



Executive Summary

Feasibility of an ERF method for the 10 Deserts Project

Sydney, 18 December 2019

Image by Lou van Rikxoort



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Executive summary

Following seven months of study and wide-ranging stakeholder consultation, South Pole has found that, by 2030, fire management activities in the 10 Deserts (10D) region could contribute to Australia's emissions reduction targets in line with the Paris Agreement and ease its abatement burden by somewhere in the range of 146,000 to 438,000 tonnes of carbon dioxide equivalent per year (tCO₂e/yr).

However, the proposed abatement calculated in this study relies on several untested and unproven assumptions that cannot be confirmed until further research is undertaken on fuel accumulation and burning efficiency values in spinifex and mulga systems, and a strong correlation between high rainfall years and large areas of fire is established.

A fire methodology for the 10D region would be primarily aimed at reducing the spread of large, damaging, yet occasional wildfires. It is the South Pole project team's view that, based on experience and an understanding of the Emissions Reduction Fund (ERF) system, both the Department of Environment and Energy (DoEE) and the Emissions Reduction Assurance Committee (ERAC) would take a sceptical view on whether these extreme years of fire could be reduced by human activity. There is no direct published evidence on whether it is indeed possible to reduce fire extent during extreme years in the desert through cool burning in other years, and there are only a few studies confirming the effect on fire scar patchiness.

The South Pole project team has found that the current policy framework of the ERF is not well suited to the proposed activities investigated for this study. A fire management method for the Deserts would need to be tailored to their unique circumstances, recognising the strong social, cultural and environmental benefits of fire management. The review of the ERF and the Climate Solutions Package and associated Fund (CSF) announced in early 2019 may provide a platform for the formal recognition of co-benefits as a start for a more suitable mechanism for a desert carbon project. If the goal for 10 Deserts and Desert Support Services (DSS) is to continue to pursue a desert fire management programme funded through climate finance, it would be prudent to be more actively engaged in shaping any proposed policy and regulations.

Despite the low level of confidence in federal government support for developing a new method following the framework proposed in the study, in the case that a method was to be developed, there would be potential for a carbon project in the 10D region. However, due to low total regional abatement and low abatement per unit area, combined with currently low carbon prices, a proposed activity of emissions avoidance through fire management could only support one or, more ambitiously, two projects, in the northern part of the area defined as Zone 1 in the 10D region.

A second proposed activity (although it is a similar activity as above but for different objectives) is fire management in and around spinifex-mulga systems. That is, a strategic cool burning operation conducted across primarily Zone 2 of the 10D area to reduce the likelihood and impact of hotter fires on mulga and other sparse woody vegetation which are at risk of permanent loss. The potential abatement from the second activity has not been included in the overall estimate for Australian Carbon Credit Unit (ACCU) generation for this feasibility study for several reasons. Most importantly, a significant amount of research and fieldwork would be required prior to developing estimates, on topics such as existing carbon stores, fire behaviour and impacts and sequestration rates as a benefit of reduced fire intensity and frequency.

Overall, the quantum of ACCUs achievable by 2030 for the 10D region (conservatively, 1.46 million) would be expected to be considered low for a relevant minister to recommend priority funding for method development when the Clean Energy Regulator has stated they are seeking 100 million ACCUs from 2020 to 2030. Other methods that deliver a higher volume of abatement are more likely to be funded ahead of a proposed desert fire method.

From a financial perspective, the operational costs of delivering the estimated abatement may result in little or no profit and with a high degree of uncertainty regarding the inputs. Like most savanna-burning projects, a reinvestment model such as the one presented in the study would mean all funds received would be funnelled back into building access to country, capacity in human resources, supporting infrastructure, vehicles and other equipment.

It is the project team’s professional assessment that the carbon emissions reduction potential of the region is best realised outside the current policy and activity limitations of the ERF/CSF. This could be either through a direct funding model that would need further planning and development to assess co-benefits, including climate change adaptation, or alternatively, other international standards. A full investigation of options for international standards that are better at valuing and more clearly defining co-benefits, as well as the protection of existing carbon stocks, may be undertaken in the future. It is important to note that any carbon project development within an international standard framework would require fieldwork and research efforts similar to the development of an ERF/CSF method.

Table 1: Responses to the tasks and questions posed in the scope of work

Clearly articulate the proposed activity for both avoiding emissions and sequestering carbon in low-rainfall areas (sub 600 mm per annum) using both traditional and contemporary fire management techniques, including:	
<p>What is the proposed activity and how would it contribute to emissions avoidance or carbon sequestration?</p> <ul style="list-style-type: none"> • Can the quantified change in emissions avoidance or sequestration be identified to be a direct result of the project activity, and not resulting from other natural causes? • How could the emissions avoidance or sequestration using the proposed activity be directly attributed to the activity? • How could the emissions avoidance and sequestration address the requirement for newness and additionality? • How could the emissions avoidance or sequestration be quantified in a robust and affordable/practical way? 	<ol style="list-style-type: none"> 1) Reducing (avoiding) fire emissions in those areas dominated by hummock grasslands (spinifex), by reducing the total extent (area) of fires and/or shifting to cooler fires resulting in more unburnt patches in the horizontal scale of fuel load. 2) Protecting carbon stores (sequestration) in areas of sparse woody vegetation, such as mulga, by burning around them to reduce the impact of hotter wildfires intruding into the patches. <ul style="list-style-type: none"> • The response here is dependent on the treatment of the baseline scenario and the ability to demonstrate the counterfactual of what the fire regime would have been in the absence of the project. • For fire emissions avoidance, there is a correlation between rainfall and fire size; however, a predictive link could not be identified within the current level of knowledge or literature. Further research is needed to determine whether the link is unequivocal. • Likewise, for sparse woody vegetation, the counterfactual baseline scenario where the carbon stock would have been permanently cleared (assuming high burning efficiency values) by fire is very difficult to predict. • The proposed activity could leverage and expand the existing tools and remote sensing imagery already used by other ERF methods and the National Greenhouse Gas Inventory (NGGI). • Newness and additionality will be addressed through the setting of an appropriate emissions and/or carbon stock baseline.

Clearly articulate the proposed activity for both avoiding emissions and sequestering carbon in low-rainfall areas (sub 600 mm per annum) using both traditional and contemporary fire management techniques, including:

Is the activity likely to have any adverse environmental, social or economic impacts?

The environmental, social and economic impacts of any proposed activity can be expected to be comparable to the current savanna burning project method, although a full analysis would be undertaken as part of any method development. There could be some expectations of negative environmental impacts caused by fire. These would need to be recorded, reported and mitigated along with other risks.

Is the ERF the best scheme to promote the outcomes from undertaking fire management in the arid zone?

No. Payment on delivery of least-cost abatement using a method that is yet to be developed is not the best match for the proposed activities, which need a more predictable cash flow to conduct preventive burning operations. An investment model that better matches the timing of revenue and costs, values and co-benefits, and treats measurable emissions reductions as a return-on-investment metric, would be a preferred way to drive abatement. Unlike savanna burning projects, a desert method would be expected to have longer periods between revenue-raising activities.

Could the emissions avoidance or sequestration be reflected in the NGGI, and if not, how could they be?

The emissions that are subject of this study are currently reflected in the NGGI but would require improved data accuracy (e.g. Sentinel imagery 10 m x 10 m grid) to enable verifiable crediting.

What is the emissions avoidance or sequestration potential of the proposed activity in various rainfall bands and bioregions? Is it significant?

For fire emissions avoidance in Zone 1 and Zone 2: 146,000 to 438,000 tCO₂e/yr (rounded to the nearest 1,000).
For sparse woody vegetation, it is currently not possible to assess under the current version of FullCAM. The National Inventory method would need to include such stocks that a “whole of landscape methodology” under the ERF would credit any increase (or avoided decrease) of carbon stocks.

What level/scale of activity under a fire management method is likely required to be economically feasible?

The activities are likely to require coordination on a very large scale – most likely the northern third and potentially extending to the northern half of the 10D region.

Clearly articulate the proposed activity for both avoiding emissions and sequestering carbon in low-rainfall areas (sub 600 mm per annum) using both traditional and contemporary fire management techniques, including:

Assess the potential for that activity to satisfy the Method Prioritisation Questions and the Offsets Integrity Standards as outlined in the 'Making Methods under the Emissions Reduction Fund'.

Spinifex fire emissions avoidance in northern parts of the 10D region may be able to satisfy the Offsets Integrity Standards if the proposed approach to baseline determinations is supported by evidence and by the ERAC.

Protection of existing sparse woody vegetation is, at the time of writing, unlikely to satisfy the Offsets Integrity Standards. This activity and its expected outcomes are more challenging, as protecting carbon stores using fire has not been previously considered as a method. There is little information and evidence of carbon storage potential in sparse woody vegetation in the desert regions. In addition, the level of threat and potential fire impacts on this vegetation type is not well understood or recorded in the literature.

Both activities are unlikely to be prioritised by the Department given the relatively low abatement volumes.

Is there the capacity for stakeholders to manage the activities on the scale required, and equally, is there the willingness for long-term commitment?

The stakeholder engagement workshops provide some insight into the level of enthusiasm for activities that would provide pathways to apply cultural and traditional fire techniques to manage country. There was a constructive response to the issues of the long-term commitment requirements for any future carbon project that requires intergenerational participation. The prospect of being 'on country' was an overriding positive factor for many stakeholders and the willingness to address the challenges of capacity and building a future capacity to the scale needed was well recognised.