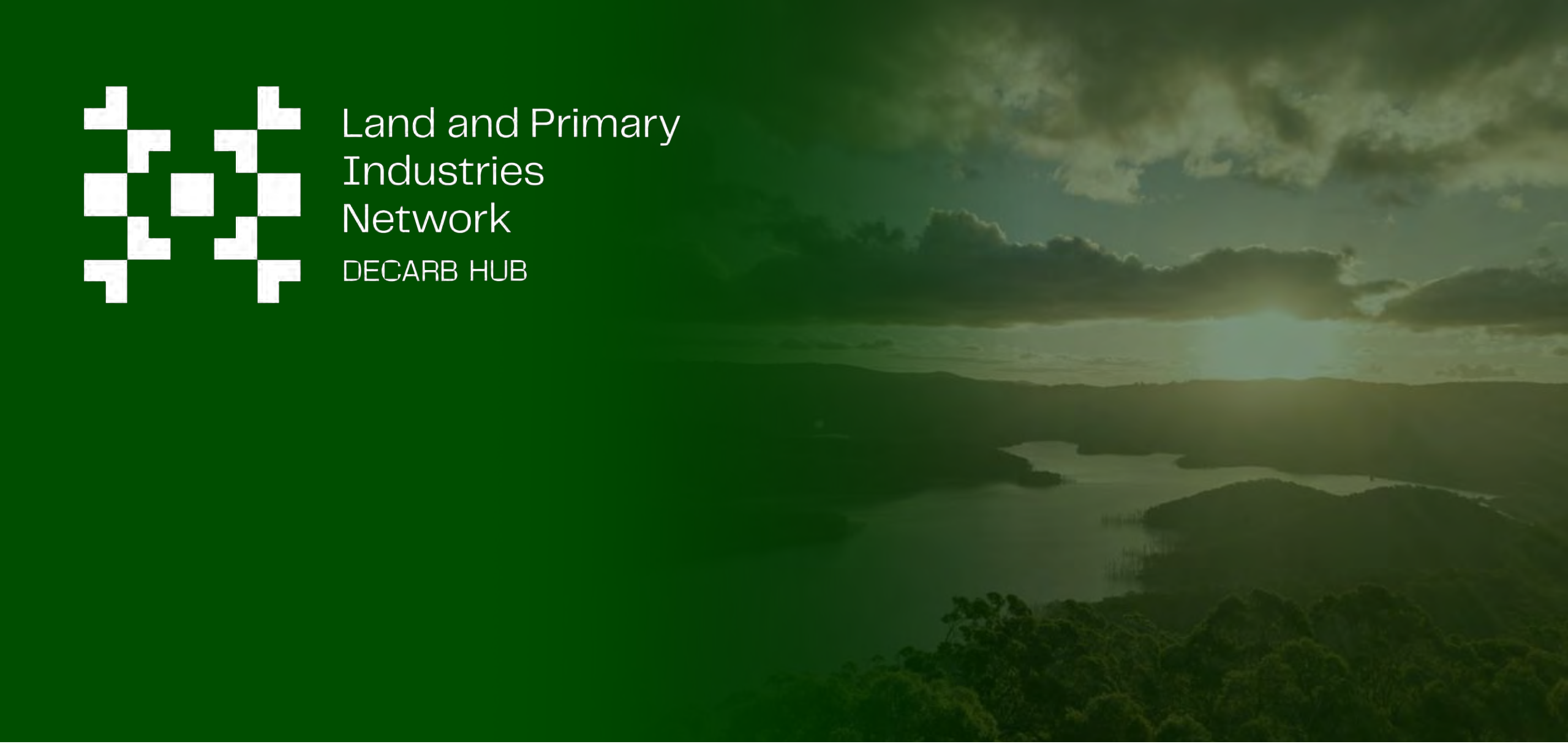
Land and Primary Industries Network

DECARB HUB



WESTERN SYDNEY UNIVERSITY

UNSW SYDNEY

University of New England

UTS

UOW AUSTRALIA

Southern Cross University

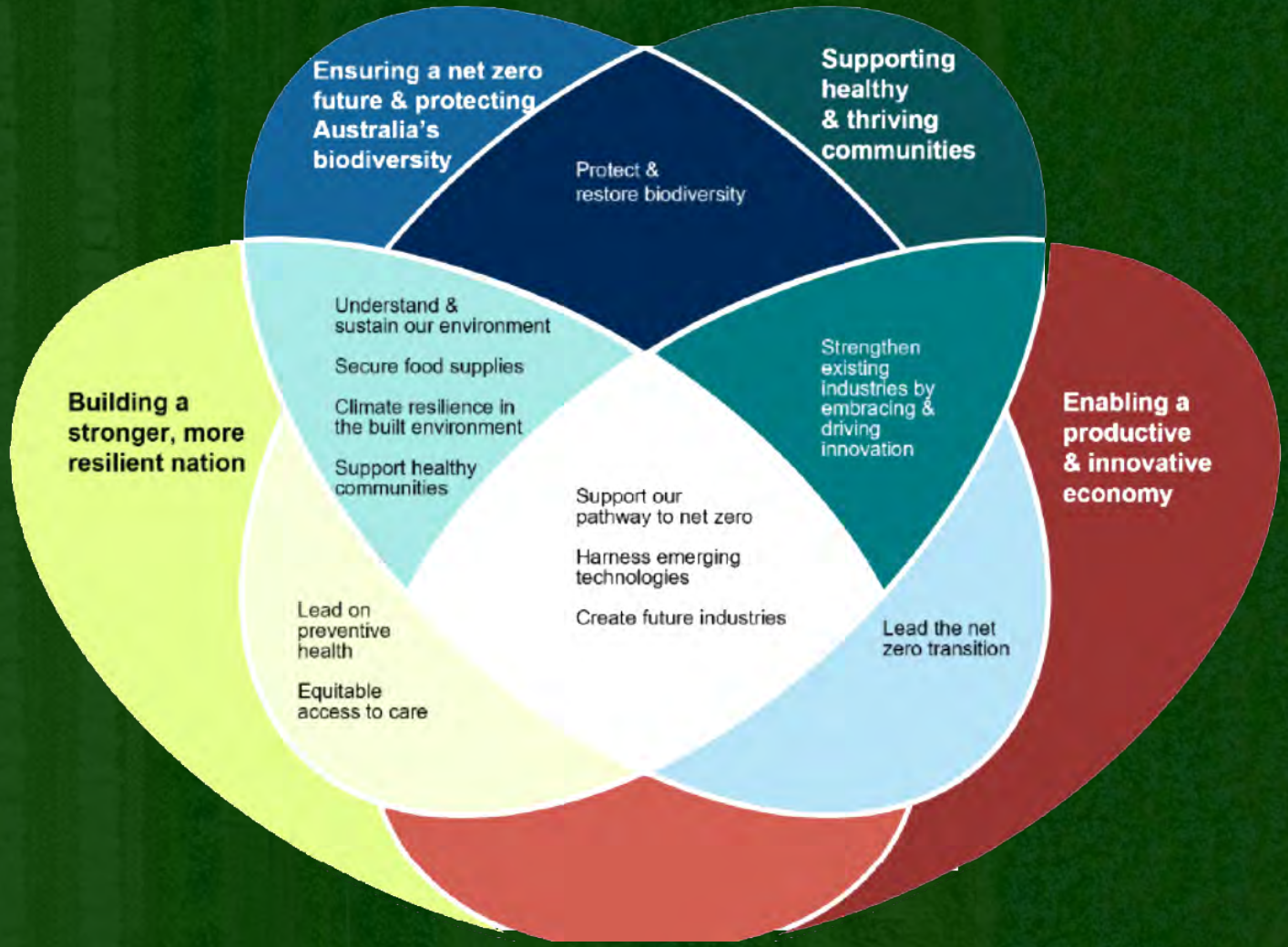
Charles Sturt University

NSW GOVERNMENT Department of Primary Industries

Proudly funded by NSW GOVERNMENT

Land and Primary Industries Network

Targeted land management offers the potential to **combine carbon abatement with co-benefits** for nature, the economy, and social well-being.



Partnerships across the innovation ecosystem

LPI priority focus areas

1. Accelerating adoption of sustainable practices in productive landscapes
2. Harnessing nature-based solutions: native and semi-natural ecosystems
3. Embedding sustainable bio-products in primary industry production and supply chains
4. Frontiers in carbon sequestration
5. Embedding low carbon and nature-based solutions in vibrant cities
6. Circular economy regional exemplars

→ Frame strategy and activities for 2023-2026.

→ Identified through co-design among LPI partners, industry and government

→ Basis for prioritisation of activities and allocation of resources to proposed projects

LPI Collaborative Grants 2023 Round

($1M total allocated across 11 projects)

Project	Lead and partner orgs	Priority Focus Area (Primary)
Low-Carbon and Bio-Based Emergency Housing System for Northern NSW	**NSW DPI**, Container of Dreams (CoD), SCU, UoQ	3. Embedding sustainable bio-products in primary industry production and supply chains
Quantification of carbon sequestration in urban forests	**WSU**, City of Sydney	5. Embedding low carbon and nature-based solutions in vibrant cities
Social License for Net Zero Industries in Carbon-Heavy Regions: Industrial Hemp in Lithgow	**WSU**'s Maldhan Ngurr Ngurra – the Lithgow Transformation Hub and partners	5. Embedding low carbon and nature-based solutions in vibrant cities
Assessing carbon sequestration in saltbush plantations	**UNSW**, NSW DCCEEW, Grazing Management Systems (GMS)	2. Harnessing nature-based solutions: native and semi-natural ecosystems
Optimising pig diets for decarbonisation	**NSW DPI**, Australian Pork Limited	1. Accelerating adoption of sustainable practices in productive landscapes
Evaluating carbon abatement opportunities for biomass from marginal, less-productive lands in NSW	**Institute for Sustainable Futures (UTS)**, NSW DPI, CAIK-UTS, CO2e Partners	4. Frontiers in carbon sequestration
*Extracting Biomaterials/Biopolymers for use in wider Clean Economy and Decarbonisation processes**	**GreenChem Polymers**, NSW DPI	3. Embedding sustainable bio-products in primary industry production and supply chains
Waste heat recovery and thermal energy sharing towards a Circular Economy	**UoW**, GXA, Bega Group	6. Circular economy regional exemplars
Satellite-Based Methane Emission Mapping, Tracking and Benchmarking: Cattle and Wetlands	**UNSW**, UoW, University at Buffalo, SCU, DPI, DPE, Moffatt Falls, and Aurecon.	1. Accelerating adoption of sustainable practices in productive landscapes
Advancing Sustainable Practices in Food Delivery	**WSU**, Box Divvy	5. Embedding low carbon and nature-based solutions in vibrant cities
Invasive native vegetation to biofuel – decarbonisation with co-benefits	**UNE**, AusBioEnergy, DCCEEW, Armidale Regional Council, Northern Tablelands and NorthWest LLS	1. Accelerating adoption of sustainable practices in productive landscapes

LPI Collaborative Grants 2023 Round

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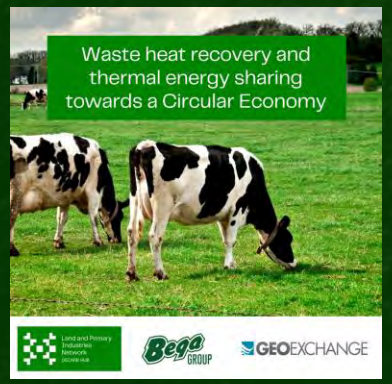

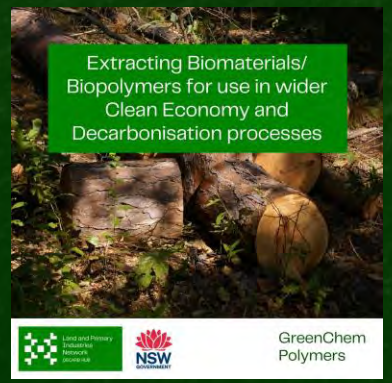

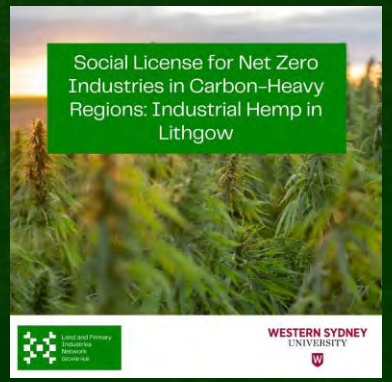

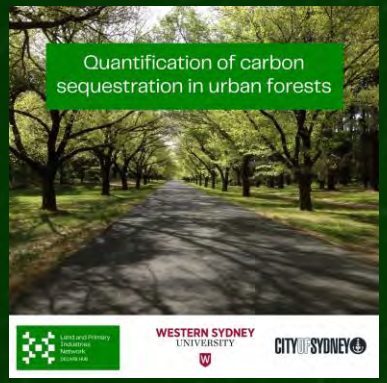

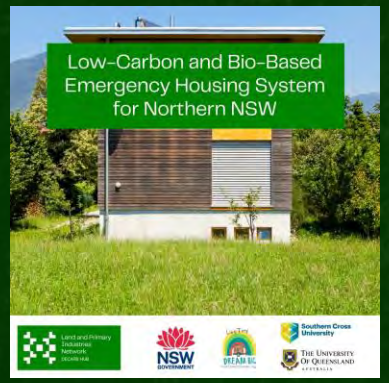

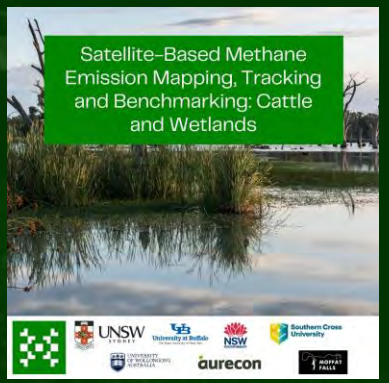

Emissions reduction roadmap for NSW land and primary industries

- Ongoing 1-year project, led by NSW Department of Primary Industries and LPI Network
- Extensive industry consultation
- Will generate a roadmap for NSW land and primary industries sectors to transition to a low emissions future, across 16 proposed solutions and sub-sectors (e.g. blue carbon, novel bioproducts, mitigation of livestock methane emissions)

INPUTS

- **Partnership:** 1-yr collaboration between NSW government and research sector
- **Subject matter experts** for 16 solution areas
- **Integral consultation with industry**
- **Life-cycle analysis** of carbon footprint
- **Cost-benefit analysis** of emissions abatement and landholder co-benefits

OUTPUTS

- **The roadmap** (state-of-play understandings)
- **Studies** on abatement potential of individual mitigation options, description of the methods, and marginal abatement costs

OUTCOMES

- **Guiding government decision making**
- Building capacity across the land & primary industries sector

EXPECTED IMPACT

A mature and collaborative emissions reductions community of land and primary industries sector players in NSW

Evidence-based decision-making and planning

Next-generation measurement, reporting and verification frameworks:

- **Leverage cutting-edge models** used in climate impacts research and global science-policy work, complementing Kyoto-era methods (such as FullCAM)
- Make **better use of data sets** (e.g. flux tower networks, global change experiments) beyond vegetation carbon mass and growth rates
- Provide **richer capability** for planning, implementation, monitoring and management of carbon farming and nature repair projects, for landholders and service providers
- Address **'why' (attribution) and 'how' (management)** questions
- **Address future risks** including climate variability and change
- **Assists government** in implementation and delivery of credit payment schemes and broader land use planning

Agrisolar CRC Bid

Our mission

Inform wholistic system designs that enable large-scale uptake of Agrisolar, ensuring climate resilience for farmers and food security for Australians

Our desired outcome:

A full exploration of Agrisolar via CRC matures the decarbonisation community, grows the economy through innovative PV solar usage, and contributes to Net Zero emissions through application.

Agrisolar CRC: Context

- As utility-scale solar projects demand greater rural land areas, a growing need exists to **identify and demonstrate multi-land use solutions** - both from a productive land and a biodiversity perspective.
- Such arrangements have **succeeded in America, Europe and Asia** but need to be fully explored in Australia and shaped systematically to allow for commercial-scale adoption.
- Existing debates have raised the issue of **utility-scale solar as a threat to agricultural production** and predominantly treated **marginal land as the only viable option** for solar installations.

Why a CRC?

After industry consultation and review of existing research we have determined that **to achieve adoption of Agrisolar at commercial scale, innovation is required in the following general areas**:

- Win-win approaches for nature positivity in relation to agrisolar installations;
- drive the profitability of diverse agricultural outputs beneath, between and surrounding solar arrays; and,
- optimise the possibility of community-led solutions to policy creation and remove legal, financial, and inequitable barriers to participation in agrisolar farming.

A CRC is the most efficient, proven vehicle for success that we have identified, and we are working towards having shovel-ready projects by submission.

PROPOSED COMMERCIAL-SCALE R&D AGRISOLAR SITES

Lake Cargelligo, NSW - Cygnus Agriculture & Graphite Energy

Circularity - Green energy production & storage -Biomass crop - DA Approval in place

Richmond, NSW – Western Sydney University & Sunbiosys

Large-scale R&D site proposed for Stage 2 Hawkesbury Agritech Precinct – Master Planning in progress