



# **MINUTES**

## **Climate Change Working Group Meeting**

**28 November 2022**

**MINUTES OF THE KYOGLE COUNCIL  
CLIMATE CHANGE WORKING GROUP MEETING  
HELD AT KYOGLE COUNCIL CHAMBERS, KYOGLE  
ON MONDAY, 28 NOVEMBER 2022 AT 9.45AM**

**Meeting commenced:** 9.45 am

**Acknowledgement of Country**

Cr Maggie May (Chair) acknowledged that the meeting was being held on the traditional lands of the Bundjalung people and acknowledged Elders past, present and emerging.

**Present:** Cr Maggie May (Chair), Dr Terry De Lacy, Kieran Somerville, John Redmayne, Robyn Lucienne, Matt Sorenson, Maree Brennan, Scott Antcliff, Judy Faulks.

**Guests and Presenters:** Stephen Conrad (NCLLS), Dr Cathy Waters (NSW DPI), Lelia Kamphorst (NCLLS), Theresa Adams (NCLLS), Peter Kelly (Kyogle Council).

**1. Apologies**

Dr Arthur Webb, Chris Hoare, Graham Kennett, Cr John Burley, Cr Tom Cooper, Cr Robert Cullen (alternate delegate).

**2. Confirmation of Minutes**

The Working Group agreed to confirm the minutes of the Climate Change Working Group meeting held on 26 September 2022. **MOVED:** Robyn Lucienne **SECONDED:** Terry De Lacy

**3. Correspondence**

**3.1 Inwards - Nil**

**3.2 Outwards**

**3.2.1 Delegates Report from CCWG to November 2022 Council meeting**

CCWG September Minutes and Action Plan were provided with the Delegate's report to the Council meeting. The four motions put to Council were carried.

That Council:

1. Receives and notes the report, *Delegates Report: Cr Maggie May – Climate Change Working Group*;
2. Consider moving to alternative solutions for hot water supply at its facilities such as heat pumps and renewable energy rather than gas;
3. Start transitioning small plant and equipment from petrol/diesel power to battery as they require replacement and the technology improves; and
4. Approve a preliminary market review and needs assessment for a microgrid for the Kyogle Local Government Area (LGA) as outlined in the 100% renewables proposal with funding of \$12,000 sourced through the Community Asset Business and Management/ Marketing Plans component of the Local Government Recovery Grants Program of Works.

**3.2.2 Community Newsletter Article on Energy (September 2022)**

Extract of article provided.

**4. Presentation by North Coast Local Land Services (LLS) and NSW Department of Primary Industries (DPI) – Working towards reducing greenhouse gas emissions in the agricultural industry (in particular the cattle industry) – North Coast Local Land Services (NCLLS) and NSW Department of Primary Industries (DPI).**

**Officers representing NC LLS (Coffs Harbour) were:**

Stephen Conrad, Land Services Officer, Strategy Planning and Investment  
Lelia Kamphorst, Team Leader, Sustainable Agriculture  
Theresa Adam, Team Leader, Planning and Investment

LLS provided an overview of customer and environmental market services – focussed farmer and rural landholder support (presentation will be distributed with the minutes). LLS take what is best practice (e.g. for beef/dairy industry) and connect back to landholders to assist them: to make better informed decisions about the land they manage; help landholders achieve their land management aspirations; assist rural communities to be more productive and sustainable; respond to enquires about sustainable agricultural production, biosecurity, invasive species, natural resource management, and emergency assistance. LLS provide advice, education (*ad hoc* or targeted), extension (done in partnership with expert research), referral, project delivery, governance and planning (developing organisational strategic direction). Support is available from LLS to run workshops. On the North Coast ~80% of region's ratepayers are beef/dairy producers.

Environmental Market Services – is a new, emerging space, full of opportunity. The advice provided by LLS must be impartial – can't advise on carbon markets. Project delivery - new opportunities arising; in planning stages. Some areas of advice include: generating and selling credits, market access, rewarding stewardship, whole farm accounting.

**Dr Cathy Waters, Principal Research Scientist, Leader Climate Research, NSW DPI (Climate R&D) (Dubbo)** provided an overview of carbon opportunities in agriculture. A summary of the presentation is provided at the back of the minutes.

Discussion points:

LLS/DPI noted:

- Are developing proformas for farmers on livestock emissions
- Building representative farm – including on North Coast
- Opportunity exists for smaller farms if landholders group together
- Measuring soil carbon – there are some programs available which reimburse some aspects of measuring soil carbon, and landholders can be paid to provide old soil carbon data to government

Discussion took place on whether there was capacity for DPI/LLS to undertake a pilot project within the Kyogle area which may consist of (1) trials (measuring soil carbon, carbon sequestration) – which would capture our small holdings, basalt soils (higher sequestration potential) and higher rainfall (2) provide information back to farmers/landholders, and (3) provide education and awareness activities (e.g. workshops) within the Kyogle LGA? Lelia Kamphorst (LLS) noted that they will submit projects under the funding programs available which would be grassroots projects at a local/regional scale and these projects will tap into DPI research. There are already some regional projects underway involving the Regenerative Agriculture Alliance at SCU (contact is Lorraine Gordon, Director of Strategic Projects, RAA, SCU).

It was agreed that:

- (i) LLS/DPI will run a 'Carbon Forum' in Kyogle LGA in 2023. These Carbon Forums can run over 2-3 days, involve 60-80 people and include site visit/s, and can delve deeper into carbon farming, soil carbon, markets, *etc.*
- (ii) LLS will investigate further the possibility of a carbon project, including education and awareness, that could be run in the Kyogle LGA. LLS will liaise further with Agriculture Focus Group.

#### **5. Overview of Natural Sequence Farming (NSF)- Tarwyn Park Training – Kieran Somerville**

Kieran Somerville provided an overview of the Tarwyn Park Training course she attended on Natural Sequence Farming. A summary of the presentation is provided below and a handout of the presentation will be distributed with the minutes.

- The training was held over 4 days in October 2022 as part of a project instigated by Lismore City Council (LCC), who covered the cost for local landholders to take part in this training in order to learn these practices. LCC would like to see a cross-LGA approach, involving Kyogle LGA. The contact within LCC is Kate Steel. It was agreed that Kate Steel will be invited to the next meeting to discuss further the opportunity for a collaborative cross-LGA landscape hydrological function repair project (building on their successful landscape rehydration program) where funding will be sought from the 'Future Drought Fund'.
- The aim of the project and Natural Sequence Farming is to manage water high up in the watershed to assist with flood mitigation and to improve productivity and biodiversity. Slowing flows within the watershed leads to rehydration of the landscape. It builds resilience to climate change (droughts, floods, biodiversity loss).
- Peter Andrews work on Tarwyn Park in the 1970s included the planting of willows (and reeds) to stabilise creek lines. The use of native riparian vegetation is now the recommended practice.
- Natural Sequence Farming is now an internationally recognised technique for restoring natural landscape functions. Training at Tarwyn Park started in 2012 - refer to Tarwyn Park Training website for further information: <https://www.tarwynparktraining.com.au/>
- The 5 pillars of Natural Sequence Farming is: (1) Slow the flow, (2) Let all plants grow, (3) Careful where the animals go, (4) Filtration is a must know, and (5) Return to the top to recycle the lot.
- There are 3 key steps in a natural sequence: (1) Rehydrate the landscape by slowing the flow of water and nutrients, promoting water intake and storage capacity, (2) Rehabilitate the landscape promoting biodiversity of all plant life, restoring eroded systems, and (3) Regenerate the landscape by implementing these steps, therefore sequestering carbon, increasing organic matter, improving fertility and creating greater biodiversity and nutrient cycling.
- The 3 critical areas of a naturally functioning ecosystem are: (1) Accumulation Area – where nutrient water and fertility begins, however is often the least fertile due to leaching run off. These areas are often vegetated with trees, shrubs, coarser grasses and weeds. (2) Production Area – is where grazing, cropping, etc occur. The fertility from the Accumulation Area feeds this part of the landscape. These areas often have pasture, weeds and sparser trees and shrubs. (3) Filtration Area – is predominantly located in the floodplains of the landscape. It is the area in which nutrient water leached from above is filtered through wetlands. This area is highly sensitive to livestock, therefore is generally used as a fertility collection area, where material can be moved back up to the higher parts of the landscape as feed, mulch or compost. All these areas are connected together through steps. The landscape has a stepped system moving down from the higher parts to lower parts.

- It is important to read the landscape and locate steps as it is at these steps in the landscape where contours are placed to slow the flow and allow infiltration, recreating the connection between low wet areas and high dry areas.
- Refer to handout for a full listing of references.

**Action:**

- (1) Kieran Somerville to invite Kate Steel (LCC) to the next meeting to provide further details of a planned collaborative cross-LGA landscape hydrological function repair project (building on their successful landscape rehydration program) where funding will be sought from the 'Future Drought Fund'.

**6. Update on Council's resolution to seek proposals on current and projected climate change impacts on Kyogle LGA and develop a climate change adaptation risk assessment and action plan to strengthen community resilience**

In June 2022 Council passed a resolution from the CCWG (Action 5.1 13/9/21) to:

- (i) Seek proposals for a report on current and projected climate change impacts relevant to the Kyogle LGA from a qualified body using the most up to date data and IPCC modelling.
- (ii) Seek proposals for the development of a climate change adaptation risk assessment and action plan to strengthen community resilience to the projected impacts of climate change.

To implement this resolution, discussions have been taking place with NSW Government (Branches within Office of Energy and Climate Change) since July requesting assistance in commissioning a report/s on climate change that includes:

- An analysis of the current and projected impacts of climate change on the Kyogle LGA, based on the most current data and modelling (e.g. IPCC or other government endorsed modelling)
- Based on the above analysis, an assessment of key risks for the Kyogle LGA
- Based on the risk assessment, an adaption strategy/action plan to address key risks/impacts of climate change in the LGA.

The most recent advice from the climate change adaptation team (Office of Energy and Climate Change) is that a Local Government Climate Change Toolkit is due for release early next year. The Toolkit sets out step-by-step how to identify and assess risks of climate change and formulate an adaption strategy/plan in response. The Toolkit can be completed by Council or a consultant can be engaged to complete the process for Council.

The background document and resource being developed by the CCWG (Item 7) will assist with developing a final climate change adaptation risk assessment and action plan.

Next steps: Review the Local Government Climate Change Toolkit, once released by NSW Government, to see if it meets all our needs. The Toolkit will be referred to the Working Group. Draft up a Scope of Works for review by the Office of Energy and Climate Change – seeking EOIs from consultants to provide a brief back to Council on what they could provide in terms of this project, including costings. The Toolkit, or aspects of it, would form the basis for these works.

**7. Background document and resource to assist with developing a final climate change adaptation risk assessment and action plan**

Further discussion took place on the purpose and scope of the document, which has been circulated as a draft climate change action plan, in order to finalise a document outline.

The Working Group agreed that the purpose of this document is as a background document and resource to assist with completion of a document outlined in item 6 (i.e. which will explore for the Kyogle LGA (i) current and projected impacts of climate change, (ii) assessment of key risks, and (iii) produce an adaptation strategy and action plan to address key risks and impacts of climate change in the Kyogle LGA). Toolkit and this background document will be used for the final document which will look at adaptation for the wider community (i.e. Kyogle LGA) and may update current Council documents. Need to ensure 'gaps' are captured in any strategy and action plan. This background document is a work in progress and all comments are being put in original document by Robyn Lucienne.

It was agreed that adaptation versus mitigation measures both need to be considered in the final climate change adaptation risk assessment and action plan.

### **8. Update on application made under EV Destination Charging Grants**

In November 2022, Kyogle Council submitted an application for four EV charging stations under EV Destination Charging Grants. Sites for the EV charging stations were: Kyogle Museum, Bonalbo Norman Johnston Park, Tabulam Sports Ground and Woodenbong Recreation Reserve. Fees will apply to ensure full cost recovery on a user pays basis. It was noted that under this grant 'destination' chargers are aimed at rural areas and take approximately 6-8 hours to charge an EV whereas fast chargers are for metropolitan areas.

### **9. Action Plan – Status** (copy provided)

Full listing of actions since Working Group commenced – available on Google Drive.  
Current Action Plan provided.

Action 9.1 25/7/22 – This action has been superseded. Council has moved well beyond the actions outlined in this Local Government Climate Emergency Toolkit. Update action.

Action 5.1.1 30/5/22 – Fleet vehicles, heavy plant and equipment recommendation to Council: Council commit to replacing fleet vehicles, heavy plant and equipment with alternative renewable fuel, hybrid and EV as they become available. Need to look at feasible targets for each class of vehicle and plant. UPDATE TO THIS ACTION: It was agreed that the Working Group would recommend to Council that an assessment of where things are at with alternative fuel, hybrid and EV be sought.

Action 9.1 26/9/22 – Put status as 'Work in Progress'.

### **10. Climate Change Resource Guide**

Working Group members to continue to forward any additional documents for inclusion in the Climate Change Resource Guide. Quarterly updates will be carried out. Robyn will update the Guide following today's presentation. Consider how to promote online Guide – e.g. Facebook.

### **11. Agenda Items for Next Meeting**

**12. Close of Meeting:** 12.30 pm

**13. Next Meeting**

The next meeting will be held on Monday, 6 March 2023 at 9.30am (for morning tea) with the meeting to commence at 9.45am-12.30pm in the KMI Hall Supper Room, Roxy Lane, Kyogle.

The following are proposed meeting dates for 2023 (to be held on a Monday): 6 March, 1 May, 17 July, 18 September, 20 November. Meeting invitations will be sent out for the entire year.

**The minutes of this meeting were confirmed at the Climate Change Working Group Meeting held on 6 March 2023.**

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**MAGGIE MAY, CHAIRPERSON**

**Item 4 Summary of presentation by Dr Cathy Waters, Principal Research Scientist, Leader Climate Research, NSW DPI (Climate R&D) (Dubbo)**

**DPI Capability** - NSW DPI has 20 key research stations state-wide (Wollongbar and Grafton fall within this region), and is internationally recognised for their science focusing on agriculture, plants and animals. Applied R&D in agriculture, fisheries, forestry and biosecurity (research is applied by LLS). Two-thirds of productivity growth in broadacre agriculture. Partners include producers, universities and industry. Key strategic outcome: carbon neutrality and resilience. Undertaking climate R&D.

**Drivers for decarbonisation in agriculture (livestock)**

- Climate change
- Changing consumer demand

**Options for carbon management and market participation**

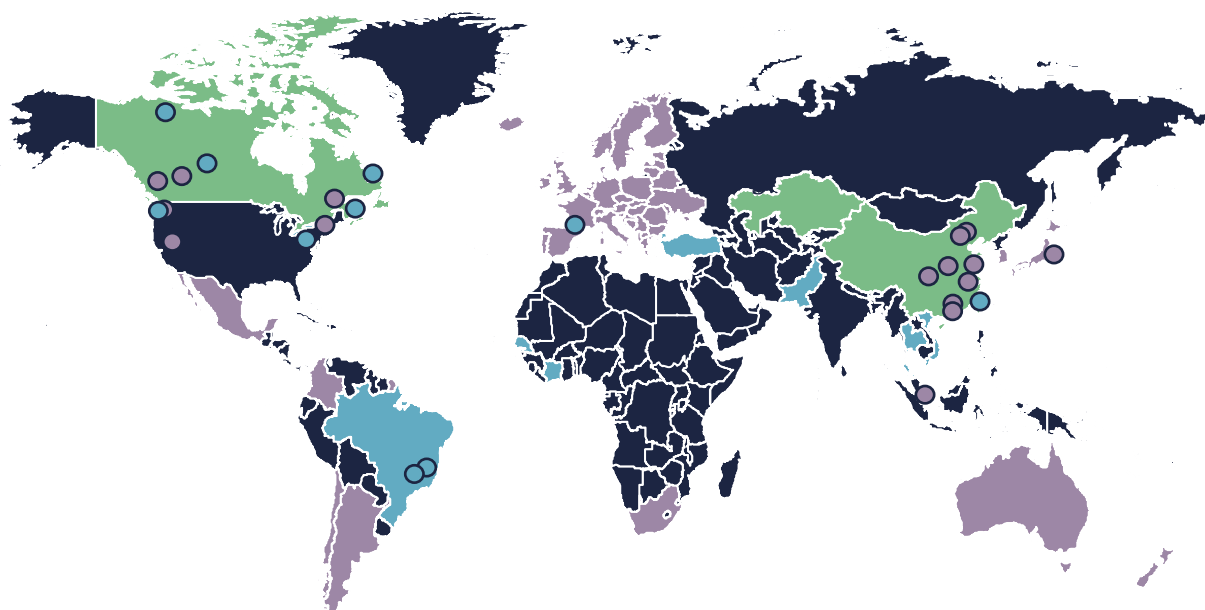
- Manage carbon efficiency
- Market opportunities
- Decarbonisation transition (technology pipeline and capacity building)

**Drivers – Coming from global market signals** (cross-jurisdictional policies to address climate change) – focussed not only on emissions but on the impact on the environment.

Some of the messaging that has arisen – “Eat less meat”, “Change food production”, etc.

Key agricultural greenhouse gas emissions are: Carbon dioxide (CO<sub>2</sub>), Nitrous oxide (N<sub>2</sub>O) and Methane (CH<sub>4</sub>). The global-warming potential (GWP), or the relative potency of these greenhouse gases (taking account of how long it remains active in the atmosphere) are: CO<sub>2</sub>=1; CH<sub>4</sub>=25 to 28; N<sub>2</sub>O=265]

Global Carbon markets – our products are going into markets that have a price on carbon.



National or subnational carbon pricing initiatives that are implemented,



**Drivers – Supply chain and consumer demand for sustainable produce**

Consumers want to know about the products they are buying – the supply chain, whether the product is carbon neutral and sustainable.

**Drivers – Federal and State Governments; Industry targets**

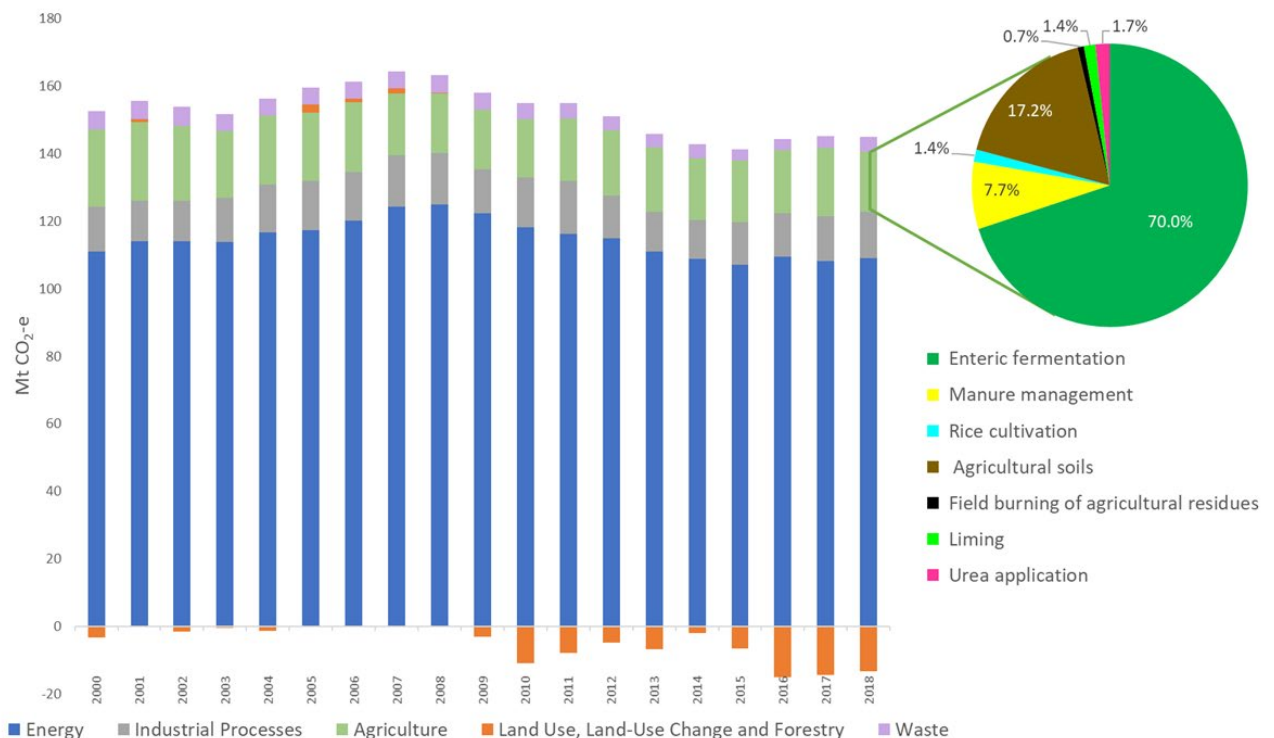
Includes NSW Government’s ‘Net Zero Plan, Stage 1: 2020-2030’ (DPIE)

Meat and Livestock Australia (MLA) is delivering ‘CN30’ (i.e. becoming carbon neutral by 2030) – to be achieved through 4 key areas of work: (1) Greenhouse gas emissions avoidance (2) Carbon storage on farm (3) Integrated management systems, and (4) Industry leadership. CN30 is a coordinated initiative that requires input from and cooperation between all red meat industry stakeholders. An example of research and development is in new feed additives that offer the potential to reduce methane emissions from livestock whilst improving animal weight gain.

In 2020 there is an imbalance. In order to become Net Zero by 2050 – we will need to reduce emissions and offset the remainder.

**NSW Emissions (2018) – Agricultural sector (pale green)**

The figure below shows NSW emissions, highlighting the contribution of agricultural sector in 2018. Negative values for land use, land use change and forestry occur in years when sequestration exceeds emissions from land clearing. 13.6% of NSW total emissions in 2018 was from the agricultural sector. By far the largest emissions source is methane from ruminant livestock (70%), followed by nitrous oxide from soils (17%) and manure management (8%). The remainder comprises carbon dioxide from liming and urea application, methane from rice cultivation and greenhouse gas emissions from residue burning.

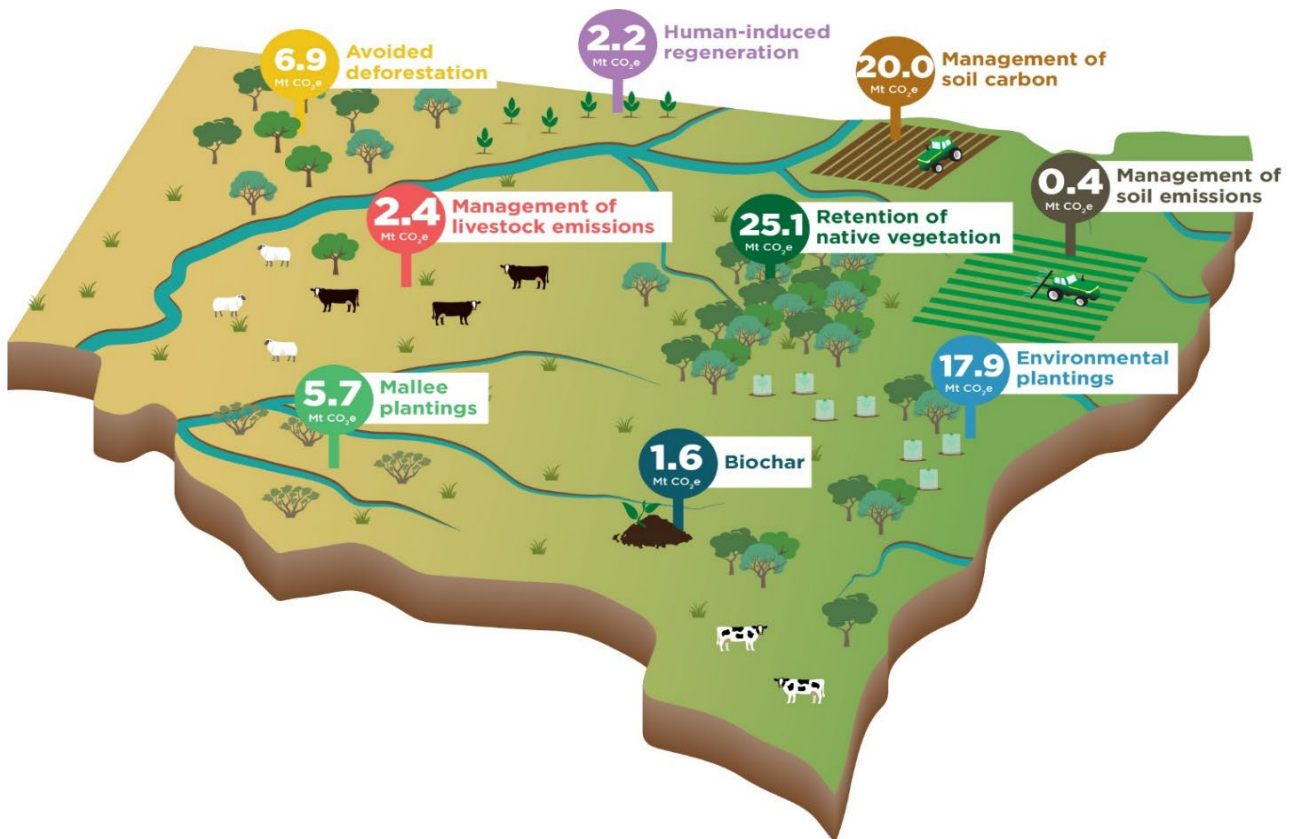


Source: AGEIS [refer <https://ageis.climatechange.gov.au/> which provides detailed greenhouse gas emissions data since 1990 and projections of Australia’s future emissions] and Department of Industry, Science, Energy and Resources (DISER)

**Potential abatement in NSW agriculture** – Modelling to support the NSW Net Zero Plan

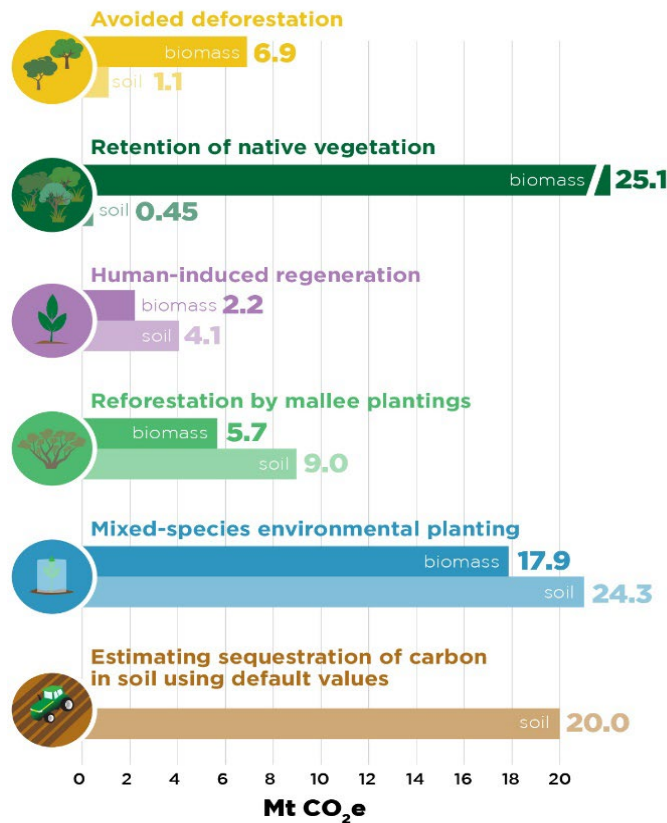
The figure below shows feasible abatement estimates delivered over 10 years (2020 to 2030) from NSW agriculture. Activities are ranked based on their ability to be integrated into existing agricultural land-use and generate income streams for farmers. For vegetation-based sequestration (natural regeneration, environmental and Mallee plantings, avoided clearing) values are cumulative, estimated from activities commencing 2020 and for biomass only. Additional sequestration in soil carbon from vegetation is not indicated. For emissions reduction activities, the value given is the estimated abatement in the year 2030.

Source of figure and information: Waters *et al.* (2020). Abatement opportunities from the agricultural sector in New South Wales: Modelling to support the development of the Primary Industries Productivity and Abatement Program. NSW Department of Primary Industries.  
<https://www.dpi.nsw.gov.au/dpi/climate/Carbon-and-emissions/abatement-opportunities-in-agriculture>



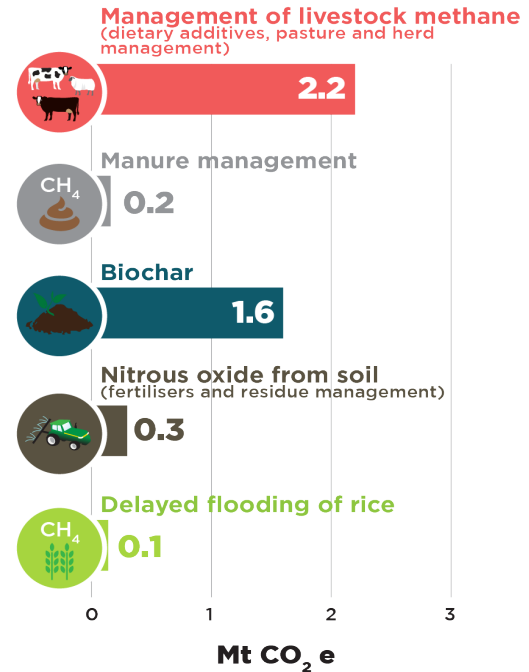
**Sequestration**

Sequestration delivers abatement by increasing carbon in vegetation and soil



**Emissions reduction**

Practices that reduce greenhouse gas emissions from livestock and soil.

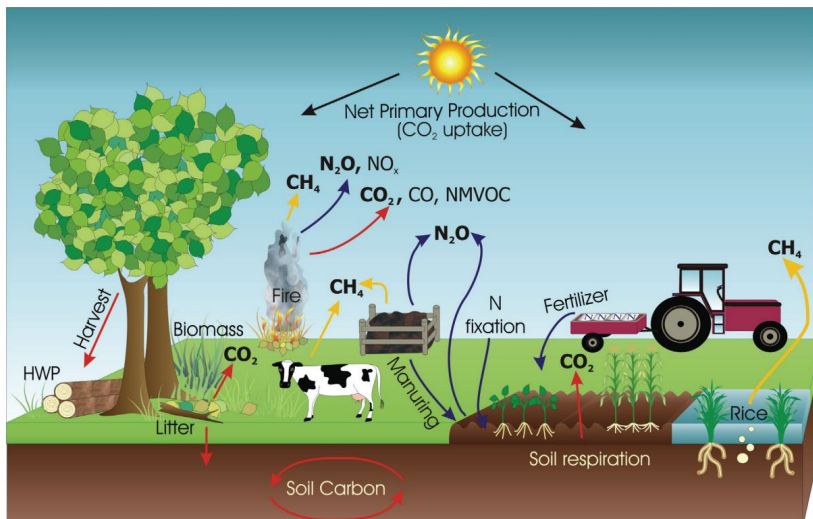


The figures above show NSW abatement potential (2020-2030), including sequestration in biomass and soil and emissions reduction practices, including management of livestock and soil. Source of figures and information: Waters *et al.* (2020). <https://www.dpi.nsw.gov.au/dpi/climate/Carbon-and-emissions/abatement-opportunities-in-agriculture>

**Options for carbon management**

Manage carbon efficiency

- Understanding on-farm sources and sinks [Avoid, Reduce, Insetting (is offsetting within the farm gate), Off-setting]
- Know your on-farm greenhouse gas numbers



- Whole Farm Carbon Plans

## Decarbonisation pathways – technology pipeline

## Factors influencing livestock emissions:

- Feed intake – quality of feed. Low quality feed means high methane emissions.
- Change pasture type – tropical perennials
- Genetics (breed type / EBVs or Estimated Breeding Value)
- Herd size
- Fertiliser use
- Fuel use
- Soil carbon changes
- Adaptation and mitigation opportunities
- Climate

## Factors influencing vegetation-based sequestration:

- Location
- Rainfall
- Land-use history
- Minimising trade-offs

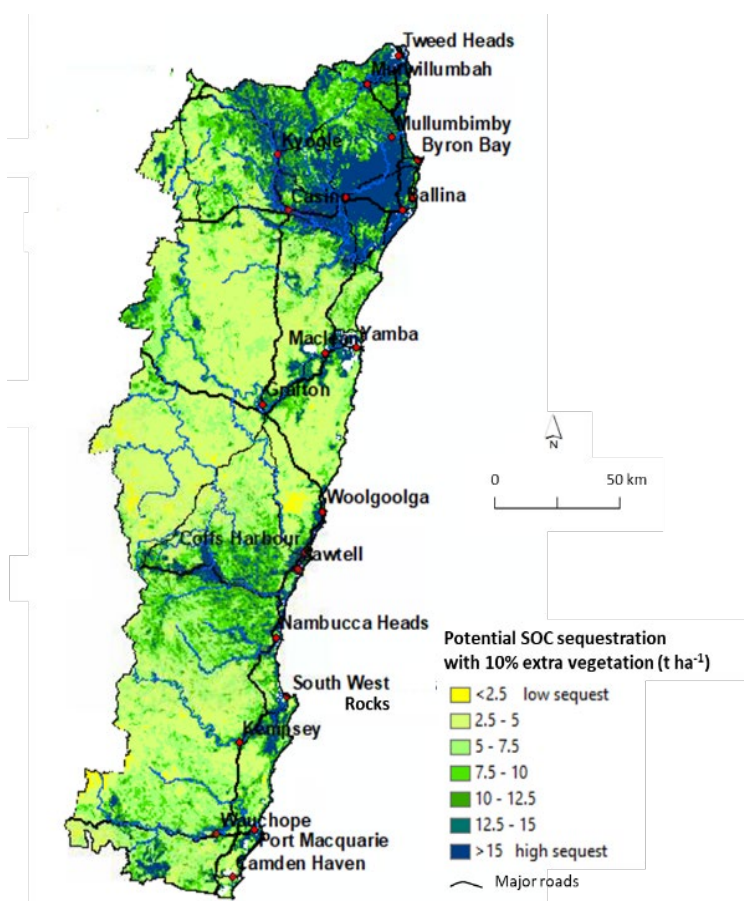
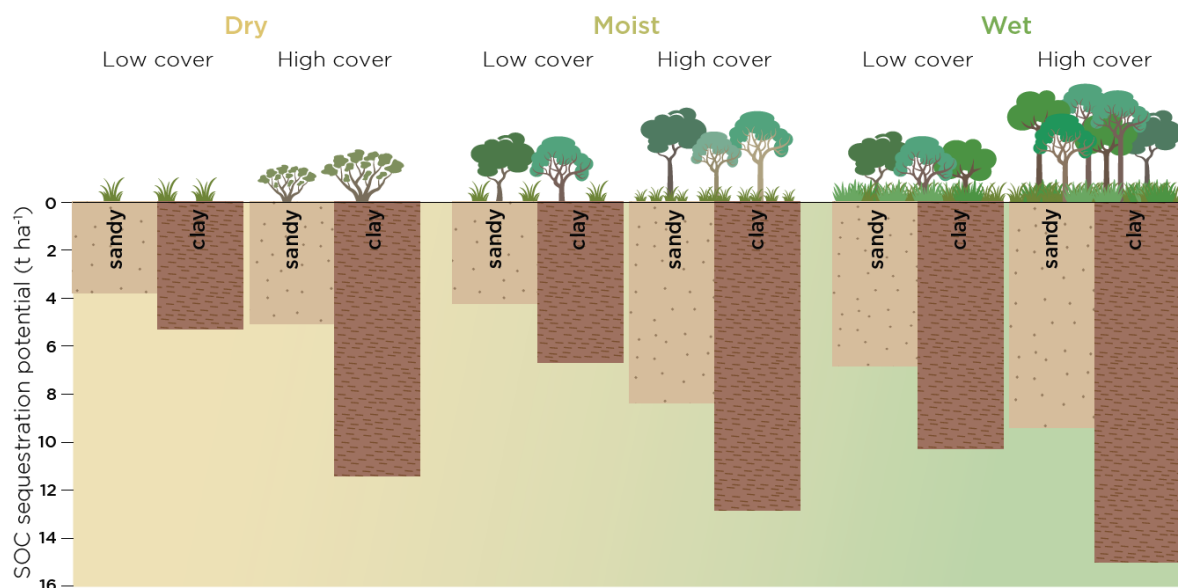


Figure - Potential Soil Organic Carbon (SOC) sequestration with 10% extra vegetation cover for North Coast of NSW

Source: Waters *et al.* (2020).

## Factors influencing soil carbon:

- Location – soil type, landform, *etc*
- Rainfall
- Land-use history
- Sequestration (temporal and spatial variability)



References: Gray *et al.* (2021) *Soil Use and Management*. **38**:229-247  
Wang *et al.* (2021) *Geoderma*. **405**:15442

### Options for carbon management – Energy

NSW DPI is currently implementing 7 pilot projects across 8 sites to demonstrate innovative technologies and practices to improve on-farm energy efficiency, energy security and productivity and to reduce on-farm energy use, costs and emissions. The pilots are being implemented at farms across NSW in intensive sub-sectors including dairy, horticulture and feedlots. Technological solutions demonstrated in the pilot projects include: solar thermal chilled water storage and control systems for milk cooling; electrification of irrigation pumps powered by a solar PV tracking system raised above the ground to enable livestock grazing at the same location; solar PV and battery storage systems; electrification of LPG and diesel fuelled equipment; and peer to peer energy trading. Once completed, the pilots will enable the dissemination of case study information to the sector more broadly and reduce risks associated with the early adoption of innovative energy technologies in agriculture. Refer <https://www.dpi.nsw.gov.au/dpi/climate/energy/clean-energy/on-farm-energy-pilot-projects>

Useful References:

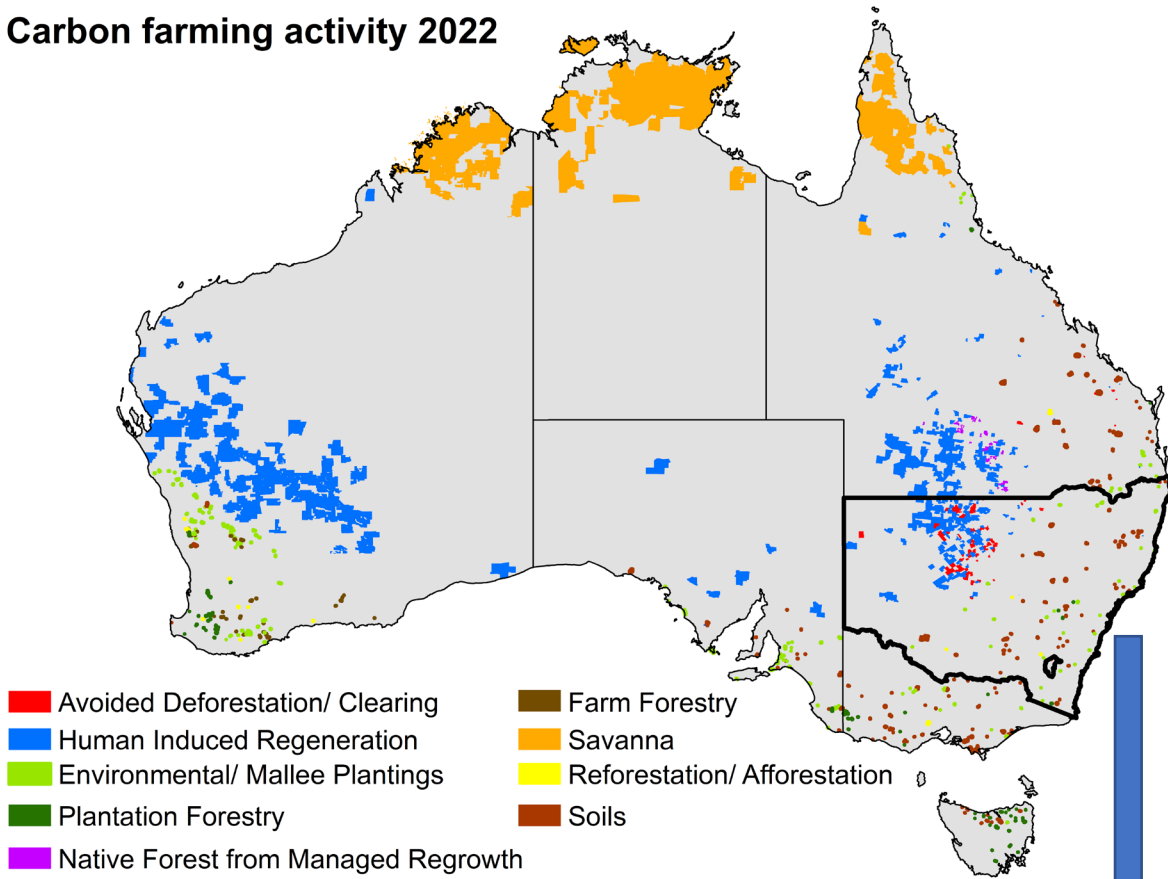
Hutton and O'Connor (2022). The Agriculture Professional, Journal of the Agricultural Institute Australia.

Search “Beyond Diesel” – webinars available on how to retrofit vehicles.

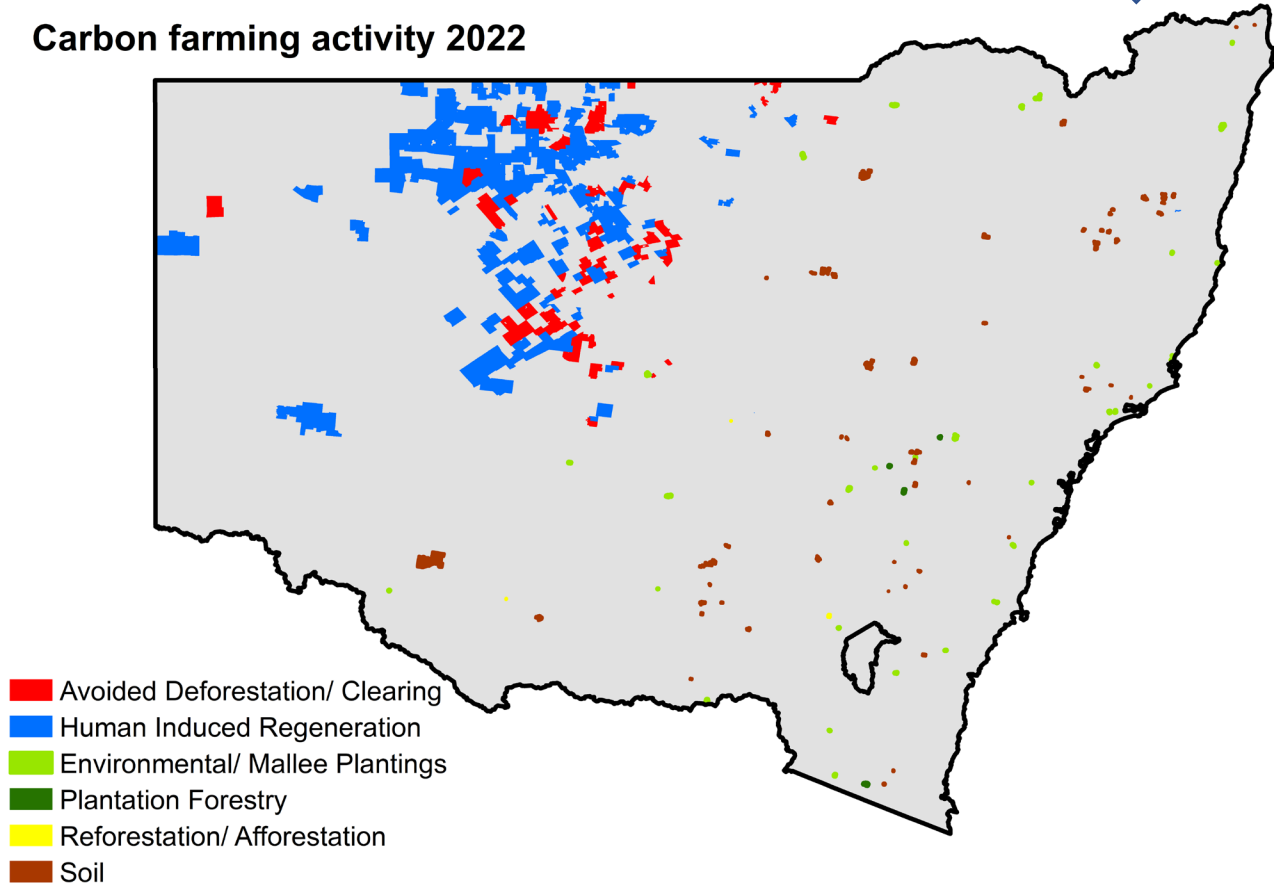
### Carbon markets

Carbon farming activity in 2022 across Australia is shown in figure below and the types of activities are: avoided deforestation/clearing, human induced regeneration, environmental/Mallee plantings, plantation forestry, native forest from managed regrowth, farm forestry, savanna, reforestation/afforestation, soils.

### Carbon farming activity 2022



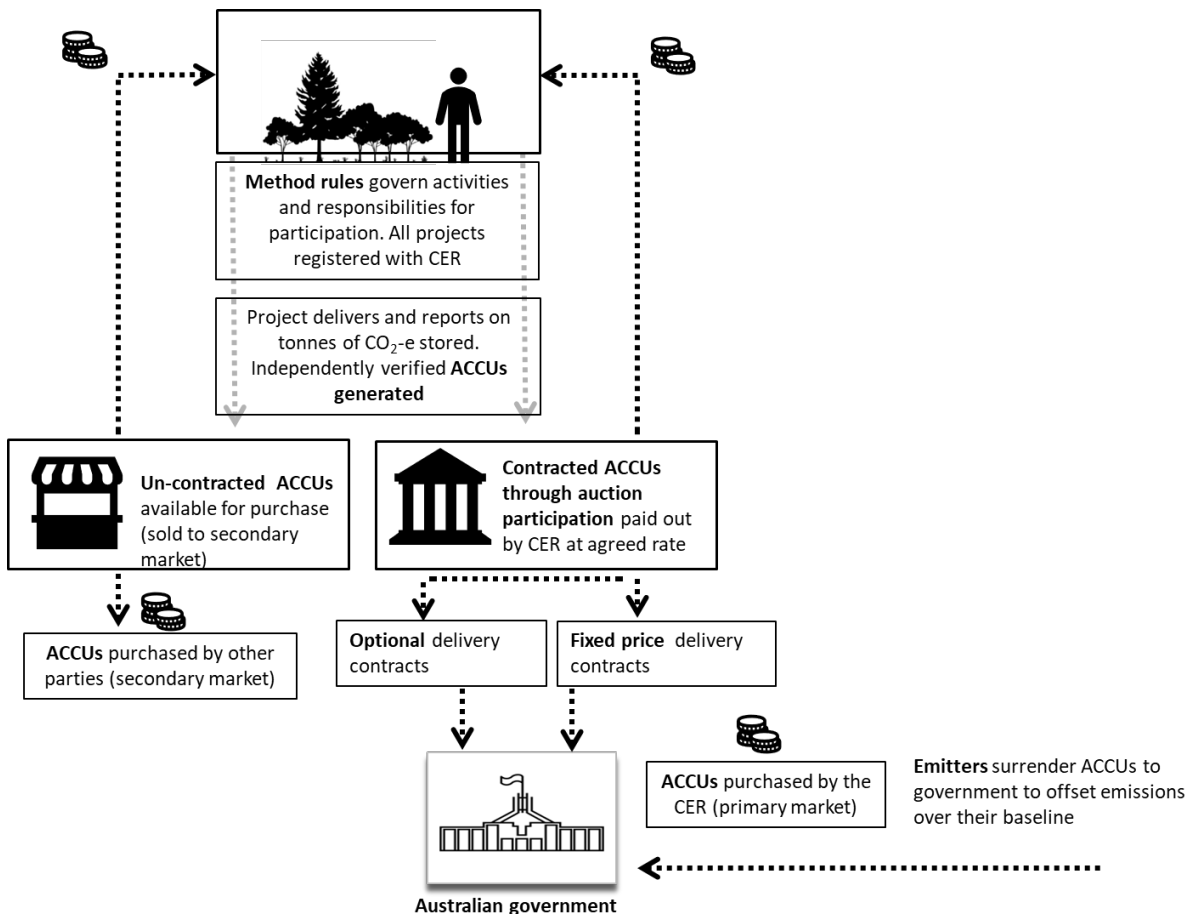
### Carbon farming activity 2022



Summary of carbon farming activity in NSW in 2022:

Sector - method	Approx. area in NSW (ha) *	Number of registered projects	Total ACCUs issued	Approx. value of total ACCUs issued (Ave price \$12.32)
<b>Vegetation</b>				
- HIR	3,491,373	156	16,029,042	197,477,797
- AD	1,033,727	64	23,081,679	284,366,285
- EP	5,093	27	1,285,024	15,831,496
<b>Agriculture</b>				
- Manure	-	9	409,237	5,041,800
- Herd	-	1	211,150	2,601,368
- Soil	75,954	80	0	-

**Emissions Reduction Fund and Safeguard Mechanism**



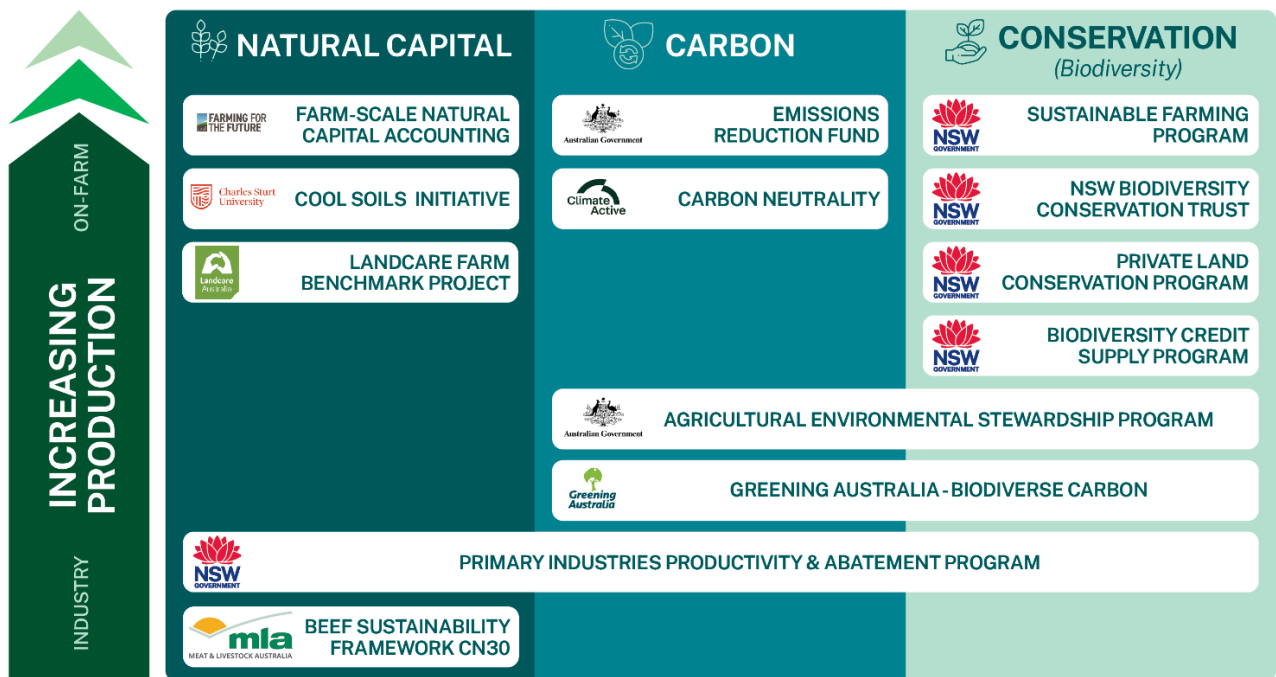
**Emissions Reduction Fund** – An **Australian carbon credit unit (ACCU)** is earned for every tonne of CO<sub>2</sub>-e stored through eligible projects under the **Emissions Reduction Fund (ERF)**. The ERF incentivises voluntary emissions reduction. The **Clean Energy Regulator (CER)** administers the ERF. Participants can earn an income from sale of ACCUs via an ANREU account (Australian national registry of emissions units). [Note: The ANREU is a secure electronic system designed to track the location and ownership of ACCUs issued under the ERF, and emission units issued under the Kyoto Protocol.] The Australian Government uses ACCUs to meet international obligations.

The ERF offers landholders, communities and businesses the opportunity to run eligible projects in Australia that avoid the release of greenhouse gas emissions or remove and sequester carbon from the atmosphere (and participants can earn ACCUs). It is enacted through the *Carbon Credits (Carbon Farming Initiative) Act 2011* and the Carbon Credits (Carbon Farming Initiative) Rule 2015. The **Carbon Farming Initiative (CFI)** was a voluntary carbon abatement scheme that ran between 2011 and 2014 and it has been integrated with the ERF. All CFI projects automatically became ERF projects.

Secondary markets have really taken off – ACCUs purchased by other parties.

**Safeguard Mechanism** – The Safeguard Mechanism sits outside the ERF. The mechanism regulates emissions limits on high emitters (i.e. requires Australia’s largest greenhouse gas emitters to keep their net emissions below an emissions limit (a baseline)). This ensures that emissions reduction through the ERF are not offset by significant increases in emissions above set limits (baseline). The government will gradually reduce emissions limits under the Safeguard Mechanism to help Australia reach net zero emissions by 2050. Heavy emitters buy ACCUs to offset emissions.

**Other opportunities (linked and outside the Emissions Reduction Fund)**



All these opportunities shown in figure above have only come about in the last few years. There are potential opportunities for farmers. Some Councils are looking at offsetting emissions but as yet no Council has an ERF project. Any opportunities (and the choice of method) will need to be considered in the context of the farm environment which will include three key considerations: (1) Is it a good business fit? (2) Is it a good lifestyle fit? (3) Is it a good landscape fit?

Useful tool:

“Cool Farm Tool” [link <https://coolfarmtool.org/>] – is an online greenhouse gas, water, and biodiversity calculator for farmers



**Is it a good business fit?**

- Impact on farm management
- Multiple use of carbon areas
- Long-term sustainability
- Opportunities from new income stream

**Is it a good lifestyle fit?**

- Time and skills
- Intergenerational wealth

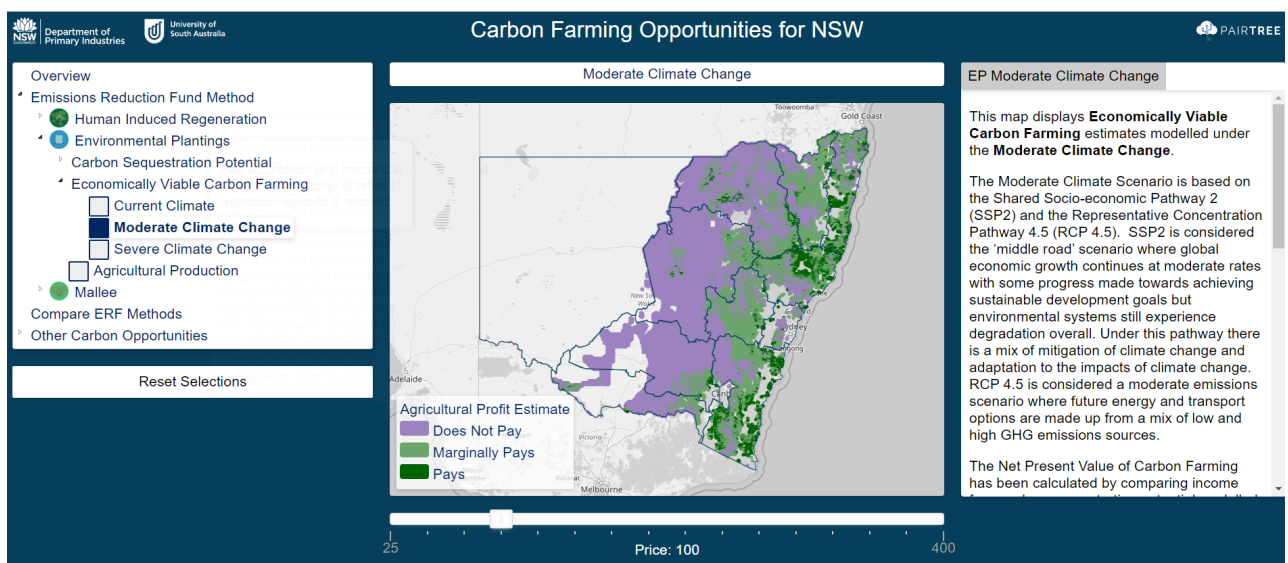
**Is it a good landscape fit?**

- How much carbon?
- Income flow

**Method selection**

**Carbon Farming Opportunities for NSW**

There will be an online tool made available soon. The map displays economically viable carbon farming estimates modelled under the moderate climate change.

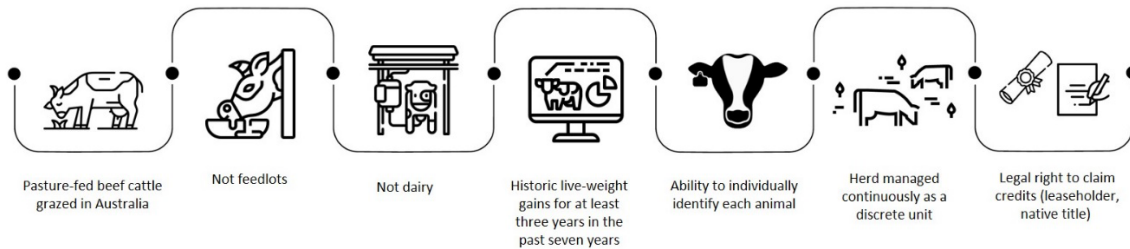


**Beef Herd Management projects** reduce the overall emissions intensity of pasture-fed cattle herds. This method recognises that beef cattle will emit greenhouse gases in their lifetime and livestock management change that result in greater production efficiencies can reduce emissions intensity from herds. For example, faster growth rates will mean cattle mature quicker which will result in cattle producing emissions for fewer days or a reduction in the number of head of cattle to produce the same amount of beef (greater efficiencies) will reduce emissions of the herd.

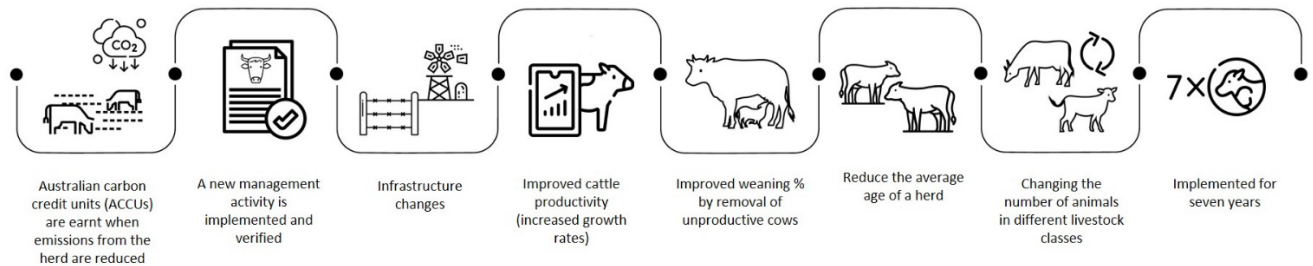
- Feedlots and dairy are ineligible.
- You cannot feed cattle on land cleared of perennial woody vegetation for the purposes of the project, feed the herd non-protein nitrogen such as urea or nitrates, and fed principally from pasture or forage.
- If you are participating in this method you must be able to identify animals in the herd through property identification brands, NLIS tags, etc. Herd is to be managed in the same way.
- Changes are made to herd structure, and new management actions are implemented to improve herd productivity. New activities: Managing of livestock (e.g. supplement feeding, improving herd genetics); Improvements (e.g. installing new fences, planting improved pasture and increasing density of water points).
- Historic live-weight gains from the past seven years for at least three years in the past seven years.
- ACCUs are earned when emissions from a new herd project are reduced.
- Herd managed as a discrete unit and there is no break in the continuity of the separate livestock inventory.

## Beef herd management

### Eligibility



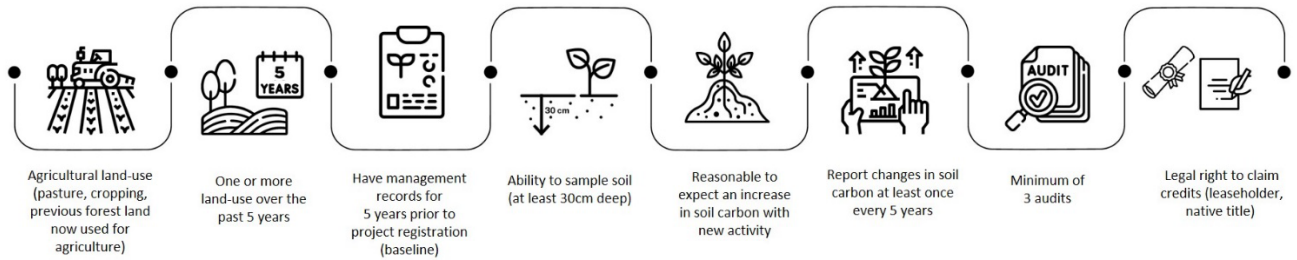
### Land management activities



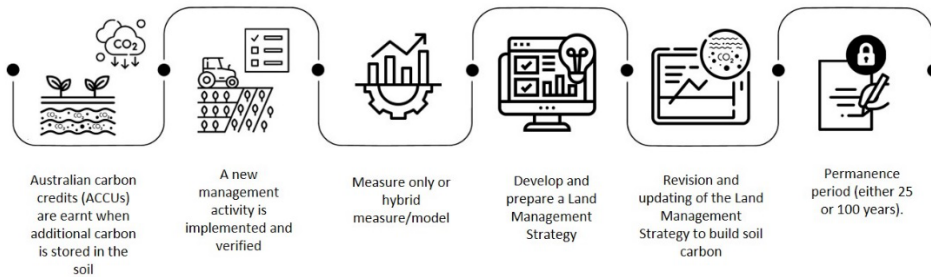
Funding is available through ‘Primary Industries Productivity and Abatement Program’ (\$125M) – a focus area of this program is building critical mass and capacity (\$72M). Early outreach initiative “On-farm Carbon Advice” project. Refer: DPE (2002) *Growing NSW’s primary industries and land sector in a low carbon world. Primary Industries Productivity and Abatement Program.*

## Soil carbon method (2021)

### Eligibility

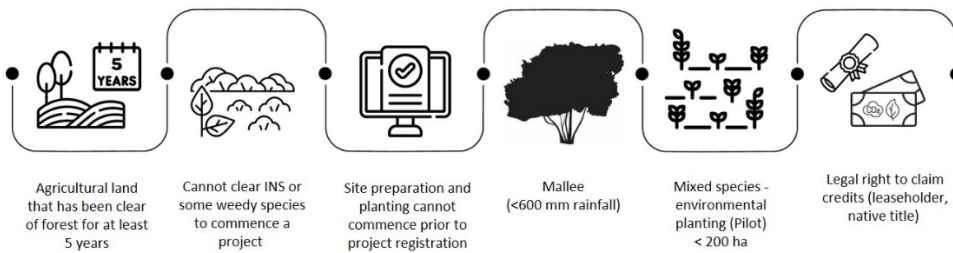


### Land management activities

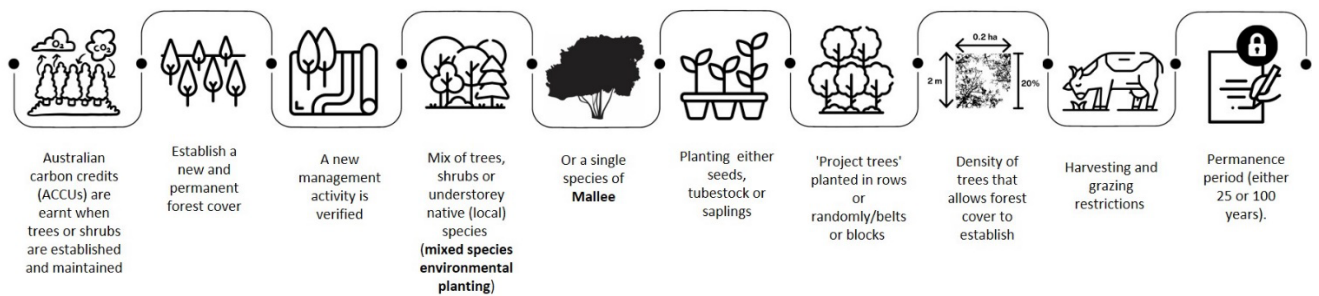


## Environmental plantings

### Eligibility



### Land management activities



Undertaking on-farm vegetation regeneration/plantings to increase carbon in vegetation – no more than 20% of farm would have vegetation plantings (i.e. riparian areas, along boundaries, as belts or blocks etc). Can't get paid for what you have now but what you do in the future as existing plantings do not change the current status of climate change but what actions you take now will.

**Summary**

- Agricultural uses and supplies Ecosystem Services (part of the solution)
- Multiple benefits
- Drivers for decarbonisation will intensify
- Management of carbon efficiency (part of farm business)
- Capability building
- Priming the sector (Measurement, Feed additives)
- Options for carbon management and market participation.