Financing the Future Farm

Green Finance Opportunities for Sustainable Murray-Darling Basin Management

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ONE BASIN CRC

Acknowledgement of Country

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- We acknowledge and pay respect to the Traditional Owners of the Murray–Darling Basin and their Nations.

  We pay respect to the Traditional Owners of the lands and the waters upon and around which our organisations are situated.

- We acknowledge their deep cultural, social, spiritual, environmental and economic connection to their lands and waters. We pay respect to their Elders – past, present and future.

Presentation Overview

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- Introduction to green finance
- Basin landholder and financial market perspectives
- Biodiversity credit market developments
- Discussion

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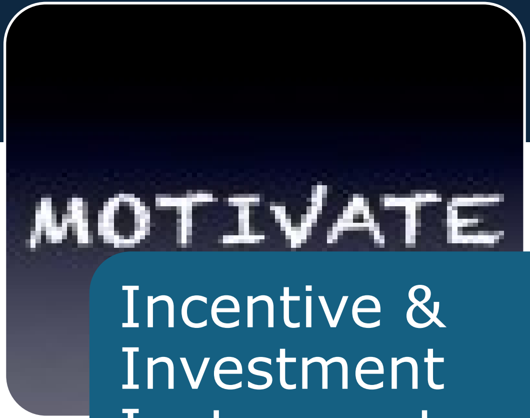


Incentive & Investment Instruments

- Green finance

Adoption

- Sustainable land management and irrigation practices

Outcomes

- Production benefits
- Climate resilience
- Water efficiency and other environmental services

(Adapted from Piñeiro et al., 2020)

Identify new funding and investment opportunities to support Basin landholders through green finance

Charles Sturt University – Gulbali Institute Agriculture Water Environment

Wine Australia

AWRI Australian Wine Research Institute

The University of Sydney

RMCG

Western Murray Land Improvement Group

Kilter Rural

Agtuary

Riparian Capital Partners

Landscape South Australia Murraylands and Riverland

Gfish powered by BCF

Duxton Capital Australia

Project activities

Work to develop prospectuses to promote investment opportunities

Engaging potential private market investors and Basin landholders to understand their preferences and perspectives towards green finance opportunities

Reviewing existing green finance instruments

Murray-Darling Basin

- Agricultural land use occurs on over 80% of the MDB (ABS, 2022)
- Government funded solutions have increased water efficiency & stimulated regional economies (MDBA, 2025)
- Solutions to improve environmental outcomes in the basin need to consider ways to coordinate private activities & investment from the finance sector

Agricultural Sector Imperatives

- Carbon and biodiversity markets have limited success in agriculture
- Farmers reporting feeling under pressure to meet ESG reporting requirements & cut GHG emissions
- Increasing pressure with seasonal & unpredictable cash flows for farmers
- Increasing demand for products embodying resource-efficient practices

Image source: DAFF (2025)

Financing the farm

Image generated Google Gemini

Green finance?

Sustainable finance can be broadly defined as the stocks and flows of financial resources and assets (across banking, investment and insurance industries) which is aligned with a large range of **environmental**, social and economic objectives and more generally with the delivery of the Sustainable Development Goals (SDGs) as developed in the context of the United Nation Development Program (UNDP).

Berrou, R., Dessertine, P., & Migliorelli, M. (2019). An overview of green finance. The rise of green finance in Europe: opportunities and challenges for issuers, investors and marketplaces, 3-29.

Green finance instruments

Green & Sustainability Bonds

- Unsecured fixed income securities used to fund social, climate & environmental projects e.g., water efficient irrigation systems

Green Leases

- Discounted lease arrangements for sustainable land use practices e.g. negative vegetation retention, cover cropping systems

Carbon Credits

- Financial rewards through voluntary or regulated markets for storing carbon in soils, changed management practices, revegtation or avoided land clearing

Biodiversity / Nature Credits

- NSW has a market, voluntary global markets, Australian biodiversity market early stages, limited methods currently certifiable

Green & Sustainability Linked Loans

- Banks offering discounts on interest payments for energy efficient practices, sustainable land management, water efficiency improvements

Direct Investment Platform

- Connects investors directly with producers via a digital platform, enabling information sharing & small-scale investment

Sources: Das & Cungu (2023); OECD (2024); RaboBank (2025)

Australian Green Loans

What projects can the NAB Agribusiness Emissions Reduction Incentive Program support?

Examples of projects and practices that may be eligible for NAB's Agribusiness Emissions Reduction Incentive Program include:

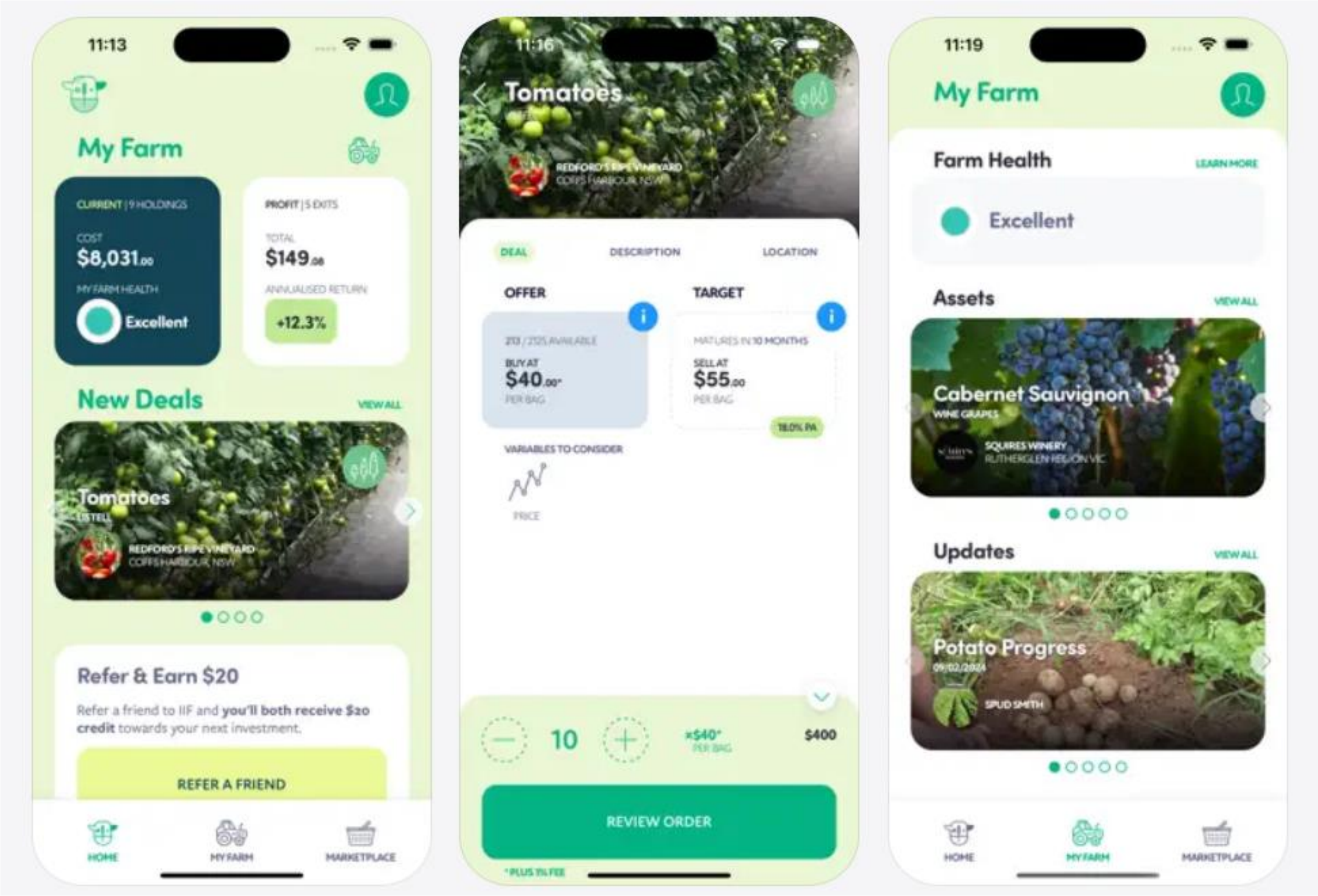
- Purchase of fertiliser with nitrification inhibitors
- Purchase of methane inhibitors
- Reforestation
- Pasture rejuvenation with legumes
- Solar and battery projects.

Further information on these projects and practices can be found at the [Towards Net Zero Agriculture Pathfinder]

[NAB Green Finance for Agribusiness | Sustainability – NAB]

(NAB, 2025)

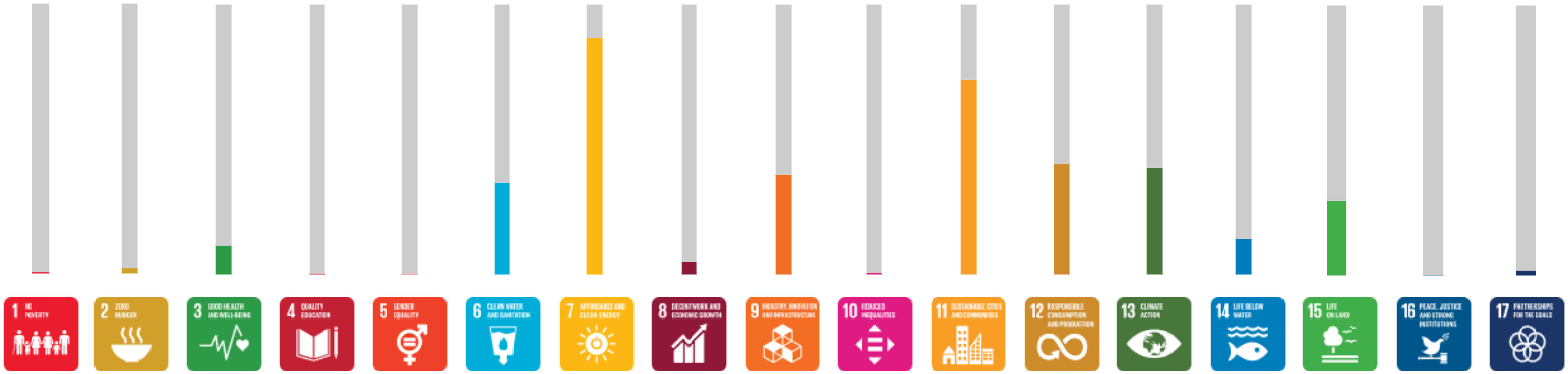
Direct financing the farm



ICMA Green Bond Market Data

Intended contribution to SDGs (number of securities)

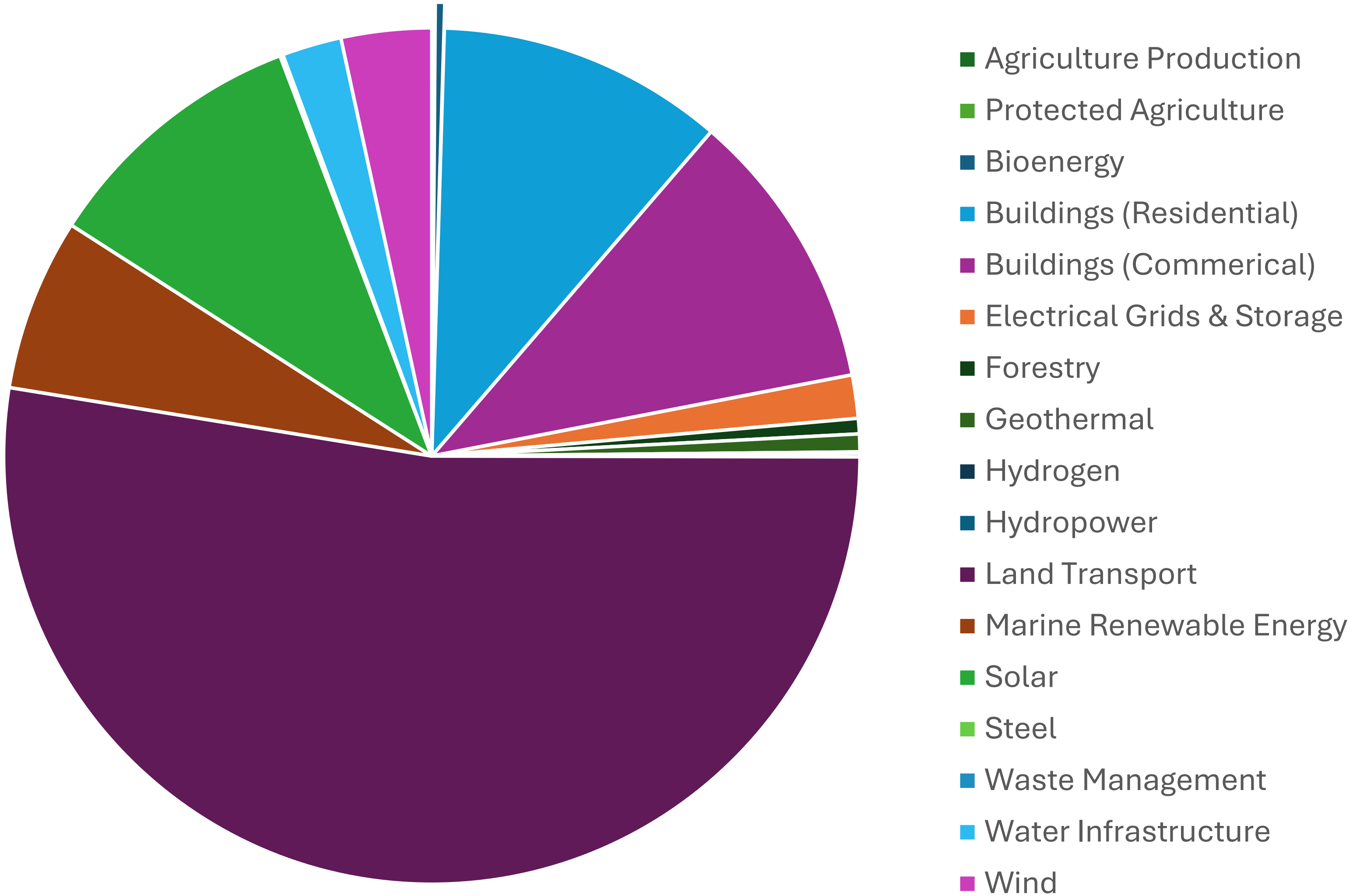
Intended contribution SDG data comes in priority from pre-issuance bond documentation. When intended contribution to SDGs is not disclosed by issuers, LuxSE maps SDGs from eligible project categories to complete the data. The mapping used by LuxSE is in line with the High-level mapping published by ICMA, focusing on the main SDGs for each project categories.



Sustainable Bond Market Data » ICMA (ICMA, 2026)

Global Green Bonds

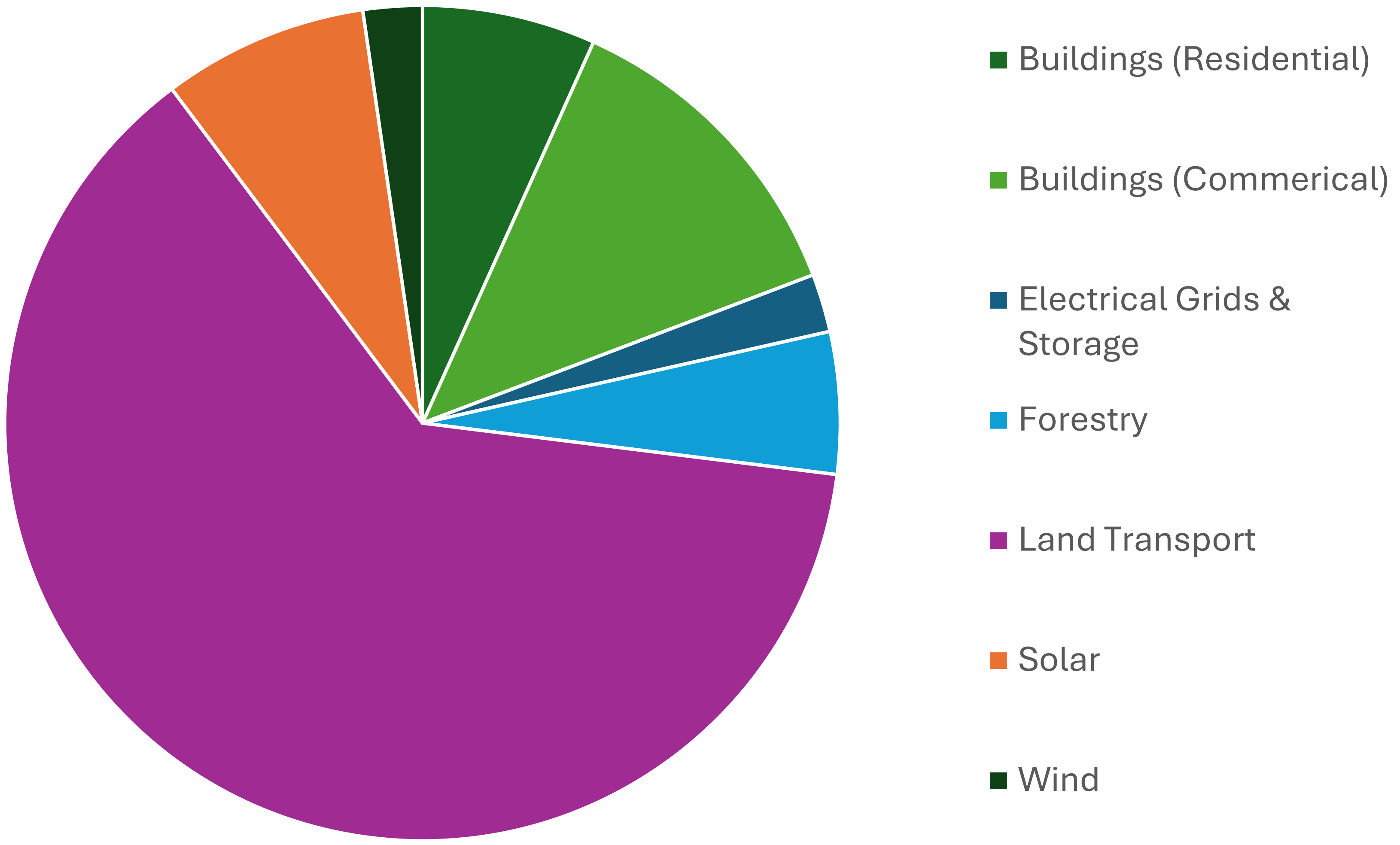
Figure 4. Net Value Sectoral Value of Climate Bonds Initiative Bonds Global Issuances 2014 - 2025 in USD



Source: CBI (2025)

Australian Green Bond Market

Figure 5. Net Value Sectoral Value of Climate Bonds Initiative Bonds Issued in Australia 2014 - 2025 in USD

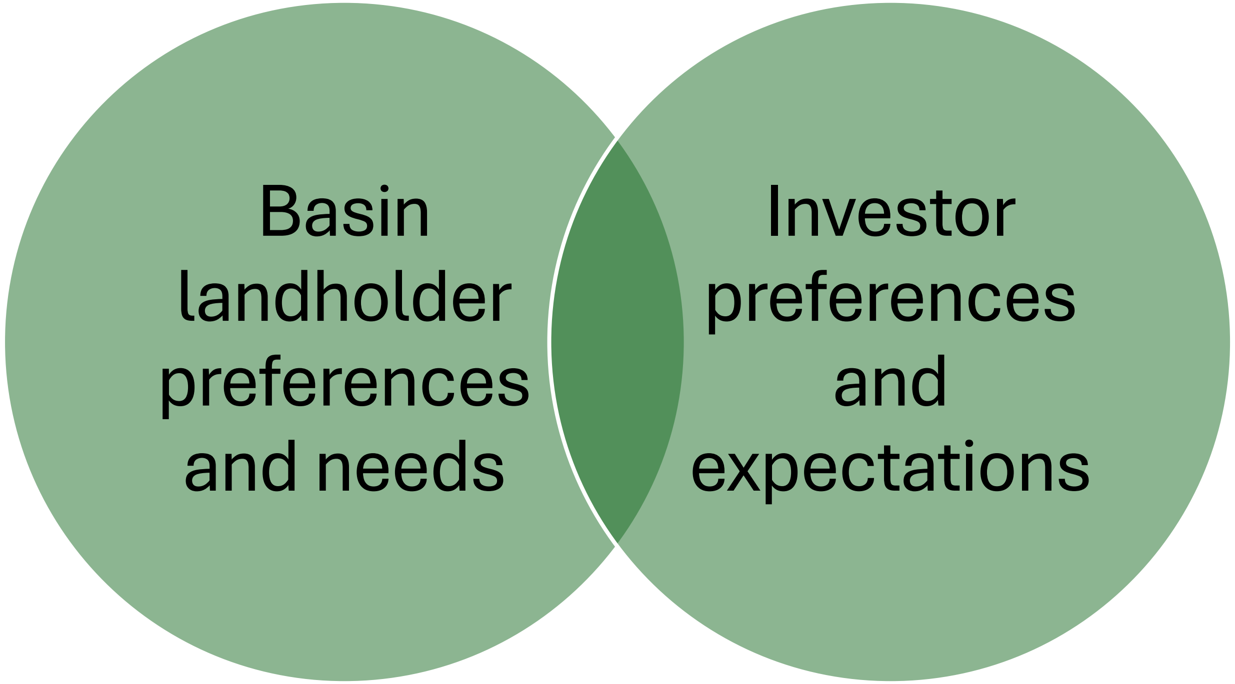


Source: CBI (2025)

Market Dynamics

- Global green finance flows average USD 1.3 trillion annually since 2021; only 11% for agriculture, forestry, land use (Buchner et al., 2023)
- Green bonds offer alternative to secured bank loans and tailored repayment schedules
- Gen Z & millennials investing differently, using digital platforms
- Limited understanding of investor and landholder preferences...

Green finance investor and landholder perspectives



Green finance opportunities to support investments in sustainable land and irrigation management?

Insights from Agri-Investment Stakeholders

- Completed 22 in-depth interviews (Agri-investors, investment managers, ESG and corporate advisors).

Emergent green finance opportunities.

Expectations and preferences towards alternative modes of investment in sustainable Basin land and irrigation practices.

Green finance opportunities (perspectives from investor side)

Significant and growing potential investment pool (philanthropic, corporate, investors - retail and wholesale, banks).

Current focus on decarbonisation.

Demand for biodiversity instruments will need to be stimulated. Who is the buyer?

Motivated by ESG regulatory (i.e. emissions reporting, greenwashing) scrutiny. Global regulatory uncertainty is holding things back.

Green finance opportunities (perspectives from investor side)

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Need for measurable outcomes, low risk ('high quality') issuer. Need for scale. Love infrastructure.

Blended approaches, underwritten by government are a viable starting point.

Instruments must be well designed, schemes overseen by strict measurement protocols, referencing international regulatory frameworks.

Still expect commercial rate of return.

Need greater information and awareness regarding:

Corporate agricultural-related supply chain impacts, and

Awareness regarding agricultural-related ESG investment options.

Opportunity to expand beyond a narrow focus on carbon and focus on projects that deliver dual environmental and community outcomes

Demand for biodiversity credits is unclear and will need to be stimulated.

Global regulatory certainty is needed.

Investors want measurable outcomes, well designed schemes and low risk projects with scale.

A commercial rate of return is still expected.

Infrastructure is 'king'. Strong interest in green bond investments which focus on large-scale infrastructure development.

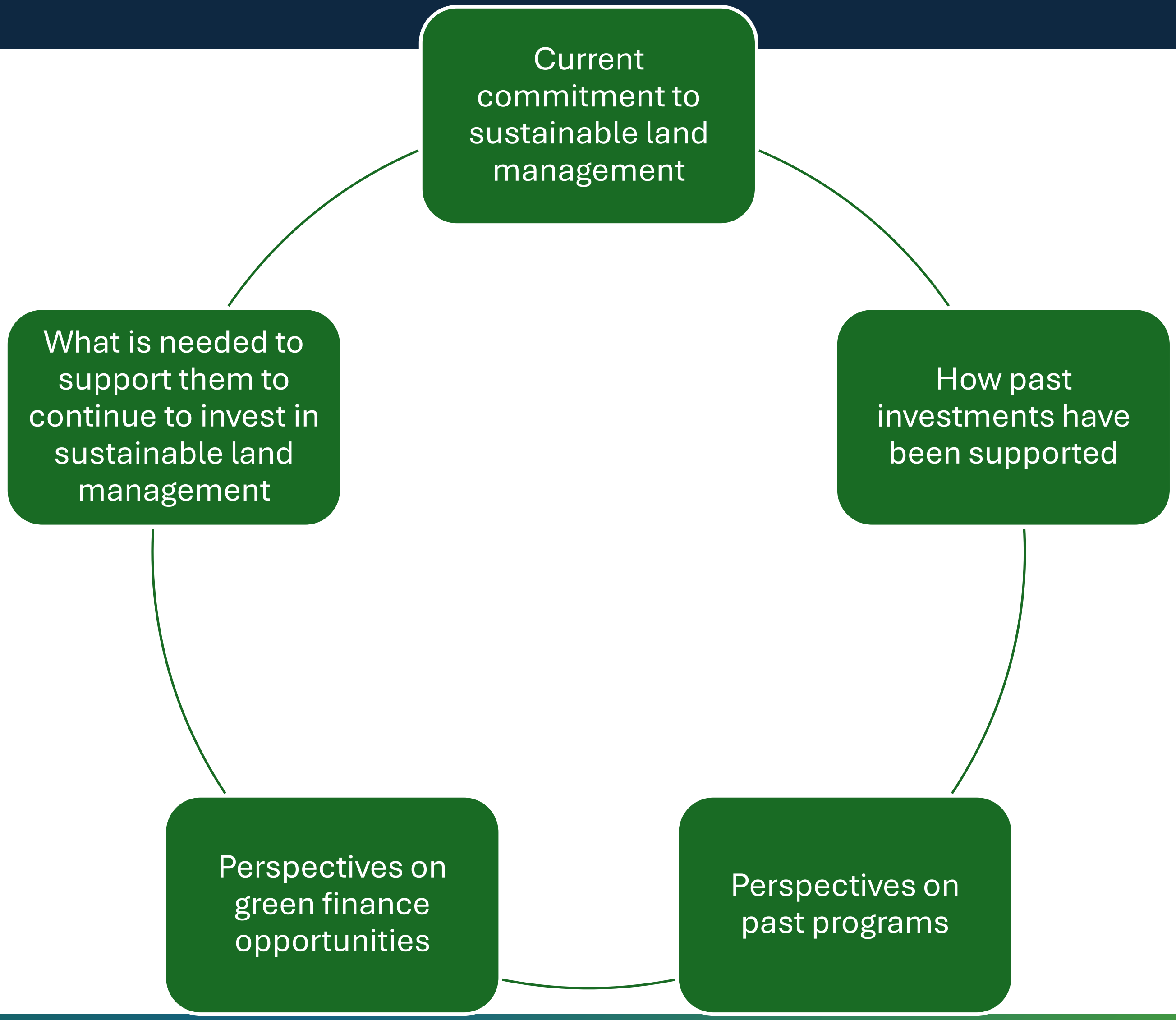
Blended finance approaches involving partnerships across banks, agri-investors, government and not-for-profits are a viable first step.

Investors show strong interest in exploring opportunities to support the Basin's environmental health and local communities.

What the market is saying

Insights from Basin Landholders

- Completed 18 in-depth interviews.
- Interview focus:



Interviews with Basin Landholders (*cont.*)

Many landholders are under significant financial pressure.

Adoption of sustainable practices common but not recognised

Past investments in sustainable practices funded: Own equity and grants – need a strong business case either way

Grants/subsidies can be viewed negatively. "*If I can't pay it myself, I won't do it*"'

Interviews with Basin Landholders (*cont.*)

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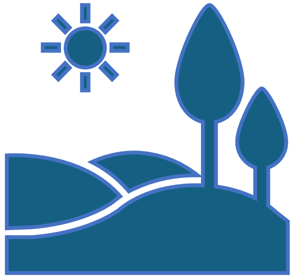
In relation to carbon:

Lack of clear options

Uncertain global regulatory settings



Limited awareness of biodiversity credits

Interested in biodiversity options in low producing lands

Interviews with Basin Landholders (*cont.*)

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Few are aware of sustainable linked loans and lease options. Other barriers:

- Lack of local bank contacts
- Questionable value proposition – discount and reporting obligations
- Impact of debt on financial risk
- Access and terms

Many are aware of carbon credits but few have committed given:

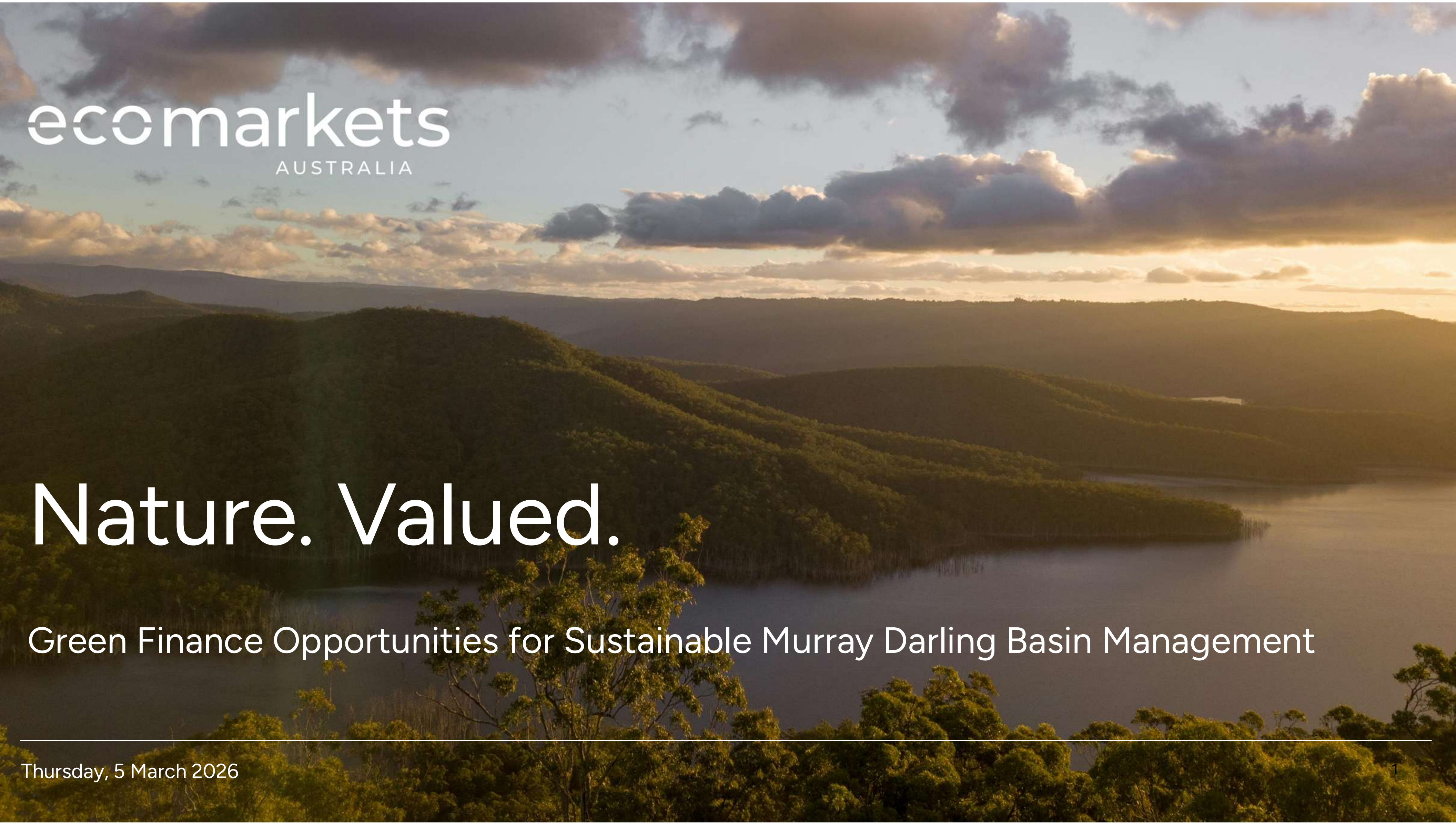
- Lack of knowledge
- Uncertainty about future emissions obligations
- Limited opportunity to generate further carbon credits
- Preference to inset

Next steps

PROMOTION OF GREEN FINANCE OPPORTUNITIES TO LOCAL LANDHOLDERS

EXPLORE AND MODEL OPPORTUNITIES TO UTILISE GREEN BONDS TO SUPPORT INFRASTRUCTURE INVESTMENTS ACROSS THE BASIN

PROMOTION OF LANDHOLDER INVESTMENTS IN SUSTAINABLE LAND MANAGEMENT PRACTICES TO INVESTORS AND WIDER COMMUNITY



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AUSTRALIA

Nature. Valued.

Green Finance Opportunities for Sustainable Murray Darling Basin Management

Natural Capital Credits

Credits issued for measurable nature improvements that have been achieved

Credits can be sold to companies under ESG and offset schemes

ENVOMARK represents scientific rigour, data transparency and integrity

Credits accumulate over defined periods and can be sold separately or aggregated

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The Process

1 Standards

Standards set the rules for each market: what qualifies and how it's measured.

2 Methodologies

Methodologies provide detailed instructions for achieving environmental outcomes. Any appropriately skilled individual or group can develop methodologies, which then face peer review and public consultation before approval.

3 Projects

Projects are the on-ground activities where landholders and proponents implement environmental outcomes under approved methodologies, with regular monitoring verified by independent auditors.

4 Credits

Credits are issued only after this verification confirms the environmental outcomes have been achieved and recorded on our blockchain-enabled registry, providing complete transparency and traceability.

Nature Credit Demand Drivers

STICK

CARROT

Mandatory credits

- Companies must buy Carbon credits to account for climate contribution
- Example ACCU market

Expected offsets

- Polluting companies can choose to remediate impact, pay fine or buy credits
- The Reef Trust collects fines for damage to GBR

Mandatory Reporting

- Quality ESG reporting under standards
- Strategic funding from participation under TNFD

Risk Assessment

- Climate and Nature risk are entering company risk assessments
- Mitigation through credit purchase

Environmental co-benefit

- Co-benefits for companies buying Carbon offsets for climate change
- Nature credits are quantifiable and valuable co-benefits

Corporate Responsibility

- Company culture/vision on responsibility
- Discretionary funding

Voluntary Credit Use Cases

Market Snapshot

ENVOMARK Credit purchasers

QANTAS
QUEENSLAND ALUMINA LIMITED
SYDNEY OPERA HOUSE
TERRAIN NATURAL RESOURCE MANAGEMENT
HSBC
Queensland Government
Great Barrier Reef Foundation

Over **$3.2M** invested back into Reef catchment projects

5+ approved methodologies across DIN, Sediment, Wastewater, Biodiversity & Wetlands*

Over **65 Tonnes** Dissolved Inorganic Nitrogen (DIN) stopped from entering the Great Barrier Reef

42,046 credits retired/sold

Credits can reward quality **First Nations** participation

99.3% of credits purchased by corporate and other NGOs

Nature. Valued.

ENVOMARK ASSURED

- Trusted
- Transparent
- Quantified

Australian Government endorses Reef Credits as an offset for fine sediment in the Great Barrier Reef.

- The Bowen River Gully Rehabilitation Project
- Stabilise landforms, improve soil health, and restore native vegetation cover
- Project lifespan of 25years
- First issuance of Credits expected in 2027,
- An estimated 1,394 Credits & 750 tonnes per year of quantified and verified fine sediment prevented from entering the Great Barrier Reef lagoon.

Grazing Land Management

Increased groundcover to reduce hillslope fine sediment loss during rainfall events

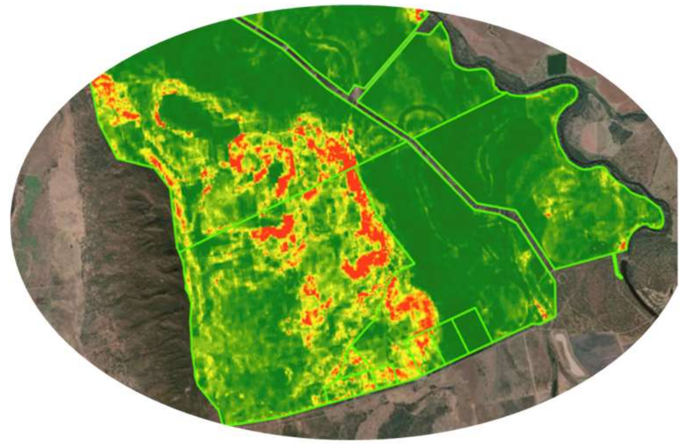


Image output generated using the GLM method, showing high risk erosion areas for targeted intervention. (DROVER)

Expanding ENVOMARK Credits

- Reef Credits
  - Established market
  - Expanding methodologies
  - Impact Only Fund
- Basin Credits
  - Northern Basin pilot
  - Aligned with refined Basin Plan 2026
  - Carrot instead of stick
- Moreton Bay Credits
  - Catchment activation for offsets
  - Support Olympics 2032, cleaning Brisbane River

ENVOMARK Basin Credit

Basin Plan Review Priorities = Potential Methodologies

1. Floodplain/wetland connectivity
2. Non-native fish population control (Carp)
3. Menindee Lakes restoration and preservation (nutrient/restoration/connectivity/fish spawning)
4. Pollutants - Nitrogen, Phosphorous, Sediment
5. Groundwater Aquifer Recharge (At risk assets include Lower Gwydir, Upper Namoi and Lower Namoi Alluviums)
6. Water Security for townships

Market Participants

Independent Market Administrator

Methodology Developer

Project Proponent /

Environmental Service Provider

Third Party Verifier

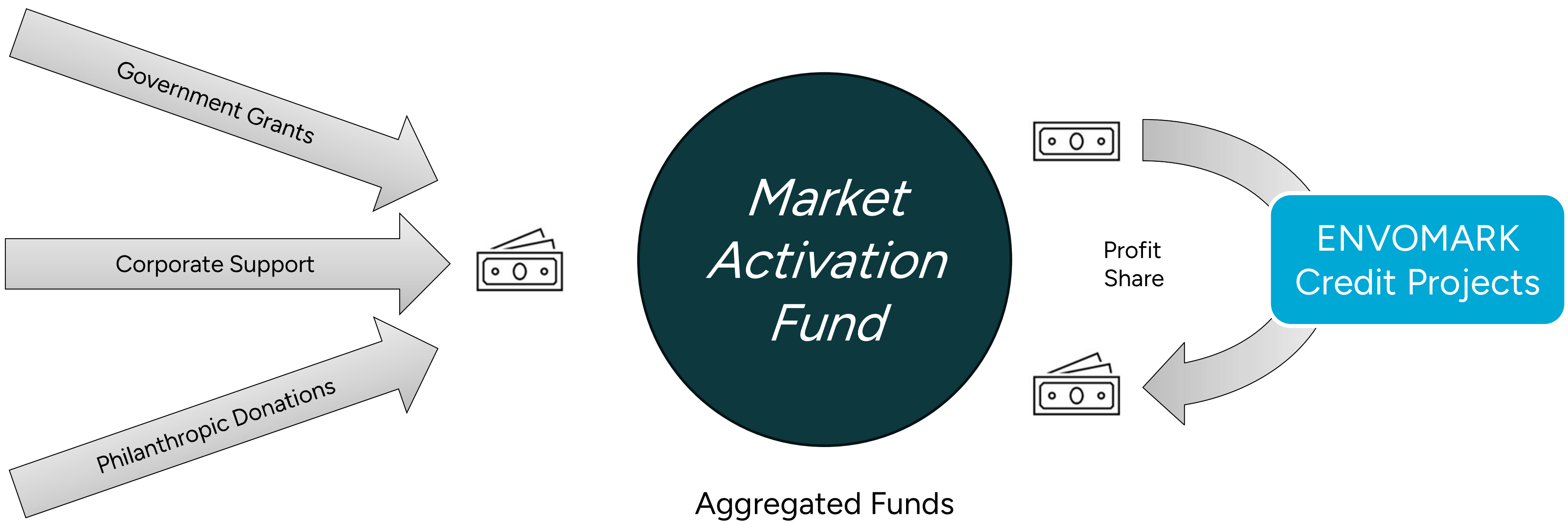
Buyer

Regulator (Offsets)

Market Activation Fund

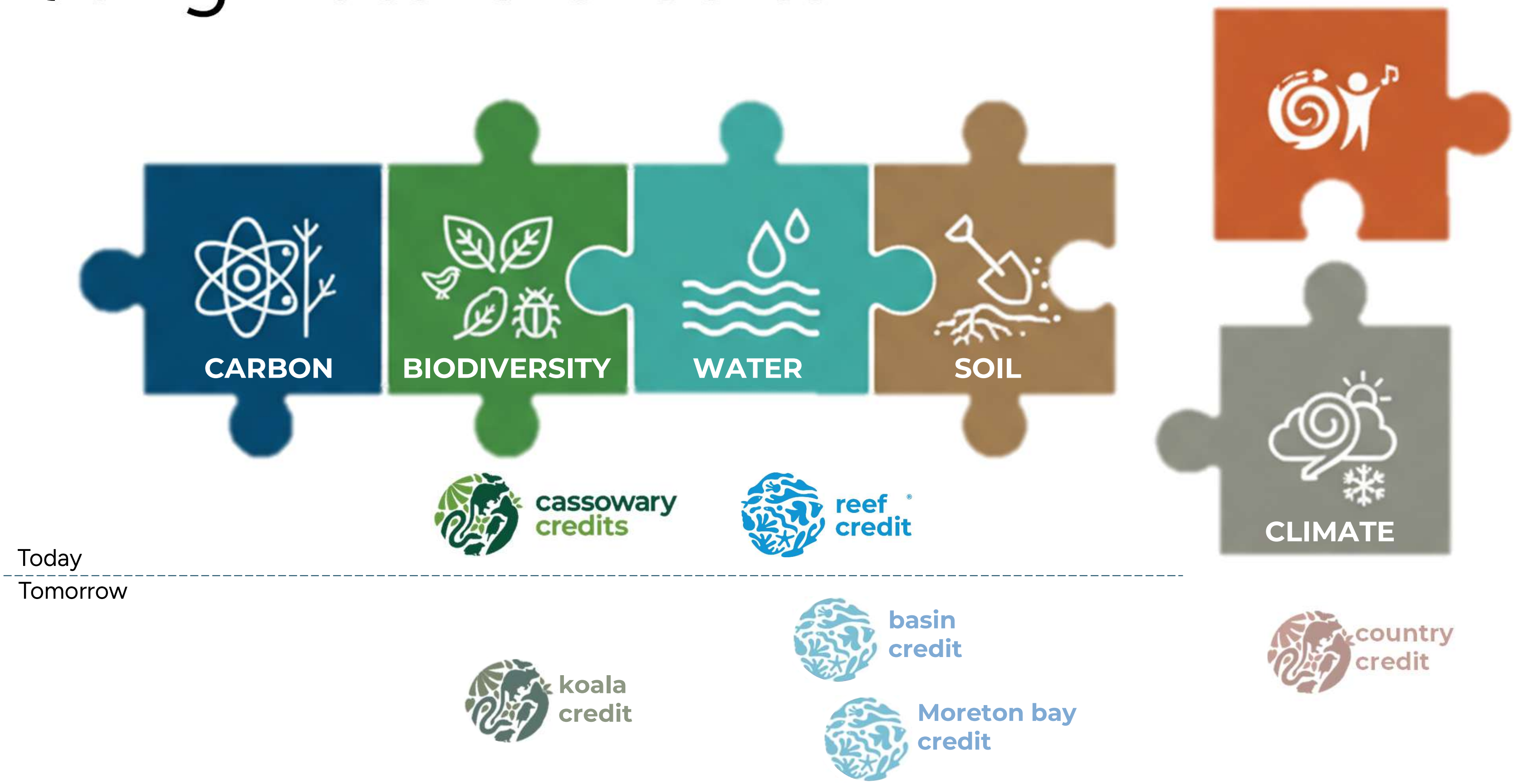
NFP Impact Only
Returns Model

Funding aligned
to outcomes



Aggregated Funds
Portfolio of Projects
Option for Directed Donations

Integrating Nature Credits



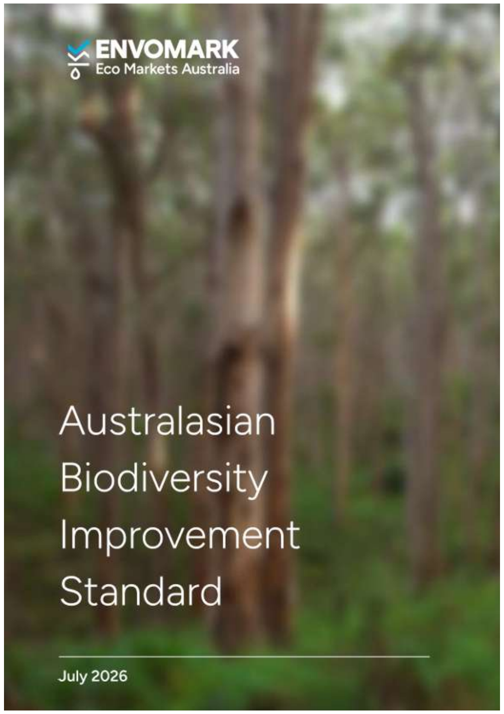
Australasian Biodiversity Improvement Standard

Reward the achieved and maintained improved condition of target biodiversity assets, systems and services, that is attributable to Project Activities.

Public Consultation due Q2 2026

Alignment to government initiatives

Stackable with other credit projects where eligibility and additionality is met



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