Questions arising from the Clean Energy Regulator's 'Managing project risk to deliver carbon abatement for Australia' report

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In early February 2025, the Clean Energy Regulator (Regulator) published a report on the administration of human-induced regeneration of even-aged native forest projects under the Australian carbon credit unit (ACCU) scheme. The report, titled 'Human-induced regeneration method: Managing project risk to deliver carbon abatement for Australia', seeks to reassure readers that HIR projects are performing well and are being administered under a robust regulatory framework.

The Regulator has previously distributed similar material to media outlets and other stakeholders in response to concerns raised about the HIR method and its administration.[1]

The report and other materials distributed by the Regulator raise a range of questions, which are set out below.

Important note: Nothing in this document should be interpreted as suggesting or implying that any particular individual, named or unnamed, has engaged in unlawful or otherwise inappropriate conduct. The material in this document is based almost exclusively on publicly available information. Conclusions regarding the lawfulness or appropriateness of any particular individual's conduct would require additional information, which to the best of our knowledge is not currently publicly available.

References to irrelevant reports to deflect criticism

1. The Regulator has repeatedly referred to the Chubb Review in response to concerns and analysis related to the performance of HIR projects. However, the Chubb Review did not analyse the performance of any projects, nor did it evaluate any projects to assess compliance with applicable regulatory requirements. The Review Panel was clear on this point, stating that they 'did not review individual projects' (p 21). At the

[1] Clean Energy Regulator (2023) HIR Claims and Response. Clean Energy Regulator, Canberra. Available at: https://www.linkedin.com/posts/john-connor-81356054_heading-home-after-our-7th-carbon-farming-activity-7067264379884343296-yrGk/?utm_source=share&utm_medium=member_desktop (11 January 2025); Clean Energy Regulator (2023) ACCU Scheme – Human-induced Regeneration Method Graphs. Clean Energy Regulator, Canberra; Clean Energy Regulator (2024) Statement from the Clean Energy Regulator to ABC Future Tense. Australian Broadcasting Corporation, Sydney. Available at: https://www.abc.net.au/listen/programs/futuretense/cities-that-create-rain-ai-warfare-carbon-offset/104453540 (11 January 2025); Clean Energy Regulator (2024) Regulator's response to ANU/UNSW research – statement to news.com.au. Clean Energy Regulator, Canberra; Clean Energy Regulator and Department of Climate Change, Energy, the Environment and Water (2023) Joint CER/DCCEEW response to ANU papers on Human Induced Regeneration. Commonwealth of Australia, Canberra. Available at: https://cer.gov.au/news-and-media/news/2023/june/joint-cerdcceew-response-to-anu-papers-human-induced-regeneration (11 January 2025).

launch of its report, the review chair stated that, 'our aim basically was to look ahead; we didn't review projects, we weren't asked to review projects'.

Given the Chubb Review did not analyse the performance of any projects or their compliance with regulatory requirements, why has the Regulator repeatedly sought to rely on it in responding to concerns about the performance of projects and adherence to regulatory requirements?

2. The Regulator has repeatedly referred to the ANAO report on the ACCU scheme in response to concerns and analysis related to the performance of HIR projects. Like the Chubb Review, the ANAO did not analyse the performance of any projects. The ANAO reviewed the Regulator's processes and, as part of this, reviewed a mere nine applications for credits made in relation to HIR projects.

Given the ANAO report did not analyse the performance of any projects, why has the Regulator repeatedly sought to rely on it in responding to concerns about the performance of HIR projects?

False claims

3. The Regulator maintains that the HIR method does not require credited areas to be comprised exclusively of previously cleared land that did not contain pre-existing mature trees when the projects started. This is false. Legally, for land to be eligible for inclusion in the credited area of an HIR project, it must have been cleared and be free of pre-existing mature trees and shrubs when the project starts ('cleared land rule'). The cleared land rule is reflected in three key eligibility requirements for credited areas.

    - Credited areas must consist only of land on which the 'project activity' is being undertaken. The project activity is defined as 'inducing the establishment of a native forest from in situ seed, lignotubers or root stock (coppice) sources by undertaking one or more human-assisted regeneration activity' (e.g. reducing grazing pressure). It is not possible to induce the establishment of native forest from in situ seed, lignotubers or root stock on specific areas of land that already contain pre-existing mature trees. In some cases, it may be possible to induce the establishment of a forest by encouraging regeneration on land in-between pre-existing mature trees. The resulting forest would then be multi-aged and the required ≥20% crown cover would come from both the old and new trees. However, in this circumstance, contrary to the method requirements, the project activity would not occur on the land containing the pre-existing mature trees, meaning it must be excluded from the credited area (as the Regulator requires under the HIR's sister method, environmental plantings)[2] and the resulting forest would not be even-aged.

[2] Carbon Farming (Quantifying Carbon Sequestration by Permanent Environmental Plantings of Native Tree Species using the CFI Reforestation Modelling Tool) Methodology Determination 2012;

- Credited areas must consist only of land that first exhibited regeneration at or around the same time. By definition, areas containing pre-existing mature trees cannot have first exhibited regeneration at the same time as areas containing young regeneration. Areas with both young and old trees will contain a multi-aged forest, not even-aged forest regeneration.
- Credited areas must have been prevented from achieving forest cover over the preceding 10-years by relevant 'suppressors' (predominantly clearing and grazing by livestock or feral animals). If there are mature trees on site, they cannot have been suppressed by clearing. Equally, grazing by livestock and ferals does not suppress mature trees, meaning areas containing mature trees do not meet this suppression requirement.

This interpretation is reflected in the Explanatory Statement to the method (i.e. the official guide to its legal interpretation), which states, in three places, that it only applies to 'projects in which land has been cleared of native vegetation and where regrowth has been suppressed for at least 10 years' and that 'the activity must occur on areas of cleared land'. The Regulator's claims are also contradicted by its own guidance material on the method, which originally stated that the 'activity must occur on areas of cleared land on which regrowth has been regularly suppressed (but which has the potential to grow if suppression activities ceased), or on cleared areas alongside existing native vegetation'. The Department's fact sheet on the HIR method contained similar statements.[3]

In its publication of September 2024, the Regulator states (p 2):

> *There is no 'cleared land' rule in the HIR method. … Macintosh [Macintosh, Evans et al 2024] maintains that HIR projects must be registered on cleared lands that do not contain any pre-existing mature trees in credited areas. This is wrong. There is no rule requiring 'cleared land' in the HIR method.*

Given the statutory requirements, and the Regulator's past guidance on the method, why does the Regulator falsely claim that the HIR method allows uncleared lands containing pre-existing mature trees to be included in credited areas?

4. In its recent report, published in February 2025, the Regulator claims that (p 17):

Carbon Credits (Carbon Farming Initiative) (Reforestation by Environmental or Mallee Plantings—FullCAM) Methodology Determination 2014; and Carbon Credits (Carbon Farming Initiative) (Reforestation by Environmental or Mallee Plantings—FullCAM) Methodology Determination 2024. The original HIR method was based on the 2012 environmental plantings method and is, and was intended to be, its mirror in all respects, except that it involved reforestation through human-assisted regeneration (no plantings), while the environmental plantings method involved plantings through direct seeding and seedlings (tubestock).

[3] Department of the Environment (2014) CFI Vegetation Methodology: Human-induced Regeneration. Commonwealth of Australia, Canberra.

Additionality is a requirement for all HIR projects – credits are only issued for additional sequestration that would otherwise not have occurred.

This is untrue. The HIR method, as administered by the Regulator, does not contain measures to ensure credits are only issued for additional sequestration that would not have otherwise occurred. This is reflected in multiple reviews, studies and submissions, including Beare & Chambers (2021), Macintosh, Butler et al (2024), Macintosh, Evans et al (2024), the Australian Academy of Science report (2024) and the Wentworth Group of Concerned Scientists (2022) submission to the Chubb Review.

Why does the Regulator falsely claim that credits are only issued to HIR projects for additional sequestration that would not otherwise have occurred?

5. In 2022, the Regulator distributed material that it claimed showed that there was extensive peer-reviewed literature that supported the contention that grazing has a material negative impact on woody vegetation cover in uncleared rangelands.[4] In June 2023, the Regulator and Department published a joint statement that claimed the published scientific literature shows that 'grazing animals can stop trees reaching a forest', providing the evidentiary basis for the operation of HIR projects.

   The material and statements made by the Regulator and Department on the scientific literature are false. The scientific literature shows grazing in uncleared rangeland areas generally has limited impact on woody cover and, if anything, is more likely to increase woody cover than decrease it.[5]

[4] Clean Energy Regulator (2022) Additional Literature – impacts of grazing animals on regenerating vegetation. Clean Energy Regulator, Canberra.

[5] Lett M, Knapp A (2005) Woody plant encroachment and removal in Mesic grassland: production and composition responses of herbaceous vegetation. The American Midland Naturalist 153(2), 217-231; Eldridge DJ, Bowker MA, Maestre FT, Roger E, Reynolds JF, Whitford WG (2011) Impacts of shrub encroachment on ecosystem structure and functioning: towards a global synthesis. Ecology Letters 14, 709-722; Eldridge DJ, Sala O (2023) Australia's carbon plan disregards evidence. Science 382, 894; Fensham R, Powell O, Horne J (2011) Rail survey plans to remote sensing: vegetation change in the Mulga Lands of eastern Australia and its implications for land-use. Rangeland Journal 33, 229-238; Anadón JD, Sala OE, Turner BL, Bennett EM (2014) Effect of woody-plant encroachment on livestock production in North and South America. Proceedings of the National Academy of Sciences 111(35), 12948-12953; Archer S, Predick K (2014) An ecosystem services perspective on brush management: research priorities for competing land-use objectives. Journal of Ecology 102, 1394-1407; Archer, S.R., Andersen, E.M., Predick, K.I., Schwinning, S., Steidl, R.J., Woods, S.R. (2017) Woody Plant Encroachment: Causes and Consequences. In: Briske, D. (eds) Rangeland Systems. Springer Series on Environmental Management. Springer, pp 25–84; McKeon, G. et al. (eds) (2004) Pasture Degradation and Recovery in Australia's Rangelands. Queensland Department of Natural Resources, Mines and Energy, Brisbane; Fensham, R., Fairfax, R., Archer, S. (2005) Rainfall, land use and woody vegetation cover change in semi-arid Australian savanna. Journal of Ecology 93, 596–606; Noble, J. C. (1997) The Delicate and Noxious Scrub: CSIRO Studies on Native Tree and Shrub Proliferation in the Semi-Arid Woodlands of Eastern Australia. CSIRO Publishing, Melbourne; Fensham, R. et al. (2012) Potential aboveground biomass in drought-prone forest used for rangeland pastoralism. Ecol. Appl. 22, 894–908; Landsberg, J. et al. (2003) Abundance and composition of plant species along grazing gradients in Australian rangelands. J. Appl. Ecol. 40, 1008–1024; Friedel, M. H. (1997) Discontinuous change in arid

When the Regulator's and Department's claims were made public in June 2023, they prompted the lead author from the main cited article (Prof David Eldridge) to publicly rebuke the Regulator for misrepresenting his research, and to publish a subsequent article with a colleague in *Science* reiterating that the scientific literature does not support the assertion that reducing grazing in uncleared rangelands increases woody biomass.

Since making the joint statement, the Department has conducted two internal reviews of the science on the impact of grazing on woody vegetation in uncleared rangeland areas. Both reviews have confirmed that the science does not support the contention that grazing has a material negative impact on woody vegetation cover in uncleared rangelands. Neither of these reviews have been made public.

The outcomes of the Department's reviews are consistent with the results of an expert workshop conducted by the Department on the same issue in the context of the Rangeland Restoration method, an early method proposed under the ACCU scheme in 2012 involving grazing control in uncleared rangeland areas (held in Alice Springs). The Rangeland Restoration method was submitted to the Domestic Offsets Integrity Commission but did not proceed, presumably because there was insufficient scientific evidence to support the notion that controlling grazing pressure in uncleared areas was likely to permanently increase carbon storage in woody vegetation and soils with sufficient certainty and conservatism. The report from the workshop has never been published.

Further support for the view that the science does not support the contention that grazing has a material negative impact on woody vegetation cover is found in the CSIRO's draft submission to the Chubb Review, which stated:

> *… there is at present no clear evidence that changes in management of total grazing pressure will consistently result in an increase in carbon stocks in woody biomass across all regions of Australia's rangelands.*[6]

The CSIRO submission was modified to remove this material following intervention by the Regulator.[7]

In its most recent report, published in February 2025, the Regulator adopts a different position on the science concerning the impacts of grazing, stating (p 9):

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woodland and grassland vegetation along gradients of cattle grazing in central Australia. J. Arid Environ. 37, 145–164.

[6] CSIRO, FOI 2023/3, Part 5, p 58.

[7] Grieve, C., Bachelard, M. (2024) 'Entirely inappropriate': Top scientist slams watchdog interference in carbon review. The Age, 23 September. Available at: https://www.theage.com.au/environment/climate-change/entirely-inappropriate-top-scientist-slams-watchdog-interference-in-carbon-review-20240919-p5kbu2.html (20 February 2025).

Although many factors affect regeneration, the most important factor in sustaining the growth of vegetation following rainfall events is the nature, extent, intensity and duration of activities that suppress the growth of native vegetation.

This is also wrong – apart from suppression of regrowth by chemical or mechanical clearing, the most important factors that affect regeneration after a germination event are ongoing plant water availability, fire and competition from existing vegetation. Grazing can, in some circumstances, affect the rate of growth of some species, but in uncleared rangelands the most important controls are natural drivers beyond the influence of landholders.[8]

Why has the Regulator repeatedly made misleading and/or incorrect statements regarding the science concerning the impacts of grazing on woody vegetation in uncleared rangeland areas?

Why have documents concerning the impacts of grazing on woody vegetation in uncleared rangeland areas not been made publicly available?

Why did the Regulator intervene to modify the CSIRO's submission to the Chubb Review which had the effect of suppressing material that did not accord with its position?

Contradictory and illogical arguments

6. Peer-reviewed research by Macintosh, Butler et al (2024), based on National Forest & Sparse Woody Vegetation (NFSW) dataset, found limited evidence of regeneration in the credited areas of HIR projects and that changes in woody vegetation cover within credited areas largely mirrored changes in adjacent comparison areas, outside the projects, suggesting the observable changes are predominantly attributable to factors other than the project activities. In response, the Regulator and the industry argued the NFSW dataset is not sufficiently accurate to support the analysis of HIR projects.

   At the same time, the Regulator has continued to point to a report by Beare and Chambers (2021), which was commissioned by the Regulator and the Emissions Reduction Assurance Committee (ERAC), as supporting its claims HIR projects are performing as expected and are generational additional sequestration, beyond what would otherwise occur.

   Beare and Chambers (2021) analysed 123 HIR projects using the NFSW dataset and found that, at the aggregate level, the projects had a statistically significant but

[8] Fensham, R (2021) Review of current literature on suppression mechanisms identified in the Human-Induced Regeneration of a Permanent Even-Aged Native Forest method (specifically the management of livestock and feral animals), and the manner and extent to which they act to suppress the regeneration of native vegetation. University of Queensland, Brisbane. Available at: https://cdn.prod.website-files.com/63fd8bef913cf579cacfa53b/64d04de36b645b27d694bfc5_Fensham%20final%20HIR%20report.pdf (27 February 2025).

small effect on woody cover (sparse woody plus forest cover) in credited areas relative to matched 'quasi-control' areas. They also found that 23% of the analysed projects had no, negative or almost no impact on woody cover relative to the trends in the control areas.

The effect size found by Beare and Chambers (2021) across their whole sample equated to an average difference in the proportion of the credited areas with 'woody cover' (i.e. areas with either 'sparse woody' or 'forest cover')[9] in 2020 of only 8% in the projects in New South Wales and 4% in the projects in Queensland, compared to the woody cover levels in the quasi-control areas. To put this in context, at the time of the analysis, most of the projects in the sample had been credited on the basis they contained ~10-year-old regeneration across their entire credited areas, meaning the proportion of the area with forest cover should have been ~50%.

In summary, Beare and Chambers (2021) relied on the same dataset as Macintosh, Butler et al (2024) and reached similar conclusions.

This reality has been obscured by the Regulator, which has repeatedly based its claims that HIR projects are performing as expected on Beare and Chambers (2021)'s finding that the projects have had a statistically significant effect on woody cover, but deliberately omitted any reference to the small effect size.

Why does the Regulator cite Beare and Chambers (2021) in response to concerns about the performance of HIR projects, while simultaneously arguing that the NFSW dataset is too inaccurate to reliably assess projects?

Why does the Regulator cite Beare and Chambers (2021) as supporting its contention that projects are performing as expected, when the report shows the projects have had very little effect on woody vegetation cover in the credited areas of HIR projects, consistent with the findings in Macintosh, Butler et al. (2024)?

7. In 2023, Dr Cris Brack was engaged by the Regulator to undertake verification reviews of the gateway rules. The first verification review included an analysis of 25 projects conducted using the Woody Cover Fraction (WCF) database. WCF estimates foliage projective cover from woody vegetation over 2 m in height using Landsat satellite imagery, similar to the NFSW dataset. Based on the WCF analysis, Brack concluded the projects were performing as expected. On the regeneration gateway checks, the report found most of its sampled HIR projects satisfied the requirements, stating (p 9):

> *the mean canopy area for [19 of the 26 sampled projects being] significantly greater than 7.5%. … Overall, the [credited areas] appear to be regenerating well in the project areas, especially since 2020 and on*

[9] 'Sparse woody cover' refers to areas with 5-19% crown cover. 'Forest cover' refers to areas of at least 0.2 ha, where trees ≥2 metres in height provide crown cover of ≥20% of the land area.

average are significantly (p=0.05) above the 7.5% canopy cover threshold.

The problem with Dr Brack's findings on the regeneration gateway checks is that his method did not reflect the applicable regulatory requirements. That is, rather than verifying compliance with the applicable regulatory requirements, the first verification review applied a different set of regulatory requirements, which have no basis in the law or the Regulator's policy guidance on the method.

Prompted by the flaws in the first verification review, Macintosh, Evans et al (2024) subsequently conducted an analysis on 116 projects using the correct rules and the WCF database. They found very high levels of non-compliance and that the projects have had a statistically significant but small effect on cover, which is not commensurate with how the projects have been credited (i.e. results consistent with Macintosh, Butler et al (2024) and Beare and Chambers (2021)).

Faced with these findings, the Regulator changed course, arguing that all 'national scale models of tree cover' (i.e. satellite-based databases that provide estimates of tree cover and tree cover change) are unreliable when applied at the project scale. This is the position presented in the second and third verification reviews undertaken by Dr Brack at the request of the Regulator. The three main 'national scale models of tree cover' are the National Forest & Sparse Woody Vegetation (NFSW) database, WCF database and TERN Persistent Green.

In a publication issued in September 2024, the Regulator stated (p 2):

> *It is our understanding that Macintosh [Macintosh, Evans et al. 2024] continues to rely on national scale remote sensing images to assess the performance of individual HIR projects. It is not effective to monitor individual project's performance from this satellite derived remote data alone, particularly in relation to detection of early-stage regeneration.*

So, only months after arguing the WCF shows the projects are performing as expected, the Regulator and Dr Brack contended that the NFSW, WCF and Tern Persistent Green databases are all too inaccurate to be reliably used to analyse the performance of HIR projects.

However, while arguing these databases cannot be used for these purposes, the Regulator continued to point to Brack (2023) as evidence projects are performing as expected. Notably, in the same September 2024 publication where they argued 'national scale remote sensing images' are 'not effective to monitor individual project's performance', the Regulator stated (p 1):

> *In the first review Assoc. Prof. Brack found HIR projects are demonstrating regeneration and proponents are implementing the project activities.*

Why did the Brack review (2023) apply the wrong tests when assessing compliance with the gateway requirements?

Why does the Regulator cite the Brack review (2023) in response to concerns about the performance of HIR projects and compliance with regulatory requirements, while simultaneously arguing that the WCF dataset is too inaccurate to reliably assess projects?

Why does the Regulator cite the Brack review (2023) in response to concerns about regulatory compliance under HIR projects, when the Brack review (2023) applied the wrong regulatory tests?

8. In its most recent report, published in February 2025, the Regulator altered its position again on 'national scale models of tree cover', stating that:

> *National-scale data sets may be useful to monitor the performance of the whole portfolio of projects once it matures to forest. Field measurement observations conducted by independent auditors and reviewers confirm that CEA stratification by proponents is significantly more accurate than national-scale models.*

This shift in position from the two contradictory positions it took on the national scale models in 2024 may have been prompted by the realisation that, under the rules that govern HIR projects, the NFSW is the legally prescribed definitive data source for the purposes of analysing whether HIR projects have achieved forest cover.[10]

Both Macintosh, Butler et al (2024) and Macintosh, Evans et al (2024) found that, based on the level of crediting, a large proportion of the projects they analysed should already have forest cover (≥20% crown cover from trees ≥2 metres in height), based purely on the cover provided by new regeneration (i.e. ignoring the cover provided by the vast numbers of pre-existing mature trees and shrubs). This reflects the fact that a substantial proportion of the projects have now been credited on the basis that the forests have been regenerating for 12-15 years.[11]

Why has the Regulator repeatedly changed its public position on the usefulness of NFSW in analysing projects?

If 'national scale models of tree cover' can be used to analyse the performance of a portfolio of projects once the forest is mature, why it is not reliable to analyse credited areas that should have achieved forest cover, based on the credits they have received?

Lack of transparency

9. In the second and third verification reviews, Brack mounts the argument that all 'national scale models of tree cover' are too inaccurate to be used to reliably evaluate the performance of HIR projects. To support this position, Brack relies on

[10] Carbon Credits (Carbon Farming Initiative) Rule 2015, s 9AA.
[11] Under the original versions of the method, projects were allowed to backdate their project commencement dates until 1 July 2010. Projects are also allowed to backdate when they model regeneration commencing, with some modelling regeneration starting as far back as 2007.

field estimates of crown cover from HIR projects collected by proponents and their auditors from a small number of projects. No details are provided on which projects were included in the analysis. No details are provided on the location of the field plots. No details are provided on the methods used to gather the canopy cover measurements. No details are provided on when the canopy cover measurements were taken.

Why has the Regulator not disclosed any information on the data they say supports the conclusion that the NFSW dataset, and other national scale tree cover datasets, are unreliable?

Why has the Regulator not disclosed the details of the projects that have been the subject of verification reviews?

Why is the location of the field plots kept secret?

10. In its published materials, including in September 2024 and February 2025, the Regulator makes repeated reference to the importance of offsets reports in assessing compliance and the performance of projects. For example, the February 2025 report states that an 'offsets report with information and evidence of regeneration progress and the implementation of activities is typically submitted between every 3 to 12 months' (p 20), and that 'offsets reports are the key requirement of participation in the ACCU Scheme' (p 32). However, offset reports are not published under the ACCU scheme, a situation that the Government maintained under the recent ACCU transparency reforms.

    Does the Regulator support the suppression of offset reports, even though every other major carbon offset scheme in the world requires the equivalent reports to be published?[12]

    What role did the Regulator play in the decision to keep offset reports secret?

11. In its recent report, published in February 2025, the Regulator makes repeated reference to the importance of third-party audits conducted on HIR projects and the role they play in verifying compliance and the performance of projects. However, audit reports are not published under the ACCU scheme, a situation that the Government maintained under the recent ACCU transparency reforms.

    Does the Regulator support the suppression of audit reports, even though every other major carbon offset scheme in the world requires audit reports to be published?[13]

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[12] See: Clean Development Mechanism Registry – https://cdm.unfccc.int/Registry/index.html; Verified Carbon Standard Registry – https://registry.verra.org/app/search/VCS; American Carbon Registry – https://acrcarbon.org/acr-registry/; Climate Action Reserve – https://www.climateactionreserve.org/ (25 February 2025). See also Integrity Council for the Voluntary Carbon Market (ICVCM) (2024) Core Carbon Principles Assessment Framework and Procedure. Assessment Framework, Criterion 3.1. Available at: https://icvcm.org/assessment-framework/ (25 February 2025).

[13] See references in footnote 11.

What role did the Regulator play in the decision to keep audit reports secret?

12. In its recent report, published in February 2025, the Regulator points to 'permanence plans' prepared for HIR projects as an additional assurance and risk mitigation measure. However, permanence plans are not published under the ACCU scheme, a situation that the Government maintained under the recent ACCU transparency reforms.

    Does the Regulator support the suppression of permanence plans, even though, under other carbon offset schemes, equivalent reports are generally required to be published?[14]

    What role did the Regulator play in the decision to keep permanence plans secret?

13. In its recent report, published in February 2025, the Regulator refers to the accuracy and rigour of proponent data, as evidence of the robust framework used to regulate HIR projects. For example, it states (p 33):

    > *Under the ACCU Scheme, project proponents develop their own remote-sensing tools trained from locally sourced sample plots within the project area. These tools are used to determine the extent of existing forest cover and forest potential on the property, and track regeneration progress over time.*

    And (p 33):

    > *Field measurement observations conducted by independent auditors and reviewers confirm that CEA stratification by proponents is significantly more accurate than national-scale models.*

    However, none of these data are published. Indeed, neither the data nor the methods used to collect it are published.

    Does the Regulator support the suppression of project data?

Suppression of information and selective referencing

14. During the Chubb Review, the Australian Academy of Science was commissioned to undertake a rapid review of four methods, which included HIR. The conclusions from the Academy's 'final draft report', which was circulated to the Regulator and Department (and obtained under freedom of information laws), were as follows.

[14] See references in footnote 11, particularly Integrity Council for the Voluntary Carbon Market (ICVCM) (2024) Core Carbon Principles Assessment Framework and Procedure. Assessment Framework, Criterion 3.1 (p 56), which provides that: "The carbon-crediting program shall ensure all relevant program documents are publicly available and have processes to ensure that where requests are made in relation to information that is missing from its website and/or registry, that information is provided (subject to confidentiality and proprietary, privacy and data protection restrictions) and made public alongside other relevant public information".

Rapid assessment of four methods for earning ACCUs

This report provides a *rapid assessment* of four methods—human-induced regeneration (HIR), avoided deforestation (AD), landfill gas and carbon capture and storage (CCS)—for their scientific basis, their strengths and limitations and the extent to which they comply with the offset's standards.

The primary objective of the Act is to remove greenhouse gases from the atmosphere. Secondary objectives revolve around incentives, biodiversity, and resilience.[9] The primary observation is that over the decade of operation, the scheme has allowed the secondary objectives to take over the primary objective. **Reform will be needed to align the ACCU scheme to the primary objective of the Act: the removal, and avoidance, of greenhouse gas emissions.**

Our assessment finds that there are concerns as to how the methods satisfy the offset integrity standards as follows:

- For the **human-induced regeneration** method there are doubts as to how effectively the method satisfies the evidence base, measurement, and additionality standards. Many HIR projects appear to be situated in inappropriate climatic zones
- The **avoided deforestation** method raises concerns about additionality, measurement and verification standards.
- The **landfill gas methods** have issues with satisfying the additionality standards, largely because of the use of *in-lieu* requirements.
- The **carbon capture and storage method** technically adheres to the offsets integrity standards. However, doubt remains as to its utility.

All **methods have different strengths and limitations** in terms of how they respond to the offset's integrity standards in the Act. The methods can offer **co-benefits** for a range of individuals, communities and environments.

The Academy's report was subsequently watered down. The equivalent section of the final report reads (p 7-8):

Outcomes of the review

The Academy was asked to analyse the underpinning science of the four methods. For each of the methods, **the science is well understood.**

All **methods have different strengths and limitations** in terms of how they respond to the offset integrity standards in the Act. In terms of strengths, all methods have a scientific evidence base. However, the integrity and transparency of the scheme could be strengthened by incorporating a short, plain English statement of the scientific basis of each method.

The methods can offer **co-benefits** for a range of individuals, communities, and environments.

Some limitations of the methods which may raise questions as to their adherence to the offset integrity standards were identified. These include:

- **Challenges with attribution** and confounding influences including climate change, especially for the HIR and AD methods. Similarly, there are challenges around establishing **consistent baseline data** in all locations, especially for the HIR and landfill gas methods (see sections 5.1 and 5.3). Unclear or inconsistently defined baselines can lead to complications when determining additionality.
- Methods that rely on counterfactuals to demonstrate carbon sequestration are inherently vulnerable to questions about their integrity**,** which is a systemic disadvantage for HIR and AD methods against CCS and landfill gas schemes. This represents a risk to investor and community confidence in these methods for generating emissions abatement.
- **Overcomplexity**. Understanding each method requires a complex analysis of legislation, data and measurability, which posed challenges for this report. The subject matter expertise, policy familiarity and industry knowledge necessary for robust verification is very high, such that relatively few individuals possess the combination of expertise required to provide independent assurance. Such complexity creates a barrier to entry to the scheme that runs counter to the object of the Act which seeks to create an incentive for landholders and others to remove or avoid the emission of greenhouse gases. Additionally, the lack of transparency and overcomplexity

can lead to low community confidence, potentially meaning the purchase of ACCUs and participation in the ERF can incur a reputation risk.

Why was the Academy's report watered down and what role (if any) did the Regulator play in the revision process?

15. In 2021, the Regulator commissioned Prof Rod Fensham of the University of Queensland to review the science on the effects of grazing on trees and shrub cover in uncleared rangeland areas. Professor Fensham concluded that:

    a. the dominant driver of changes in tree and shrub cover in these areas is the climate (seasonal variability in rainfall);

b. grazing does not have a significant sustained effect on tree and shrub cover; and

c. any positive effects of grazing control on tree and shrub cover are likely to be temporary (any increase in woody biomass will not persist).

The Regulator refused to accept the final report and threatened to litigate after Professor Fensham made passing reference to the existence of the report in an interview with an ABC journalist for Background Briefing.

Why did the Regulator refuse to accept the report and why did it threaten legal action in these circumstances?

16. In its recent report, published in February 2025, the Regulator claims that (p 9):

> *The HIR method and rules have been subject to various independent reviews … . All these reviews have found the method, and the Clean Energy Regulator's administration, effectively control the risks associated with regenerating native vegetation and only genuine carbon abatement is credited.*

The Regulator's report does not make any reference to the report of the Australian Academy of Science or Professor Fensham's report.

Why does the Regulator exclude these reports from its list of independent reviews?

17. Sequestration in HIR projects is not directly measured, it is estimated as the product of the size of the credited areas and sequestration per unit area, which is modelled using the Australian Government's Full Carbon Accounting Model (FullCAM). FullCAM uses a simple tree yield formula to estimate above-ground biomass per hectare in regenerating forests. The model assumes credited areas start with no or negligible woody above-ground biomass and grow towards their maximum woody biomass potential under native vegetation. Maximum above-ground woody biomass potential (*M*) is modelled spatially using a range of biophysical parameters calibrated against measurements of intact native vegetation. The most recent calibration of the tree yield formula estimates above-ground biomass in regeneration under average climate conditions after *X* years to be $M.e^{(-23.81/X)}$.

The model produces an S-shaped curve that reasonably approximates the way above-ground biomass accumulates in a stand of trees of uniform age (even-aged forests) when planted, or naturally regenerating after clearing, through to maturity. Consistent with this, when projects start, the model assumes the site contains few, if any, mature trees and shrubs. Following planting, or the initiation of regeneration, above-ground biomass is modelled as starting slowly then accelerating to peak when the forest is young and vigorous (*G*). Beyond this point, modelled accumulation of above-ground biomass slows as the trees begin to compete with one another and the site approaches its maximum carrying capacity under native vegetation (represented by *M*).

The above-ground biomass estimates from the model are partitioned into biomass and debris pools via standardised allocation ratios (e.g. root-shoot), and turnover and decomposition rates, to estimate carbon accumulation in live above- and below-ground biomass and debris. The model includes a soil carbon module but it is not used for HIR projects; the projects are credited for increases in live biomass and dead organic matter only.

The datasets that underpin FullCAM, including the *M*-layer, are relatively coarse and contain material uncertainties. Due to this, the outputs from FullCAM are subject to a high degree of uncertainty, particularly when the model is used to estimate sequestration at a project-scale. This is widely acknowledged, including by the CSIRO, who, as a matter of custom, has become the sole provider of scientific services concerning the calibration and verification of FullCAM. To address the inaccuracies associated with the use of the model at the project-scale, the CSIRO has recommended discounts be applied to FullCAM's sequestration estimates.[15]

The HIR method was specifically designed to ensure FullCAM is only applied to sites that it is calibrated for; namely, cleared areas with no mature trees and shrubs where plantings or assisted natural regeneration is occurring across the entire modelled area. This is one of the reasons why the HIR method contains the 'cleared land rule'. By unlawfully allowing projects to include uncleared land with significant numbers of pre-existing mature trees and shrubs in their credited areas, the Regulator has introduced a source of bias in the application of FullCAM. In simple terms, FullCAM is likely to over-estimate sequestration at a portfolio level because it is 'blind' to the presence of these pre-existing trees and shrubs (what is sometimes referred to as 'baseline biomass').

At an individual project-level, the high degree of uncertainty in FullCAM estimates means that, provided forest regeneration is actually occurring, the estimates could be an under- or over-estimate. However, across a reasonable portfolio of projects that have material baseline biomass, FullCAM will overestimate sequestration. The magnitude of the problem depends on the extent of baseline biomass and its proximity to *M* (the maximum above-ground woody biomass potential of the site under native vegetation). The closer the site is to *M* at commencement, the less scope there is for the site to support additional trees and shrubs, resulting in greater bias in modelled estimates.

This is well-known and should be uncontroversial. However, when the issue was pointed out to the Regulator in 2021, it argued FullCAM was calibrated for sites with substantial baseline biomass. In response, the CSIRO was asked the question:

[15] Paul, K., Roxburgh, S. (2019) Predicting yields of woody biomass in land restoration projects across Australia. Report prepared for the Department of the Environment and Energy. CSIRO, Canberra; Paul, K., Roxburgh, S. (2020) Predicting carbon sequestration of woody biomass following land restoration. Forest Ecology and Management 460, 117838;

From a scientific perspective, is it appropriate to use the current calibration of FullCAM to estimate AGB [above-ground biomass] on sites that are being naturally regenerated and contain significant non-forest baseline biomass, where significant non-forest baseline biomass is defined as more than the lesser of:

- *5% of M in the TYF (maximum AGB in undisturbed native vegetation); or*
- *5 tonnes of dry matter per hectare.*

The CSIRO responded by simply saying:

[o]ur answer to this question is 'no'. We have prepared the attached document to explain why this is the case.

The attached document prepared by the CSIRO explains the impacts of the inclusion of 'baseline biomass' in the dataset used to calibrate G (the age of maximum growth) and why the use of FullCAM in these circumstances is likely to lead to the over-estimation of sequestration. The document states:

The premise of the TYF [FullCAM tree yield formula] is to predict yields of AGB at sites with near-zero baselines. This is because the TYF is 'blind' to the baseline AGB. Hence, application of the TYF is only valid for sites with near-zero baselines, as it predicts the stand will grow towards M from a near-zero starting point. If the TYF is applied to stand with moderate-high AGB baselines, this will erroneously predict a final maximum AGB that exceeds M. The final maximum AGB effectively being assumed to be M plus the baseline AGB.

At the time, CSIRO had been commissioned by the Department to undertake a verification study on the 2020 calibration of FullCAM. Verification of any ecological model should involve two main steps: assessment of the model logic to ensure it reflects known ecological processes (qualitative assessment); and quantitative assessment of model accuracy.[16] CSIRO had prepared a draft paper on its results, which adhered to this standard process.

For the quantitative assessment, CSIRO took tree measurements on 29 sites across 14 HIR projects in western New South Wales and Queensland. The study sites were not confined to the credited areas of the projects. Some credited areas were included but other survey areas were outside of the credited areas. The report does not disclose the number that were inside and outside the credited areas. The study sites were also not a random or systematic sample of HIR projects. The projects were selected by CSIRO from an undisclosed number provided by proponents or their carbon service providers. The sites were also not confined to areas containing a significant amount of pre-existing woody biomass. The pre-existing woody biomass on the sites ranges from very little to a lot. Some sites even have more

[16] Soares P., Tome M., Skovsgaard J.P., Vanclay, J.K. (1995) Evaluating a growth model for forest management using continuous forest inventory data. Forest Ecology and Management 71, 251-265.

biomass than the estimated maximum biomass under native vegetation (*M*) that is used in the model.

Based on comparisons between the field measurements from these sites and the 2020 FullCAM calibration (most HIR projects do not use the 2020 FullCAM calibration – they use earlier versions of the model), the CSIRO concluded that, across the measured stands of regeneration, there was negligible bias and that FullCAM had a model efficiency of prediction of 42% (i.e. low).[17] The absence of bias was largely a product of the high degree of uncertainty in FullCAM estimates and small sample size. The choice of field sites and method used to assign trees to age classes may also have affected the results. However, consistent with standard practice, the CSIRO then proceeded with the qualitative part of the verification assessment, where it evaluated the logic of applying the model to sites with significant baseline biomass. This aspect of the draft CSIRO paper states (emphasis added):[18]

> *When applying the TYF to a specific area of land, the objective of accurately predicting the accumulation of AGB as a given stand matures over time is quite different to optimising G across a diversity of young calibration stands. The TYF predicts AGB accumulation of even aged stands growing towards the maximum potential AGB of the site (M).* ***To be consistent with this and ensure predictions are not erroneous, the TYF must be applied to areas of land that had negligible baselines*** *(Eq. I). However, because the TYF was calibrated with the assumption that regenerating biomass was young enough (median age 8.0 years), and the baseline low enough (median 8.1 Mg DM ha-1) to have little impact on the growth of the regeneration,* ***a pragmatic approach would be to allow for small amounts of baseline. However, as the amount of initial baseline biomass increases (and particularly when the stand age also increases}, there is increasing risk of over prediction due to three potential issues****:*
>
> 1. *Existing baseline biomass at the start of the simulation implies a TYF prediction leading to a maximum site biomass potential growth equal to baseline+ M, rather than the theoretical maximum, M.* ***But in the field, because of the presence of a baseline that already contributes to the site's maximum biomass potential, growth from regenerating vegetation will not reach M. The result will be an over prediction of biomass equal to the baseline over the long tem.*** *As stands with baselines approach maturity, the over prediction of AGB and abatement can be quantified with*

[17] CSIRO FOI 2023-3, Part 3, Document 24, Attachment 1. The draft paper had a model efficiency of 51%. In the final published report, it was 42%. See Paul, K., Roxburgh, S. (2022) Verification of FullCAM's Tree Yield Formula for Regenerating Systems. CSIRO, Canberra.
[18] CSIRO FOI 2023-3, Part 3, Document 24, Attachment 1.

confidence on regional scales when considering average Mand baselines across multiple HIR projects. … .

2. ***Although the TYF assumed no curtailment of growth increments due to competition with baseline vegetation, in the field, the curtailment of growth increments increases with increasing baselines. Some of the regenerating trees or shrubs may die due to self-thinning when competition with baseline trees and shrubs increases. This was supported by the finding that across the verification stands. when considering the total (= live + dead} woody biomass of trees and shrubs that were small enough to be attributable to regeneration, bias significantly increased with increasing proportion of total biomass that was dead, particularly in regeneration older than 12 years. This is to be expected given G was found to be =12.53 years and is therefore the age beyond which growth rates were assumed to decline due to inter tree competition for site resources.*** *Nevertheless,* ***to have confidence in the timeframes over which competitive interactions between baselines and regenerating biomass can be assumed negligible, further work is required*** *to ascertain the dynamics of competition effects and thereby estimate bias based on age and baseline. For example, as indicated in Fig. 4, there is uncertainty as to whether the competition effect slowly increases from G until an age of -25 years (i.e. where a baseline may represent an earlier cohort of regeneration that is itself still growing), or rapidly increase from G to peak at an age of ~20 years, and then decline as the stand self-thins (i.e: where a baseline may represent remnant trees or shrubs).*

3. *The 573 calibration stands had an average M of 47 (± 37 Mg DM ha^{-1} standard deviation, Table 4, Paul and Roxburgh 2020), and the 41 verification stands studies here had an average M of only 34 (± 17 Mg DM ha^{-1} standard deviation, Fig. 3).* ***This suggests that if an M of about 30-50 is typical of many regions to which the TYF is applied, baselines exceeding 20 Mg DM ha^{-1} indicates vegetation comprising the baseline account for a significant proportion of the site's potential for AGB (even at sites of relatively high potential for AGB, i.e., M = 50 Mg DM ha^{-1}), leaving little additional potential for further growth and abatement from regeneration***.

This aspect of the verification study was never published. Following intervention by the Regulator, the qualitative part of the assessment was excised from the final report.[19] Contrary to normal verification practice, the quantitative assessment was published as a stand-alone report without the context provided by the evaluation of the model logic.

Through late 2021 and early 2022, CSIRO maintained the position that the application of FullCAM to sites with significant baseline biomass will result in

[19] CSIRO FOI 2023-3 Part 5, Document 34.

systematic bias (over-estimation). For example, in an internal briefing paper prepared for the Department and Regulator, CSIRO stated:[20]

> *Because the TYF was calibrated with baseline=0, then ideally, the TYF would also be applied with baseline=0. … Because of these uncertainties in the dynamics of the competition effect, a conservative approach is to ensure that the TYF is only applied to areas of land that have negligible baselines. As described below, this is particularly important if baselines are a common feature of many HIR CEAs as these errors are systematic rather than random, and thereby result in bias outcomes for the portfolio of HIR projects.*
>
> *There are multiple sources of error in the application of the TYF for regenerating systems. Ignoring the complications of added forest treatment or disturbance events that can be applied to the TYF, three sources of error may be considered:*
>
> *1. Calibration of M (negligible bias at national-scale, but imprecise, see below graph taken from Roxburgh and Paul 2019)*
>
> *2. Calibration of G (negligible bias at national-scale, but imprecise, see below graph taken from Roxburgh and Paul 2019)*
>
> *3. Violations of the model assumptions when the model is applied:*
>
> *a. Baseline AGB was non-zero*
>
> *b. Tree age is uniform, and based on the time since implementation of management change that induces regen*
>
> *Errors around M and G will cancel out over a large number of projects given there is no bias- just random errors.* ***However, errors from violation of model assumptions result in bias, which is much more dangerous. This is because the issue with the baseline is that it creates a bias in one direction, there is no opportunity for the errors to compensate, so what you would get by including the baseline error is the average differences between predicted and observed carbon shown in the above graphs would no longer sit around zero but shift upwards (to an over-prediction bias) with increasing baselines, but possibly still within the large range of uncertainty at any given location****. So whilst it is true for any single site that, even with the bias added by the baseline biomass,* ***the prediction will likely be within the uncertainty range (i.e. within the error bars below}, when averaged over a number of sites that have baseline, then the average outcome will still be a consistent over-prediction****.*
>
> *Until further datasets become available to refine the calibrations of Mand G, there is not much we can do about error sources in 1 and 2. But regarding error*

[20] CSIRO FOI 2023-3 Part 3, Attachment 2, Document 19.

sources in 3, we can control for them with care to ensure the areas to which the TYF is applied has negligible baselines.

After the CSIRO was contacted by Stephen Long to comment on an ABC 7:30 Report story on HIR projects, it changed its position, constructing an unsustainable and contradictory argument that, prior to the end of their 25-year crediting period, the risk of over-crediting due to the application of FullCAM to sites was material baseline biomass was 'minor'. To support this argument, CSIRO relied on the quantitative verification dataset, claiming it showed there was no bias. However, when they claimed there was no bias, they were referring to the absence of statistically significant bias, a result that was largely a product of the high degree of uncertainty associated with FullCAM estimates and the small sample size in the verification dataset.

While not statistically significant, graphs in internal CSIRO documents show there is a skew in the data toward overestimation, particularly in sites between 10-25 years and sites with higher levels of baseline biomass. This can be seen in the CSIRO graphs below. If there was no bias, the data points would be even distributed around 0. They are not; they are skewed to the positive. The bias is not statistically significant largely because the error margins associated with FullCAM estimates of sequestration are so large and the sample is very small.

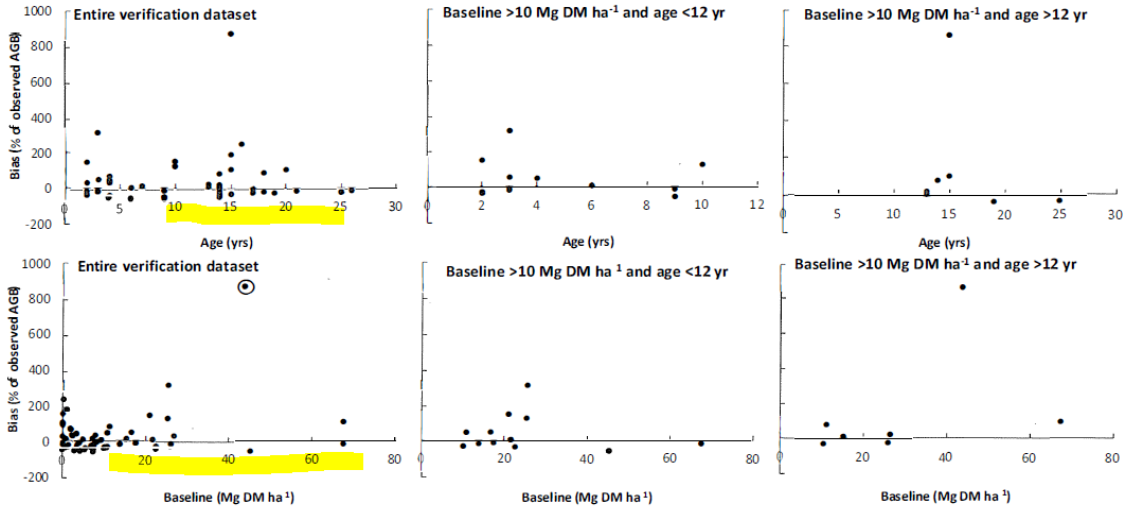


Fig. 3: Graphs used to assess whether there was any indication of a relationship between the extent of bias ((= (PredAGB – ObsAGB)/ObsAGB, expressed as a percentage) and the age of the regeneration (top series of graphs) or baseline biomass (bottom series of graphs). The three sets of graphs demonstrate results when considering either all verification datasets (left), only verification datasets which had baseline >10 Mg DM ha^{-1} that were relatively young (middle), or only verification datasets which had baseline >10 Mg DM ha^{-1} that were relatively old (right). In all cases, no statistically significant relationships with the extent of bias were evident. Only exception was some indication of a very weak relationship when the outlier (indicated by circle) was included in the linear regression analysis between bias and baseline using the entire dataset (bottom right graph).

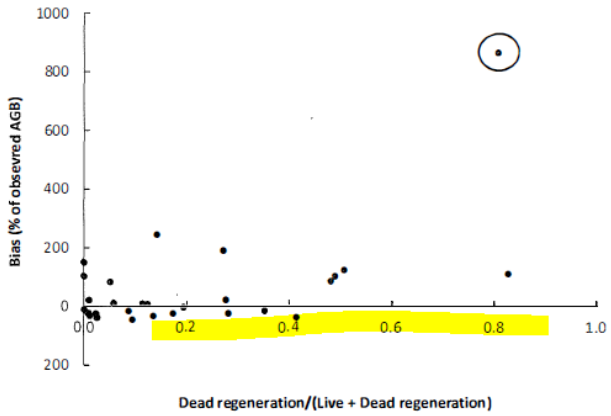


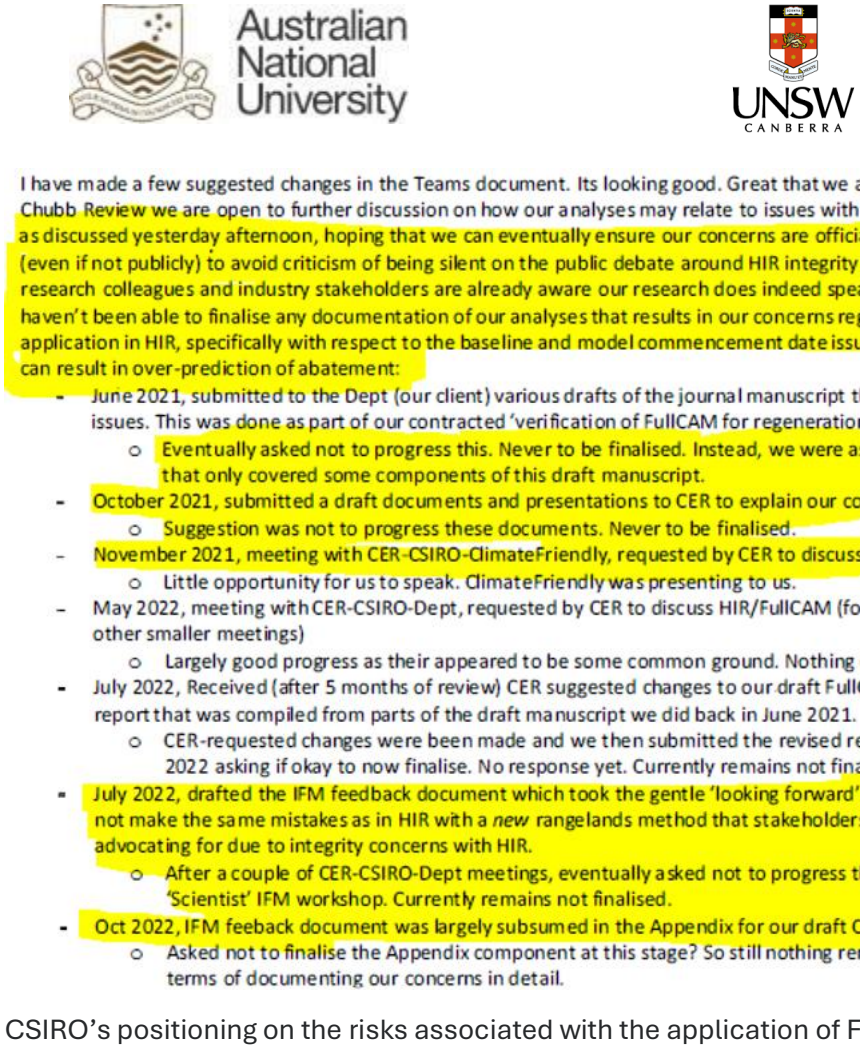
Fig. 4: Graph used to assess whether there was any indication of a relationship between the extent of bias (= (PredAGB – ObsAGB)/ObsAGB, expressed as a percentage) and the proportion of total AGB that was dead (= Dead regeneration/(Live + Dead regeneration). No statistically significant relationship was evident. Only exception was some indication of a very weak relationship when the outlier (indicated by circle) was included in the linear regression analysis.

While the CSIRO has subsequently maintained the position in public that FullCAM can be used in areas with material baseline biomass, it is contradicted by its statements on the impacts of grazing – it acknowledges the science does not support the contention that grazing has a consistent and material negative impact on woody vegetation cover in uncleared rangelands, while trying to argue that FullCAM can be used to accurately model forest regeneration in these areas through grazing control. Internal correspondence also shows that CSIRO scientists continued to hold concerns about how FullCAM is used in HIR projects. For example, an internal email between CSIRO scientists contains the following statement regarding a meeting with Prof Don Butler of the ANU:[21]

> [*Prof Butler] (and I assume [Prof Macintosh]) … is still concerned that the baseline in HIR CEAs can already be a large % of M, and that their opinion is that further stratification is required to separate these out of the CEAs. On that, they have a point as we know that in theory, the higher the baseline is a % of M, the more the over-prediction will be in the amber zone [first 25 years]. But I didn't go into that can of worms. Indeed I told [Prof Butler] I would only stick to the technical issues. How much risk is acceptable starts getting into a policy decision.*

On 7 October 2022, one of the lead scientists involved sent an email to CSIRO colleagues, including two CSIRO executives, titled, 'Updated advice re. Chubb review submission'. The email describes a series of meetings and interactions between the CSIRO, Regulator and Department concerning the HIR method, its proposed replacement method (Integrated Farm and Land Management, 'IFLM' or 'IFM'), and FullCAM over a 12-month period. The email states (key sections highlighted in yellow):[22]

[21] CSIRO FOI 2023-3, Part 4, Document 30.
[22] CSIRO FOI 2023-3 Part 5, Document 34.



I have made a few suggested changes in the Teams document. Its looking good. Great that we are flagging with the Chubb Review we are open to further discussion on how our analyses may relate to issues with HIR integrity. Then, as discussed yesterday afternoon, hoping that we can eventually ensure our concerns are officially documented (even if not publicly) to avoid criticism of being silent on the public debate around HIR integrity given many of our research colleagues and industry stakeholders are already aware our research does indeed speak to this. So far we haven't been able to finalise any documentation of our analyses that results in our concerns regarding FullCAM application in HIR, specifically with respect to the baseline and model commencement date issues- both of which can result in over-prediction of abatement:

- June 2021, submitted to the Dept (our client) various drafts of the journal manuscript that raised both issues. This was done as part of our contracted 'verification of FullCAM for regeneration' work.
  - Eventually asked not to progress this. Never to be finalised. Instead, we were asked to draft a report that only covered some components of this draft manuscript.
- October 2021, submitted a draft documents and presentations to CER to explain our concerns.
  - Suggestion was not to progress these documents. Never to be finalised.
- November 2021, meeting with CER-CSIRO-ClimateFriendly, requested by CER to discuss HIR/FullCAM
  - Little opportunity for us to speak. ClimateFriendly was presenting to us.
- May 2022, meeting with CER-CSIRO-Dept, requested by CER to discuss HIR/FullCAM (followed up with a few other smaller meetings)
  - Largely good progress as their appeared to be some common ground. Nothing documented.
- July 2022, Received (after 5 months of review) CER suggested changes to our draft FullCAM verification report that was compiled from parts of the draft manuscript we did back in June 2021.
  - CER-requested changes were been made and we then submitted the revised report to Dept in Sept 2022 asking if okay to now finalise. No response yet. Currently remains not finalised.
- July 2022, drafted the IFM feedback document which took the gentle 'looking forward' approach, i.e. lets not make the same mistakes as in HIR with a *new* rangelands method that stakeholders are strongly advocating for due to integrity concerns with HIR.
  - After a couple of CER-CSIRO-Dept meetings, eventually asked not to progress this until after today's 'Scientist' IFM workshop. Currently remains not finalised.
- Oct 2022, IFM feeback document was largely subsumed in the Appendix for our draft Chubb review.
  - Asked not to finalise the Appendix component at this stage? So still nothing remains finalised in terms of documenting our concerns in detail.

CSIRO's positioning on the risks associated with the application of FullCAM has been highly significant. Most notably, its assurances that, prior to the end of HIR projects' 25-year crediting period, the risk of over-crediting due to the misapplication of FullCAM was minor, were relied on by both the ERAC and Chubb Review.

Also, in its most recent report, published in February 2025, the Regulator relies on CSIRO's 'partial' verification study to reassure the audience that FullCAM estimates are reliable, stating (p 24):

> As with any model, FullCAM cannot accurately predict the level of abatement that will actually occur for any given location but it has proven to be generally non-biased when applied regionally [referencing CSIRO's partial verification study]. This makes it suitable for providing robust estimates of abatement at the portfolio level for HIR projects.

Why did the Regulator interfere with the CSIRO's research on the verification of FullCAM?

Why did the Regulator seek to silence the CSIRO and prevent the publication and dissemination of scientific information?

Is it proper for a government regulator to seek to suppress and distort information related to the integrity of ACCUs, particularly where it has the capacity to influence the ACCU market and related financial markets?