

2025 RESOURCES,
ENERGY & INDUSTRY
INNOVATION FORUM,
ENERGY + CIRCULARITY SUMMIT
ACTION PLAN





Acknowledgements

This Action Plan is the result of an important collaboration between RDA Orana and Circular PV Alliance, and will be used to advocate for a sustainable and circular future for our region.



Introduction

The Inland NSW Growth Alliance (INGA) is a regional innovation initiative of RDA Orana, designed to accelerate industry, innovation and business development aligned to priority sectors in the Orana, Central and Far West regions of New South Wales.

INGA, together with RDA Orana, host the annual Resources, Energy & Industry Innovation Forum (REIF). In 2025, the Energy + Circularity Summit was introduced in partnership with Circular PV Alliance as part of this 2025 three-day event, with a dedicated focus on how the energy sector could transition from traditional linear models to a fully circular economy.

This Action Plan was developed as a result of the REIF Energy + Circularity Summit, reflecting the shared insights and priorities identified as the path forward.





Australia's energy landscape is changing. Historically reliant and built upon coal-fired power, there is now a very intentional shift towards solar, wind and hydro being the dominant sources of energy. Australia has set lofty targets to achieve 82% of power generation from 'renewable' sources by 2030. Wind and solar are poised to play a key role in meeting this target. Wind is expected to account for the bulk (around 68%) of new energy generation. Solar is expected to contribute about 32%, with billions of new solar panels needing to be installed to meet this target.

There are many diverse and at times competing interests at play as this change rolls out. Concurrent with, and inherently linked to this change in energy generation, is the demand for natural resources and critical minerals. Solar panels, wind turbines, batteries and Balance Of System (BOS) components all require specific and sometimes rare natural resources in order to be manufactured. Copper, aluminium, cobalt, silicon, lithium are all in extremely high demand. This trend is replicated across the world as a result of this increased uptake in renewables.

Until recently, the vast majority of focus on the changing energy landscape has been on front-end considerations – where to locate projects, who is impacted, what infrastructure needs to be developed and so on. Renewables are not a new concept – rooftop solar has been widely embraced and wind turbines have dotted at least small areas of the landscape for many years now. What is new is the rapid rate of energy project deployment, the scale of projects and the depth of understanding communities have about these projects when they are proposed in their local area.

Questions are now being asked by local communities about waste management and end-of-life practices for the projects. Where are products being sourced from? How can local businesses be involved? How can domestic mining and manufacturing be integrated into the new energy sector? People want to know what opportunities exist for local prosperity resulting from the presence of these projects and associated infrastructure in their local area. These are good questions to ask, particularly if there is potential to strengthen Australia's sovereign resilience and industrial capabilities concurrently.

The **2025 Resources, Energy & Industry Innovation Forum, Energy + Circularity Summit** brought together a range of stakeholders from energy, resources, agriculture, academia and mining to discuss how the circular economy can underpin a sustainable energy transition in Australia. Perspectives and experiences from government, private enterprise, community, First Nations and land holders contributed to the interactive conversation. There are varying levels of optimism and concern about the changes underway – these have been captured and reflected in this document. Three common threads or themes connect the different perspectives from the day that point to pillars from which a strategy may be constructed to advance circularity outcomes for the energy and resources sectors:

Collaboration – Communication – Consistency

State of Play

CIRCULAR ECONOMY & INVESTMENT CONFIDENCE

- Circularity boosts investor confidence in ROI and risk management.
- Circularity drives business investment and offers marketing advantages.
- Circularity should be integrated early in project planning.
- There is strong investor interest in circular economy models.
- Circularity supports net-zero targets and mandatory sustainability reporting.
- Circularity and clean energy offer strong economic opportunities for regional Australia.

COMMUNITY ENGAGEMENT & EDUCATION

- Communities are becoming better informed and more engaged, with varied levels of desired involvement.
- Early engagement, including with First Nations, is increasingly standard practice and expected by communities.
- Long-term education is essential to shift public perception, especially about mining and its socio-environmental impacts.
- Employment opportunities are key to building meaningful community partnerships.

POLICY, REGULATION & REPORTING

- Mandatory sustainability reporting and net-zero policy levers drive investments.
- Circularity aligns with evolving regulatory trends and sustainability goals.
- There is a disconnect between demand for critical minerals and slow approval/exploration timelines.

TIMING & PROJECT DEVELOPMENT

- Investors and developers are entering projects earlier to embed circularity.
- Misalignment exists between investment momentum and slow approval processes.

LAND USE CONFLICT & SECTOR COMPETITION

- Growing conflicts between renewable energy projects and resource/mining interests, described as “energy vs. resources.”
- There are concerns regarding the compatibility of agriculture and solar energy developments.
- Wellington’s large copper mine highlights the tension between critical mineral shortages amid expanding solar farms.
- Strategic planning is needed to manage overlapping land use interests.
- Solar and wind projects are complementary and can be jointly planned.
- Copper shortages and growing demand for critical minerals are driving resource investments despite delays in project approvals.

COMMUNICATION, COLLABORATION & TRANSPARENCY

- Effective communication is essential to build trust and set clear pathways among governments, developers, and communities.
- Collaboration and shared learning help identify opportunities and streamline lengthy project development processes.
- Clear, transparent messaging is critical to overcoming public concerns and misinformation.
- Regional communities should benefit through cheaper local power and job creation, including in emerging industries like solar panel recycling.



Summary

This discussion highlighted the growing momentum around circularity in energy and resource projects, emphasizing early collaboration, community engagement, and clear investment drivers and circularity enablers.

There is strong investor interest in circular economy models for energy and resources projects, which offer confidence in ROI, risk management, and stakeholder alignment. Circular economy is also becoming central to achieving net-zero targets, meeting sustainability reporting requirements, and gaining marketing advantage.

Communities are increasingly informed and engaged, prompting earlier and deeper consultation, especially with First Nations groups. Opportunities for local business, employment and education are key to long-term support, and public (negative) perceptions of mining need to be addressed constructively.

A critical tension is emerging between renewable energy developments and traditional resource extraction, with land use conflicts and infrastructure development overlap. The example of the Wellington copper mine illustrates growing pressure on mineral supply chains and also the scale of projects happening in the local region (around Dubbo).

Policy and regulation are driving investment to an extent but could be better defined to provide increased investor certainty. Development approval timelines remain misaligned with market urgency and investment interest. Effective communication and early engagement, with both communities and government, are essential to building trust and creating a clear path forward.

Regional Australia stands to benefit significantly from the circular economy, through local power access, job creation in clean industries, and the integration of renewable technologies like solar and wind. More effective policy and regulatory measures can help realise these benefits.

At the Coalface

LANGUAGE, COMMUNICATION & COMMUNITY ENGAGEMENT

- Language matters: words like “transition” can mean different things across industries (mining = job loss; energy = innovation).
- Communities are experiencing consultation fatigue.
- Developers must meet communities “where they are”, understand their needs and concerns, and discuss more than just infrastructure (e.g. poles and panels).
- First Nations communities have practised circular land stewardship for thousands of years, this approach by industry aligns with FN values and practices.
- Effective communication builds trust and supports long-term positive legacies.

FIRST NATIONS & REGIONAL COMMUNITIES

- First Nations people must see real benefits to help Close the Gap, address suicide rates, and support financial literacy.
- Mining workforces and regional towns need support during the energy “transition”, particularly in relation to redundant workforces, setting up new businesses to service new properties, increasing regional populations etc.
- New jobs are critical to the transition’s success, especially for displaced workers and First Nations communities.

ROLE OF COUNCILS & LOCAL GOVERNMENT

- Councils are key communicators of change and must respond to community concerns.
- Councils can lead proactive engagement and connectors between community and project developers.

- Councils can shape project outcomes to include circularity through:
 - Project approval conditions
 - Policy positions for renewable energy projects.

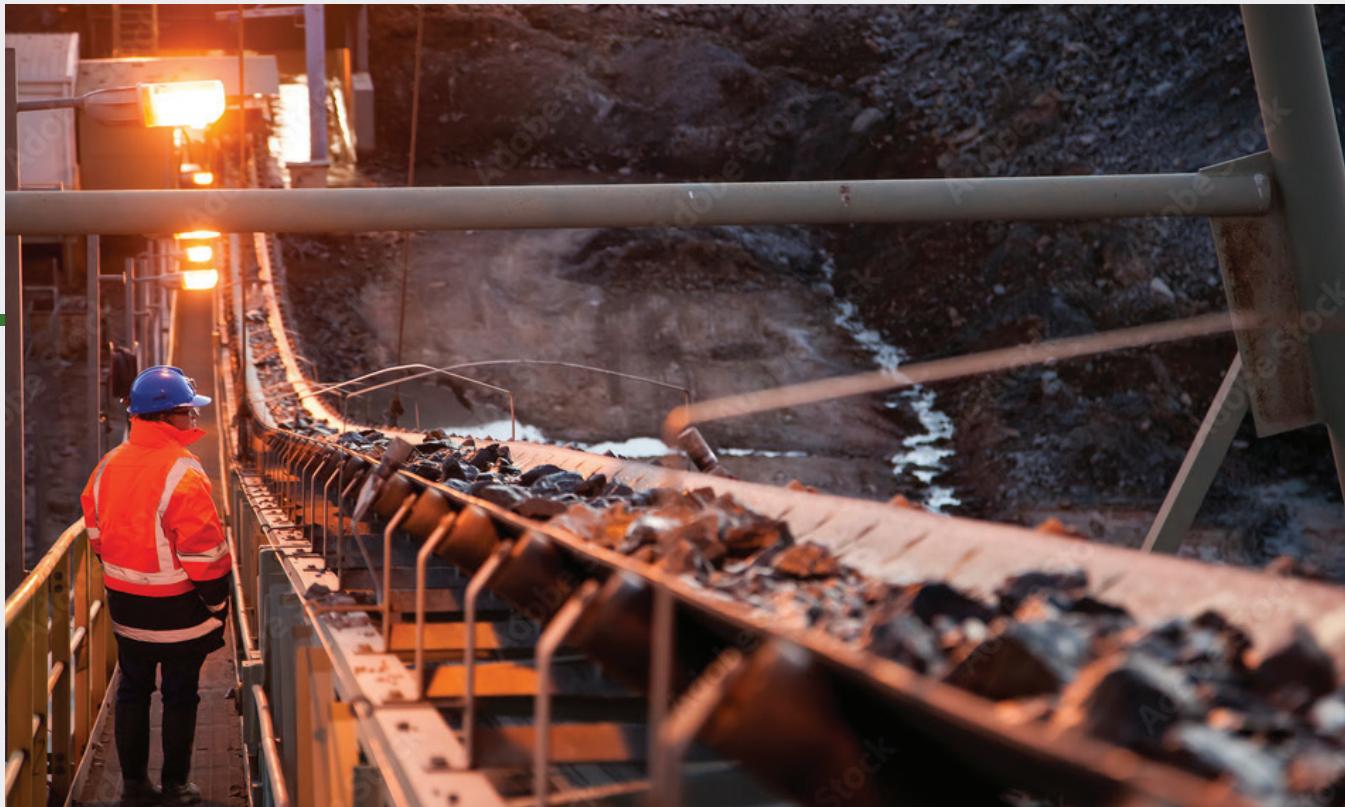
CIRCULARITY, HOUSING & INFRASTRUCTURE

Circular outcomes can be achieved by:

- Repurposing infrastructure such as ‘dongas’ (transportable homes) used as accommodation during construction of renewable energy projects into aged care, tourism, social/mobile housing etc.
- Avoiding remote camps; instead, investing in local housing in towns like Mudgee and Dubbo to create new suburbs to meet growth and demand for housing.
- Using solar panel and wind blade materials in new construction and infrastructure.
- Supporting local startup businesses in reuse and recycling.

COORDINATION & LEGACY

- Coordination between projects being developed in the region is fragmented.
- Better coordination between regional stakeholders can:
 - Improve project outcomes
 - Maximise benefits for communities
 - Create a positive, lasting legacy
 - Enable more efficient communication and planning.



Summary

Effective communication and appropriate language conventions are essential in the energy transition, particularly when working with communities impacted by mining and resource projects. Words like “transition” can carry different meanings, often signalling job loss in mining regions, highlighting the need for clear, relatable communication. Communities are experiencing consultation fatigue, and developers must engage meaningfully, acknowledging the deep knowledge First Nations communities have in land stewardship and connection to country being impacted by projects.

New employment opportunities are critical to ensure a positive legacy, especially in regional towns and for displaced mining workforces. Opportunities to re-skill the mining workforce into emerging industries need to be explored and prioritised. First Nations communities must see tangible benefits that contribute to Closing the Gap, improving wellbeing, and supporting long-term outcomes like financial literacy.

Local councils play a vital role in shaping project outcomes by responding to community concerns and influencing planning decisions. Through policy and approval conditions, councils can embed circularity, create jobs, provide social services, and support local infrastructure needs.

Innovative housing and infrastructure solutions, such as repurposing transportable houses used in the construction of renewable energy developments into mobile homes or using renewable energy materials in construction, can address housing shortages and create legacy assets. Careful consideration needs to be given to choosing between remote worker camps and investing in long-term housing to accommodate workers, and the needs of small towns like Dunedoo and larger centres like Mudgee and Dubbo.

Overall, better coordination across projects is urgently needed. A regional collaboration framework can help align efforts, improve communication, and ensure communities benefit fully, creating a lasting and positive legacy.

Walking The Talk

WHY CIRCULARITY?

- It's the right thing to do, and the timing is right due to market conditions and competitive pressure, adopting circularity can differentiate.
- Investors and industry stakeholders are demanding sustainability, net zero, and emissions reduction.

POLICY AND REGULATION

- Agriculture and renewables need policies to support coexistence.
- Waste regulations across Australia need harmonisation.
- A mix of "carrot and stick" approaches (regulation, stewardship, certification) is needed.
- Demonstration projects indicate success in integrating solar and sheep grazing.

ECONOMICS AND FEASIBILITY

- Solar panel reuse is economically viable.
- No regulations prohibit the reuse of solar panels.
- Approximately 8.1 GW of solar panels have already been discarded – missed opportunity and commodity.

INDUSTRY LEADERSHIP AND BEST PRACTICE

- Owner-operator developers are currently leading on circularity.
- Procurement processes now include circularity considerations.
- CPVA Certified supports successful circularity integration.
- Insurance and risk assessments are factoring in circular practices.

SUPPLIER EXPECTATIONS

- Developers are increasingly questioning suppliers about their circularity credentials.
- Suppliers are being put on notice to prepare for future accountability.

COMMUNICATION AND ENGAGEMENT

- Need to improve storytelling around circularity outcomes that are being achieved already and highlight innovation to engage communities (e.g., surf boards and shoes made from wind blades).
- Consumers and installers can help drive better circulatory outcomes by asking about recycling options when purchasing or procuring products and services.

SOLAR GRAZING

- Early-stage planning is crucial e.g., fencing layouts and pasture rotation in agro-solar projects.

DESIGN AND LIFECYCLE THINKING

- Design for circularity now to enable easier refurbishment and recycling later.
- Apply circularity from both ends: manufacturing and end-of-life (e.g., wind projects).
- Developers like Atmos Renewables manage e-waste with pragmatic planning: start with what's possible now.

WASTE AS AN ASSET

- Essential to reframe the "waste problem" as a "resource recovery opportunity".
- Quantify waste and assign value to shift perception from liability to resource.
- Focus on creating better outcomes using recycled materials, not just substituting them.

FUTURE OPPORTUNITIES

- Circular economy can support reshoring of manufacturing.
- Research & development and university collaboration opportunities exist to strengthen Australian capabilities.
- Engage landowners for long-term research and explore innovation commercialization.
- Leverage "value stacking" and develop new markets for circular products.



Summary

Circularity is increasingly recognized as both an ethical imperative and a strategic advantage in the renewable energy sector. Current market conditions, investor demands for sustainability, and regulatory trends make this the right time for industry-wide adoption. Economically, reusing solar panels is viable, with processing costs nearly matched by the value recovered, and no regulations currently restricting their reuse.

Policy support is essential, particularly to enable the coexistence of agriculture and renewables, alongside harmonized waste regulations nationwide. Industry leaders, notably owner-operator developers, are driving best practices by integrating circularity into procurement, risk management, and voluntary project certification processes. Insurance providers are beginning to consider circular practices when assessing project risk.

Effective communication is critical to engage communities and highlight innovations in recycling and circular design. Early-stage planning plays a key role, especially in agro-solar projects, while practical waste management requires pragmatic, actionable plans.

Developers are increasingly holding suppliers accountable for circularity credentials, emphasizing the need for transparent and responsible supply chains. Designing for circularity now facilitates easier refurbishment and recycling in the future, transforming waste from a liability into a valuable asset. This shift offers opportunities to reshore manufacturing and foster collaboration between industry, academia, and landowners to advance research, innovation, and commercialization of circular solutions.

Overall, circularity presents a pathway to more sustainable, economically resilient, and innovative renewable energy projects, aligning environmental goals with industry growth.

Glass Ball Session

INTEGRATION OF FARMING AND RENEWABLE ENERGY

- Challenge in integrating tech-ready NIS for farming and solar/renewable energy projects.
- Early planning required for coexistence of farming and renewables; e.g., sheep grazing under solar reduces costs and fire risk.
- Need to integrate agriculture, solar, and other land uses (e.g., resource prospecting) early.
- Potential for fenced energy projects to serve as predator-proof animal sanctuaries.
- Circularity must be designed into farm operations from the outset.
- Agro-solar shows how farming and energy uses can co-exist and not just be a consideration for land rehabilitation at project decommissioning.

RESEARCH AND INNOVATION

- Research mainly targets improving solar cell efficiency and technology optimization.
- PVA removal by hydrolysis could simplify recycling from 10 to 2 steps.
- Synergy exists between resources, mining, and energy sectors for research and reuse of panels - "urban mining".
- Trend toward low-toxicity materials, though uncertainty remains; innovation needed.

WASTE MANAGEMENT AND CIRCULAR ECONOMY

- Emphasis on big-picture approach: start with waste hierarchy – reduce consumption, then reuse, recycle.
- Short-term focus prioritises cost over quality.
- Need to shift perception from designing for longevity to recyclability and panel reuse.
- New technologies (e.g., paint on panel back sheets) may extend panel lifespan.

COMMUNICATION, EDUCATION, AND PUBLIC PERCEPTION

- Proactively address misconceptions on impacts of solar/energy projects on food production, fire, health, noise, and waste.
- Promote energy literacy via early education, science tourism, and critical thinking.
- Common needs: improved communication, greater collaboration, and consistency.



Summary

The integration of farming with solar and renewable energy projects presents both challenges and opportunities. Current approaches struggle to effectively overlay agricultural activities with energy production, leading to land use conflict, highlighting the need for early planning to ensure coexistence. Practices such as sheep grazing under solar panels demonstrate potential benefits, including reduced farm operation costs and lower vegetation for fire mitigation. There is also scope to explore multifunctional land uses, such as fenced energy projects doubling as predator-proof animal sanctuaries.

Design and sustainability considerations remain critical. The industry must shift focus from prioritizing panel longevity alone to embracing recyclability and reuse. Emerging technologies, like innovative backsheet coatings, offer promise in extending panel life. Crucially, circularity principles can be embedded in design, both of solar developments and equipment to be installed in solar farms from the outset to foster sustainable resource management.

Research efforts are advancing in multiple areas, including enhancing solar cell efficiency and simplifying recycling processes – such as using hydrolysis to reduce recycling steps. Cross-sector collaboration between resources, mining, and energy fields is fostering innovative approaches to repurpose materials. A movement towards low-toxicity materials is underway, though continued exploration and innovation are needed amid ongoing uncertainties.

A holistic approach aligned with the waste hierarchy – prioritizing reduced consumption, followed by reuse and recycling – is essential. Overcoming short-term cost-driven thinking will improve project quality and sustainability outcomes.

Effective communication and public education are vital to dispel myths around renewable energy impacts on food production, fire risks, health, noise, and waste generation. Building energy literacy through early education and science-based initiatives can promote informed decision-making. Consistent themes across the sector call for enhanced collaboration, clearer communication, and unified strategies to support the sustainable integration of farming and renewable energy projects.

Actions and Tasks

	ACTION	LEAD
CIRCULAR ECONOMY AND INDUSTRY STRATEGY	Prepare a "How To" guideline for embedding circularity practices into renewable energy projects.	Circular PV Alliance
	Create of a coalition of Councils, calling for circularity outcomes from renewable energy projects.	Circular PV Alliance & RDA Orana
JOBs AND ECONOMIC DEVELOPMENT	Development of the INGA Innovation Hub and support the REACT in Wellington as part of the hub and spoke model.	RDA Orana
	Participate and host the Orana Regional Energy Accord roundtable.	RDA Orana
	Engage with relevant energy, mining, resources sector agencies, bodies and unions for potential collaborations for workforce transition planning.	Circular PV Alliance & RDA Orana
	Delivery of RDA Orana Workforce strategy - The Welcome Experience Orana, DAMA, Orana Youth Forum.	RDA Orana
RESEARCH AND INNOVATION	Undertake research project to understand the potential impacts of solar energy projects on agricultural soil and stock.	Circular PV Alliance
	Leverage networks across Local, State and Federal Government, RDA network, advocacy bodies and industry.	RDA Orana



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