.

Land-based sequestration projects have risks associated with:

- crediting abatement that is due to natural factors (cyclical climatic variation) and not due to management changes
- projects generating less abatement than expected as a result of disturbance events such as drought affecting the establishment of additional carbon
- abatement that has been credited being lost due to not being maintained by the project proponent, for example clearing vegetation from land that was once part of a project. This may occur either within the project permanence period or outside of the permanence period
- abatement that has been credited being reversed, sometimes temporarily, due to a natural events outside of the control of the proponent.

ERF projects, both with and without Government contracts, are concentrated in land-based sequestration activities. Currently, close to half of all abatement from contracted projects is attached to revegetation projects in western New South Wales and south-western Queensland. Another 11 per cent of contracted abatement is attached to avoided deforestation projects in the same part of New South Wales (Figure 9.4). A number of stakeholders expressed concern about the risks associated with the geographical and method concentration of Government purchased abatement (Trust for Nature, WSAA, NRM Regions Australia). Other submissions did not consider it a concern and stated that it was a reflection of the most viable types of projects being concentrated by type and location (KLC), and that good management of projects is the best way to manage risks from extreme weather (AFPA).

Figure 9.4. Total number of ACCUs issued by location (to March 2020 and Q1 2020)



Source: CER 2020i (Figure 5, p.12)

Given the ACCUs purchased by the Government to date have been generated from a small number of methods, it is important that the ERF risk management mechanisms across the scheme are well calibrated and that risk is appropriately dealt with in the method design rules. If they are not, then there is a risk that different ACCUs carry with them quite different underlying risk profiles, despite being priced the same. The submission from Jemena Gas Networks suggests an *'improvement to the ERF is to extend the current risk mechanisms to a fully risk based approach to future carbon abatement returns'* (p. 2).

The ERF currently has several mechanisms in place to manage and mitigate reversal, maintenance and permanence risks. These mechanisms operate at the scheme, method and project levels and are described in Table 9.6. The mechanisms share risk between the Government and project proponents according to the reason for the loss of stored carbon. The mechanisms are supported by guidance to assist project proponents to understand their obligations, including new guidance published by the Regulator on *reducing the risk of fire and preserving sequestered carbon in Emissions Reduction Fund vegetation projects* (CER 2020q). The draft guidance provides greater clarity on how efforts by ERF proponents to meet their obligations will be considered by the Regulator when determining whether reasonable actions have been undertaken to mitigate fire risk and recover carbon stocks.

Risks to permanence were originally managed in the CFI through permanence obligations to maintain carbon stores for 100 years (s 87 of the CFI Act) and the risk of reversal buffer (Table 9.6). The 100 year carbon rule allowed carbon sequestration credits to be considered permanent and treated in a comparable way to an avoided emission (Australian Government 2014). The Government introduced the 25-year permanence period for sequestration projects with the ERF, on the basis that 100-year permanence periods were considered to be barriers to participation of landholders and farmers (Australian Government 2014). To manage the risks this created, the ERF introduced a permanence discount (Table 9.6). This discount reflects the potential cost to Government of replacing carbon stores if 25-year projects are discontinued. Currently the permanence discount is set at the default 20 per cent for all project types except for short-rotation (20 years or less) plantation forestry projects that elect a 25-year permanence period, where a 25 per cent discount is applied.

The risk of reversal buffer manages the risk of temporary losses of carbon due to natural disturbances during the permanence period PER, or losses due to wrong doing that are not able to be recovered through other means (e.g. person leave the country) (Explanatory Memorandum to CFI Bill 2011, Table 9.6). The risk of reversal buffer is currently set at the default rate of 5 per cent for all ERF sequestration projects. The risk of reversal buffer means that a project proponent does not have to replace credits if carbon stores are lost because of natural events such as a bushfire, unless the project proponent has not taken reasonable steps to mitigate the risks (Australian Government 2014). The Clean Energy Regulator has not recorded any significant reversals to date (CER 2020r). Work undertaken by the Regulator following the 2019-20 bushfire season identified 6 projects, which may have been impacted by fire. These projects have generated less than 3,500 credits, less than one per cent of the contracted portfolio (0.03 per cent) (CER 2020r, pers comm.). .

TABLE 9.6: ERF MECHANISMS FOR MITIGATING RISKS OF NATURAL DISTURBANCE AND NON-PERMANENCE

| MECHANISM | RATIONALE | HOW IT WORKS |
|-------------------------------|---|--|
| Permanence period obligations | <p>Permanence obligations require scheme participants to maintain the carbon stored by ERF projects during the permanence obligation period.</p> <p>This mitigates the risk to the Government that carbon is lost by placing an obligation on landholders to take reasonable action to maintain and restore carbon.</p> <p>The permanence obligation period applies for either 100 years or 25 years, depending on the period chosen by the proponent.</p> | <p>Obligations apply for the duration of the permanence period of a project – either 25 or 100 years from the time a project is first issued with credits.</p> <p>If a fire or other disturbance causes a decline in the volume of carbon stored, landholders must take reasonable steps to re-establish carbon stores. Scheme participants will generally not receive further ACCUs until the carbon stores exceed their pre-disturbance levels.</p> <p>If proponents contravene their obligations they may face administrative penalties including relinquishment. In instances where a person makes an arrangement to avoid paying a penalty they may face criminal prosecution.</p> <p>The Regulator can also impose a carbon maintenance obligation when a relinquishment order has not, or is likely to not be complied with. The carbon maintenance obligation ‘runs with the land’ and would apply to future land holders.</p> |
| Permanence period discount | <p>A 20 per cent discount is applied to projects with a 25-year permanence period. This discount reflects the potential cost to Government of replacing carbon stores if 25-year projects are discontinued. The Government expects projects are likely to be retained due to the co-benefits generated from project activities (Australian Government 2014).</p> <p>Following the completion of the 25-year period, project landholders may elect to manage the land in a way that leads to a loss of stored carbon. The discount is to reflect the potential cost to Government of replacing lost carbon at the end of 25 years.</p> | <p>Sequestration projects that elect a 25-year permanence period are discounted 20 per cent of their abatement. Some projects that use the plantation forestry method have a higher discount of 25 per cent applied to reflect a higher level of risk.</p> |
| Risk of reversal buffer | <p>The risk of reversal buffer is to insure the scheme against:</p> <ul style="list-style-type: none"> temporary losses of carbon, while carbon stores are recovering from fire and drought losses as a result of wrongdoing by a project proponent that cannot be remedied (for example if the project proponent leaves the country) losses as a result of necessary fire reduction activities, such as a fire break. | <p>Sequestration projects are discounted 5 per cent of their abatement. For example for every 100 tonnes of carbon stored by a project, 95 Australian Carbon Credit Units are issued.</p> <p>A different rate can be set in regulations, but it is currently 5 per cent for all sequestration projects.</p> |
| Permanence plans | <p>Permanence plans provide evidence to the Regulator of the actions landowners will take to protect carbon stores that have been credited for</p> | <p>Sequestration projects are required to provide permanence plans to the Regulator at registration and in offset reports in years 8 and 24.</p> |

| | | |
|------------------------------|---|--|
| | the permanence period. The plans help to clarify responsibilities and provide the records needed to show that these responsibilities have been carried out, should a significant disturbance occur. | Proponents must set out an explanation of the steps that have or will be undertaken to ensure carbon remains sequestered in the project area for the permanence period. The plan must include any management actions that have been or will be undertaken to prevent the risk of fire starting and spreading on project areas, including the frequency and scale of these actions. |
| Method specific requirements | Mechanisms in sequestration methods can manage method specific risks. | There are some specific requirements in methods. These include: <ul style="list-style-type: none"> the land management strategies for projects using a measured soil carbon method. These strategies are to include activities that will be conducted for the duration of the permanence period requirements in relation to managing pests and fire modelling, monitoring, management activity and record keeping. |
| Voluntary actions | Carbon service providers and proponents rely on the generation of carbon credits for their viability. They are therefore incentivised to consider physical and climatic risks to projects. | Carbon service providers and environmental NGOs have told us that they consider environmental risks as part of their own business risk mitigation measures. These may to some extent be included in management plans, but reportedly go beyond these. |

Notes: Chapter 5 of the Authority's 2017 ERF review provides some further information on permanence obligations (CCA 2017a).

Sources: CCA 2017a, b (consultation paper), Explanatory Memorandum to the CFI Act 2011 to CFI Bill 2011, CFI Rule 2015, CER 2020q, CER n.d.c. [Guidance soil carbon land management strategies]

Setting appropriate reversal buffers and permanence discounts

The risk of reversal buffer and the permanence discount are important measures to insure the scheme against non-permanence, discussed above. The Authority's 2017 ERF review recommended the risk of reversal buffer and the permanence discount be reviewed to determine whether these discounts are calibrated to potential losses of carbon (CCA 2017a Rec. 12). The risk of reversal buffer and permanence discount should ideally represent the quantified risks for the Government over the long time periods over which they operate. Reviews should take account of evidence from actual losses as well as projected future losses and abatement costs.

The permanence period discount uses a financial conceptualisation of the risk (Australian Government 2014). The underlying assumption is that a 20 per cent discount covers the future cost to the Australian Government of replacing the lost carbon.

'This discount reflects the potential cost to Government of replacing carbon stores if 25-year projects are discontinued. In practice, however, many carbon sequestration projects are likely to be retained as they will continue to deliver co-benefits for natural resource management and agricultural productivity.' (Australian Government 2014)

Macintosh et al. (2019) argue that *'...if a financial conceptualisation is adopted, the 20 per cent will be appropriate if it reasonably approximates the discounted financial value of the costs of replacing the lost abatement when the reversals occur (i.e. in more than 25 years)'* (Macintosh et al. 2019).

The 20 per cent discount was set in 2014 and predates the Paris Agreement. There is little information on how the 20 per cent discount was set or how appropriate it currently is. It would be timely to revisit the assumptions that carbon stores will generally be retained and the assumptions on the costs of replacing lost abatement now that new scientific, financial and policy information is available.

Potential losses from natural disturbance events and climate risk should be factored into setting this risk of carbon loss. This information is already being factored into pricing and investment decisions being made by the private sector. Banks are considering climate risk in their agriculture investment portfolios, and the insurance industry is including it when setting their premiums (CCA 2020a). The Australian Conservation Foundation and the Australian Environmental and Planning Law Group both express the importance of factoring climate change into risks of carbon losses. The CSIRO in its 2017 submission to the Authority's previous ERF review stated that the risk of reversal buffer may need to be reviewed to take into account increasing risk of natural disturbances, particularly if sequestration projects are geographically concentrated.

The CSIRO report represents a useful body of evidence for considering the appropriateness of the rate of the risk of reversal buffer. For instance it shows that different regions and methods are likely to face different levels of risk. The CSIRO report suggests that there remains significant uncertainty but also there are clear lines of evidence that some methods and project locations are likely to be riskier than others.

The risk of loss due to management changes should also be factored into a permanence discount. In the case where the ERF activity does not provide any productivity benefits, such as where land is converted away from agricultural productive use, proponents may not maintain the carbon unless future regulations restrict changes or the land is no longer viable for production purposes. An economic assessment could be carried out on a method-by-method basis of the likelihood that carbon will be maintained. This could start with an assessment of projects using the native forest regeneration methods to better understand risks of re-clearing, as recommended by the ERAC (ERAC 2019d). It should also prioritise assessment of permanence risks from projects using the soil carbon methods, given the high potential risk associated with climate impacts (CSIRO 2020).

The review could consider the benefits of allowing projects to move from a 25-year permanence period to a 100-year permanence period to allow projects to take on the extra obligations of managing carbon

stores and avoid the crediting discount. This is supported by some stakeholders and also noted by the ERAC as a potentially beneficial proposal (PEW and Climate Friendly submission to Prospering in a low emissions world (ERAC 2019d). The review could also consider whether a 25-year permanence period is appropriate to incentivise all land sector projects, or whether an extra intermediate period, such as 50-years, could also be provided as an option. Forestry sector stakeholders said that a longer permanence period, coupled with longer crediting periods, is needed to support environmental planting and forestry projects (AFPA submission p.6, The Institute of Foresters of Australia & Australian Forest Growers submission).

Like the permanence discount, there has been little evidence produced to quantify whether the risk of reversal buffer is set at an appropriate rate (currently 5 per cent of estimated abatement). NRM Regions Australia stated that *'the most recent droughts and fire season highlights that the 5 per cent risk of reversal buffer will become increasingly inadequate.'* Similar concerns over the current appropriateness of risk mitigation mechanisms including the risk of reversal buffer were raised by the Australian Environmental and Planning Law Association of Australia, the Australian Conservation Foundation and the Institute of Australian Foresters and the Australian Forestry Group. The Authority is of the view that the Government should also review the risk of reversal to support a mature scheme, based on high-quality quantitative evidence. The review should use similar information sources and a similar approach to that for the permanence period discount.

A well-calibrated evaluation of the risk of carbon losses in land-based sequestration projects could avoid future costs for Government to replace lost abatement. It would also provide the market with better information on climate-related risks similar to what is being demanded in the private sector. Both the risk of reversal buffer and permanence period discount reviews should consider whether the levels of risk are different for different project types (including possible future blue carbon and CCS projects), methods or regions, and whether sufficient information exists to set differential rates to reflect these risks.

Recommendation 22

To manage costs associated with climate risk, assess whether the current risk of reversal buffer and permanence period discount are appropriately calibrated for different sequestration activities and regions, and adjust them as the climate continues to change and understanding of climate impacts improves. Risk factors should include activity type, geographic location and climate conditions.

CHAPTER 10: BUILDING A CLIMATE RESILIENT AND SUSTAINABLE EMISSIONS REDUCTION FUND

One of the four objectives of the CFI Act is achieving carbon abatement in a way that is consistent with the protection of Australia's natural environment and improves resilience to the impacts of climate change. There is potential for the scheme to contribute to broader environmental objectives such as improving water quality, reducing salinity and erosion, protecting and promoting biodiversity, regenerating landscapes and improving the productivity of agricultural soils.

Tailored outreach programs would overcome information-related barriers and promote best practice, including in relation to incorporating climate resilient approaches and delivery of broader environmental benefits.

Increased monitoring and evaluation of the environmental and social impacts of land-based ERF projects will enhance our understanding of the consequences of sequestration activities, both positive and negative.

10.1 Increasing the resilience of land-sector ERF abatement through management strategies

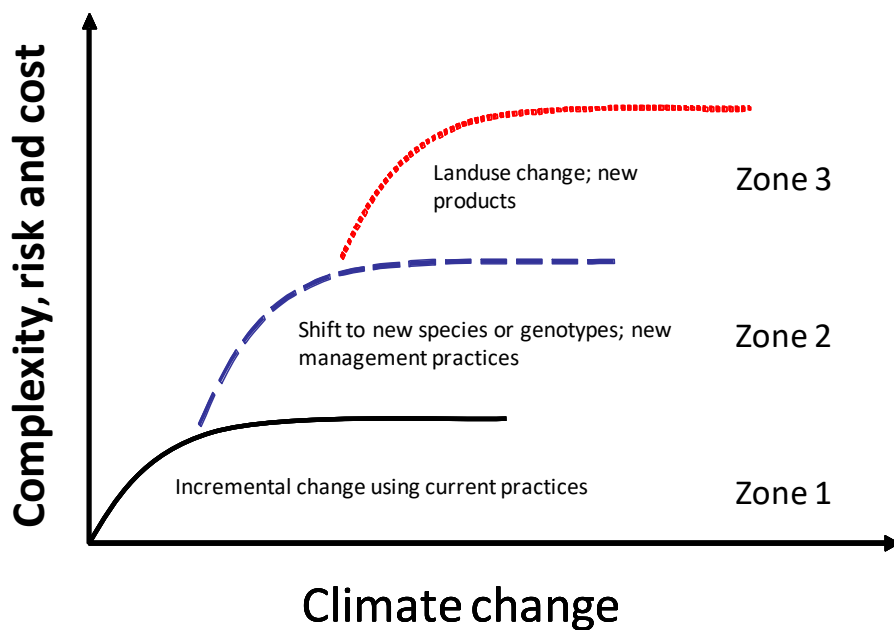
ERF projects cover 18.7 million hectares including sizeable areas of some ecosystems and through their interaction with the land can provide more than just a carbon abatement service (CER 2020d).

Adapting land management practices has the potential to increase the resilience of land-based ERF sequestration projects. One of the aims of the CSIRO report, *Technical review of physical risks to carbon sequestration under the Emissions Reduction Fund* (CSIRO 2020, available on Authority's website) was to consider how different management strategies, consistent with ERF management activities, might mitigate climate risk to carbon stocks. The CSIRO confirmed that certain land management practices have the potential to mitigate the impacts of climate change on ERF projects but warn that the effectiveness of these strategies diminish under more extreme climate change scenarios.

The ERF can also help to build the resilience of the farm enterprise, by providing an additional and diversified income stream from the generation of ACCUs. There is evidence that this income is being reinvested in farms, including in land restoration, and that overall productivity can be maintained or even increased across the whole farm enterprise (Cowie et al. 2019; Baumber et al. 2020 as ref by CSIRO 2020).

Figure 10.1 is taken from the CSIRO report and illustrates the relationship between increasingly extreme climate change under different modelling scenarios and the cost, complexity and risk associated with adapting to that change. The figure describes three levels of adaptation that will be required related to the degree of climate change that may occur. The more the climate changes, the more complex and potentially costly, risky and disruptive the management changes will need to be (Stafford Smith et al 2011 as referenced by CSIRO 2020).

FIGURE 10.1. RELATIONSHIP BETWEEN CLIMATE CHANGE IMPACTS, ADAPTATION RESPONSES AND POTENTIAL ADAPTATION BENEFITS



Source: Howden et al. 2010 referenced by the CSIRO 2020.

Incremental changes in management (Zone 1) will generally be adequate to manage smaller climate impacts, with little changes to current practices, for example changing plant spacing's in environmental or commercial plantings will reduce the impacts of water stress by reducing competition between plantings (Mendham et al. 2007 as referenced by CSIRO 2020). If climate change becomes more extreme, these types of management changes will become ineffective, and a new level of response will be required (Zone 2). For example initial spacing of plantings will no longer be adequate where water stress increases beyond a point. From this point further adaptation shifts will be required, such as changing species or genotypes that would be more tolerant to water stress. Zone 2 management changes will become ineffective if climate change becomes more extreme, requiring transformational management changes (Zone 3), for example a change in land use away from ERF activities.

Under the climate change scenarios analysed by the CSIRO, the authors stated that Zone 1 and 2 strategies should be sufficient (in most cases) for climate adaptation in ERF projects to 2050 based on an intermediate emissions and land use scenario under the Representative Concentration Pathway (RCP)¹⁴ 4.5.¹⁵ The more extreme climate scenarios, for example RCP 8.5¹⁶ are more likely to increasingly require transformational (Zone 3) changes in land use as the century progresses. This will include land under ERF projects and will increase the likelihood of projects failing, and carbon stores being reversed.

The CSIRO state that detailed modelling and scenario analysis is needed to identify where, and under what climatic conditions various adaptation strategies may be effective. This approach has been demonstrated in the plantation forestry sector, where models were used to identify the conditions under which thinning activities would reduce risk of drought mortality under future climate change scenarios (Battaglia and Bruce 2017 as referenced by CSIRO 2020). Examples of potential climate adaptation management plans for ERF activities that involve establishing new plantings is described in Box 10.1.

¹⁴ RCPs are prescribed pathways for greenhouse gas and aerosol concentrations, together with land use change, that are consistent with a set of broad climate outcomes used by the climate modelling community. They have been adopted by the IPCC (CSIRO and BoM 2015).

¹⁵ RCP 4.5 - CO₂ concentrations are slightly above those of RCP6.0 until after mid-century, but emissions peak earlier (around 2040), and the CO₂ concentration reaches 540 ppm by 2100 (CSIRO and BoM 2015).

¹⁶RCP 8.5 - a future with little curbing of emissions, with a CO₂ concentration continuing to rapidly rise, reaching 940 ppm by 2100. (CSIRO and BoM 2015).

The CSIRO report highlights the need for Government to work with landholders and the carbon farming industry to not only identify land management strategies for managing risk to carbon and their farm productivity but also to identify the limits of these management strategies.

Box 10.1 Climate risk mitigation strategies for the plantings of new forest activities

ERF methods in the plantings of new forest activities involve establishment of new plantings, with a range of planting width, tree density and configurations, and conversion of short-rotation plantation forests to long-rotation. Of all the methodologies, this category has the most options for adaptation. Adaptation strategies falling into Zone 1 – 3 categories are relevant.

Examples of Zone 1 strategies include fire management and fire planning including fire breaks and fuel management (Lacy 2008 as referenced by CSIRO 2020). This activity could be carried out at establishment and during the project. It would increase resilience through reducing the sensitivity of the project to fire.

Examples of Zone 2 strategies include planting design to manage water availability e.g. linear versus block plantings (Henskens et al. 2001 as referenced by CSIRO 2020) or selecting species and genotypes with physiological and morphological attributes that make them less sensitive to climatic conditions in specific locations, for example frost, heatwaves and drought).

Examples of Zone 3 strategies include land use change from forestry following the end of a rotation (CSIRO 2020). This would be a risk to the ERF as the carbon will no longer be stored in the site and would be the kind of outcome that would need to be mitigated by the permanence discount.

A common climate adaptation strategy for commercial forests is to reduce the length of the growth cycle, so that alternative germplasm more adapted to emerging climatic conditions can be planted (Joyce et al. 2009 as referenced by CSIRO 2020). This may be incompatible with the ERF plantation methodology that allows conversion from short to long rotation management, without other adaptation strategies such as modified spacing or some form of thinning. It is also currently incompatible with the environmental plantings methodology due to permanency requirements (CSIRO 2020).

10.2 Supporting best practice projects

Increased outreach and better guidance

The Authority has previously recommended reducing information-related barriers to the uptake of ERF land and agriculture projects through better outreach services, delivered in collaboration with or through the Rural Research and Development Corporations (CCA 2018, 2020a). These outreach services might also provide a range of other information on emissions reduction actions in the agriculture sector and on climate adaptation.

The King Review recommended the establishment of a knowledge sharing and outreach program that would involve the creation of dedicated knowledge sharing hubs including for agriculture (Australian Government 2020b). The King Review, and Macintosh et al (2019) suggest that in the agricultural sector, there is scope for the agricultural hubs to involve Natural Resource Management groups and farmer representative bodies as well as Rural Research and Development Corporations. The Authority supports this view.

In noting the King Review recommendation the Government said it would look to simplify and streamline knowledge sharing and communications efforts with current and potential ERF project proponents (Australian Government 2020a). A number of stakeholder submissions asked for tailored outreach programs in relation to carbon farming opportunities to overcome barriers (Carbon Neutral, NRM Regions, Farmers for Climate Action). Outreach could be undertaken in conjunction or cooperation with other Government programs, for example, as part of outreach programs conducted through the Future Drought Fund and/or in conjunction with the work of the National Soils Advocate which raises

awareness of the importance of conserving and improving agricultural soils and landscape conditions (DAWE n.d.a., DPMC n.d.).

Farmers for Climate Action, in supporting the King Review's recommendation on outreach, recommended the 'long-term resourcing for climate-smart agricultural extension - addressing the growing appetite among farmers for independent, evidence-based advice on available ways to reduce emissions, adapt and raise farm business performance'. This recommendation highlights the need to integrate information sharing on emission reduction opportunities with climate resilience.

Publishing guidance material on adaptation strategies for different methods could also assist with best practice implementation of land-based projects. Governments and primary industry bodies often produce best practice management guides for aspects of agricultural production. This same type of information, tailored to region and method type, could be produced for ERF activities. For example, best practice guidance for the regeneration of native vegetation projects in western New South Wales. This guidance should provide information that helps project proponents make decisions on how to implement ERF projects in a way that builds climate resilience and landscape health.

Recommendation 23

To encourage more participation in the ERF and best practice implementation of ERF projects, including climate resilience:

- **develop tailored, region-specific outreach programs for the land and agricultural sectors, in collaboration with other Government programs, for example the Future Drought Fund**
- **publish voluntary best practice guidance for ERF projects, including resilience, noting that these would need to be method and region specific.**

10.3 Managing potential adverse impacts in the ERF

Many land-based activities provide additional benefits in terms of biodiversity, environmental health and farm profitability. Many of these benefits are also closely linked with building climate resilience for farmers and landholders. For example ERF soil carbon projects may also improve soil health helping farms to mitigate climate impacts. A selection of the main types of co-benefits are presented in Table 10.1. There can also be potential dis-benefits or adverse impacts associated with ERF projects, as indicated in the table, for example, a reduction in biodiversity or a reduction in water availability.

The ERF has several mechanisms in place to manage the environmental and social impacts of projects. When registering a land-based project, participants must advise the relevant Natural Resource Management body about the proposed ERF project and if the project area is covered under a natural resource management plan, the participant must advise whether the project is consistent with that plan. The participant must also obtain any regulatory approvals required by state, territory or federal laws relating to land use or development, the environment or water.

Risks of adverse impacts to water availability, biodiversity conservation, employment, the local community or land access for agricultural production are managed through the CFI Act, which excludes certain types of projects that are listed in regulations (CFI Regulations 3.37). The Authority examined this list (known as the 'negative list') in 2017 and on balance did not recommend any changes.

During the Authority's consultations for the 2017 ERF review some stakeholders raised concerns that the 'negative list' had introduced a prohibitive barrier to some tree planting projects as it excluded projects (in certain circumstances), which did not have the water entitlements available for the new plantings (CCA 2017a, CFI Regulations 2011). The Government has since changed the requirements for tree planting projects in higher rainfall locations to allow projects to meet the requirements if they are located in a specified region where tree planting is unlikely to have a material adverse impact on the availability of water (Australian Government 2020b, DAWE n.d.b.). The DAWE has a role in advising whether tree planting projects are unlikely to have a material adverse impact on water availability

(DAWE n.d.b). The Authority considers the assessment should draw on information from the recommended Climate Compass review of the ERF (Recommendation 20, Chapter 9) and consider the scientific evidence, which indicates a reduction in water availability is a potential climate risk to ERF tree plantings over the permanence period of the projects (CSIRO 2020). Although the report notes that revegetation can also lead to hydrological benefits through for example, the local redistribution of surface flows (Bennett et al. 2014).

During public consultation stakeholders raised concerns that ERF projects in the Mulga lands in southern Queensland are not being properly managed, which is resulting in a prevalence of feral animals and weeds on ERF project land areas (Southern Queensland Landscapes, SWRED pers comm.). These concerns were also raised with the Authority in 2017 (CCA 2017a). There are also concerns about local communities being adversely affected due to losing people from the region because ‘*properties are being retired from traditional agriculture in many cases in order to ensure carbon outcomes*’ (Southern Queensland Landscapes p.3). There has been little done in the way of monitoring and evaluation of the environmental and social impacts of land-based ERF projects making it difficult for the Authority to properly understand these concerns. It should be noted however, that the ERF does not displace obligations under biosecurity and other laws.

TABLE 10.1. CO-BENEFITS AND DIS-BENEFITS ASSOCIATED WITH ERF METHODS

| Co-benefit / dis-benefit | | Activity | | | | | | | | | | |
|-----------------------------|---|--|-------------------------|----------------------------|--------------------------------------|--|---------------------------------|---|---------------------|-----------------------|-------------------------------------|-------------|
| | | Measurement of soil carbon sequestration in agricultural systems | Savanna fire management | Human induced regeneration | Native Forests from managed regrowth | Reforestation by environmental or mallee plantings | Reforestation and afforestation | Measurement-based methods for new farm forestry plantations | Plantation forestry | Avoided deforestation | Avoided clearing of native regrowth | Blue carbon |
| Farm productivity | Improved crop / pasture yields & farm productivity | | | | | | | | | | | |
| | Improved / diversified income streams | | | | | | | | | | | |
| | Improved animal welfare (e.g. shelter, reduced stress) | | | | | | | | | | | |
| Soil health | Improved soil health via increased SOC | | | | | | | | | | | |
| | Increased soil stability / reduced soil surface erosion | | | | | | | | | | | |
| | Mediation of dryland salinity | | | | | | | | | | | |
| Biodiversity / conservation | Increased biodiversity & ecosystem function/resilience | | | | | | | | | | | |
| | Reduced biodiversity e.g. monocultures / homogenisation | | | | | | | | | | | |
| | Improved conservation outcomes | | | | | | | | | | | |
| Water quality / quantity | Reduced nitrogen / phosphorus / pesticide leakage | | | | | | | | | | | |
| | Reduced water yields | | | | | | | | | | | |
| | Improved water quality | | | | | | | | | | | |
| Socio-economic | Conflict / competition with other land uses | | | | | | | | | | | |
| | Emissions offsetting (e.g. bioenergy, product substitution) | | | | | | | | | | | |
| | Reduced air pollution (e.g. particulates) | | | | | | | | | | | |
| | Employment creation | | | | | | | | | | | |
| | Poverty alleviation | | | | | | | | | | | |
| | Introduction of new/diversified products to market | | | | | | | | | | | |
| | Promotion of new technical innovations | | | | | | | | | | | |
| | Promotion / enhancement / expansion of an industry | | | | | | | | | | | |
| | Harminisation / improved efficiency of land use | | | | | | | | | | | |
| | Recognition / assimilation / respect of local/Indigenous knowledge | | | | | | | | | | | |
| | Promotion of equity in access to land, decision-making, knowledge | | | | | | | | | | | |
| | Increased community resilience | | | | | | | | | | | |
| | Enhanced capacity for indigenous communities to meet land stewardship obligations | | | | | | | | | | | |
| | Improved or clarified land tenure / use rights for local communities | | | | | | | | | | | |

Legend
■ Strong co-benefit
■ Marginal/potential co-benefit
■ Marginal/potential dis-benefit

Source: CSIRO 2020

GLOSSARY OF TERMS

| | |
|--|---|
| additionality | Emissions reductions that are additional to what could have occurred in the absence of a policy-induced project or activity. |
| aggregation agreement | An agreement for carbon services related to participating in the ERF. Can include aggregators, site owners (or landholders) and service providers. |
| Australian Carbon Credit Unit (ACCU) | <p>A unit issued for verified emissions reductions under the Carbon Farming Initiative and the ERF.</p> <p>The Australian National Registry of Emissions Units supports the issuance, holding, transfer, and acquisition of Australian Carbon Credit Units (ACCUs) issued under the Australian Government's Emissions Reduction Fund.</p> |
| baseline | A counterfactual scenario of future emissions that would have been expected to occur without the emissions-reducing activity. |
| business as usual | Emissions that would occur without policy intervention. |
| Carbon Farming Initiative (CFI) | An Australian emissions offset scheme that credited emissions reductions from certain sources, such as forestry and agriculture, which were not covered by the carbon pricing mechanism. |
| carbon pricing mechanism | An emissions trading scheme introduced under the <i>Clean Energy Act 2011</i> (Cth) and applied to Australia's biggest emitters (called 'liable entities'). It was repealed in July 2014. |
| carbon service provider | Individuals or groups that develop ERF projects, provide advice on project registration, implementation and management, aggregate projects or contracts or act as designated agents, whereby they are authorised to act on the scheme participant's behalf. |
| co-benefits | Benefits that arise from the introduction of a policy in addition to its main purpose. |
| contract period | Period over which ERF projects receive payment from a Government contract in exchange for delivery of ACCUs. |
| crediting period | Period over which a registered ERF project can earn ACCUs. |
| designated agent | An individual or company authorised to act on the scheme participants behalf in relation to an ERF project. |
| Eligible interest holder consent | Approval from those holding an eligible interest in land on which an ERF project will run. |
| emissions intensity | A measure of the amount of emissions associated with a unit of output—for example, emissions per unit of gross domestic product or electricity production, emissions per kilo of beef. |
| emissions reduction | The act or process of limiting, restricting or sequestering greenhouse gas emissions. |
| Emissions Reduction Assurance Committee (ERAC) | An independent, expert committee that assesses whether methods meet the Offsets Integrity Standards of the ERF and provide advice to the Minister. |
| Emissions Reduction Fund (ERF) | A scheme resulting from the expansion of, streamlining and other changes to the CFI in December 2014. The ERF involves purchases of ACCUs by the Government. |

| | |
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| enteric fermentation | A biological process in ruminant animals by which gases are produced through digestion. |
| Fit and Proper Person test | Individuals and firms must not be convicted of an offence related to dishonest conduct or subject to a bankruptcy and must have competence and capacity to participate in the scheme. |
| global warming | A warming of global average temperatures caused by increased atmospheric concentrations of greenhouse gases. This warming results in changes to the climate system. |
| greenhouse gas | Any gas (natural or produced by human activities) that absorbs infrared radiation in the atmosphere. Key greenhouse gases include carbon dioxide, water vapour, nitrous oxide, methane and ozone. |
| information asymmetry | Information asymmetry occurs in transactions where one party has more or better information than the other. |
| land sector | The land use and agriculture sectors (including savanna fire management). |
| legislative rule | A legislative rule is legislation, which supports the operation of an Act and can be implemented or amended without being passed by Parliament. |
| make-good provisions | Allows scheme participants to meet their obligation to provide ACCUs from projects other than the project they bid on at auction. |
| method | A legislative instrument that sets the rules for ERF projects. |
| National Greenhouse and Energy Reporting Act | A national framework for reporting and releasing information about greenhouse gas emissions, energy production and energy consumption. |
| National Greenhouse Gas Inventory | An annual report to the United Nations Framework Convention on Climate Change that contains Australia's greenhouse gas emissions data. |
| negative test | Identifies types of projects that are likely to cause adverse impacts to one or more of the following: the availability of water, the conservation of biodiversity, the local community, and land access for agriculture production. |
| offsets | An emissions offset is a reduction in emissions made in order to compensate for or offset an emission made elsewhere. |
| offsets integrity standard | A legislative standard in the ERF to ensure that ACCUs are issued for genuine, additional emissions reductions. |
| Paris Agreement | An international agreement adopted under the United Nations Framework Convention on Climate Change in 2015. |
| permanence period | Period over which scheme participants must maintain the carbon stored by ERF projects. |
| positive list | Regulation containing a list of additional emissions reduction activities eligible to earn ACCUs under the CFI. |
| reverse auction | In a reverse auction, the sellers compete to win the auction and prices will typically decrease as the sellers underbid each other. |
| risk of reversal buffer | A scheme wide mechanism that withholds 5 per cent of ACCUs from sequestration projects to protect the scheme from temporary losses of carbon. |
| Safeguard Mechanism | An element of the ERF that establishes limits for large emitters that exceed a defined baseline. |
| scheme participant | The person who is responsible for, and has the legal right to, carry out an ERF project. |
| secondary market | A market where ACCUs are purchased outside of a contract with the Government. |
| sequestration/storage | The removal of atmospheric carbon dioxide, by storing it in living biomass, dead organic matter or soil. |
| transaction costs | The costs of participating in a market. In the case of the ERF, transaction costs are all costs from developing, approving and administering projects apart from costs directly associated with implementing and maintaining the project itself. Transaction costs also include costs to government and scheme participants for method development, reporting and verification. |

United Nations
Framework Convention
on Climate Change
(UNFCCC)

An international treaty that commits signatory countries (Parties) to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous human-induced interference with the climate system.

Table of abbreviations and acronyms

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| Australian Carbon Credit Unit (ACCU) | A unit issued by the Australian Clean Energy Regulator and recorded in the electronic Australian National Registry of Emissions Units. Each ACCU issued represents one tonne of carbon dioxide equivalent (t CO ₂ -e) stored or avoided by a particular action or project. |
| Australian Renewable Energy Agency (ARENA) | Australian Government agency established to improve the competitiveness of renewable energy technologies and increase the supply of renewable energy in Australia through the provision of financial assistance for the research, development, deployment or commercialisation of renewable energy technologies and to collect and share information about renewable energy technologies. |
| Carbon capture and storage (CCS) | A technology that can capture a portion of the carbon dioxide emissions produced from the use of fossil fuels in electricity generation and industrial processes, preventing the carbon dioxide from entering the atmosphere. |
| Carbon dioxide-equivalent (CO₂-e) | A measure that quantifies different greenhouse gases in terms of the amount of carbon dioxide that would deliver the same global warming. |
| Clean Energy Finance Corporation (CEFC) | An Australian Government owned Green Bank that was established to facilitate increased flows of finance into the clean energy sector. |
| Clean Energy Regulator (CER) | An Australian independent statutory authority responsible for administering legislation to reduce carbon emissions and increase the use of clean energy. |
| Commonwealth Scientific and Industrial Research Organisation (CSIRO) | An independent Australian federal government agency responsible for scientific research. Its chief role is to improve the economic and social performance of industry for the benefit of the community. |
| Department | Meaning the Department of Industry, Science, Energy and Resources. |
| Emissions Reduction Assurance Committee (ERAC) | An independent, expert committee that assesses whether methodology determinations (methods) under the Emission Reduction Fund meet the requirements of the fund and helps ensure the ongoing integrity of methods under the fund. |
| Emissions Reduction Fund (ERF) | A voluntary scheme that aims to provide incentives for a range of organisations and individuals to adopt new practices and technologies to reduce their emissions. A number of activities are eligible under the scheme and participants can earn ACCUs for emissions reductions. |
| Full Carbon Accounting Model (FullCAM) | A calculation tool for modelling Australia's greenhouse gas emissions from the land sector. |
| Intergovernmental Panel on Climate Change (IPCC) | The intergovernmental scientific body that produces reports that support the United Nations Framework Convention on Climate Change, which is the main international treaty on climate change. |
| Minister | Meaning the Minister for Energy and Emissions Reduction. |
| National Greenhouse and Energy Reporting Scheme (NGER) | A national framework for reporting and disseminating company information about greenhouse gas emissions, energy production and energy consumption, established by the <i>National Greenhouse and Energy Reporting Act 2007</i> (Cth) |
| Natural Resource Management (NRM) | Refers to the protection and improvement of environmental assets such as soils, water, vegetation and biodiversity. |

| | |
|---|--|
| non-government organisations (NGOs) | Organisations independent of any government. They are usually non-profit. |
| Financial Stability Board Task Force on Climate-related Financial Disclosures (TCFD) | A market-driven initiative set up to develop a set of recommendations for voluntary and consistent climate-related financial risk disclosures in mainstream corporate filings. |
| United Nations Framework Convention on Climate Change (UNFCCC) | An international convention that commits signatory countries (known as Parties) to stabilise greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous human-induced interference with the climate system. |

APPENDIX A. STAKEHOLDER CONSULTATION

The Climate Change Authority conducts public consultations for all of its reviews and reports. Throughout this review, the Authority consulted with a wide range of interested parties, including industry and peak bodies, non-governmental organisations, indigenous groups, research institutions and government departments and agencies.

In April 2020, the Authority released a paper to facilitate consultation for this review. The Authority received 51 stakeholder submissions, eight of which were confidential. The non-confidential submissions are available on the Authority's website at <https://www.climatechangeauthority.gov.au/submissions-received>.

As the consultation period coincided with COVID-19 restrictions, the Authority provided flexible options to facilitate stakeholder participation. This included drawing on submissions provided to the Authority's recent *Prospering in a low-emissions world: An updated climate policy toolkit for Australia* report, and submissions made to the *Examining additional sources of low cost abatement: expert panel report* (King Review). Virtual meetings were also offered, with the Authority meeting with 33 organisations.

The Authority thanks all those who provided submissions and/or engaged with the Authority for this work. The following organisations and individuals provided non-confidential submissions:

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| AGL Energy Limited | Climate Change Australia |
| Anton Steketee | Country Carbon |
| Arnhem Land Fire Abatement (ALFA) | EDL |
| Australian Aluminium Council | Energy Networks Australia |
| Australian Conservation Foundation (ACF) | Energy Savings Industry Association (ESIA) |
| Australian Conservation Foundation: Chisholm Community Group | EnergyAustralia |
| Australian Energy Council | Farmers for Climate Action (FCA) |
| Australian Energy Market Commission (AEMC) | Greening Australia |
| Australian Forest Products Association (AFPA) | Hydro Tasmania |
| Australian Industry Greenhouse Network (AIGN) | Indigenous Carbon Industry Network (ICIN) |
| Australian Sustainable Built Environment Council (ASBEC) | The Institute of Foresters of Australia (IFA) and Australian Forest Growers (AFG) |
| Bioenergy Australia | Jemena Gas Networks |
| Biome5 Environmental Consultants | Kimberley Land Council |
| Brotherhood of St Laurence | Law Council of Australia: Australian Environment and Planning Law Group (AEPLG) |
| Built environment peak bodies joint submission: Property Council of Australia, Green Building Council Australia, Australian Sustainable Built Environment Council and Energy Efficiency Council | NRM Regions Australia |
| Carbon Market Institute (CMI) | Phillip Laird, University of Wollongong |
| Carbon Neutral | Southern Queensland Landscapes |
| Carbon X | The Australia Institute |
| Cement Industry Foundation | Tim Kelly |
| Citizens' Climate Lobby Australia | Trust for Nature |
| | Tweed Shire Council |
| | Water Services Association of Australia |
| | Woodside |

APPENDIX B. COSTS AND BENEFITS OF RECOMMENDATIONS

The *Carbon Credits (Carbon Farming Initiative) Act 2011* (Cth) requires the Authority to analyse the costs and benefits of any recommendations formulated during this review. The Authority is also required to have regard to the principles set out in the *Climate Change Authority Act 2011* (Cth) (see Chapter 1) when performing its functions. The cost benefit table below presents a summary of the recommendations' outcomes against these criteria. Further analyses of the costs and benefits of the recommendations are made throughout the report.

| RECOMMENDATION | ECONOMIC EFFICIENCY | | ENVIRONMENTAL EFFECTIVENESS | EQUITY | IMPLEMENTATION PROCESS |
|--|--|---|---|-------------------------|---|
| | Costs | Benefits | | | |
| R. 1 To strengthen the market demand signal for ACCUs, the Government: <ul style="list-style-type: none"> incorporate within its annual emissions projections an estimate of the total contribution the ERF is projected to make to emissions reductions to 2030 through all potential sources of demand for ACCUs (e.g. Government purchasing, state and territory programs, compliance and voluntary markets) publish an indicative range for annual Government purchases of ACCUs for four years ahead, to be updated each year commit to maintaining announced aggregate funding levels for the ERF in rolling four year blocks | Negligible increase in administrative costs to the Department. | Increases certainty for market participants which can lead to increased investment in ERF projects. | An effective investment signal can lead to more ERF projects and abatement. | Increased transparency. | Minister/Department of Industry, Science, Energy and Resources. |

| RECOMMENDATION | ECONOMIC EFFICIENCY Costs | Benefits | ENVIRONMENTAL EFFECTIVENESS | EQUITY | PROCESS |
|--|--|---|--|---|--|
| <p>R. 2 To realise abatement opportunities in industrial facilities, leverage co-investment and avoid risks to the ACCU market, the Government's low-emissions technology incentive scheme make Safeguard Mechanism Credit - concessional loans bundled with grants and tax incentives - available to Safeguard-covered facilities undertaking transformative, below-baseline abatement projects.</p> <p>If designed as a carbon market mechanism, and noting the King Review recommendation that the incentive scheme not be an offsets scheme, consideration be given to mitigating risks to the ACCU market by:</p> <ul style="list-style-type: none"> • ensuring below-baseline carbon credits (SMCs) are: <ul style="list-style-type: none"> ○ allocated for emissions reductions that meet a 'transformative project' threshold, for example by setting crediting baselines well below compliance baselines ○ saleable only to the Government and to entities under the Safeguard Mechanism for the purpose of complying with Safeguard obligations | <p>Part of current Government costs of developing new policy for Safeguard facilities.</p> <p>If low interest rate loans are offered, small budget impact.</p> <p>If the Government allocates new funding for the purchase of SMCs, then a budget impact of this amount.</p> | <p>A loan mechanism (targeted to overcoming upfront technology costs) is relatively easy for business and government to administer.</p> | <p>A simpler mechanism may increase abatement from Safeguard entities. Confidence in funding committed to ACCU market can lead to more investment in ERF projects.</p> | <p>Maintains value of investment for participants in the ERF by maintaining the market for ACCUs.</p> | <p>Regulator /Department of Industry, Science, Energy and Resources.</p> |

- (and not otherwise fungible with ACCUs)
- allowing banking of SMCs for use in future years only after an assessment of the outcomes of the initial pilot phase
- funding any Government purchase of SMCs separately from amounts already allocated to the CSF for the purchase of ACCUs
- giving future consideration to implementing declining baselines with clear trajectories, to maintain demand for ACCUs and SMCs (for example, as technology evolves) and enhance co-investment in both schemes.

| | RECOMMENDATION | ECONOMIC EFFICIENCY Costs | Benefits | ENVIRONMENTAL EFFECTIVENESS | EQUITY | PROCESS |
|------|--|---|---|--|--|--|
| R. 3 | <p>Consider ways to incentivise voluntary purchasing of Australian Carbon Credit Units, including for use under the Government's voluntary carbon neutral scheme <i>Climate Active</i>. For example, in collaboration with industry representatives:</p> <ul style="list-style-type: none"> • develop a tiered labelling scheme similar to the Australian Made brand that would enable companies seeking to become carbon neutral to promote those offsets that were sourced from a) ACCUs or b) ACCUs with social/biodiversity co-benefits | Small increase in administrative costs to the Department and voluntary labelling costs for Climate Active participants. | Labelling and award incentives can increase the value to industry of participating in Climate Active using ACCUs. | May lead to increased abatement in Australia and associated co-benefits. | Enhanced information on ACCU provenance and attributes provides transparency and choice for consumers. | Department of Industry, Science, Energy and Resources. |

- establish annual awards that recognise companies that source for voluntary mitigation action the most carbon offsets in the form of ACCUs.

| RECOMMENDATION | ECONOMIC EFFICIENCY | ENVIRONMENTAL EFFECTIVENESS | EQUITY | PROCESS |
|---|--|--|--|---|
| <p>R. 4</p> <p>To facilitate innovative co-financing of ERF projects, particularly those with high upfront costs, the Regulator, CEFC and ARENA collaborate to align the ERF with the broader suite of Commonwealth, state and territory government climate initiatives and the growing sustainable private finance market.</p> | <p>Coats</p> <p>Small administrative cost to Regulator to coordinate with CEFC and ARENA.</p> | <p>Benefits</p> <p>Increased efficiency and reduced costs to participants from greater alignment with finance market.</p> <p>Better aligns funding incentives to industry across the economy.</p> | <p>Effective financing support for projects with upfront costs can lead to more ERF projects and abatement.</p> <p>NA</p> | <p>Regulator/ CEFC/ ARENA.</p> |
| <p>R. 5</p> <p>To facilitate market certainty and encourage industry participation, publish a statement of priority emissions reduction activities for method development, in conjunction with the annual Low Emissions Technology Statement.</p> <p>For each prioritised activity, the statement should reference considerations for prioritising activities as set out in the published document <i>Making methods under the ERF</i>, namely:</p> <ul style="list-style-type: none"> • potential uptake of the activity and likely volume of abatement • whether the activity is technology proven and commercially ready • whether emissions reductions could be estimated with a reasonable | <p>Small increase in administrative costs to the Department.</p> | <p>Effective prioritisation and input from stakeholders will ensure efficient allocation of resources in method development.</p> | <p>May lead to increased abatement through new methods being better aligned with market opportunities.</p> <p>Ensures fair process for stakeholder input to method prioritisation.</p> | <p>Department of Industry, Science, Energy and Resources.</p> |

degree of certainty in a cost-effective way

- whether the activity could have adverse social, environmental or economic impacts
- alternative ways to promote the activity more effectively and efficiently

The publication of the statement of priorities be preceded by a formal consultation process for stakeholders to be able to recommend priority activities to the Minister.

| RECOMMENDATION | ECONOMIC EFFICIENCY | Benefits | ENVIRONMENTAL EFFECTIVENESS | EQUITY | PROCESS |
|--|--|--|--|--|-------------------|
| <p>R. 6 and 7.</p> <p>To inform and enhance its actions to reduce transaction costs and streamline administrative processes, the Regulator undertake a benchmarking exercise and publish information on indicative administrative and operational costs involved in establishing and undertaking different types of ERF projects. The benchmarking exercise should compare the transaction costs of projects under the ERF with those under other Government programs.</p> <p>To encourage greater participation in the ERF, the Regulator continue to explore ways to streamline ERF processes and reduce transaction costs for scheme participants, while continuing to uphold the Offsets Integrity Standards.</p> | <p>Part of Regulator forward work program.</p> | <p>Reduces administrative costs to the Regulator in the long term.</p> <p>Reduces transaction costs to participants.</p> | <p>No change to integrity of abatement if well implemented.</p> <p>Reduced transaction costs may increase participation and abatement.</p> | <p>Reduced transaction costs should allow a greater number of businesses to participate in the market.</p> | <p>Regulator.</p> |

| R. 8 | <p>To maintain the reputation of Australia's high integrity carbon offsets market, the Offsets Integrity Standards remain unchanged.</p> <p>To promote certainty and transparency on how the ERAC interprets the Offsets Integrity Standards, the ERAC reference the Information Paper: '<i>Committee considerations for interpreting the Emissions Reduction Fund's Offsets Integrity Standards</i>' in its decisions and ensure it is readily accessible to stakeholders.</p> | No change. | Improving market confidence in the ERF through enhanced transparency of the ERAC's decision making. | Integrity of abatement maintained. | Improves transparency and maintains consistent decision making over time. | ERAC/ Regulator. |
|----------------------------|---|--|---|------------------------------------|---|--|
| R. 9 | To enhance opportunities and flexibility for project proponents, the 'newness requirement' be amended to allow project activities to commence from the time of submission of a project application, rather than when the project is declared eligible. | <p>Imposes a small additional administrative cost to the Regulator to establish.</p> <p>No additional costs over the long term.</p> | Improves efficiency through reducing barriers to participation (particularly for projects that require planning and preparation). | May lead to increased abatement. | Allows proponents of projects that require longer planning timeframes to participate. | Change to CFI Act. |
| R. 10 | To allow greater scope for project planning, the Regulator identify within methods (under development or variation) any planning actions to be excluded from the 'newness requirement', with the ERAC providing assurance that this does not jeopardise additionality. | Can be incorporated within current method development and review processes at no cost. | Improves efficiency through reducing barriers to participation (particularly for projects that require planning and preparation). | May lead to increased abatement. | Allows proponents of projects that require longer planning timeframes to participate. | Regulator/ ERAC. |
| RECOMMENDATION | | | | | | |
| ECONOMIC EFFICIENCY | | ENVIRONMENTAL EFFECTIVENESS | | EQUITY | | PROCESS |
| R. 11 | To support potential ERF projects with high upfront costs while upholding the integrity of the scheme, the Government explore | Part of current Government response to King Review recommendations on approaches to supporting ERF projects with high upfront costs. | Benefits Increased efficiency and reduced costs to participants from greater alignment of support with project costs. | Integrity of scheme maintained. | NA | Department of Industry, Science, Energy and Resources. |

innovative financing approaches on a method by method basis, for example concessional loans (see also Recommendation 4), rather than using compressed crediting.

Reduction in administrative and regulatory costs to Regulator and participants associated with establishing compressed crediting.

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|--------------|--|---|---|--|--|-----------------------|
| R. 12 | <p>To ensure ongoing confidence in the administration of the ERF under consolidated responsibilities, the Regulator build on its existing probity and governance measures by:</p> <ul style="list-style-type: none"> maintaining separate decision makers, including at senior executive level, for each of its key functions – method development and variation; compliance and enforcement; and crediting and purchasing of ACCUs obtaining independent probity advice on the operation and separation of the key functions. | <p>Additional administrative costs associated with establishing processes and independent advice.</p> | <p>Market maintains confidence in the ERF through managing perceived conflicts of interest.</p> | <p>Integrity of scheme maintained.</p> | <p>Improved information and transparency for market and Australian public.</p> | <p>Regulator/ANAO</p> |
|--------------|--|---|---|--|--|-----------------------|

The Australian National Audit Office undertake a performance audit after the first two years of the consolidation of functions within the Regulator.

| RECOMMENDATION | ECONOMIC EFFICIENCY | Coats | Benefits | ENVIRONMENTAL EFFECTIVENESS | EQUITY | PROCESS |
|-----------------------|---|--|---|---|--|--|
| R. 13 | <p>To give industry a greater opportunity to contribute to the development of new methods and increase transparency, the Government consider establishing</p> | <p>Additional administrative cost to Regulator associated with establishing Expert Steering Committee.</p> | <p>Improved useability, reduced costs and greater effectiveness of methods through greater involvement of industry expertise and resources.</p> | <p>May lead to increased abatement.</p> | <p>Increases transparency and participation of stakeholders in method development.</p> | <p>Regulator and Change to legislative rule.</p> |

a Steering Committee under a regulatory instrument to the CFI Act to oversee method development and variations. The Steering Committee should comprise representatives of the CSIRO, the Department (including from the National Greenhouse Gas Inventory team), the Regulator, the carbon industry, and as an observer, the ERAC.

To enable relevant industry, scientific, carbon market, carbon sequestration and emissions avoidance experts to participate, the Steering Committee convene working groups on a method specific basis.

To strengthen industry participation, the Committee develop and publish a stakeholder engagement plan.

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| R. 14 | To assist the ERAC to perform its functions and duties as set out in the CFI Act, the Regulator establish an enhanced agreement with the ERAC on the disclosure of requested information, including a timeline for provision of requested information and the manner in which to treat protected information. | Part of current funding for ERAC Secretariat role. | Ensures informed decision making by ERAC, high quality advice to the Minister and hence improved outcomes under ERF methods. | NA | NA | Regulator/ ERAC. |
|--------------|---|--|--|----|----|------------------|

| | RECOMMENDATION | ECONOMIC EFFICIENCY | ENVIRONMENTAL EFFECTIVENESS | EQUITY | PROCESS | |
|--------------|---|---|--|---|--|-------|
| R. 15 | To enable it to efficiently maintain the quality of ERF methods, the ERAC develop a framework for | Coats Small administrative cost to ERAC to establish framework. | Benefits Greater efficacy resulting from ERAC resources. | May increase integrity of abatement through timely reviews. | Greater certainty and transparency for stakeholders. | ERAC. |

prioritising its periodic method reviews, taking into account the current and likely future uptake of the method, the complexity of the method, the likelihood of breaches of compliance with the Offsets Integrity Standards and any relevant legislative rule changes.

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| R.16 | To enable crediting periods to be based on up-to-date information, the Government amend the CFI Act to allow the Minister to extend a crediting period, based on advice from the ERAC, regardless of whether the ERAC had previously advised against an extension. | Small administrative cost to Department. | More efficient decision-making processes for ERAC. | ERAC decision on additionality of abatement is based on best information. | Increases equity by removing barrier to new information being considered. | Change to CFI Act |
| R.17 | To align with best practice, the Government, following a formal consultation process with Indigenous stakeholders, amend the CFI Act to ensure free, prior and informed consent from native title holders prior to the registration of area-based ERF projects on native title land. | May increase upfront administrative costs and project development time for scheme participants. | Increases transparency. Reduces risk that ERF contract conditions are not met and ERF projects do not deliver abatement. May reduce net administrative costs for Regulator. | Increased likelihood of Government contracting with projects that will go ahead to deliver abatement. | Aligns with UN Declaration on the Rights of Indigenous People for free, prior and informed consent. Improves transparency and ability for native title eligible interest holders to negotiate with scheme participants. | Regulator and Change to legislative rule |

| | RECOMMENDATION | ECONOMIC EFFICIENCY | BENEFITS | ENVIRONMENTAL EFFECTIVENESS | EQUITY | PROCESS |
|-------------|---|---|---|---|---|---|
| R.18 | To deliver fair outcomes as changes to methods are implemented, the Government's ERF risk sharing framework (currently under development) include guidance on the circumstances under which: <ul style="list-style-type: none"> variations and changes (to methods, rules, tools | Costs Part of current commitment to develop a risk sharing framework. | Benefits Enhances confidence for investors in ERF projects. | Improves integrity of emissions reductions compared to participants remaining on original method/tool for up to 25 years. | Improves understanding and transparency of how participants and their businesses may be impacted by changes to methods/rules/tools. | Department of Industry, Science, Energy and Resources |

- and guidance material) will apply to existing activities
- support will be made available to mitigate negative impacts caused by amendments that affect existing projects
- scheme participants will be required to transition to updated methods.

| | | | | | | |
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| R. 19 | That the standard contractual terms for future fixed delivery contracts: <ul style="list-style-type: none"> • apply commercial contractual damages where non-delivery was not a result of <i>force majeure</i> • minimise variations in delivery without cause. | Reduces flexibility for participants and potentially increases damages when participants are in breach. | Greater certainty of delivery under contracts and reduces risk to Government of needing to purchase abatement from elsewhere. Reduces incentive for participants to default on contract and maintains confidence in the scheme. | Increases incentives to deliver abatement. | Treats new entrants differently to incumbents. | Regulator |
| R. 20 | To incentivise new projects, the Government adopt contract terms that ensure new fixed delivery contracts are filled predominantly using ACCUs from new ERF projects rather than projects that have already fulfilled ERF contracts (post-contract supply). | Reduces flexibility for participants | Increases incentives for new abatement projects and ensures incumbents are not at an unfair advantage over new project entrants. Ensures public funding is used to incentivise new abatement rather than expend on existing contracts. | Increases abatement by incentivising new projects. | Ensures incumbents do not have an unfair advantage over new entrants. | Regulator |

| | RECOMMENDATION | ECONOMIC EFFICIENCY Costs | Benefits | ENVIRONMENTAL EFFECTIVENESS | EQUITY | PROCESS |
|--------------|---|---|--|--|--|--|
| R. 21 | To enhance climate risk management, the Department and the Regulator: <ul style="list-style-type: none"> • undertake climate risk assessments of the ERF scheme using an iterative climate risk management framework such as the | Administrative cost to Department and Regulator from undertaking assessment. Costs associated with subsequent research and procuring data. | Climate risk is appropriately managed and priced into Government and market decisions. | Should lead to reduced rates of lost abatement and identification of robust opportunities for increased abatement. | Enhances equity by allowing planning for and pricing of climate impacts. | Regulator/ Department of Industry, Science, Energy and Resources |

Government's Climate Compass framework.

- use the findings of these assessments and existing scientific information to prioritise investment in further data and research to help governments, scheme participants and businesses to understand and manage climate-related risk.

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| R.22 | To manage costs associated with climate risk, assess whether the current risk of reversal buffer and permanence period discount are appropriately calibrated for different sequestration activities and regions, and adjust them as the climate continues to change. Risk factors should include activity type, geographic location and climate conditions. | Increases costs for Department and Regulator. | Assists in appropriately pricing reversal and permanence risks into government and market decisions. | Should improve investment in robust abatement. | Increased information for participants enhances equity through improved pricing of reversal and permanence risk. | Regulator/ Department of Industry, Science, Energy and Resources |
|-------------|---|---|--|--|--|--|

| | RECOMMENDATION | ECONOMIC EFFICIENCY Costs | Benefits | ENVIRONMENTAL EFFECTIVENESS | EQUITY | PROCESS |
|--------------|---|---|--|---|--|---|
| R. 23 | To encourage more participation in the ERF and best practice implementation of ERF projects, including climate resilience: <ul style="list-style-type: none"> • develop tailored, region-specific outreach programs for the land and agricultural sectors, in collaboration with other Government programs, for example the Future Drought Fund • publish voluntary best practice guidance for ERF projects, including resilience, noting that these would need to be | Increased administrative costs to Department(s) | Administrative costs are minimised due to collaborating with other Government programs. Increased information for farmers on opportunities leading to increased participation, assisting climate resilience for farmers and landowners. | Enhanced abatement with environmental co-benefits including resilience. | Improved information for farmers and landholders, thereby enhancing access to the ERF. | Department of Industry, Science, Energy and Resources /Department of Agriculture, Water and Environment |

method and region
specific.

Note: The implementation column notes how the scheme rules and operation would need to change in order to implement the recommended change. Where an agency (eg Regulator or Department) is noted, the required change is an internal administrative change that does not require changes to legislation or legislative instruments. Regardless of the technical implementation, scheme participant actions may also need to change to comply with the new arrangements.

APPENDIX C. RECOMMENDATIONS FROM AUTHORITY'S 2017 ERF REVIEW AND GOVERNMENT RESPONSE

INFORMATION AVAILABILITY

A number of recommendations made by the Authority in 2017 were about the provision of more information to enhance scheme participation and transparency. In most cases, the Regulator and the Department have now made this information publicly available. For example, the Regulator has published Guidance on how the Native Title Act interacts with the ERF and, since December 2019, Quarterly Carbon Market Reports, which provide information on the supply and demand of ACCUs and further information on trends. The Department has published a paper on behalf of the Emissions Reduction Assurance Committee clarifying how its Committee interprets the Offsets Integrity Standards.

RECOMMENDATIONS FROM THE AUTHORITY'S 2017 ERF REVIEW AND GOVERNMENT RESPONSE. THIS TABLE IS CURRENT AT APRIL 2020.

| Rec No. | Recommendation | Government response | Implementation |
|---------|--|----------------------|---|
| 1 | Establish a formal submission process for new methods to be developed by the Department and publish priorities for method development every two years. | Accepts-in-principle | Ongoing |
| 2 | Develop guidance to clarify how the Emissions Reduction Assurance Committee (Committee) will interpret the ERF Offsets Integrity Standards. | Accepts-in-principle | Complete |
| 3 | Separate senior executive accountability for the Committee secretariat from that for method development. | Accepts | Complete |
| 4 | Make method variations to incorporate guidance on the most current estimation techniques, tools and calculators. ERF scheme participants must move to the new method within two years if a variation is made. | Notes | Ongoing. Government will consult with ERF participants on impacts of compelling participants to transition to updated methods before making a decision. |

| | | | |
|----|---|---------|---|
| 5 | As part of its method reviews, the Committee to: - review the measured soil method to assess its effectiveness in distinguishing between natural variability and management actions - assess the estimation and project requirements for the human-induced regeneration method - assess the additionality of project activities and baselines of the native forest managed regrowth method - assess regulatory additionality baselines for the landfill gas method - look closely at whether the additionality requirements in each method remain current over time. | Accepts | Part 1 Ongoing – Committee has completed the reviews of human-induced regeneration, native forest managed regrowth and landfill gas methods. The measured soil methods have not been reviewed. Part 2 – Ongoing as part of usual processes. |
| 6 | Require prospective scheme participants to include a plan for maintaining carbon stores when registering sequestration projects. | Accepts | Complete |
| 7 | Require fire management plans for sequestration and savanna fire projects. | Notes | The Carbon Credits Rule 2015 was amended in May 2018 to include a requirement that sequestration projects provide information on what action will be/has been undertaken to protect sequestered carbon for the permanence period. There is ongoing consideration by the Government and Regulator on how fire risks are dealt with in the ERF as part of ongoing governance arrangements. The Government is not persuaded that provision of fire management plans to the Regulator will ensure fire plans are appropriate or will be implemented. Government believes state/territory authorities are best placed to ensure compliance with fire plan requirements. |
| 8 | Review the definition of a significant reversal of sequestration to better calibrate the risk of carbon losses. | Accepts | Ongoing. The Department and Regulator will continue to monitor risks to ERF, including risk of reversal, as fund matures. |
| 9 | Remove the ability for a scheme participant to request that the project area be omitted from the project register. | Accepts | Under consideration |
| 10 | The Regulator include on their website a search function for ERF projects based on individual properties. | Accepts | Complete |

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|----|---|----------------------|--|
| 11 | Develop guidance for conveyancers and state and territory legal societies on permanence obligations that run with the land. | Accepts | Ongoing |
| 12 | CCA review the: - risk of reversal buffer and - the permanence period discount. | Notes | In this review the Authority has considered the effectiveness of the 'risk of reversal buffer' and 'permanence period discount'. The Authority recommends that mechanisms for managing carbon losses in land-based sequestration projects should be reviewed within each method, with consideration to factors such as activity type, geographic location and climate conditions. |
| 13 | Require ERF scheme participants to notify Regulator of individuals and firms that they paid to provide them with advice. | Does not accept | Government is satisfied that Regulator has appropriate information-gathering powers to effect compliance outcomes. |
| 14 | Extend the Fit and Proper Person test to apply to designated agents. | Accepts | Under consideration |
| 15 | Require a declaration from landholders that they have read the Department's aggregation agreement resources to register an aggregated project. | Accepts-in-principle | Under consideration |
| 16 | Some industry bodies and local government associations consider providing advice to their stakeholders on ERF projects. | Notes | Recommendation is for action of non-government stakeholders. |
| 17 | Finalise guidance on consultation with Indigenous communities. Require scheme participants to notify and engage with Registered Native Title Body Corporates and eligible interest holders (EIH) of intention to register a project and provide the Regulator with evidence of consultation. Scheme participants not be allowed to bid at auction until all eligible interest holder consents have been obtained. | Accepts-in-part | Part 1 – Complete. In June 2018 Clean Energy Regulator published guidance material. Part 2 – The Government intends to retain the current approach of allowing conditional project registration whilst eligible interest holder consents are obtained. The Regulator has updated the assessment system for registration of area-based projects to ensure proponents identify if native title determinations exist within the project area. Updates to the CFI Rule in 2018 and again in 2020 increase requirements to engage with native title holders under some circumstances. |
| 18 | Make explicit the Regulator's ability to reverse specific decisions in cases where the original decision was based on false or misleading information. | Accepts | Under consideration |

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| 19 | Remove the requirement to state whether sequestration or area based projects are consistent with relevant NRM plans and instead require scheme participants to provide evidence that they have advised the relevant NRM body of the proposed project. | Accepts | Under consideration |
| 20 | No change to the purchasing principles. | Accepts | Status quo, no action needed. |
| 21 | Revisit the cap on buyer damages under ERF contracts. | Accepts | Ongoing. Regulator will periodically review the cap on buyer's market damages for new fixed contracts. |
| 22 | Require scheme participants to deliver a minimum of 30-50 per cent of ACCUs from the projects they used to register at auction. | Does not accept | The Government believes that requiring 30-50 per cent of units to come from the registered project will limit options for contract fulfilment and could lead to an increase in delivery risk and price. |
| 23 | Publish timely information about the holding of ACCUs. Publish a six monthly 'statement of opportunities' that sets out the forward schedule for ACCU delivery, availability of ACCUs in the secondary market and indicative demand and prices. | Accepts-in-principle | Complete |
| 24 | Investigate ways to further enhance Regulator's client services, particularly when responding to complex enquiries. | Accepts | Ongoing |
| 25 | Expand the Regulator's regulatory toolkit to include issuing penalty infringement notices. | Accepts | Under consideration |
| 26 | Allocate additional funds to the Department to collaborate with research organisations and stakeholders on new methods for the land sector and require rural research and development corporations include emissions reductions as priorities for their R&D work. | Notes | Part 1 – Complete. New departmental funding is available from 2020 financial year for method development. Part 2 - The Government provides broad advice on research funding to the Rural R&D Corporations (RRDCs). The RRDCs are independent, but the Government has brought the Authority's recommendation to their attention. |

APPENDIX D. RECOMMENDATIONS FROM EXPERT PANEL (KING) REVIEW AND RELATED AUTHORITY ADVICE

| EXPERT PANEL (KING) REVIEW | | RELEVANT AUTHORITY ADVICE | |
|--|----------------------------|--|--|
| EXPERT PANEL RECOMMENDATION RELEVANT TO ERF | GOVERNMENT RESPONSE | AUTHORITY RECOMMENDATIONS | GOVERNMENT RESPONSE TO AUTHORITY RECOMMENDATIONS |
| ERF Crediting (5 recommendations) | | | |
| Allow certain ERF methods to award ACCUs on a compressed timeframe. Criteria would apply. | Agreed-in-principle | This review R.11 The Government explore new ways to support potential ERF projects with high upfront costs on a method by method basis, for example concessional loans (see also Recommendation 4), as an alternative to compressed crediting. | N/A |
| Create a fixed priced purchasing desk for small projects under the ERF. | Agreed | The Authority has recommended addressing a similar issue. <i>Prospering in a low-emissions world R.15:</i> investigate how best to encourage smaller businesses to reduce emissions, including through assistance to participate in the Emissions Reduction Fund (ERF). | N/A |
| Create tailored small-scale ERF methods for particular types of agriculture projects, including shelterbelts. Small-scale methods would have streamlined requirements. | Agreed | The Authority has recommended addressing a similar issue. <i>Prospering in a low-emissions world R.15:</i> investigate how best to encourage smaller businesses to reduce emissions, including through assistance to participate in the Emissions Reduction Fund (ERF). | N/A |
| The Clean Energy Regulator should continue its work on optional delivery contracts. | Agreed | | N/A |

| EXPERT PANEL (KING) REVIEW | | RELEVANT AUTHORITY ADVICE | |
|---|---------------------|---|--|
| EXPERT PANEL RECOMMENDATION RELEVANT TO ERF | GOVERNMENT RESPONSE | AUTHORITY RECOMMENDATIONS | GOVERNMENT RESPONSE TO AUTHORITY RECOMMENDATIONS |
| Facilitate 'method stacking', where multiple ERF projects are taken on the same property. | Agreed | <p>The Authority identified the issue in <i>Reaping the Rewards (CCA 2018)</i>.</p> <p>It noted that an online reporting tool could help simplify reporting and reduces transaction costs for aggregated projects.</p> <p>This review R. 15 (part of): Notes method stacking could have a material impact on a method complying with the Offsets Integrity Standards. Recommend the ERAC develop a framework for prioritising its periodic method reviews, taking into account the current and likely future uptake of the method, the complexity of the method, the likelihood of breaches of compliance with the Offsets Integrity Standards and any relevant legislative rule changes.</p> | N/A |

| ERF: Method development (5 recommendations) | | | |
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| <p>Establish a new process to provide third parties with the opportunity to propose and prepare ERF methods.</p> <p>[Use] a multi-stage review, development and approval process.</p> | Agreed | <p>The Authority has recommended addressing a similar issue.</p> <p>2017 ERF review R.1 (part of): the Department establish a formal submission process so stakeholders can propose new Emissions Reduction Fund methods.</p> <p>This review R.13 (part of): establishing a formal Steering Committee to oversee method processes. This would better harness valuable input from industry and other third-party experts.</p> | <p>Accepted-in-principle</p> <p>The Department has supplied a channel (on its website) through which stakeholders can suggest a new method for consideration in the method prioritisation process.</p> |
| <p>Establish a pilot method program to test new method ideas and expedite method preparation.</p> | Agreed | <p>The Authority has considered a similar issue in this review.</p> <p>It considers that a formal Steering Committee (Recommendation 13) would be well suited to help inform or advise on a pilot program. It notes that a pilot approach could be beneficial in order to test the feasibility and workability of methods prior to their adoption.</p> | N/A |
| <p>Amend the ERF legislation to enable a method to be developed for carbon capture and storage and/or carbon capture, utilisation and storage.</p> | Agreed | | N/A |
| <p>Undertake consultation on amending the water requirements that apply to farm forestry and plantation projects under the ERF.</p> | Agreed | <p>The Authority identified the issue in the 2017 ERF review. It stated no change was needed in 2017.</p> | N/A |
| <p>Develop and publish a formal policy governing the prioritisation and development of ERF methods.</p> | Agreed | <p>The Authority made a very similar recommendation in 2017.</p> <p>2017 ERF review R.1: The Department establish a formal submission process so stakeholders can propose new Emissions Reduction Fund methods. Following</p> | <p>Accepted-in-principle</p> <p>The Department published on its website a fact sheet outlining how potential methods are prioritised, and supplied a channel through which stakeholders can suggest a</p> |

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| | | <p>assessment of stakeholder proposals by the Department, the Minister would publish priorities for method development every two years.</p> <p>This review R.5 (part of): To facilitate market certainty and encourage industry participation, publish a statement of priority emissions reduction activities for method development, in conjunction with the annual Low Emissions Technology Statement.</p> <p>The publication of the statement of priorities be preceded by a formal consultation process for stakeholders to be able to recommend priority activities to the Minister.</p> | <p>new method for consideration in the method prioritisation process.</p> <p>The Department is examining whether a more formal process for obtaining stakeholders' method proposals would be an improvement on current practice.</p> |
| ERF: Governance (4 recommendations) | | | |
| Introduce a formal 'duty of utmost good faith' on participants in the ERF. | Agreed | | N/A |
| Review the ERF's governance arrangements to ensure the efficient and effective operation of the scheme. The review should include the structure and staffing of the Emissions Reduction Assurance Committee (ERAC), and whether it should be staffed and supported by officers from the Department, the Clean Energy Regulator, or another agency. | Agreed | <p>The Authority made a related recommendation in the 2017 ERF review:</p> <p>R.3 Senior Executive accountability for the Emissions Reduction Assurance Committee secretariat to be segregated from method development.</p> <p>This review R.12: To ensure ongoing confidence in the administration of the ERF under consolidated responsibilities, the Regulator build on its existing probity and governance measures by:</p> | <p>Accepted</p> <p>Accountabilities have been separated.</p> |

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| | | <ul style="list-style-type: none"> • maintaining separate decision makers, including at senior executive level, for each of its key functions – method development and variation; compliance and enforcement; and crediting and purchasing of ACCUs • obtaining independent probity advice on the operation and separation of the key functions. <p>The Australian National Audit Office undertake a performance audit after the first two years of the consolidation of functions within the Regulator.</p> <p>R.14 To assist the ERAC to perform its functions and duties as set out in the CFI Act, the Regulator establish a formal agreement with the ERAC on the disclosure of requested information, including a timeline for provision of requested information and the manner in which to treat protected information.</p> | |
| <p>Establish a scheme to subsidise the costs of directly measuring the abatement associated with certain types of project activities, particularly the sequestration of carbon in agricultural soils.</p> | <p>Agreed-in-principle</p> | <p>The Authority has recommended addressing a similar issue.</p> <p><i>Prospering in a low-emissions world R.21 (part of):</i> allocate additional funds for research on low-emissions agriculture and carbon farming, including... the development of tools to report on the emissions profile of agricultural activities. For example, research on a remote sensing measurement technique for soil carbon.</p> | <p>N/A</p> |

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| The Clean Energy Regulator should continue its efforts to streamline ERF audit requirements at an administrative level and to explore the potential to use 'big data' as an alternative to more traditional audit processes. | Agreed | The Authority identified the issue in the 2017 ERF review. It stated no change was needed in 2017. | N/A |
| Voluntary Market (2 recommendations) | | | |
| The Clean Energy Regulator should...[improve] registry systems to provide information about the provenance of certificates and support private quality branding of co-benefits associated with different abatement units. | Agreed | This review R.3 Consider ways to incentivise voluntary purchasing of Australian Carbon Credit Units, including for use under the Government's voluntary carbon neutral scheme <i>Climate Active</i> . For example, in collaboration with industry representatives: <ul style="list-style-type: none"> develop a tiered labelling scheme similar to the Australian Made brand that would enable companies seeking to become carbon neutral to promote those offsets that were sourced from a) ACCUs or B) ACCUs with social/biodiversity co-benefits establish annual awards that recognise companies that source for voluntary mitigation action the most carbon offsets in the form of ACCUs. | N/A |
| The Commonwealth should work with state and territory governments to encourage their use of the national crediting architecture for the purposes of offsetting emissions from particular developments. | Agreed | | N/A |
| Enabling markets: knowledge sharing (1 recommendation) | | | |
| Establish a knowledge sharing and outreach program to address information barriers impeding the uptake of ERF projects and | Noted | The Authority has recommended addressing a similar issue. 2017 ERF review R.16: some industry bodies and local government associations consider | Noted The Government noted the extensive engagement with industry bodies and local governments during implementation of the |

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| <p>investment in cost-effective abatement opportunities.</p> | | <p>providing advice on Emissions Reduction Fund projects to their members.</p> <p>Reaping the Rewards R.14 (part of): the Rural Research and Development Corporations and other relevant research bodies build on their existing extension programs to continue to offer guidance to landholders on how to reduce emissions and encourage natural resource management while further improving farm productivity.</p> <p>This review R.23:Provide tailored, region-specific outreach programs for the land and agricultural sectors to provide information on best practice implementation of ERF projects including climate resilience, in collaboration with other Government programs, for example the Future Drought Fund.</p> <p>Publish voluntary best practice guidance for ERF projects to improve climate resilience, noting that these would need to be method and region specific.</p> | <p>ERF, and ‘welcomed further engagement from industry bodies and local government’.</p> <p>N/A</p> |
| Safeguard Crediting (1 recommendation) | | | |
| <p>Establish a ‘below-baseline crediting arrangement’ for large facilities using the Safeguard Mechanism architecture. The arrangement would provide credits to facilities who reduce their emissions below their Safeguard baselines by undertaking ‘transformative’ abatement projects.</p> | <p>Agreed</p> | <p>The Authority has made recommendations on the Safeguard Mechanism but with key differences.</p> <p>Prospering in a low-emissions world R.14: enhance the Safeguard Mechanism to deliver emission reductions from large emitters in industry, with:</p> | <p>N/A</p> |

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| | | <p>declining baselines with clear trajectories and the ability to trade under- and over-achievement once baselines have commenced declining and are binding targeted, transitional and transparent competitiveness assistance to emissions-intensive, trade-exposed industries captured by the enhanced Safeguard Mechanism where a demonstrated risk of carbon leakage exists.</p> <p>This review R.2: To realise abatement opportunities in industrial facilities, leverage co-investment and avoid risks to the ACCU market, the Government's low-emissions technology incentive scheme make Safeguard Mechanism Credit - concessional loans bundled with grants and tax incentives - available to Safeguard-covered facilities undertaking transformative, below-baseline abatement projects.</p> <p>If designed as a carbon market mechanism, and noting the King Review recommendation that the incentive scheme not be an offsets scheme, risks to the ACCU market be mitigated by:</p> <ul style="list-style-type: none"> • ensuring below-baseline carbon credits (SMCs) are: <ul style="list-style-type: none"> ○ allocated for emissions reductions that meet a 'transformative project' threshold, for example by | |
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| | | <p>setting crediting baselines well below compliance baselines</p> <ul style="list-style-type: none"> ○ saleable only to the Government and to entities under the Safeguard Mechanism for the purpose of complying with Safeguard obligations (and not otherwise fungible with ACCUs) ● allowing banking of SMCs for use in future years only after an assessment of the outcomes of the initial pilot phase ● funding any Government purchase of SMCs separately from amounts already allocated to the CSF for the purchase of ACCUs <p>giving future consideration to implementing declining baselines with clear trajectories, to maintain demand for ACCUs and SMCs (for example, as technology evolves) and enhance co-investment in both schemes.</p> | |
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Note: Recommendations from the Expert Panel review have been abridged for the purposes of presenting them in this table. This table presents only the recommendations from the Expert Panel review that are relevant to the ERF and is not a complete list of recommendations from that review.

APPENDIX E. SUMMARY OF METHODS

| METHOD ¹⁷ | DESCRIPTION ¹⁸ | CONTRACTED ABATEMENT Fixed delivery (Optional delivery) (MILLION ACCUs) |
|--|--|--|
| Vegetation Management | | 128.9 (7.2) |
| Avoided Deforestation | Protects native forest that would otherwise be cleared for use as cropland or grassland, thereby storing carbon in the trees as they grow and avoiding emissions that would have occurred by clearing. To be eligible, the landholder must have received a clearing permit before 1 July 2010. | 26.3 |
| Avoided clearing of native regrowth | Retains native forest that would otherwise be cleared in the normal course of events, thereby storing carbon. | 0.4 |
| Human-induced regeneration of a permanent even-aged native forest | Establishes a native forest on land where native forest is being suppressed using regeneration activities. Regeneration activities include excluding livestock, managing the timing and extent of grazing, and stopping destruction or suppression of native regrowth. | 94.6 (6.5) |
| Native forest from managed regrowth | Allows native vegetation to regrow by stopping activities that prevent regeneration of native vegetation. Project proponents can erect fencing to exclude livestock or remove non-native plant and animal species. | 3.5 |
| Reforestation and Afforestation | Establishes forests by permanently planting a new forest or re-establishing a depleted forest on land previously used for grazing or cropping. Uses measurement to estimate carbon stored. Projects can involve any type of tree species, except for declared weed species. | 0.9 |
| Reforestation by Environmental or Mallee Plantings – FullCAM | Establishes new forests by permanently planting native trees or mallees to store carbon. The method uses FullCAM to estimate carbon captured by the growing trees. | 1.8 |
| Measurement based methods for new farm forestry plantations | Establishes and maintains trees on land that has previously been used for grazing or cropping to sequester carbon. Scheme participants can establish either a permanent planting or a harvest plantation. Harvest plantations allow the commercial harvesting of project trees. | 0.0 |
| Designated Verified Carbon Standard projects | Enables projects validated under the Verified Carbon Standard (internationally recognised and credible international standard) to transition to the ERF. Project proponents avoid emissions and sequester carbon by protecting native forests and not harvesting them. | 0.8 |
| Plantation forestry | Increases carbon storage through establishing and managing commercial plantation forests by establishing new plantation forests, converting short-rotation plantations to long rotations, or maintaining existing plantations established under another ERF method. Carbon continues to be stored in the wood products from the harvested plantations. This method uses FullCAM to model the carbon abatement of projects. | 0.5 (0.7) |

¹⁷ Methods marked with an asterisk (*) transitioned from the CFI to the ERF on 1 July 2015.

¹⁸ For vegetation and agriculture methods, there are broadly two approaches to measuring carbon abatement. These are either a direct-measurement approach or a modelled approach using the Full Carbon Accounting Model (FullCAM). The method description indicates which approach is used where it is appropriate to distinguish one method from another with similar activities.

| Waste and wastewater | | 25.7 (0.1) |
|---|---|-------------------|
| Landfill gas | Reduces methane from landfills by installing or expanding the operation of a flare or an electricity production system. | 21.8 (0.1) |
| Alternative waste treatment | Project activities include recycling or composting waste at alternative treatment facilities to reduce methane from landfills. | 3.6 |
| Source Separated Organic Waste | Prevents the release of emissions from landfill by supporting activities that separate organic materials from waste at the point of generation. This waste is then treated using alternative treatments such as composting and biodigestion. | 0.1 |
| Wastewater treatment | Captures and combusts methane generated by wastewater treatment by replacing open lagoons with either a covered lagoon or an engineered biodigester and combusting the biogas. | 0.1 |
| Agriculture – soil carbon | | 13.6 (0.3) |
| Sequestering carbon in soils (measured) | Increases the carbon stored in soils in agricultural systems as a result of changed management practices. The amount of carbon sequestered is estimated by direct-measurement using soil sampling. Includes ACCUs contracted under the grazing systems method, now closed to new projects. | 13.6 (0.3) |
| Estimating sequestration of carbon in soil using default values | Increases the carbon stored in soil through one or more of three project management activities: sustainable intensification (increasing biomass yields through inputs such as fertiliser, lime and water), stubble retention or conversion to pasture. The amount of carbon stored is estimated using default values that are based on FullCAM modelling. | 0.0 |
| Agriculture - other | | 1.1 |
| Animal effluent management | Prevents the release of emissions generated from piggery and dairy manure by either collecting and combusting the methane component, or avoiding emissions of methane and nitrous oxide through the treatment of solid waste, or both. Includes ACCUs contracted under the piggeries and dairy methods, now closed to new projects. | 0.9 |
| Fertiliser use efficiency in irrigated cotton | Improves the efficiency of synthetic fertiliser use in irrigated cotton, reducing nitrous oxide emissions by activities such as changing the rate, timing or type of nitrogen fertiliser application. | 0.0 |
| Beef cattle herd management | Reduces the emissions intensity of beef cattle production through a broad range of management activities that may include introducing supplement feeding, improving pastures and installing fences to control herd movements. | 0.2 |
| Reducing greenhouse gas emissions in beef cattle through feeding nitrate containing supplements* | Reduces methane emissions from enteric fermentation by replacing urea lick blocks with nitrate lick blocks for pasture-fed beef cattle. | 0.0 |
| Reducing greenhouse gas emissions in milking cows through feeding dietary additives* | Reduces methane emissions from enteric fermentation by improving feed quality for milking cows. Eligible additives increase the fat content of a milking cow's diet, for example canola meal. Increasing the fat content of a milking cow's diet reduces the emissions that result from the digestion process. | 0.0 |

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| Savanna Burning | | 13.6 |
| Savanna fire management | Reduces greenhouse gas emissions through fire management in the early dry season in northern savannas, aimed at reducing the incidence and extent of larger, higher intensity late dry season fires. | 13.6 |
| Savanna fire management and sequestration | Reduces greenhouse gas emissions through fire management in the early dry season in northern savannas, aimed at reducing the incidence and extent of larger, higher intensity late dry season fires. In addition, this method credits increased carbon storage as a result of changed fire management. | 0.0 |
| Fugitives (Mining, oil and gas) | | 2.6 |
| Coal mine waste gas | Reduces coal mine waste gas methane by installing or expanding the operation of a flare or an electricity production system. Projects may be credited both for methane destruction and for electricity displacement. | 2.6 |
| Oil and gas fugitives | Reduces fugitive methane emissions from venting at oil and natural gas extraction, production, transport and processing facilities through the use of flares. | 0.0 |
| Energy efficiency | | 5.4 (0.1) |
| Industrial Equipment Upgrades | Improves the energy efficiency of commercial or industrial equipment by upgrading equipment that has been recommended by a qualified auditor in an energy audit or energy efficiency report and verified as meeting method requirements. The method is for projects with an annual energy consumption limit of 500,000 gigajoules. | 0.0 |
| Aggregated small energy users | Promotes goods and services to improve energy efficiency and reduce emissions amongst a large group of households or small businesses such as switching to LED lighting or installing more efficient water heating systems. | 0.0 |
| Commercial and public lighting | Improves the energy efficiency of lighting systems in commercial, industrial or public buildings or in public areas. Projects can include modification of existing lighting equipment or control systems. | 2.8 (0.05) |
| Commercial building energy efficiency | Improves the energy efficiency of a single building or a group of buildings to reduce their emissions intensity. Projects can include upgrading lighting systems or introducing more energy efficient heating and cooling systems, or changing the components or shell of the building to reduce energy consumption. | 0.0 |
| High efficiency commercial appliances | Improves the energy efficiency of commercial appliances such as air conditioners and refrigerated display cabinets by upgrading existing appliances or installing ones. | 0.0 |
| Industrial Electricity and Fuel Efficiency | Improves the energy efficiency of commercial or industrial equipment by upgrading equipment such as boilers or pumps or converting equipment to operate on lower emissions fuel (fuel switching). | 2.6 (0.1) |
| Refrigeration and Ventilation Fans | Improves the energy efficiency of fans used in refrigeration systems such as refrigerated display cabinets and cold storage warehouses, as well as fans ventilating commercial and industrial buildings. Scheme participants can upgrade existing fans or install new ones. | 0.0 |
| Transport | | 1.2 |
| Land and sea transport | Reduces the emissions intensity of vehicles by replacing existing vehicles, modifying existing vehicles, changing energy sources (fuel switching) or mix of energy sources, and changing operational practices. | 1.2 |

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| Aviation | Improves the energy efficiency of air transport through a broad range of activities including modifying existing planes, changing energy sources or the mix of energy sources, and changing operational practices. | 0.0 |
| Facilities | | 0.0 |
| Facilities | Reduces the emissions intensity of a facility. Projects may involve a broad range of activities and may include upgrading turbines or reducing industrial process emissions. The method determines a baseline emissions intensity against which project abatement is calculated. Credits are then awarded to participating facilities that reduce their emissions intensity per unit of output below the baseline level. | 0.0 |

APPENDIX F. THE CSIRO REPORT FINDINGS ON SPECIFIC ERF ACTIVITY CATEGORIES

Management of agricultural soils

Overall relative risk rating: Highest

Risk factor assessment: 5 High, 2 Medium, 3 Low, 3 not rated due to insufficient information and 5 risk factors not applicable

The dominant risks for this activity type were found to be associated with projected climate change impacts on the rates of organic matter input to soil, and the rates of loss through changes to soil respiration and the microbial biota (High). The vulnerability of soil organic carbon (SOC) to loss has been recently highlighted by a number of studies suggesting the majority of the spatial and temporal variability observed in SOC can be attributed to non-management related factors. For example Badgery et al. 2020 showed, across 10 locations in NSW and over a 16 year period, that all of the SOC gains made over the early years following changes in management, designed specifically to build SOC, were lost by year 16. The patterns of subsequent reversal of SOC sequestered were similar over widely differing management interventions, suggesting the primary factor controlling the reversal was not solely related to management.

Because of the wide range of management activities allowed under the direct measurement soil method, there are also a wide range of adaptive measures that can be taken to improve the likelihood of success of the management change with respect to such factors as productivity and economic returns, and associated co-benefits regarding soil health. However, the effectiveness of such adaptive measure for helping to secure SOC over the long term remains untested.

Plantings of new forests

Overall relative risk rating: Second highest

Risk factor assessment: 2 High, 5 Medium, 4 Low, 2 not rated due to insufficient information and 5 risk factors not applicable

The majority of risks identified for planting of new forests were found to be associated with risks of accumulation of carbon abatement, arising from reductions in tree growth (and hence sequestration rates) from persistent increases in temperature (High), persistent increases in water stress (High), and disturbances from heat-stress and droughts (Medium). The greatest risk period is soon after planting or germination, when plants are young and more vulnerable to climatic stress. Wildfires were also identified as a particular risk factor (Medium), associated with risks to maintaining stored carbon, but predominantly at the project level.

Of all the activity categories, planting new forests has the widest range of opportunities for adaptation, such as varying species, genetic stock, planting configuration and fire risk reduction management; and with additionally strong opportunities to generate economic, social and environmental co-benefits.

Savanna fire management

Overall relative risk rating: Third highest

Risk factor assessment: 1 High, 5 Medium, 1 Low, and 11 risk factors not applicable

There are several factors that can interact to either lead to increased or decreased opportunities for sequestration, leading to an intermediate-level overall risk rating. A persistent increase in water stress was judged to be a high risk to both accumulation and maintenance for the Savanna fire management activity. This is because a decrease in water availability will lead to a decline in maximum biomass potential. This will result in slower rates of fuel accumulation, meaning there will be less abatement from fire management. There are some climate factors that may work in reverse to increase abatement potential including increased fire weather and intensity. However, this increase will only be possible where project managers can manage fires carefully to minimise the chance of a late dry season fire accidentally occurring.

Savanna burning projects have an extensive history of delivering co-benefits, particularly with respect to indigenous livelihoods and biodiversity outcomes. However given the large spatial extent of most projects, and the ubiquitous

nature of the risk factors (e.g. temperature increase; cyclone activity) relatively few adaptation opportunities were identified that have the potential to significantly mitigate the identified risks. Control of Gamba grass was identified as a key risk mitigation strategy, in those areas under threat from this invasive species.

Management of intertidal ecosystems (Proposed Blue Carbon method)

Overall relative risk rating: Fourth highest

Risk factor assessment: 6 Medium, 3 Low, 1 not rated due to insufficient information and 9 risks factors not applicable

Intertidal ecosystems can be considered 'high energy', in that they are subject to regular and profound environmental perturbations, from the daily tidal cycle through to runoff and freshwater inundation. There are climatic risks to both accumulation of carbon and maintenance of carbon in sequestration activities in Blue Carbon ecosystems, with the primary drivers connected and interacting. Medium risks were found for a number of risk factors including changes to sea levels, drought, storm impacts, extreme temperatures, and impacts to rates of sedimentation and erosion. Because many of these risk factors can cause either accretion or loss of carbon, the magnitude and direction of change in carbon storage is uncertain.

The primary management intervention involves the re-introduction of tidal flows to restore mangrove and tidal marsh ecosystems, this implies that the management interventions are likely to include modification of existing infrastructure, such as levees and embankments. Because of this level of control in how projects are designed and implemented, it is possible this could provide opportunities to mitigate against some of the major risk factors, such as carefully designed engineering to simultaneously promote increased tidal flows, but also provide protection to the regenerating systems from disturbances such as tidal surges and storm damage.

Re-establishment of native forest cover

Overall relative risk rating: Fifth highest

Risk factors assessment: 5 Medium, 4 Low, 3 not rated due to insufficient information and 6 risk factors not applicable

The key stage of vulnerability for these projects is during the establishment and early years of growth. From the perspective of abatement accumulation, the main risks are associated with changes in the climate that affects the survivorship of young regenerating stands, and the growth rates of mature stands. The main drivers were identified to be changes in average and maximum temperature, and the associated variables potential evapotranspiration and relative humidity, which have the potential to reduce net primary productivity, and hence rates of carbon sequestration. Regarding maintaining carbon abatement, the key risk factors identified was from mortality associated with extreme drought (Medium), although the ultimate consequences for carbon abatement are uncertain as they are a function of the combined rates of subsequent debris decay and other losses (such as from termites), and rates of post-drought recovery. The drought risk is exacerbated through the regional concentration of projects in north west New South Wales, and south west Queensland. Because fire is not a major feature in the areas where these activities have been established, or are likely to be established in the future, this risk was rated as low, although fire does occur within these regions, and hence individual project should have in place appropriate fire management plans.

The embedded methodological requirements of having to demonstrate a potential for forest cover to be achieved (through e.g. evidence of seedlings or young regrowth), and for having to demonstrate advancement of the vegetation towards forest cover over time, provides strong mitigation against the vulnerable early stages of regeneration.

Protection of existing forests

Overall risk rating: Sixth highest (least risk)

Risk factor assessment: 1 Medium, 6 Low, 1 not rated due to insufficient information, 11 risk factors not applicable

Because both the Avoided Deforestation and Avoided Clearing methodologies within this activity class involve the protection of existing forests, the question of risks to accumulation are not relevant, and risks associated with initial forest regeneration are avoided. The main risks were therefore found to be associated with abatement reversal, which were identified to be mortality associated with extreme drought, although as noted the ultimate consequences for carbon abatement are uncertain as they are a function of the combined rates of subsequent debris decay and

other losses (such as from termites), and rates of post-drought recovery. Because of the potentially broad spatial scale of drought events, and given the concentration of current projects geographically, there are implications at both the whole portfolio level, as well as the individual project level.

Opportunities mitigating these risks are limited, but include control of invasive weeds (an existing requirement of the methodology), which also helps mitigate against risks from wildfire – although for Avoided Deforestation, fire risks were assessed to be low, similar to the Re-establishment of native forest cover class, and individual project should also have in place appropriate fire management plans. In the areas most suited to the Avoided Clearing methodology the fire risk is relatively higher, due to higher productivity and greater contiguity of ground fuels.

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