

South Pole

Carbon Feasibility Study

10 Deserts Project

September 2019



natural
carbon



south pole

1. Introductions: 10 Deserts



About the 10 Deserts Project



- 5-year project
- Led by Desert Support Services
- Builds on work of Indigenous rangers, IPAs and project partners
- Will take Indigenous land management in the desert to a new level



Indigenous partners



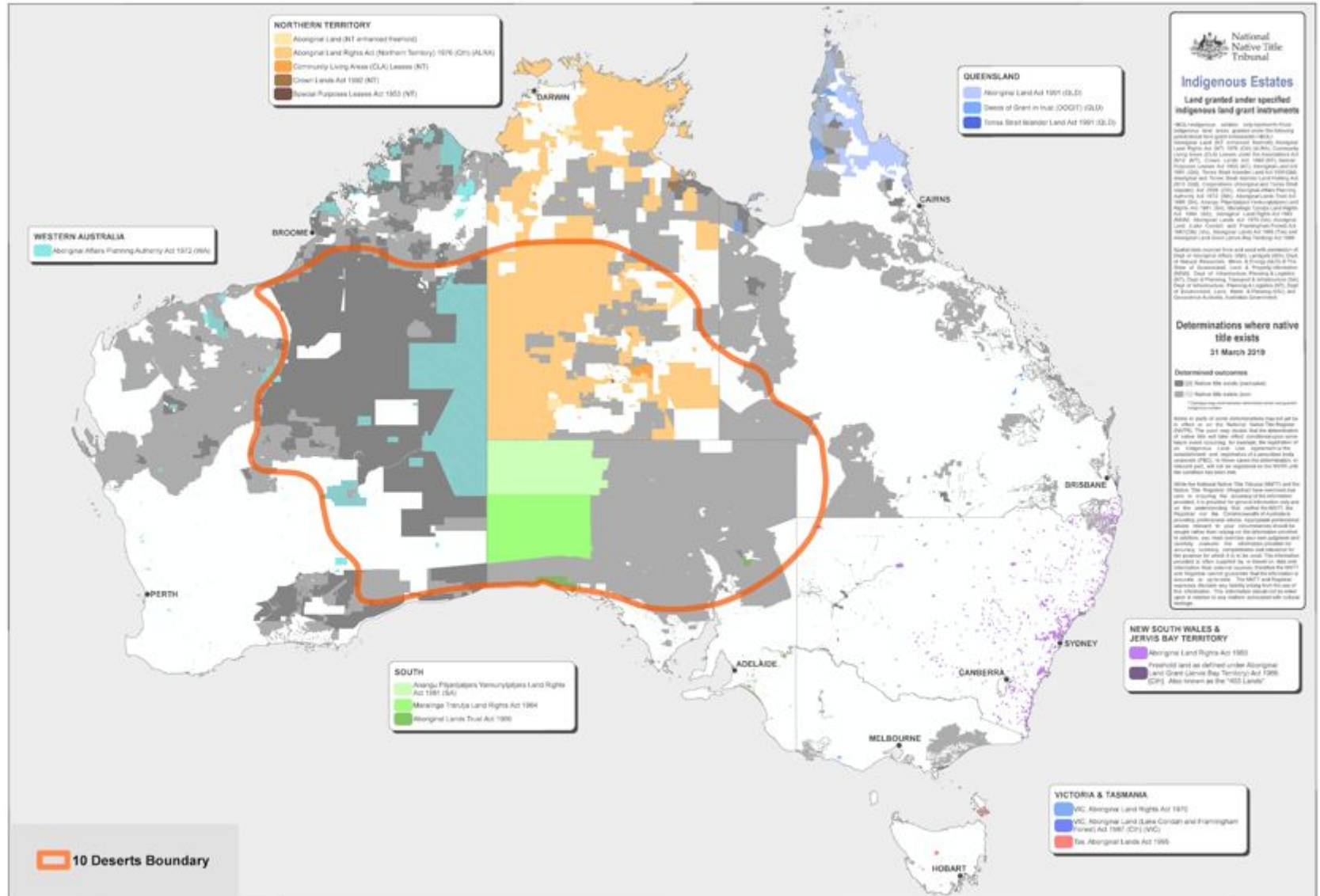
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Project Area





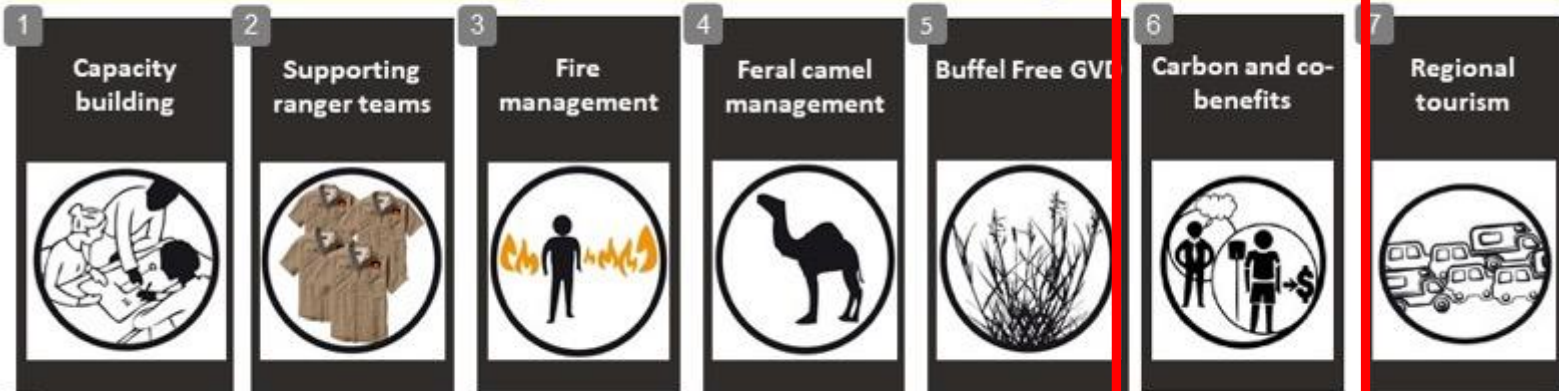
2018-22

Building environmental resilience
Enhanced Indigenous livelihoods *Strong Indigenous voice*

Building the capacity of Indigenous people and organisations

Managing key threats to natural and cultural assets

Creating new markets for sustainable jobs and income



A strong voice and network for Indigenous land management organisations in the desert

A carbon story for the desert

- Desert mobs have watched the savanna burning projects over the years
- Additional funds to complement ranger funding and help pay for healthy country fire activities
- This project is to investigate whether we can create a carbon story for the desert
- A carbon story needs a method
- Development of methods need the Commonwealth Minister's approval



A carbon story for the desert

- This first stage will assist any recommendations to the Minister about a method development for the desert
- It will look mainly at the 'method prioritisation criteria'
- 10 Deserts Project have engaged South Pole and Natural Carbon to complete this first stage



A carbon story for the desert

- Today's workshop is an opportunity to get more information to help inform the study.
- Depending on the study outcomes, 10DP may undertake further work to look at:
- *The cost and timeframes for developing a method; or*
- *International standards such as the Gold standard*
- Any further work (stage 2) will be 'parked' for a future time.



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10 Deserts Project

Sept 2019



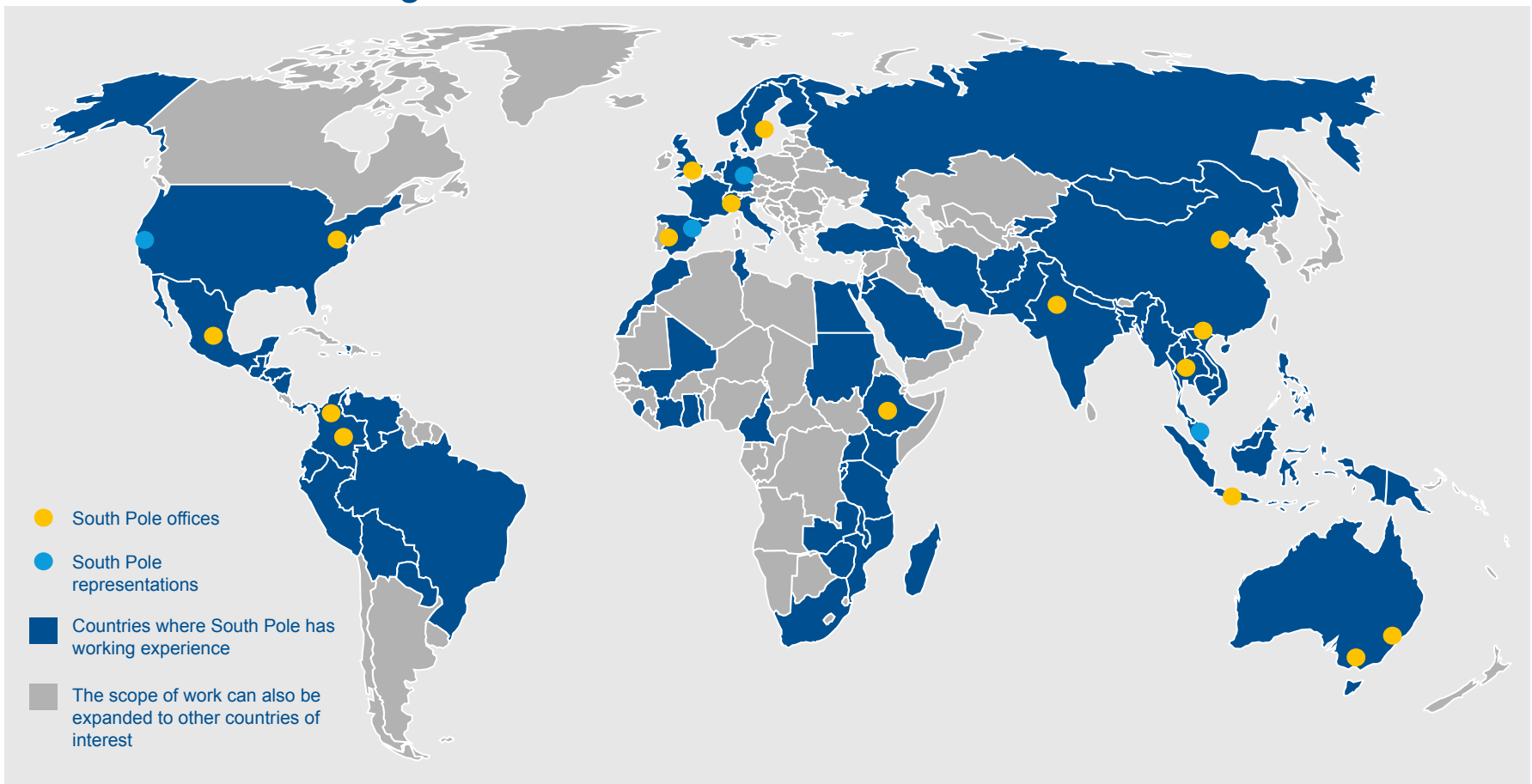
Over 13 years of creating global impact

- Environmental and social impacts
- 1,000+ clients
- Set up in 2006
- Renewables, forestry, agriculture, industry, urban mitigation and adaptation



South Pole are the World's Largest Developer of Climate Action Projects

South Pole has world-leading expertise working on carbon, water and deforestation projects aligned with **United Nations Sustainable Development Goals** in countries around the globe.



10D Project Partner: Natural Carbon

Developer of Indigenous carbon farming projects in Australia

- Supports Indigenous groups, farmers and landowners with carbon farming ventures
- Works across full project cycle
- Expertise in operational aspects of fire management & savanna burning
- 10 Savanna Burning, 3 Beef Cattle Herd Management, and 4 Human Induced Regeneration projects registered to date, with another 10-12 more in development.
- 1,000,000 ACCUs issued by June 30, 2019
- 2% of Australia's land mass (larger than Tasmania)



2. State of Play: Carbon abatement in the 10 Deserts area

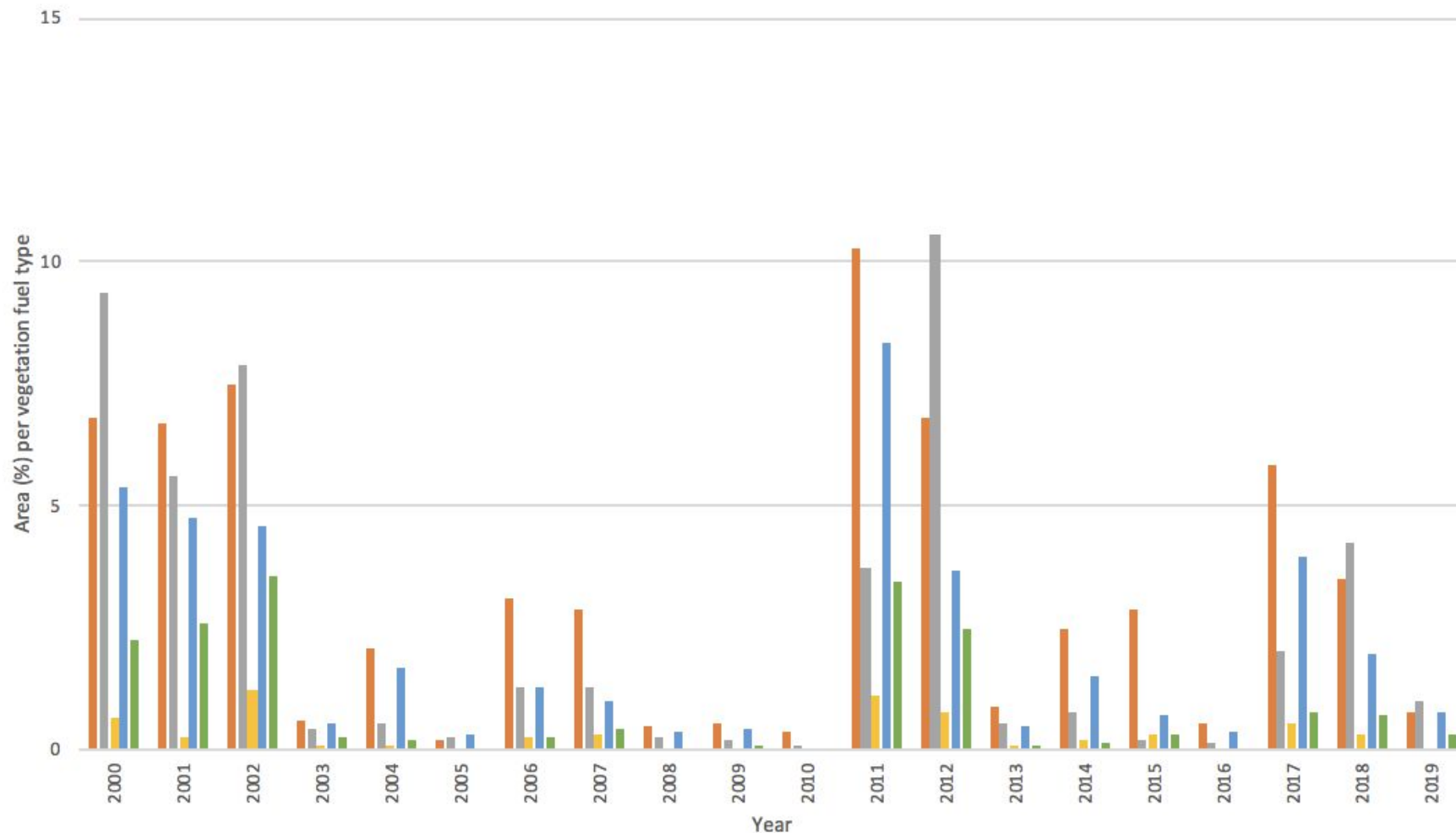


**AVHRR data video
omitted for file size
purposes**

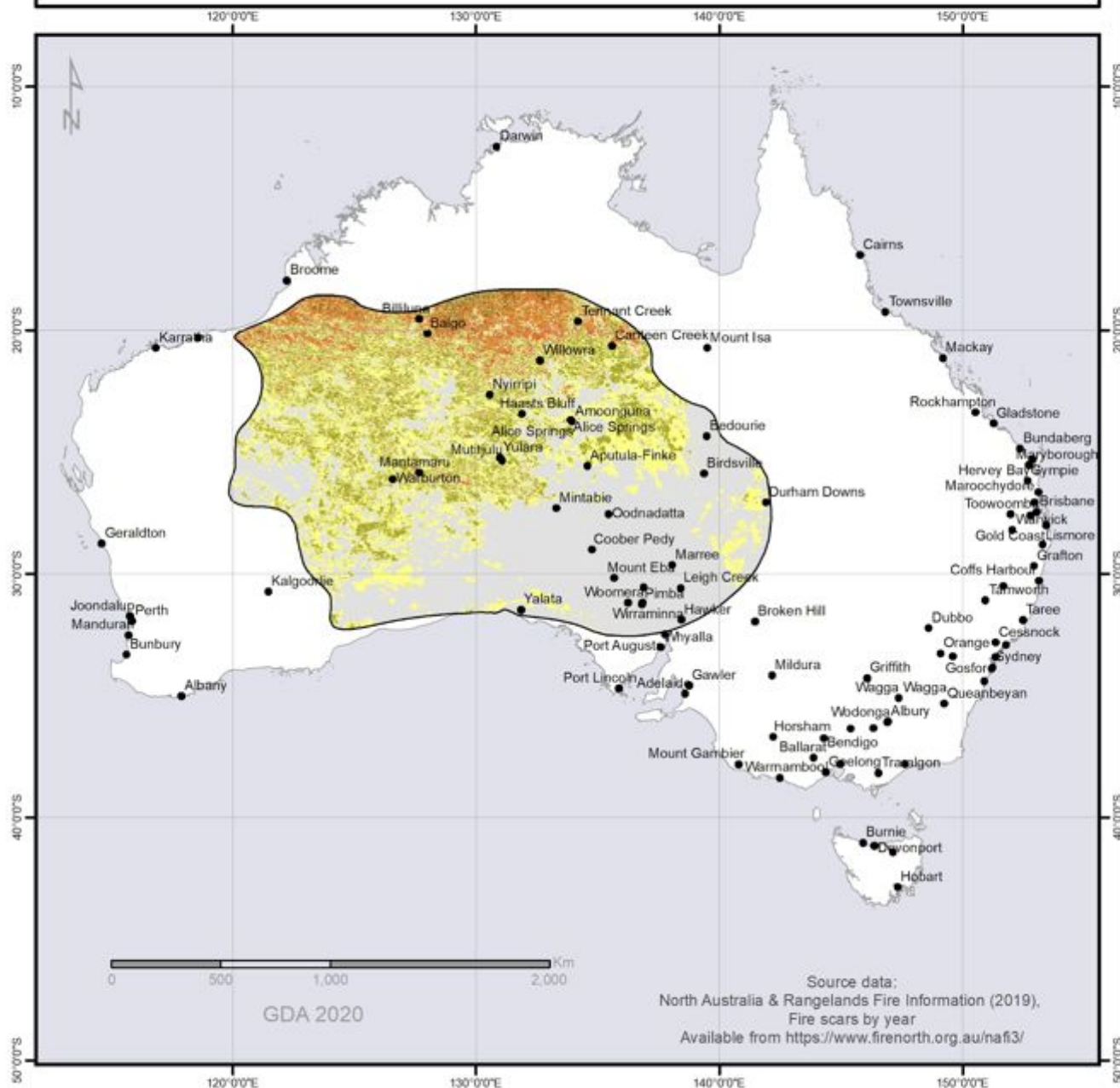
It burns mostly in wet years

2000, 2001, 2002, 2011, 2012, 2017 & 2018

Total fire scars



DESERT AVHRR - FIRE FREQUENCY



10 DESERTS
PROJECT

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Legend

• Cities

□ 10 Deserts Boundary

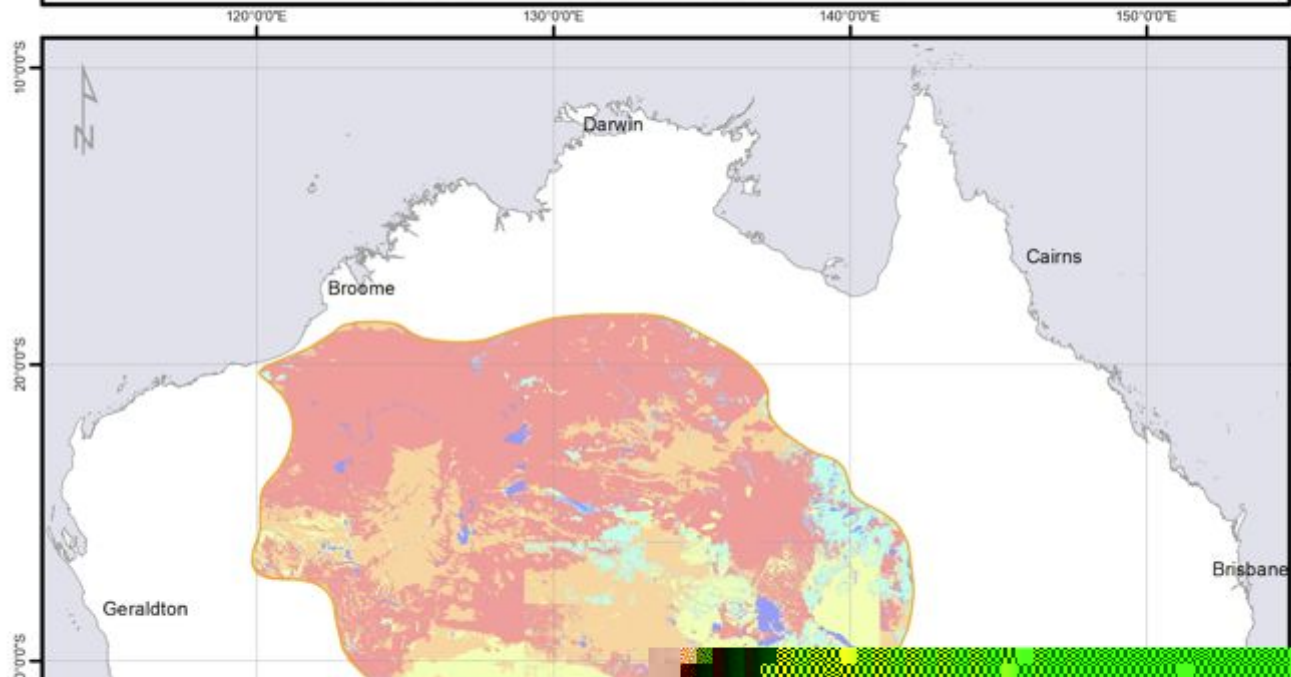
Frequency 1989 - 2013



Source data:
North Australia & Rangelands Fire Information (2019),
Fire scars by year
Available from <https://www.firenorth.org.au/nafi3/>

Geographic Coordinate System:
Geocentric Datum of Australia 2020 (GDA2020)
Angular Unit: Degree (0.0174532925199433)
Prime Meridian: Greenwich (0.0)
Datum: GDA2020

VEGETATION FUEL TYPE



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Legend

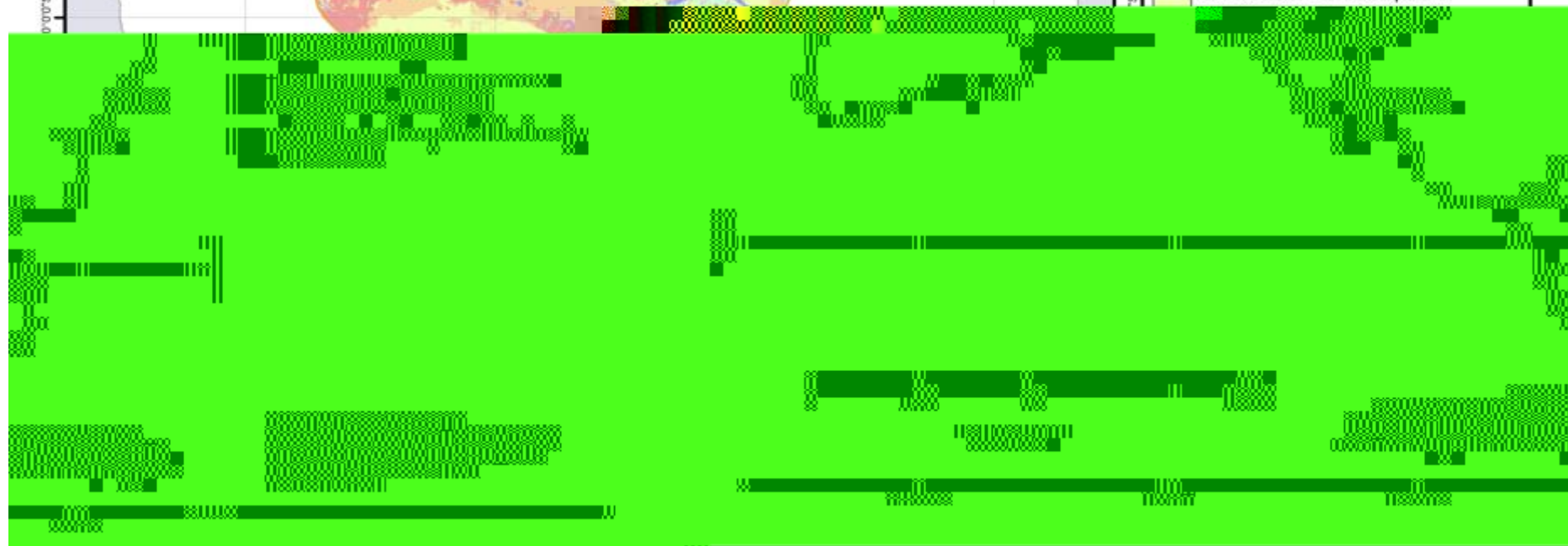
10 Deserts Boundary

Vegetation Fuel Type

A. Has hummock grass = Flammable

B. Acacia shrubland without
hummock grass = Less Flammable

C. Woodland with chenopods or



Fire Ecology

Major Habitats & Regimes

Mulga woodlands with grassy understorey

- Needs 20 year fire free period - can recover well from infrequent fire

Acacia woodlands with chenopod understorey / shrublands

- Rarely burned, dominant floristic components not adapted to fire

Hummock grasslands

- Withstand shorter fire return periods, average 12-14 yrs
- Predominant fire prone vegetation type throughout 10 deserts area



Fire Ecology

Major Habitats & Regimes

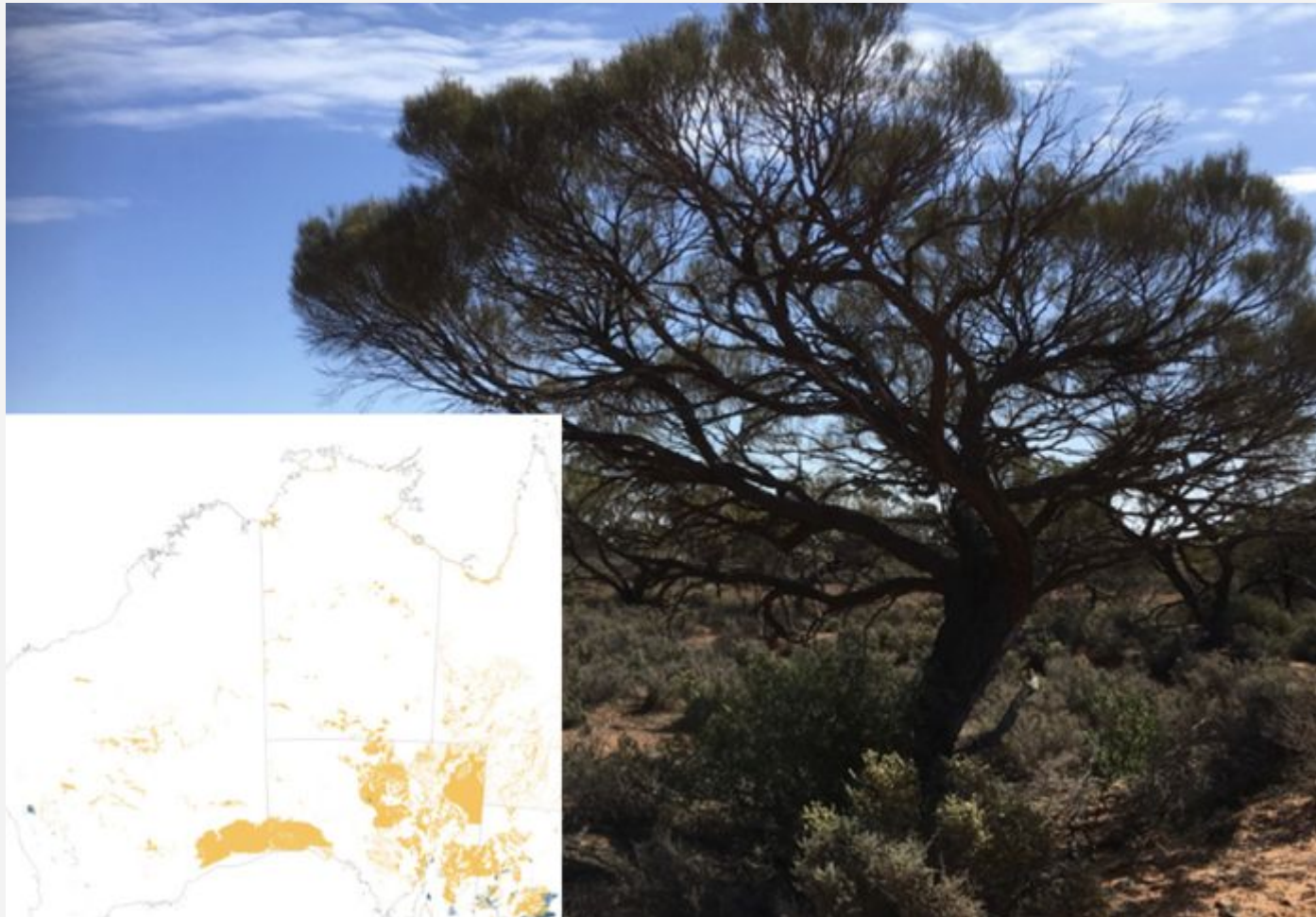
1. Mulga woodlands with grassy understorey



Fire Ecology

Major Habitats & Regimes

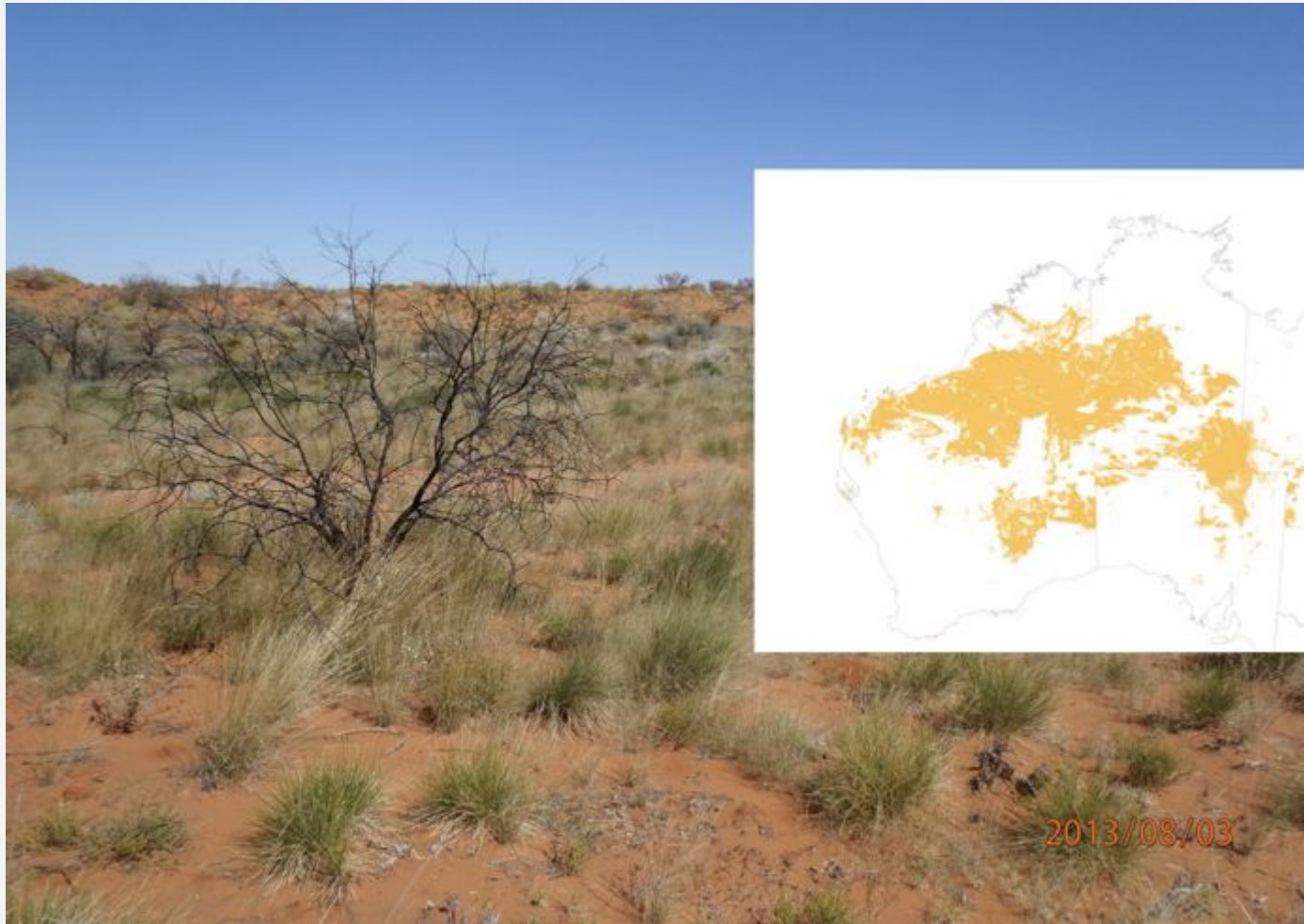
2. Acacia woodlands with chenopods or chenopod shrublands



Fire Ecology

Major Habitats & Regimes

3. Hummock grasslands (spinifex)



Previous Studies

Emissions abatement and biosequestration in fire-prone desert

Overview of the concept

- Can a change in fire management of spinifex grasslands result in a decrease in total GHG emissions and also increase biosequestration?

Decreases in GHG emissions may come via:

- Reducing total area burnt
- Increasing the “patchiness” within firescars by using less intense cool burning

Potential for Indigenous fire management in central Australia to reduce greenhouse gas emissions and increase biosequestration

Neil Burrows
Science and Conservation Division
Western Australian Department of Parks and Wildlife
July 2014



Previous Studies

Results - Emissions abatement

Reducing Total Area Burnt

- Total area burnt is about 7-8% per year on average, regardless of the fire management (Burrows et al 2013, Bleige Bird et al 2012)
- Traditional burning shifts timing of fire but not area

Reducing Fire Frequency

- Increasing the fire return interval from avg. 14 years to 20 years results in low returns in terms of carbon emissions and/or carbon sequestration

Increasing Patchiness

- Burrows (2014) found burning efficiency was lower in cool season fires managed by TOs
- Unmanaged wildfires consumed 20% more of the plant biomass than cool, managed fires



Previous Studies

Results - Carbon Sequestration

Findings from Burrows (2014)

- Majority of carbon store is in Mulga woodland (5% of landscape stores 45% of carbon)
- Insufficient data to establish the carbon sequestration benefit



Fire - Carbon Sequestration

What are some of the primary obstacles to desert carbon?

Carbon Sequestration

- “There is a particular need to adequately predict, measure, certify and verify the carbon sequestration in any carbon sinks” (Harper et al 2007).

Carbon Credits in the Desert?

- Low value per hectare
- Less certain & less stable (compared to wetter biomes)

Lack of Data - both quality & quantity

- Vegetation: more research needed on mulga, mulga decline & the damage caused by hot fires
- Accurate mapping of woody veg within 10D area so as to be able to determine a baseline
- Emission factors for veg types



Other Considerations

Biodiversity Considerations

Is burning for carbon consistent with caring for country?

- Current wildfire regimes have damaging effects (water, soil erosion, fire-vulnerable vegetation, social impacts, food)
- WALFA (Russel-Smith et al 2015) program in tropical savanna recorded better outcomes for biodiversity than conservation reserves
- Is managed fire (burning) for carbon a driver that can also deliver biodiversity benefits?
- Biodiversity is outside the scope of the ERF
- We have no similar examples like WALFA in desert country



Other Considerations

We expect these kinds of fires will help protect carbon stores

Smaller fires

- Closely linked to patchiness
- Multiple small fires create more *pyrodiversity* than one large fire
- More resource diversity due to multiple states of post-fire succession
- Less likely to spread into Mulga & fire-sensitive communities

Less variable fires

- A more consistent pattern of fire lit from year to year encourages species that benefit from post-fire succession to persist

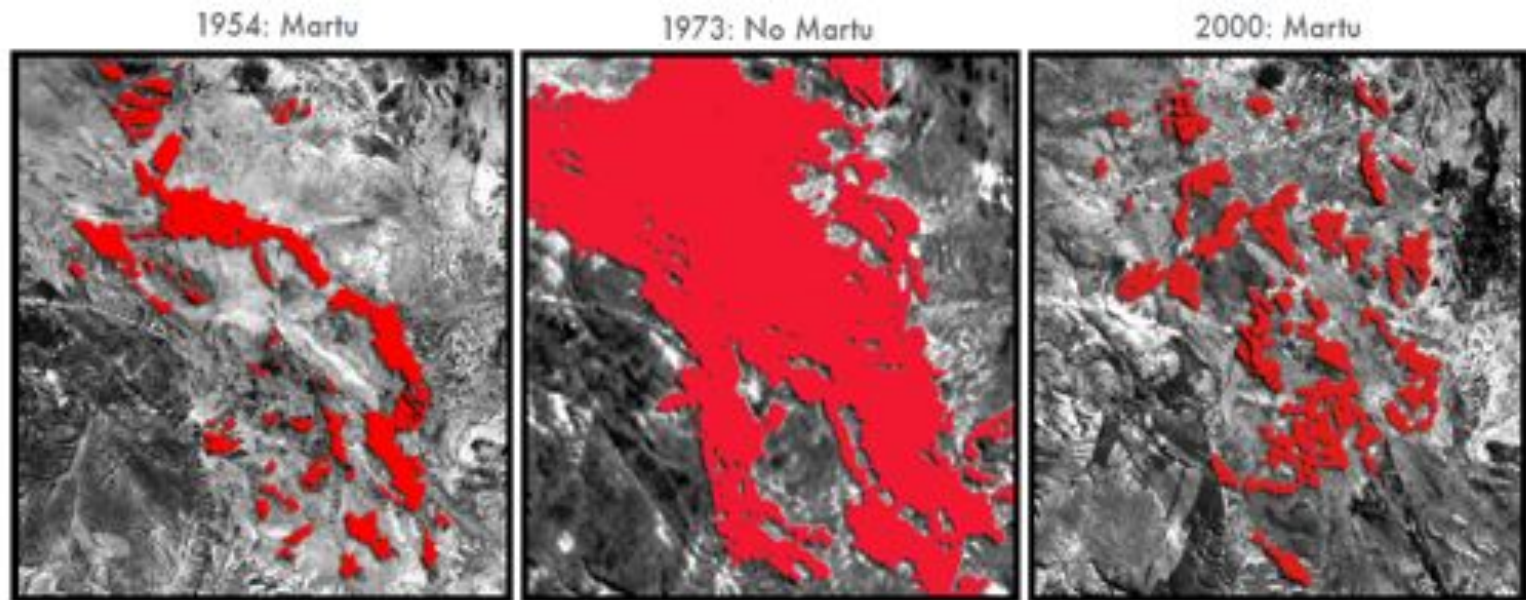
Larger number of more patchy fires

- Approximating traditional firescars



Traditional burning “pyrodiversity”

Human sources of emission versus lightning



Old Savanna Burning Method

How savanna fire management works:



Un-managed late dry
season burns
=
Higher Emissions



+

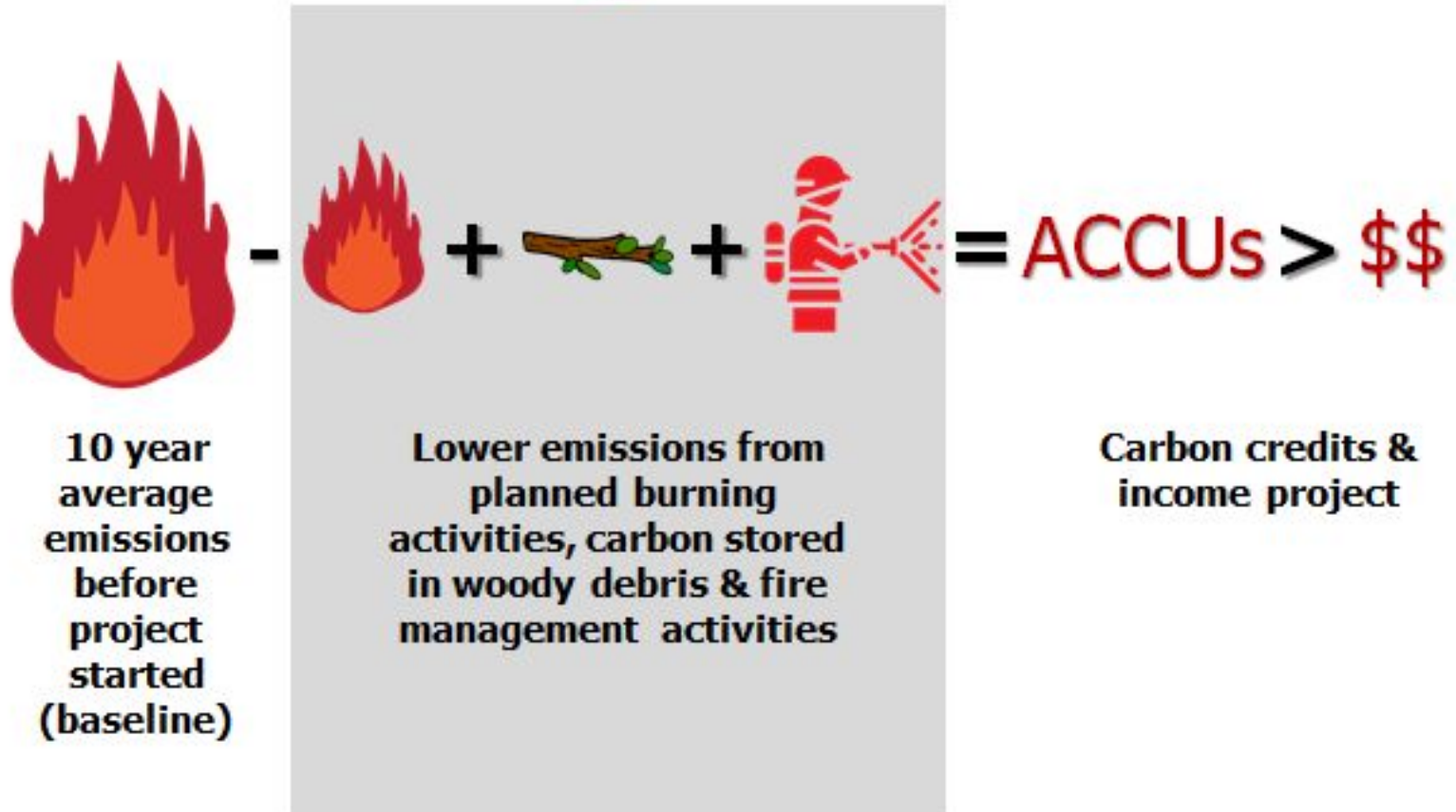


Planned early dry season burns &
late dry season fire fighting
=
Lower emissions

New Savanna Burning Method

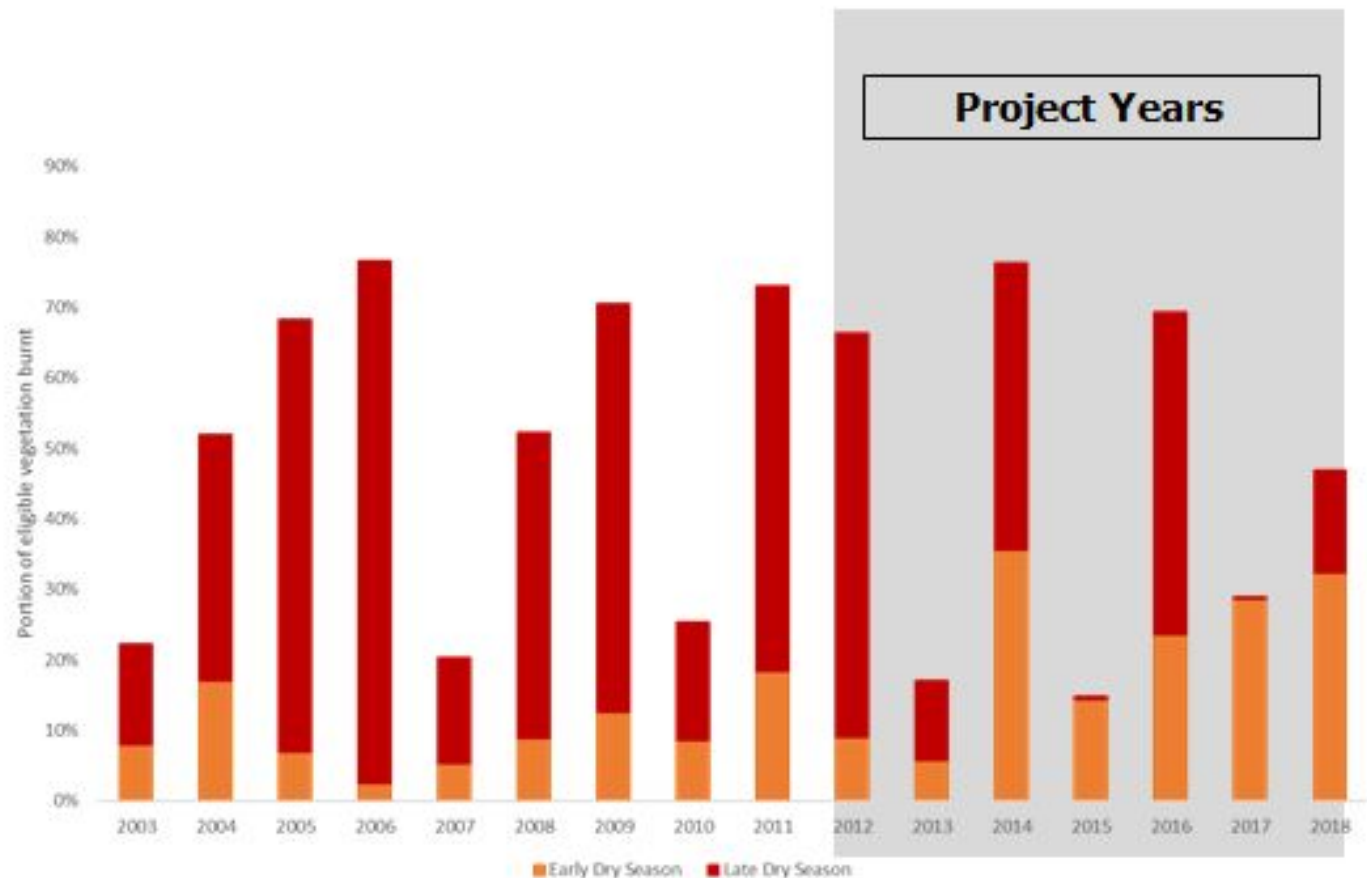


How the new savanna carbon farming method works:



Savanna Burning Method

Seasonal Area Burnt



ERF Sequestration Permanence Periods

How does the sequestration part work?



- All carbon projects with **sequestration** must have a “permanence period”. This is the time that the project activities must continue.
- As the owner of the project, you can choose a 25 year or 100 year permanence period.
- There are ‘discounts’ for each permanence period.

25 years	100 years
25%	5%

- These discounts are applied to the number of carbon credits you receive from the **sequestration** part of your project.

3. Market: What is this carbon business all about, anyway?



The Carbon Market

Australian Carbon Market

- Government purchasing
 - Non-Government purchasing
 - Voluntary purchasing
-

ERF/CSF

- Offsets Integrity
 - Method Prioritisation & Development
 - Participation
 - Project Considerations
-

Australian Carbon Market

Climate Solutions Fund (ex ERF)

- *Previously called Emissions Reduction Fund (ERF)*
- Australia's central climate policy and part of Australian Government's Direct Action Plan to cut emissions to 26-28% below 2005 levels by 2030
- Introduced in 2014 following repeal of the carbon tax to provide \$2.55 billion in incentives to finance emissions reduction projects
- Project owners enter into carbon abatement contracts that commit them to supply a volume at a fixed price over a period of 7-10 years
- Most ACCUs purchased by the Clean Energy Regulator (CER) on behalf of the government at "blind" reverse auctions
- In February 2019, the government announced another \$2 billion funding for the *Climate Solutions Fund (CSF)* to deliver another 100 million tonnes by 2030

Australian Carbon Market

Australian Carbon Credit Units (ACCUs)

What are ACCUs? Australia's own Certified Emissions Reduction Units
How are they created?

24 Avoidance Methods

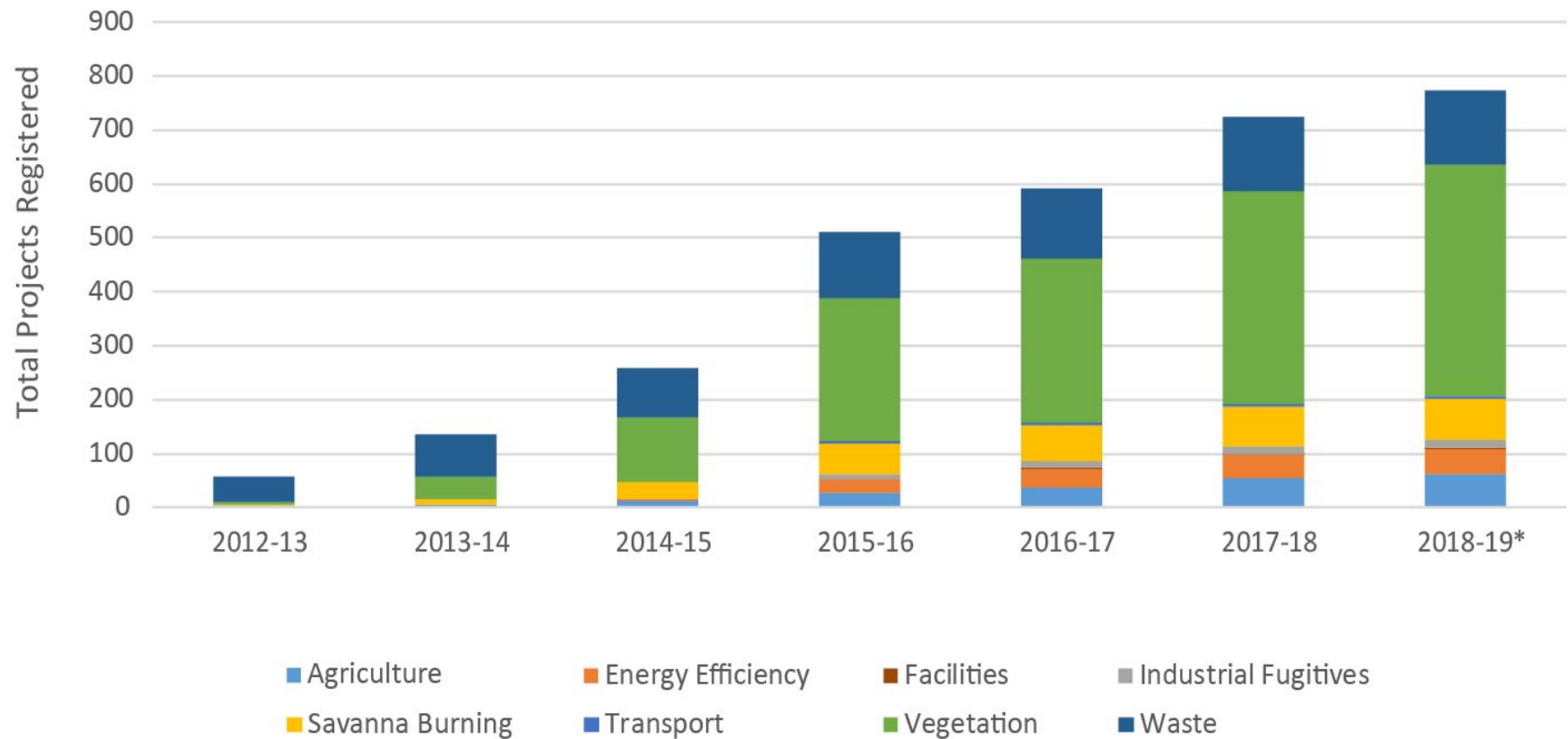


12 Sequestration Methods



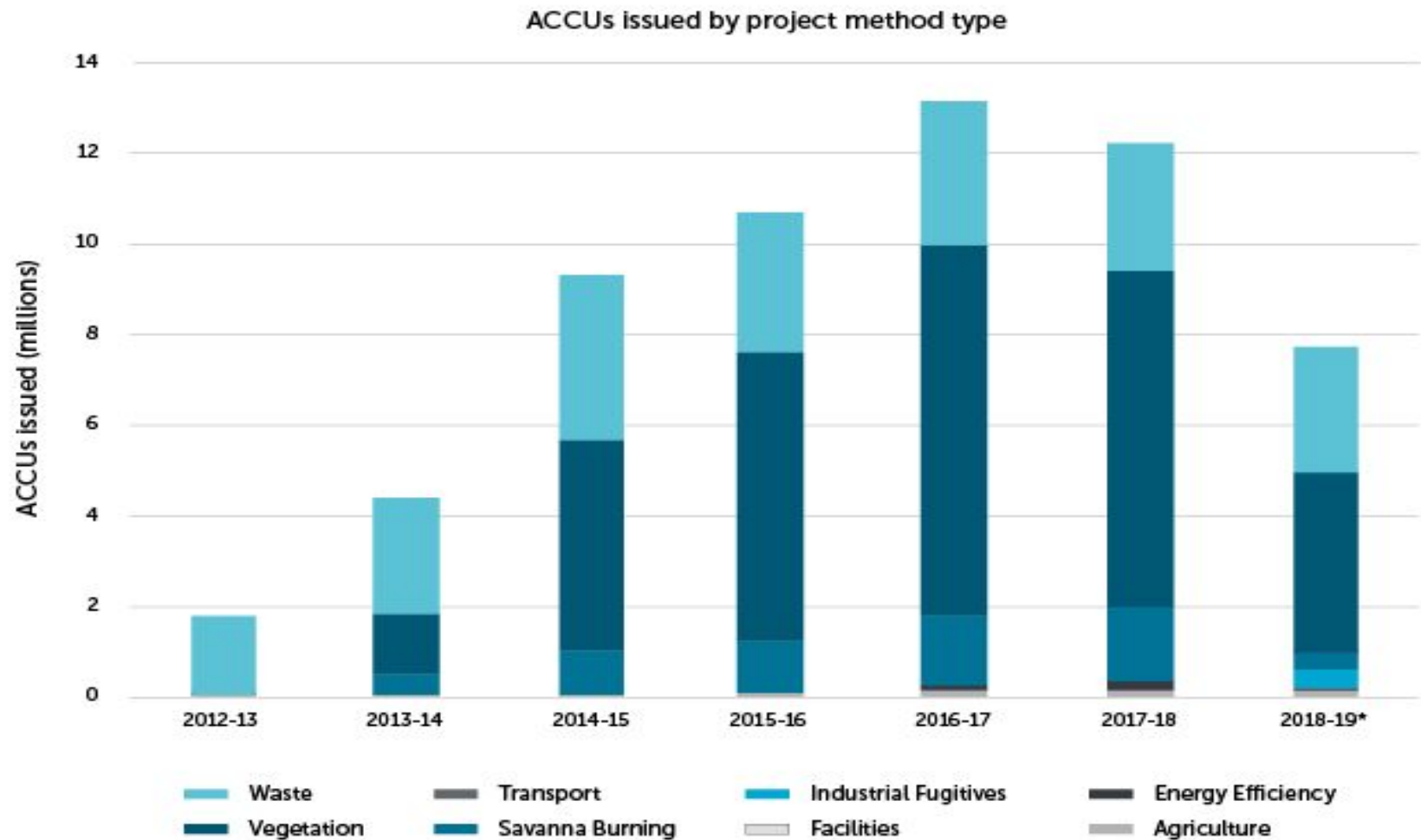
Australian Carbon Market

Total ERF projects registered by year & by method (cumulative)



Australian Carbon Market

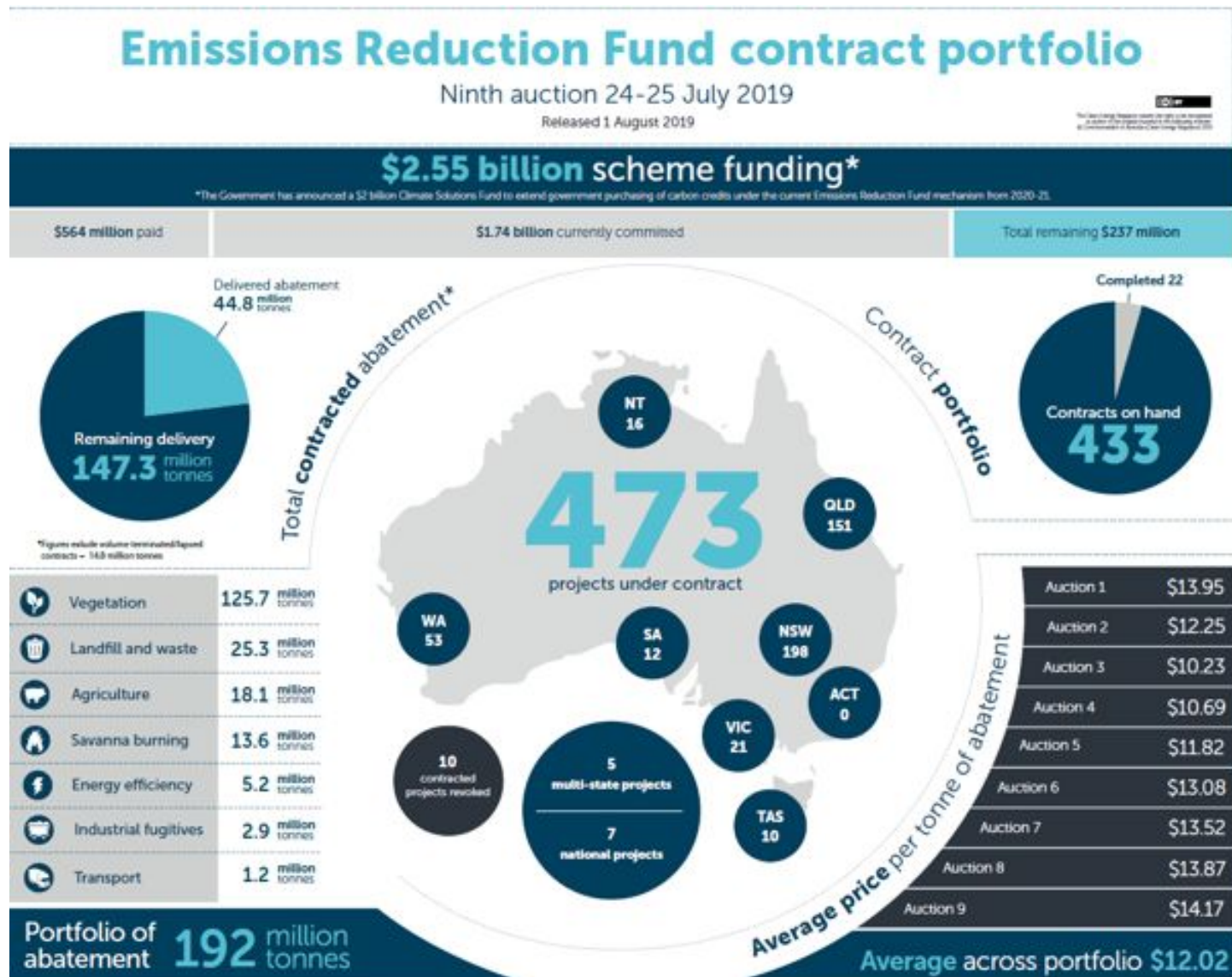
ACCUs Issued to various method types - supply is constrained



Australian Carbon Market

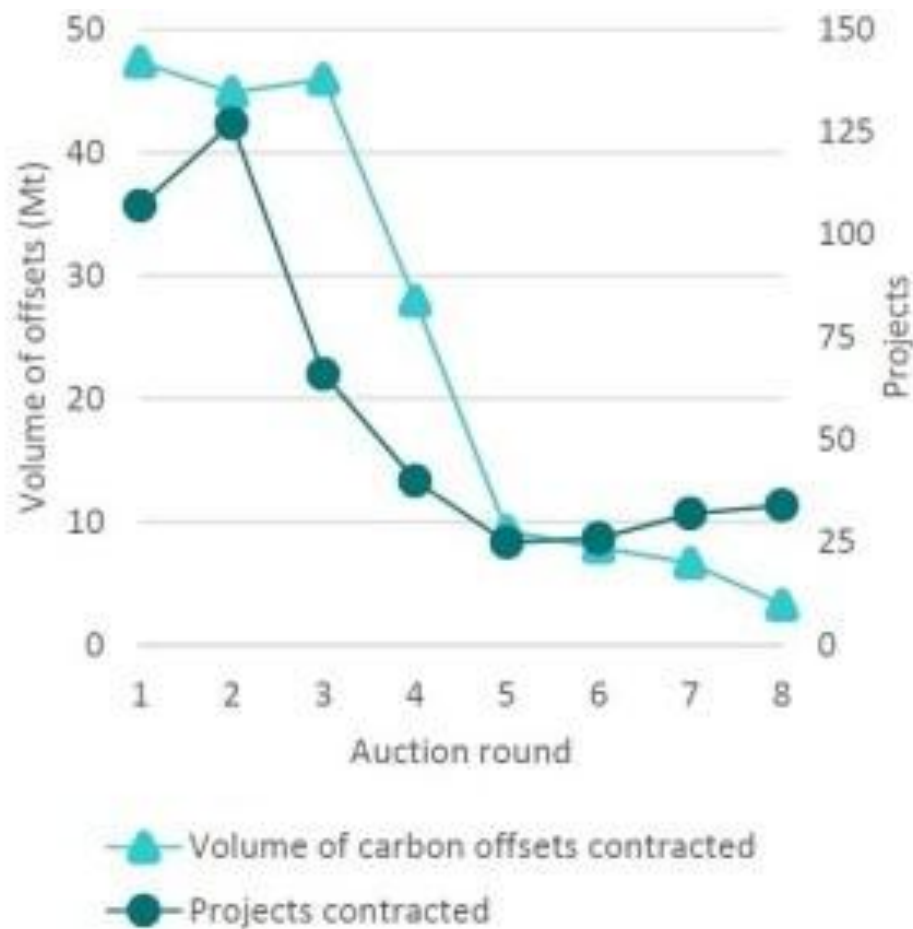
Government Purchasing - primary buyer of ACCUs

Source: Clean Energy Regulator 2019



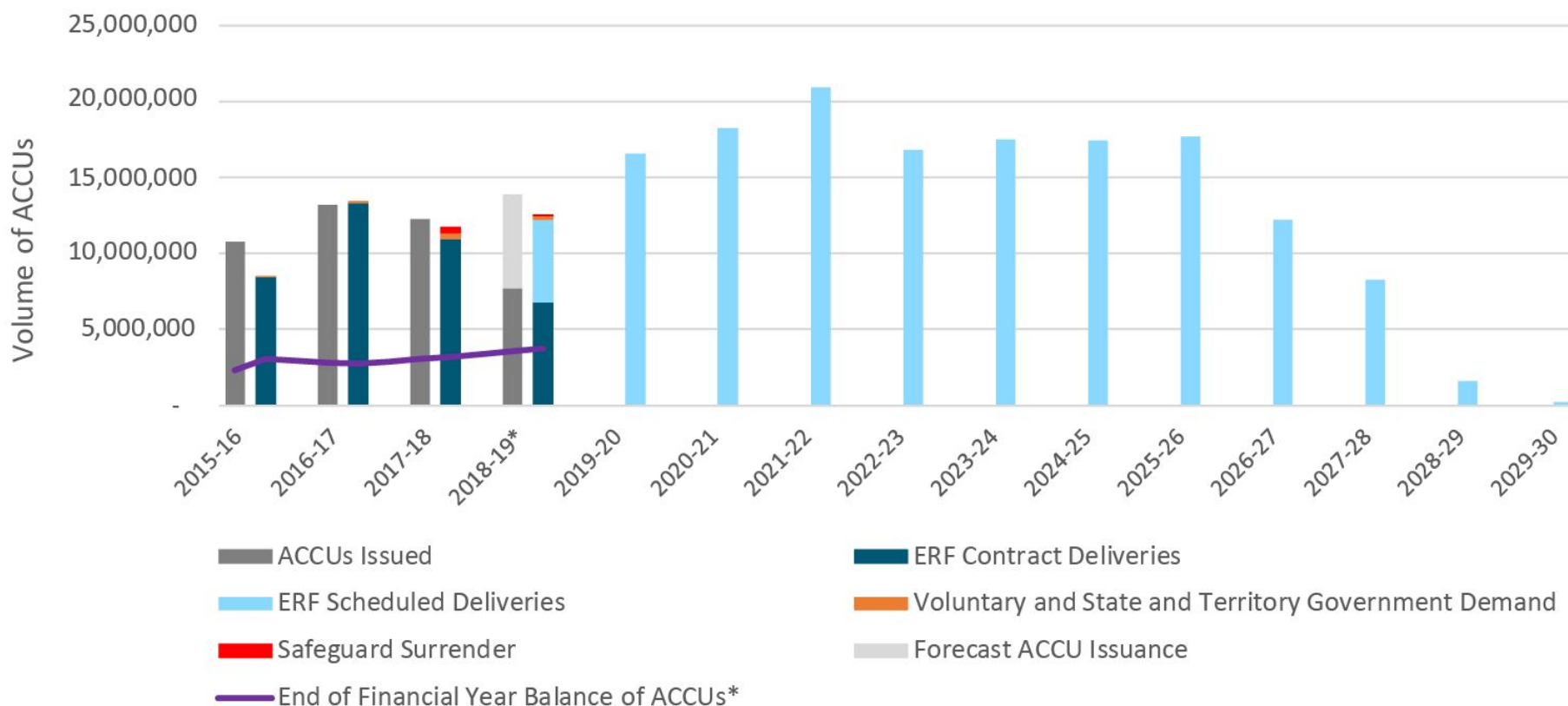
Australian Carbon Market

Government Purchasing - primary buyer of ACCUs



Australian Carbon Market

Purchasing of ACCUs



Australian Carbon Market

Non-Government purchasing: Safeguard Mechanism

The safeguard mechanism is designed to protect taxpayer funded emissions reductions from being displaced by significant increases in emissions by industry above BAU.

Companies (currently 211) that emit 100,000 t CO₂ plus, annually are captured by this element of the ERF and they are required to report. If they exceed their baseline they must purchase ACCUs on the secondary market.

Companies captured by the safeguard mechanism are publicly listed and include:



Australian Carbon Market

Non-Government purchasing: Safeguard Mechanism

2016–17 Reporting year summary

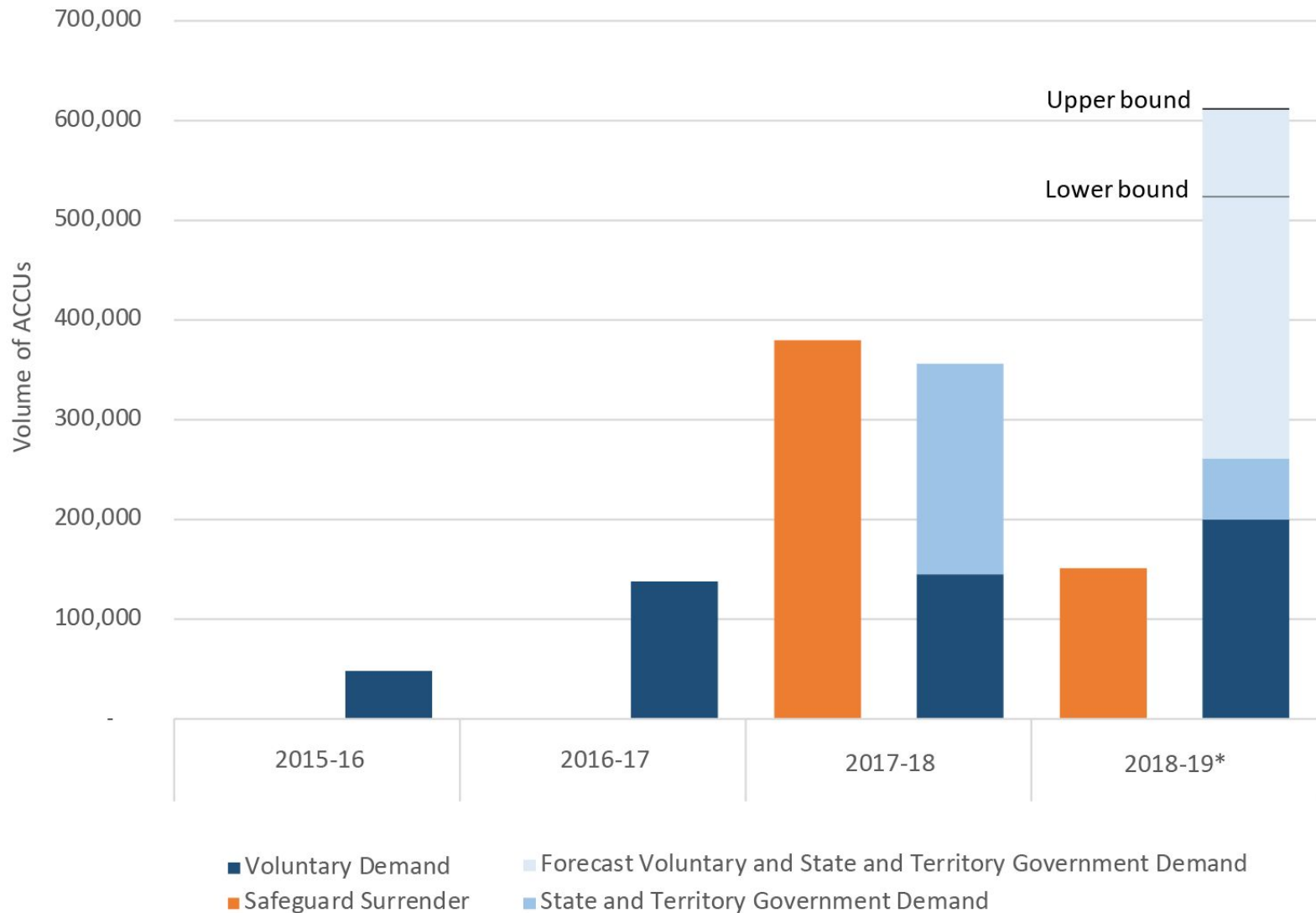
Description	Total
Facilities covered under the safeguard mechanism	203
Combined covered emissions (million tonnes CO ₂ -e)	131.3
Multi-year monitoring periods	6
Baseline variations	2
Australian carbon credit units (ACCUs) surrendered	448,097

2017–18 Reporting year summary

Description	Total
Facilities covered under the safeguard mechanism	211
Combined covered emissions (million tonnes CO ₂ -e)	138.4
Multi-year monitoring periods in place	17
Baseline variations	2
Australian carbon credit units (ACCUs) surrendered	259,528

Australian Carbon Market

Emerging demand for ACCUs



Australian Carbon Market

Voluntary Purchasing: National Carbon Offset Standard

Gold Standard®

EMISSIONS
REDUCTION
FUND



Verified Carbon
Standard

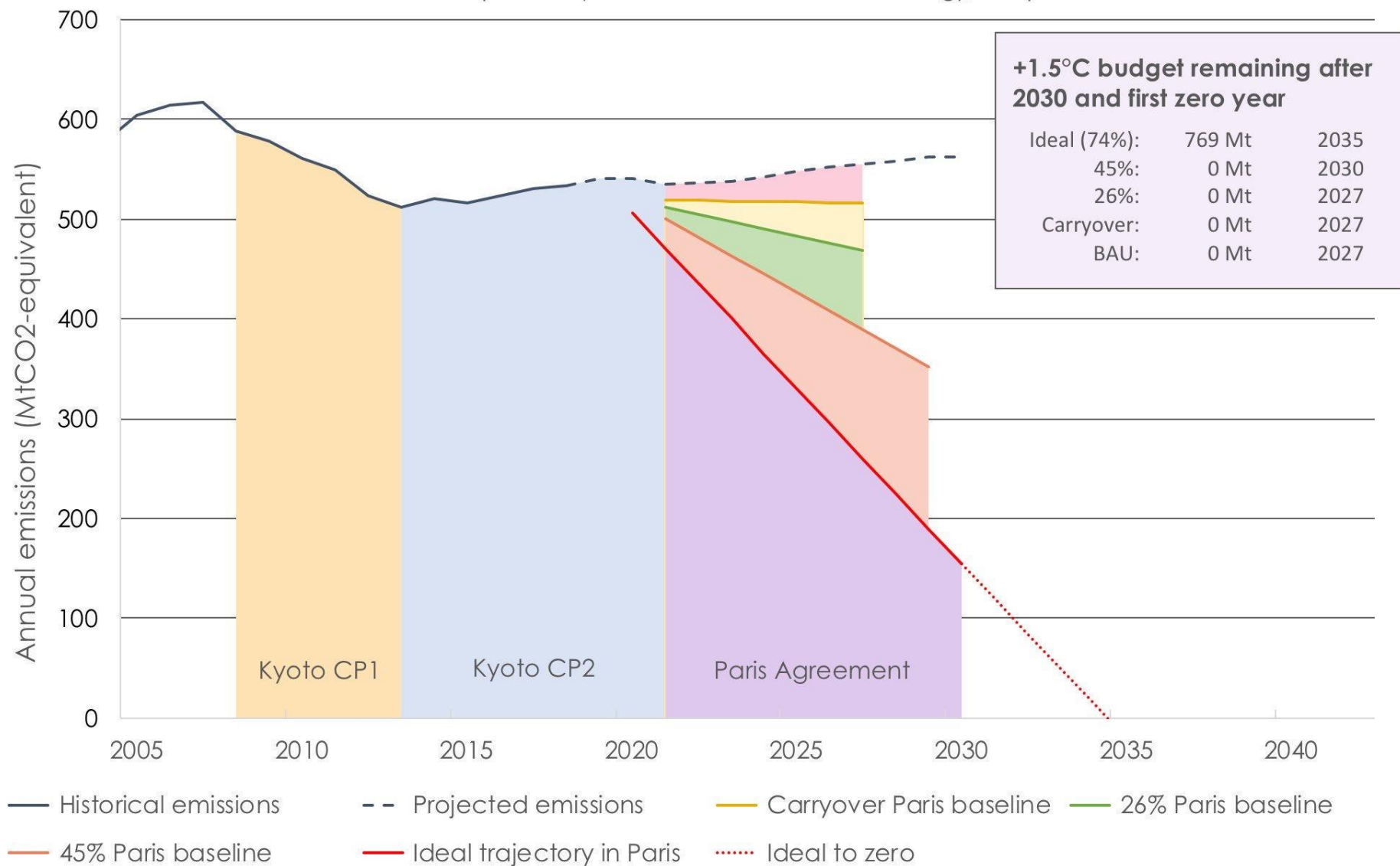


An Australian Government Initiative

Australia's Emissions Trajectory

+1.5°C compliant pathways after 2030 (above true pre-industrial)

(Data: Department of Environment and Energy, 2018)



Australian Carbon Market

Emerging Trends in Government Policy

Climate Solutions Fund

The Climate Solutions Fund will partner with industry to reduce emissions, and increase productivity and efficiency across the economy, as well as continuing to give farmers, small businesses and indigenous communities the chance to improve the local environment and benefit from new revenue streams.



Queensland Government

Land Restoration Fund

\$500 million to support and-sector projects that deliver clear environmental, social and economic co-benefits.

Northern Territory

Aboriginal Carbon Industry Strategy

Northern Territory Government is committed to supporting economic development on Aboriginal land
Research into secondary offset markets, looking at the evaluation of associated benefits
Work collaboratively with Federal Government



Australian Government



Climate Solutions Package

ERF/CSF Offsets Integrity Standards

Overseen by Emissions Reduction Assurance Committee (ERAC)

The offsets integrity standards are the legislated criteria that all methods under the Fund must meet. They are based on international standards and ensure carbon credits issued under methods represent real emissions reductions that may be counted towards meeting Australia's international emissions reduction obligations.

There are 6 offsets integrity standards contained in section 133 of the Act:

1. **Additionality**
2. **Measurable and verifiable**
3. **Eligible carbon abatement**
4. **Evidence-based**
5. **Project emissions**
6. **Conservative**

Methods and variations must satisfy all of the standards.

ERF/CSF Method Prioritisation

Questions for any proposed 10 Desert methodology

METHOD PRIORITISATION QUESTIONS



What is the potential uptake of the emissions reduction activity and the likely volume of abatement?

Is the activity cost effective, what is the level of business support for the activity, and what is the potential volume of abatement from the activity?



Is the activity ready?

Is the technology proven and commercially ready?



Can emissions reductions be estimated with a reasonable degree of certainty and at an acceptable cost?

How straightforward is the approach to estimating emissions reductions?



Are there any adverse impacts?

Could the activity have adverse social, environmental or economic impacts?



Could the activity be promoted more efficiently through other measures?

Is there another method, other mechanism or government program better suited to the activity?



ERF/CSF Method Prioritisation

Questions for any proposed 10 Desert methodology



Is the activity beyond business as usual?

Is the abatement unlikely to occur in the ordinary course of events?



Can the emissions reductions be measured and verified?

Can estimates be accurately measured and are they capable of being verified?



Is the abatement eligible?

Does the method align with Australia's greenhouse gas inventory approaches and international reporting obligations?



Is it supported by evidence?

Is the method supported by clear and convincing evidence?



Are material emissions from the activity deducted?

Are emissions that would occur as a result of the activity deducted when working out the estimated abatement from the project?



Are the estimates conservative?

Is there evidence to demonstrate estimates, projections and assumptions are conservative?



ERF/CSF Method Prioritisation

Questions for any proposed 10 Desert methodology

OTHER PRACTICAL QUESTIONS



Are there hazards associated with the activity?

Will the method pose risks to people, such as work health and safety risks?



Would the potential method need additional support to be effective?

Are any tools, calculators or models needed to operationalise the proposed method?



Are there other benefits to the activity?

Does the potential method present other benefits to the economy, environment, or communities?



Is the potential method practical and cost effective?

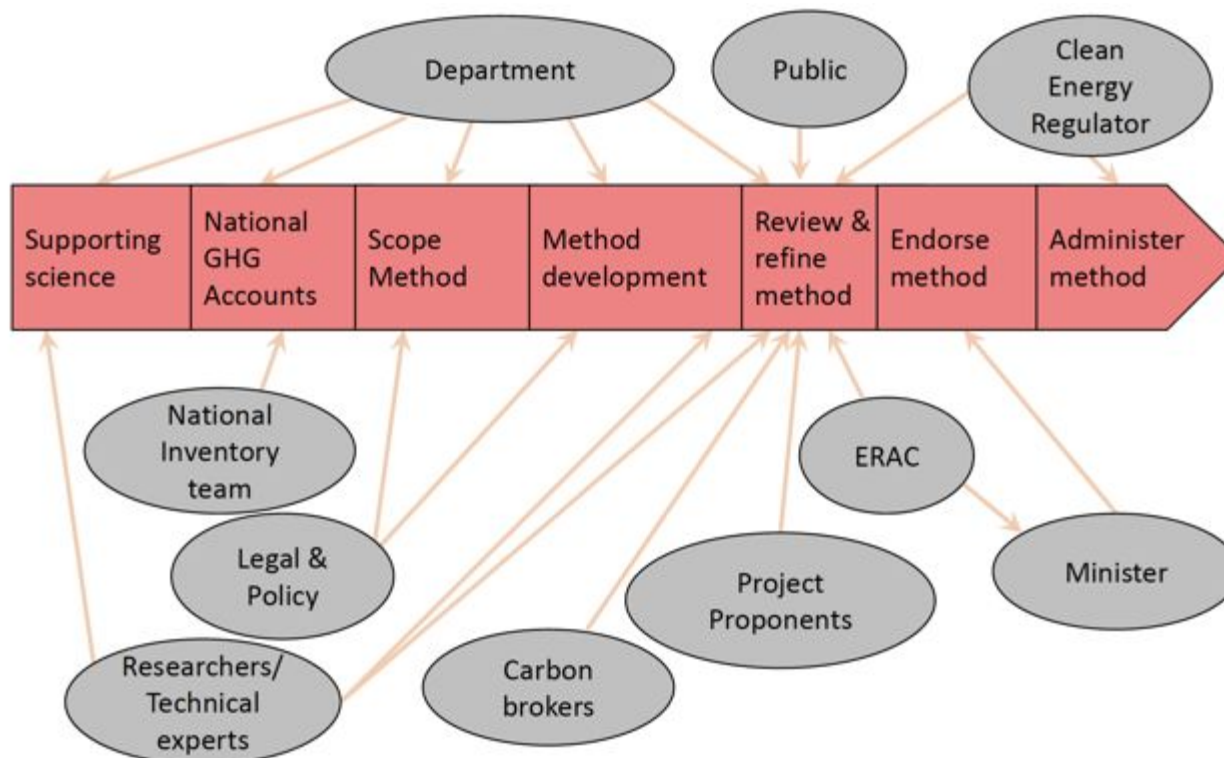
Will the potential method be financially viable for potential project participants? Will the Clean Energy Regulator be able to practically implement the method?



ERF/CSF Method Development

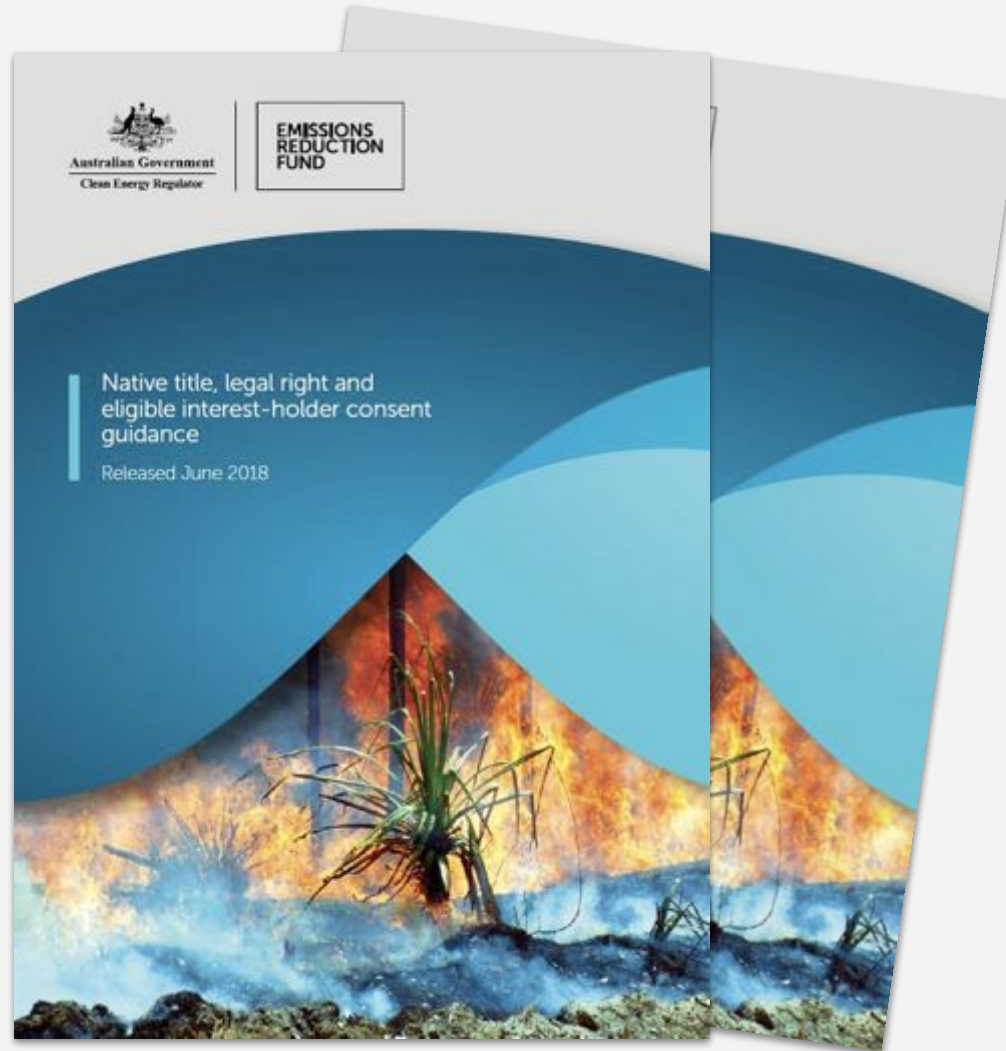
3-6 year process currently run by Dept of Environment

Who contributes to method development?



ERF/CSF Project Considerations

Native Title, Legal Right & Eligible Interest Holder Consent: CER Guide



4. ERF State of Play: Western Australia



WA registered ERF Projects

Approx 4 M ACCUs issued for 117 projects (some revoked)

6740

WESTERN AUSTRALIA

SAVANNA BURNING

PROJECT METHOD	PROJECTS	ACCUs ISSUED
Savanna Burning	8	971,989
Total	8	971,989

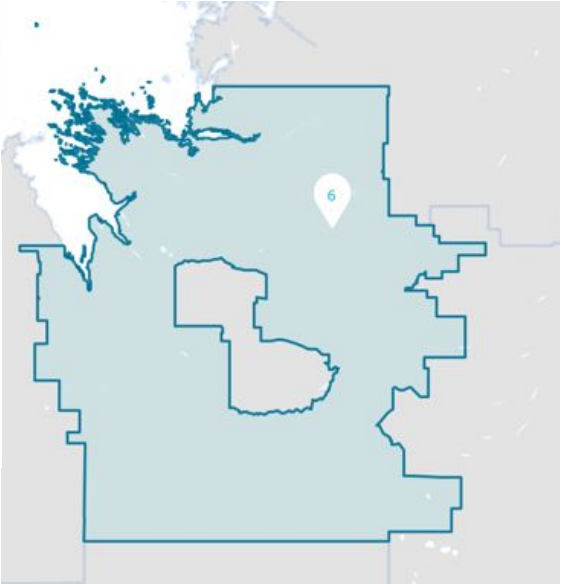


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WESTERN AUSTRALIA

SAVANNA BURNING

PROJECT METHOD	PROJECTS	ACCUs ISSUED
Savanna Burning	6	485,548
Total	6	485,548

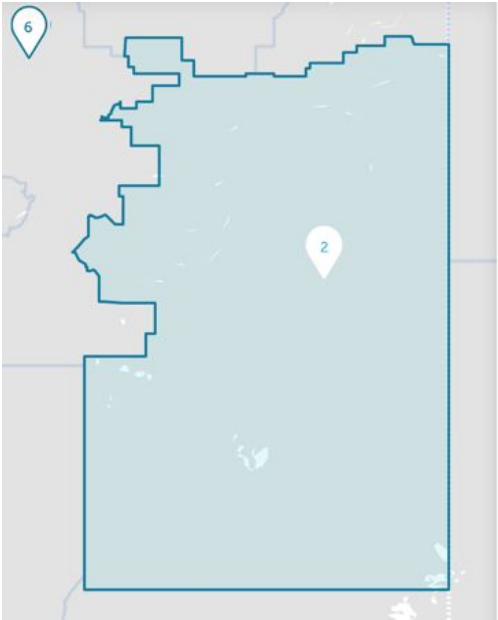


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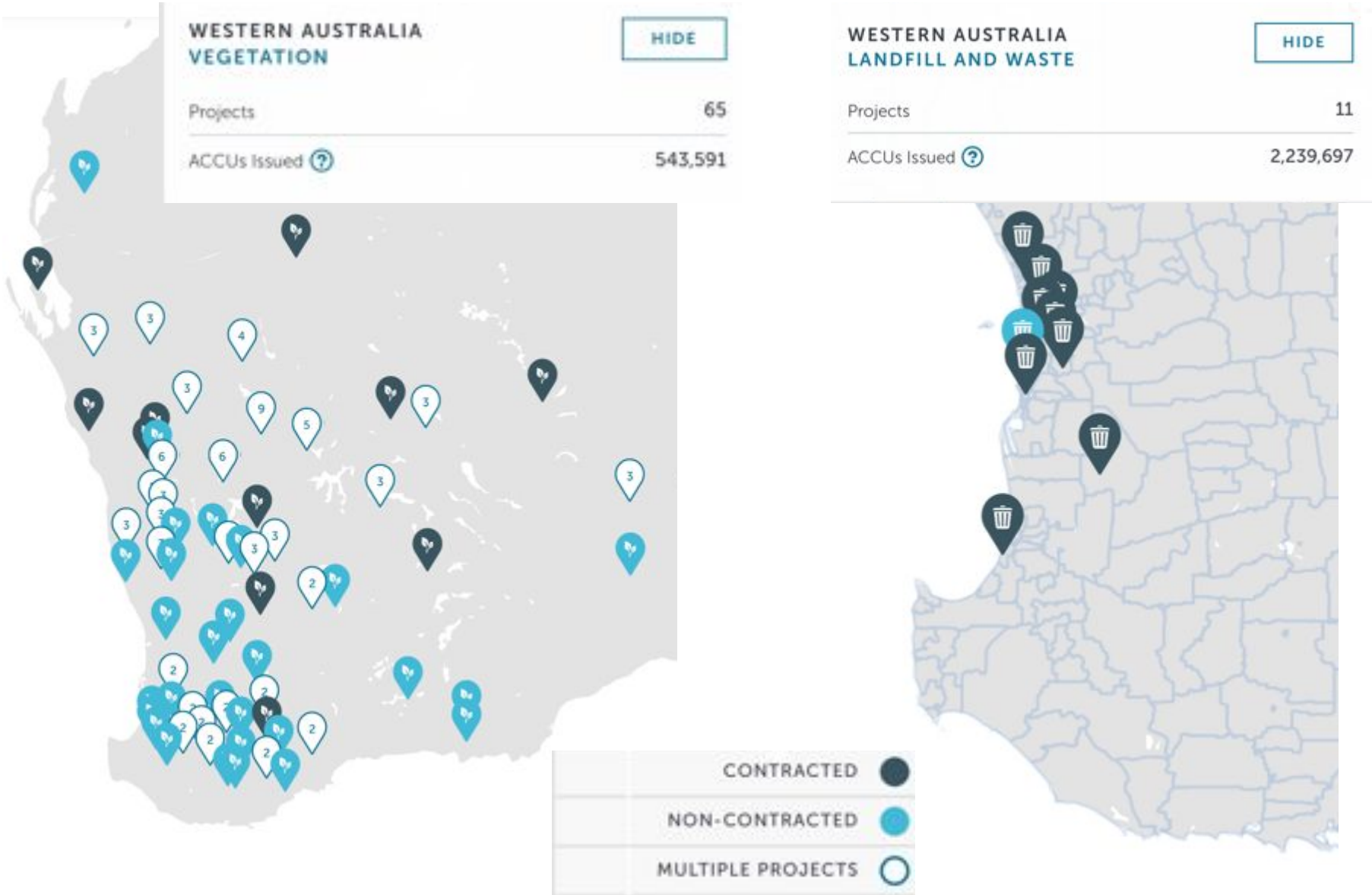
WESTERN AUSTRALIA

SAVANNA BURNING

PROJECT METHOD	PROJECTS	ACCUs ISSUED
Savanna Burning	2	0
Total	2	0



WA registered ERF Projects



4. Workshop Exercise

