

A note on modelling Carbon Sequestration delivered by transferring SFM EA projects

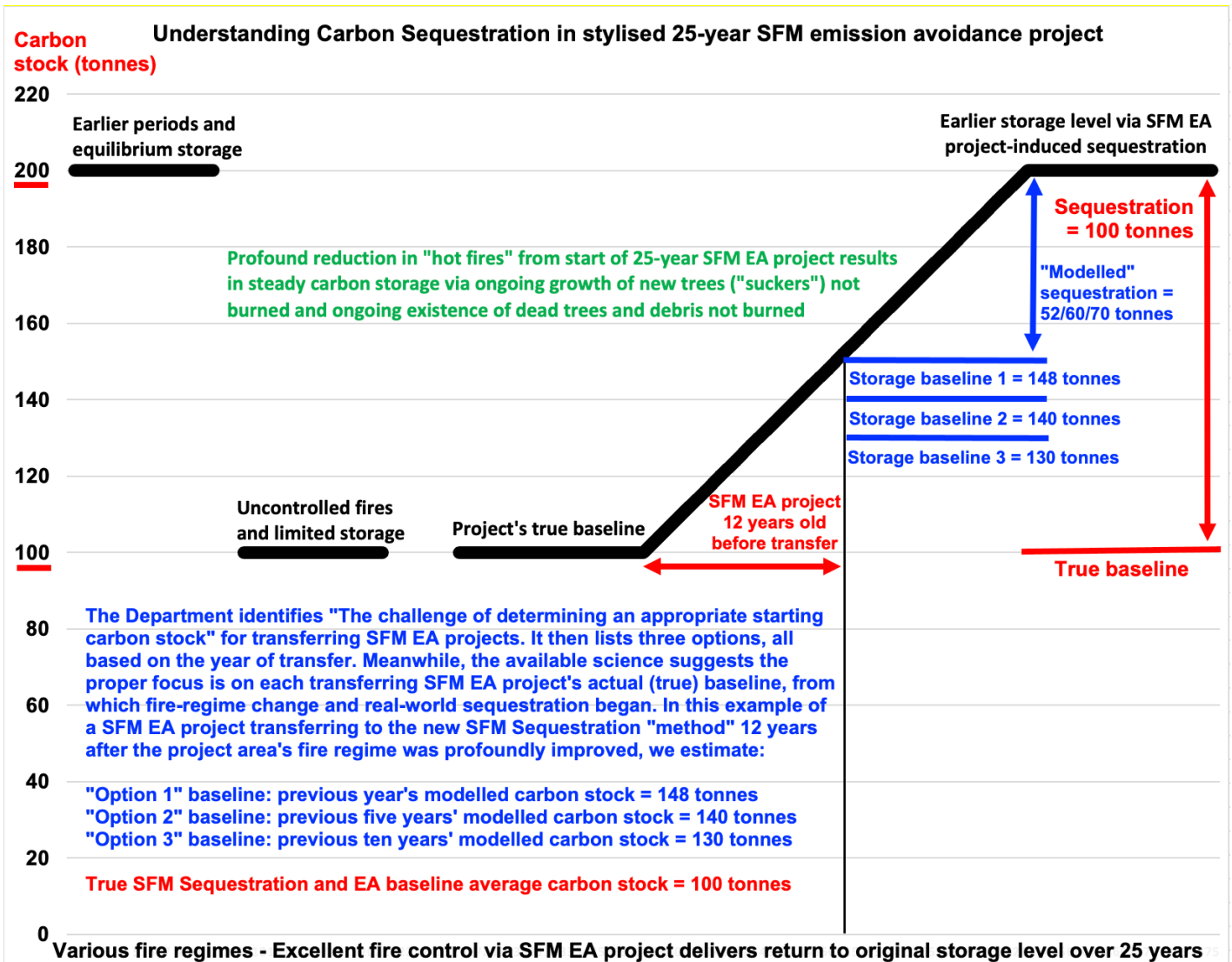
Good morning. The Department recently provided us with four documents (including *Savanna Fire Management 2023 Simple Method Guide*) outlining its “**preliminary thoughts**” - not “formal proposals or government positions” - on SFM Sequestration. Last Monday, the Department advised that it is particularly keen, at the first of its upcoming workshops, to discuss issues around its proposals for “**defining baselines and calculating sequestration for transferring projects**”.

On that topic, I'll start the ball rolling with an assessment that the Department's current proposal is fundamentally flawed. At the outset, I declare that my analysis is somewhat self-interested, as I run the (50km by 50km) Strathburn Station Cape York Carbon SFM project: <https://strathburncattlestation.com.au/wp-content/uploads/2022/12/Strathburn-features.pdf>

Still, facts matter. **Sequestration 101** states: “The difference in carbon stored will reflect **the change in fire management practices**”. Yet the Department's plan simply disregards the relevance of **when fire regimes changed**: “Projects are **not proposed to be credited for sequestration that has occurred while the project was under the emission avoidance method**”.

The Department must be aware that SFM “emissions avoidance” (EA) projects and SFM “sequestration” projects **are the same thing**. And many well-run SFM EA projects in northern Australia began making profound changes for the better to their fire regimes from 2013 or earlier, so “sequestration” (carbon storage) has been proceeding apace for over a decade. **Canberra plans to massively underpay pastoralists and Indigenous groups for sequestration already delivered.**

My chart below tries to illustrate this fundamental problem: Canberra's current plan **deems** that sequestration is related to the SFM EA method's pending **name change**, not fuelled by profound real-world **fire-regime changes** from the early 2010s. Unreasonably, transferring SFM projects' **true sequestration baselines** – that is, the decades before hard-fought fire-regime improvements prompted ongoing sequestration - **are to be disregarded** in the process of awarding ACCUs.



My guess is the Department's “current thinking” may involve the best-run SFM projects being under-credited by up to 50% for the *actual* sequestration being delivered: instead of SFM sequestration ACCUs each representing **1.0 tonne** of carbon stored (as required by law?), they might **represent 1.5-2 tonnes of carbon stored**. Put differently, many pastoralists and Indigenous groups may be under-compensated by up to 50% for the **densification of vegetation** across our landscapes.

That is a bad idea. The available science around sequestration must be embraced or pastoralists and Indigenous owners may **simply shun** the new SFM “method”. That would be a great pity and a major opportunity lost, for all sorts of reasons.

2. More detail on substantial carbon sequestration already delivered by many well-run SFM EA projects

As noted, many SFM projects have been underway for more than a decade. For example, the **Strathburn Station SFM emission avoidance** project's baseline is **2003-2012**, so 2024 will be our 12th year. To the extent that SFM EA managers have profoundly reduced late-season fires for a decade or more, "sequestration" (carbon storage) has proceeded apace.

To demonstrate what profound fire-regime change looks like, **Strathburn Station's 20-year fire history is provided in the next link**. As well as a huge reduction in average burning activity since 2013, please notice that "cooler" early-season burns (shaded green) quickly dominated "hot" late-season fires (tropical storms' lightning strikes too-often still spark hot fires, but they now are fought day and night until they are out): <https://strathburncattlestation.com.au/pdf/Fire-History.pdf>

The many SFM projects across northern Australia that have reduced severe "hot" fires by (say) 50-90% for a decade or more are today supporting many millions of **extra** "suckers" and still-immature trees, plus many millions of **extra** dead and dying trees and associated debris. In the pre-project "**do nothing**" baseline, such new and old trees were readily torched. Our hard-fought reduction in severe fires since 2013 or so has produced a substantial densification of vegetation across many SFM projects in northern Australia, in the process sequestering (storing) many millions of tonnes of **extra** carbon.

For years already, many pastoralists running SFM projects have observed - and fielded complaints - that vegetation cover is densifying significantly, and that Pastoral leases are becoming less productive as cattle properties. The Department is in a position to reliably model the scenario set out in my chart earlier. For now, however, my guess is that up to 50% of all sequestration (extra carbon storage) ultimately delivered by transferring SFM EA projects may already have occurred.

3. Key issue: Estimating "appropriate starting carbon stock" for transferring SFM EA projects

The Department has advised: "the sequestration calculations in the proposed 2023 sequestration and emissions avoidance method are proposed to be more simple and more intuitive than the previous determination as **the FullCAM model calculates yearly changes in modelled carbon stocks**". (As you know, FullCam - the Full Carbon Accounting Model - "is a calculation tool for **modelling** Australia's greenhouse gas emissions from the land sector".)

As discussed, the Department's latest thinking is as follows: "For projects transferring to the proposed SFM sequestration method from an emissions avoidance method may have been running for up to 14 years. **It is not proposed to credit projects for sequestration that occurred while the project was under an SFM emission avoidance method.**"

Without any explanation for its proposal - implying massive Sequestration under-crediting - the Department set about **inventing an "appropriate [pretend] starting carbon stock"** for transferring SFM EA projects, nominating three options:

Option 1: "The carbon stock of the previous year";

Option 2: "The average carbon stock for the 10-year period prior to transferring"; and

Option 3: "The average carbon stock for the 5-year period prior to transferring".

Without acknowledging its complete disregard for the relevance of when many SFM EA projects across northern Australia profoundly improved their fire regimes, the Department noted a few pros and cons. Option 1 was said to be simple but comes with a "perverse incentive to transfer only after a bad fire season". Options 2 and 3 reduce the "influence of short-term fluxes in carbon" but with "Potential to underestimate [RR: knowingly and massively overstate] initial carbon stocks" and "Critics may argue that this is not conservative and may result in some backdating of accumulated sequestration."

4. Key concern: Ignoring available science and massively under-crediting well-run SFM projects

Again, the fundamental problem is that the Department is proposing to disregard Sequestration 101: "The difference in carbon stored *will reflect the change in fire management practices*". **The Department knows that substantial densification on many project areas across northern Australia began over a decade ago - after Indigenous groups and pastoralists re-focused on "cool burning" in May/June/July, and then fighting hot late-season fires - yet its current plan boils down to: "When issuing sequestration ACCUs, we will ignore a decade's worth of carbon sequestration on well-run SFM projects".**

Importantly, none of the Department's three baseline options above are based on the available science. Each option **deliberately disregards the thing we know matters most for sequestration: when fire regimes were profoundly improved**. Each option simply embraces the decade-plus lag between the start of many well-run SFM projects - and so the start of substantial sequestration - and Canberra's proposal to rename SFM EA projects as SFM Sequestration and EA projects.

There is no good reason for over a decade's worth of hard-won sequestration to go unrecognised. After all, the Department has advised that *FullCam* can now reliably *model* the amount of carbon stored in SFM EA project areas for a variety of time periods (ending in December), including (i) the current year (2023); (ii) last year (2022) and (iii) next year (2024), as well as (iv) the average of the past five years (2018-2022) and (v) the average of past 10 years (2013-2022). Further, **the existence of reliable satellite fire maps for each and every year year since 2000** - see "Fire History" in <https://firenorth.org.au/nafi3/> - suggests the Department and/or Proponents could **reliably model the true "baseline average carbon stock"** for all SFM EA projects eligible for transfer to the new SFM Sequestration and EA "method".

In the case of the Strathburn Station project area, the “available science” should allow reliable modelling of the “average carbon stock” over **2000-2012**, the latest period through which big, uncontrolled “hot” fires were left to burn; 2000-2012 thus represents the **true baseline**, before the SFM EA project, fire-fighting and sequestration began in 2013.

5. Summary and implications, including perverse incentives

My chart on page 1 attempts to illustrate the matter of fact that SFM “emissions avoidance” projects across northern Australia also are SFM “sequestration” projects. Canberra’s current plan is to ignore our SFM projects’ true starting-point carbon-storage baselines, and to assign zero value to the substantial sequestration delivered since 2013 or earlier.

The current proposal lacks credibility, inappropriately disregarding available science in the process of massively under-crediting SFM projects run by Indigenous groups and pastoralists. By deliberately disregarding the true baselines that span the period before our SFM EA fire-regimes were profoundly improved from the early 2010s, Canberra is planning to underpay the best-run SFM projects by (say) 30-50% relative to total carbon sequestration delivered over 25 years.

Canberra’s plan to tell northern Australia’s best fire managers that they will be massively underpaid for carbon sequestration delivered - and massively under-compensated for the long-run densification of their landscapes - may be a recipe for those landholders to not bother embracing the SFM “method” (name change) currently under discussion.

Some managers may choose to complete their current 25-year SFM EA projects, and then down tools. Fire management would revert to the previous “do nothing” regime, with project areas again burning black before most Wet seasons, via lightning strikes that too-frequently spark uncontrolled fires. Over time, much of today’s extra carbon sequestration would go up in smoke, removing the densification Canberra values at zero, and restoring earlier levels of pastoral viability.

That may end up being a rational response for some landholders but it would be a great pity, a bad outcome for Australia’s fight against global warming and major opportunity lost, for all sorts of reasons.

All stakeholders have an interest in the new SFM “method” embracing the available science, allowing the proper recognition, estimation and crediting of total carbon sequestered by well-run transferring SFM EA projects located across northern Australia since 2013 or earlier. The Department says it has the tools to reliably model actual sequestration. I’m arguing that it should do so, starting by modelling each transferring project’s true “baseline average carbon stock”.

I hope this note prompts discussions. If my critique of the Department’s current proposal is faulty, please do not hesitate to severely criticise my analysis. Hopefully, focussed discussions on the key issues - “defining baselines and calculating sequestration for transferring projects” - at coming workshops will help to fix the new SFM Sequestration and EA method.

Best wishes,
Rory

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Here is my *Submission* to the 2023 Parliamentary Inquiry into Diabetes: Embracing “Carbohydrate Restriction” and eschewing sugary “Low GI” and other high-carbohydrate diets to start reversing Australia’s type 2 diabetes (T2D) disaster (features 8-page timeline documenting an epic diabetes fraud, a University of Sydney/Novo Nordisk joint venture): <https://www.australianparadox.com/pdf/Submission-HoR-DIABETES-INQUIRY.pdf>

Here's me, Emma Alberici and ABC TV's *Lateline* on the University of Sydney's Australian Paradox: <https://www.youtube.com/watch?v=OwU3nOFo44s>

Here's the diet advised by Dr Peter Brukner, formerly the Australian cricket team's doctor: <https://www.australianparadox.com/pdf/PeterBrukner.pdf>

A life in our times: Vale Alexander “Sandy” Robertson (1933-2015): <http://www.australianparadox.com/pdf/AlecRobertson-born2oct33.pdf>

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Strathburn Cattle Station is a proud partner of YALARI, Australia's leading provider of quality boarding-school educations for Aboriginal and Torres Strait Islander teenagers. Check it out at <http://www.strathburn.com/yalari.php>