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Making Net Zero Work: Practical Insights to Guide NSW Climate Policy and Delivery

Submission to the NSW Net Zero Commission by Dr Turlough F. Guerin¹

Executive Summary

This submission responds to the NSW Net Zero Commission's call for input across 13 consultation questions. It draws on over 25 years of experience in emissions reduction, sustainability governance, community energy, and circular economy implementation. The submission integrates real-world insights from project delivery, published research, and regional policy reform—offering system-wide recommendations for a more credible, equitable, and effective net zero transition.

Key messages include:

• Delivery must be prioritised alongside ambition.

Targets and funding will not be sufficient unless backed by institutions, workforce capability, regional coordination, and governance reform. NSW should invest in place-based delivery platforms, long-term program structures, and public–private intermediaries.

• Land-based mitigation requires integrity and trust.

Carbon and biodiversity markets risk undermining emissions outcomes and landholder engagement unless strengthened through better disclosure, co-design, and protections. Structural reform is needed to restore confidence and ensure benefits reach communities and Traditional Owners.

• Infrastructure and procurement must embed circularity and emissions performance.

NSW should accelerate uptake of reused materials, low-carbon construction, and lifecycle emissions assessment. Public infrastructure is a powerful lever for market transformation and emissions reduction.

• Innovation should be grounded in application and equity. Translational research, local demonstration projects, and support for industrial reuse can unlock mitigation opportunities—especially where supported by risk-informed governance and community engagement.

• Public trust and transparency are foundational to success.

NSW should embed best-practice environmental claims governance and reduce engagement fatigue through simplified community interfaces and reliable emissions reporting.

Recommendations are supported by a curated evidence base, including peer-reviewed publications in *Environmental Science and Pollution Research, Resources Policy, Governance Directions*, and *Farm Policy Journal*. The submission also draws on applied project experience, including renewable energy pilots, composting and reuse initiatives, and rural governance reforms. The Commission is encouraged to take a systems view— recognising that emissions reduction, resilience, and equity must be pursued together, through well-governed institutions and durable public value frameworks.

¹ Dr Turlough F. Guerin is an Honorary Fellow at the University of Melbourne, a Board Advisor to Hepburn Energy, and a Fellow of the Ag Institute of Australia. He is the former Chief Executive Officer of Landcare NSW and has over 25 years' experience in sustainability governance, emissions reduction, and regional development across the public, private, and community sectors. This submission is provided to the NSW Net Zero Commission in response to its 2025 public consultation to inform the Commission's first independent report under the *Climate Change (Net Zero Future) Act 2023 (NSW) on 11 July 2025*.

Q1. What do you see as the key risks from climate change in NSW, and who do they affect?

Response:

Climate change presents complex and intersecting risks to NSW's people, environment, and economy. These risks are not evenly distributed and are intensifying across physical, social, institutional, and market dimensions.

1. Physical and Environmental Risks

NSW is experiencing rising frequencies of heatwaves, bushfires, floods, and droughts placing communities, infrastructure, ecosystems, and cultural heritage at risk. Coastal erosion and biodiversity decline are accelerating. These impacts are most acute in rural and regional areas, among First Nations communities, and across nature-dependent industries such as agriculture and tourism.

2. Social and Equity Risks

Climate risks compound existing inequalities. Renters, low-income households, and people in poorly insulated homes are more exposed to energy stress and climate hazards. Without careful design, transition efforts may exclude these groups from clean energy, retrofit, and employment opportunities. First Nations communities face threats to Country and cultural continuity, often without a commensurate voice in decision-making.

3. Economic and Market Risks

Industries such as agriculture, mining, construction, and manufacturing are facing emissionsrelated trade and investment pressures. Delayed action or unclear policy signals risk stranded assets, workforce disruption, and loss of competitiveness in low-carbon export markets.

4. Governance and Transition Risks

Weak coordination across agencies and tiers of government can fragment transition efforts. Inconsistent climate-related disclosures, inadequate delivery institutions, and lack of community trust undermine emissions programs and delay implementation.

5. Natural Capital and Biodiversity Loss

As noted in governance commentary (Guerin, 2024), continued underinvestment in natural systems such as forests, soils, and river corridors undermines both mitigation and adaptation. These systems are vital to productivity, disaster buffering, and long-term resilience.

- 1. Elevate climate risk into whole-of-government economic and infrastructure planning: Require all major strategies, budgets, and infrastructure projects to assess and disclose climate-related risks, including natural capital exposure.
- 2. Target adaptation investments to high-risk and under-served communities: Prioritise retrofits, disaster resilience upgrades, and clean energy access in regional, rental, and First Nations communities through targeted co-investment.
- 3. Embed nature and ecosystem services in risk frameworks: Recognise biodiversity loss and ecosystem decline as core economic risks, and integrate these into NSW Treasury, Infrastructure NSW, and climate reporting systems.

Q2. What does a fair transition to net zero look like to you?

Response:

A fair transition to net zero in NSW must ensure that the costs, risks, and benefits of decarbonisation are shared equitably. Fairness must be embedded in governance structures, program design, and delivery mechanisms—not treated as an afterthought.

1. Equity of access and opportunity

Fairness requires that all communities—especially those historically under-served—have access to clean energy, infrastructure upgrades, climate resilience funding, and skills development. Regional communities, renters, Aboriginal communities, and low-income households must be active participants and beneficiaries of the transition.

2. Recognition of differentiated starting points

Rural and regional NSW faces greater transition risk due to higher dependence on landbased industries, exposure to climate impacts, and limited service access. A fair transition must invest in place-based solutions, recognising the differentiated readiness, capacity, and priorities across the state.

3. Cultural legitimacy and First Nations leadership

First Nations communities should not only be consulted but empowered through cogovernance, land-based economies, and cultural continuity mechanisms. Drawing on insights from co-designed disaster and land governance models, fairness must be reframed as relational, place-specific, and grounded in Country.

4. Participation and procedural justice

Communities must have genuine agency in shaping transition pathways. This means supporting trusted intermediaries, long-term engagement infrastructure, and community governance capacity. Examples such as Hepburn Energy demonstrate how community-owned and democratically governed models can lead the way in inclusive energy transitions (Hepburn Energy, 2024).

- 1. Develop a NSW Fair Transition² Framework grounded in place and equity: Embed fairness as a core design principle across all climate programs, using differentiated investment strategies for rural, remote, and disadvantaged communities.
- 2. Institutionalise First Nations co-governance and benefit-sharing: Support Traditional Owner-led planning, enterprise development, and co-ownership of land and energy projects.
- 3. Support trusted intermediaries to deliver regional fairness: Fund long-term capacity in regional delivery platforms (e.g. cooperatives, community energy groups, Aboriginal organisations) that can broker access and support participation in the transition.

² While the term *just transition* is widely used, it can obscure structural and cultural dimensions of fairness—particularly for First Nations peoples and regional communities. A more grounded approach must centre relational equity, place-based agency, and long-term institutional capacity. Justice in this context is not only distributive but procedural and cultural.

Q3. What is needed to support people, businesses and communities through the transition to net zero?

Response:

Supporting people, businesses, and communities through the net zero transition requires more than information campaigns or isolated funding announcements. It demands durable institutions, clear market signals, and equitable access to decision-making and benefit-sharing.

1. Trusted delivery infrastructure

Many communities and SMEs experience the transition as confusing, fragmented, and duplicative. To overcome fatigue and inertia, NSW must invest in intermediaries that provide consistent, place-based guidance—such as local energy hubs, climate-smart agriculture services, or First Nations-led cultural land management organisations. These intermediaries must be funded to provide long-term support, not just short-term project delivery.

2. Institutional and technical support for businesses

Businesses—particularly in the SME and regional sectors—often face cost, capability, and compliance barriers to reducing emissions. What is needed is a coordinated support ecosystem that includes:

- Simplified access to rebates and energy upgrades,
- Advisory services for emissions accounting and transition planning,
- Procurement incentives to reward emissions performance.

As shown in previous transition partnerships (e.g. NSW Government's Sustainability Advantage Program), firms respond best when assistance is practical, continuous, and tailored to sector and scale.

3. Regional workforce development and planning

Bridging the net zero skills divide is critical. Transition efforts will falter without:

- Coordinated regional workforce plans aligned to infrastructure, housing, and energy programs,
- Support for TAFE and Jobs and Skills Councils to engage with community-led organisations,
- Dual investment in technical skills and governance capability to enable effective local decision-making.

- 1. Fund regional delivery platforms and trusted intermediaries: Invest in organisations that can provide consistent, culturally competent, and place-based support for households, communities, and SMEs.
- 2. Coordinate whole-of-government transition support for business: Align incentives, emissions tools, procurement standards, and advisory services into a unified and accessible package.
- 3. Embed regional skills and workforce planning into transition programs: Co-develop workforce transition plans with local governments, TAFE, First Nations groups, and industry to ensure delivery readiness and job equity.

Q4. What is needed to support a just transition for workers and communities currently dependent on emissions-intensive sectors?

Response:

Communities and workers in emissions-intensive sectors require a transition that is planned, co-designed, and institutionally supported over the long term. Abrupt or uncoordinated shifts risk entrenching disadvantage and social unrest. To be just, the transition must be more than economic—it must be relational, culturally legitimate, and locally governed.

1. Locally led planning and decision-making

Transition strategies are more likely to succeed when communities shape their own futures. This requires investment in governance capability and co-decision structures—particularly in regions with coal, gas, heavy industry, or intensive agriculture. Community Trusts, Regional Transition Authorities, or place-based collaboratives can enable shared power and sustained engagement.

2. Regional economic diversification with equity lenses

Transition must not simply replace jobs one-for-one but shift economic pathways in ways that meet social and ecological needs. Support for circular economy hubs, renewable energy cooperatives, land restoration enterprises, and culturally grounded businesses can create meaningful livelihoods and strengthen community resilience.

3. Bridging skills, identity, and culture

Workers in emissions-intensive sectors often have identities tied to their roles. Retraining must therefore be supported by mentoring, local delivery, and recognition of the value these individuals bring. Skills reform must address not only technical gaps but cultural and place-based transition support—particularly for First Nations workers and those in remote communities.

A fair transition must move beyond workforce statistics and enable governance capabilities in local institutions, SMEs, and regional leadership. Co-governance models in disaster and land stewardship provide relevant precedents.

- 1. Establish regional transition authorities with co-governance mandates: Fund longterm institutions to coordinate planning, delivery, and benefit-sharing across energy, housing, workforce, and environment portfolios.
- 2. Invest in economic diversification strategies grounded in local knowledge: Prioritise funding for circular economy, ecosystem repair, community energy, and culturally led enterprises—not just technology substitution.
- 3. Support regional training ecosystems that value local identity: Enable TAFE, Jobs and Skills Councils, and First Nations organisations to co-deliver training that bridges technical skills with cultural and place-based resilience.

Q5. What opportunities do you see from the transition to net zero and how can they be realised?

Response:

The transition to net zero presents NSW with transformational opportunities to rewire its economy, strengthen its communities, and regenerate natural systems. Realising these opportunities requires integrated, long-term investment in institutions, skills, markets, and place-based partnerships.

1. Regional economic renewal and job creation

Decarbonisation can catalyse new industries and employment across NSW, particularly in renewable energy, land restoration, clean manufacturing, and the circular economy. This is already evident in regions like Hepburn, where community energy and local storage initiatives have generated climate and social value (Hepburn Energy, 2024). The opportunity lies in replicating such models—tailored to place, workforce, and governance readiness.

2. Industrial and supply chain innovation

NSW is well-positioned to develop competitive low-carbon products and services, including low-emissions materials, precision agriculture, and advanced recycling. Supporting applied R&D, regional manufacturing, and supplier engagement can accelerate these sectors. Past experience shows that strategic collaboration with suppliers—including joint risk mitigation and performance frameworks—improves sustainability outcomes (Guerin, 2021).

3. Regeneration of land, ecosystems, and natural capital

Nature-based solutions offer dual benefits for emissions reduction and resilience. Wellgoverned investments in carbon farming, reforestation, wetland restoration, and Indigenous land management can repair degraded landscapes while creating livelihoods. However, as noted in governance research (Guerin, 2024), these benefits are only realised when supported by durable, place-based institutions—not fragmented grants.

- 1. Scale regionally led economic renewal initiatives: Prioritise investment in community energy, land restoration, and circular economy hubs that generate jobs and resilience in regional NSW.
- 2. Support supplier-focused innovation partnerships: Co-invest in clean supply chains by supporting R&D, regional manufacturing, and risk-sharing with suppliers in hard-to-abate sectors.
- 3. Institutionalise funding for nature-based solutions: Move beyond short-term environmental grants to fund long-term, community-led institutions that deliver land-based carbon, biodiversity, and cultural governance outcomes.

Q6. How should we manage the risk of emissions reduction activities that have low integrity or limited impact?

Response:

The risk of low-integrity or low-impact emissions activities is one of the most serious threats to the credibility and success of NSW's net zero transition. These risks undermine public trust, erode investor confidence, and delay meaningful decarbonisation.

1. Strengthen governance of carbon and environmental claims

Misleading or overstated emissions claims—especially around offsets, renewable gas, and sustainability credentials—are becoming more frequent. As recent governance analysis highlights (Guerin, 2025), directors, regulators, and policymakers must take greater care in verifying the environmental benefits of emerging technologies and market instruments. This includes implementing verification thresholds, independent assurance, and legally enforceable disclosure obligations.

2. Improve transparency and accountability in credit schemes

Carbon and biodiversity credit markets in Australia have faced scrutiny over issues of permanence, additionality, and fair benefit-sharing. To manage these risks, NSW should require:

- Publicly accessible project registries,
- Risk-adjusted credit ratings,
- Stronger landholder protections and co-benefit disclosure.

3. Reform funding criteria and delivery frameworks

Programs that focus only on emissions quantities often neglect delivery quality, social licence, and implementation readiness. A more robust approach would assess projects based on:

- Institutional capability and governance maturity,
- Distributional equity and landholder risk,
- Integration with long-term place-based strategies.

- 1. Codify integrity standards for emissions claims: Require all state-supported programs and commercial actors to meet clear thresholds for emissions reduction claims, with independent verification and legal accountability.
- 2. Strengthen transparency and risk assessment in credit schemes: Mandate full public disclosure of project characteristics, credit integrity, and landholder terms, with clear guidelines on permanence and co-benefits.
- 3. Embed governance and social licence tests into funding decisions: Ensure all emissions programs include criteria for institutional readiness, community trust, and place-based legitimacy—not just technical abatement potential.

Q7. What role should offsetting play in NSW's transition to net zero?

Response:

Offsetting can play a limited and temporary role in NSW's net zero transition—but it must never substitute for direct emissions reductions or delay structural reform. Offsets are not neutral instruments; they carry significant risks related to integrity, equity, and over-reliance.

1. Prioritise direct abatement over offsets

NSW should adopt the mitigation hierarchy: avoid emissions, reduce them at source, and use offsets only for residual, hard-to-abate sectors. Offsets must not be used to justify business-as-usual practices or to obscure emissions outsourcing through supply chains or consumption.

2. Set clear criteria for offset use and eligibility

Offsets should be limited to residual emissions only, defined sector by sector. Eligibility should require:

- Demonstrable additionality and permanence,
- Strong social licence and co-benefits,
- Governance and landholder protections.

Projects must meet not only technical standards but community legitimacy thresholds.

3. Prioritise offsets with ecological, social, and cultural value

Where offsets are used, they should deliver verified co-benefits such as biodiversity restoration, First Nations land management, or regenerative agriculture. These activities can create jobs and rebuild ecosystem function—but only if governed transparently and backed by robust institutions.

- 1. Adopt a mitigation hierarchy with strict offset limits: Limit offsets to genuinely residual emissions, with a sector-by-sector definition, and prohibit their use in place of feasible direct reductions.
- 2. Define high-integrity offset criteria in state policy: Require all offset projects to demonstrate additionality, permanence, governance safeguards, and cultural and ecological co-benefits.
- 3. Support place-based offset projects that deliver public value: Invest in communitygoverned, nature-based offsets that strengthen biodiversity, cultural land management, and regional economies.

Q8. What opportunities are there to support decarbonisation through innovation, research and development?

Response:

Innovation and R&D are critical to achieving net zero, but their value depends on system readiness, governance alignment, and the ability to scale outcomes equitably. NSW must support applied innovation that delivers measurable public value—not only technological breakthroughs.

1. Support translational research and applied demonstration

NSW should invest in projects that bridge the gap between research and implementation. These include field trials, industrial reuse pilots, and community-scale energy or restoration programs. Initiatives like Second Life Solar³, developed through the NSW Government's Sustainability Advantage program, demonstrate how risk-informed innovation can enable circularity, waste reduction, and emissions gains.

2. De-risk industry transition through systems innovation

Industrial decarbonisation in sectors such as mining, energy, and construction requires investment in R&D linked to operational practice. Past experience shows that barriers often lie not in technology, but in institutional inertia, fragmented incentives, and lack of trust. Innovation should include new business models, contracting frameworks, and supplier engagement methods.

3. Embed equity and governance in innovation funding

Too often, R&D funding overlooks social licence, public benefit, and place-specific needs. Innovation policy should support:

- Indigenous-led research,
- Community-driven technology co-design,
- Evaluation frameworks that include equity, durability, and legitimacy metrics.

- 1. Prioritise applied, place-based innovation funding: Direct public R&D investment toward demonstration projects with real-world emissions reduction and systems integration outcomes.
- 2. Support innovation in business models and governance: Expand the scope of innovation funding to include new delivery models, contracting systems, and supply chain collaboration.
- 3. Embed equity and trust in innovation policy design: Require innovation grants to demonstrate social licence, regional relevance, and measurable co-benefits—not just emissions metrics.

³ The Second Life Solar Project was initiated by the author as a member of the NSW Government's Sustainability Advantage team. It emerged from work with School Infrastructure NSW and the NSW EPA Circular Economy Team to address the growing stockpile of end-of-life (EOL) solar photovoltaic (PV) panels from NSW public schools—expected to reach up to 30,000 panels. Many of these panels remained functional but were at risk of being landfilled due to the absence of reuse standards. Through two co-design workshops using the Lean Business Canvas method, the project identified practical business-led solutions for reuse and repurposing. In 2021, it secured \$200,000 in NSW Government funding to pilot a solar garden in Dubbo using ten-year-old panels from Central West schools. Branded "Second Life Solar," the project demonstrated how small investments (initially \$30,000) could catalyse scalable circular economy outcomes and inform product stewardship policy design.

Q11. Are there particular sectors where NSW should focus effort to reduce emissions?

Response:

While all sectors must contribute to NSW's decarbonisation goals, several offer immediate opportunities for scaled emissions reductions and wider public value. Focused effort in the **infrastructure and construction**, **land use and agriculture**, and **distributed energy** sectors would address high-emitting activities, stimulate innovation, and improve equity and resilience.

1. Infrastructure and construction: activating low-emissions materials markets

Public infrastructure contributes significantly to embodied carbon emissions, yet procurement systems rarely prioritise lifecycle emissions or reuse. The Materials and Embodied Carbon Leaders' Alliance (MECLA) demonstrates how structured collaboration can shift market demand and reduce barriers. Supported through the NSW Low Emissions Building Materials (LEBM) program, MECLA has developed procurement pledges, embodied carbon benchmarks, and guidance for incorporating low-carbon materials into tenders (MECLA, 2023). After five years, approximately 50% of the government's initial direct investment in LEBM was recouped through tangible benefits—such as leveraged co-investment, improved procurement practices, and early policy uptake—indicating a sound return on public funding.

NSW should scale this model by embedding low-carbon procurement requirements in all government infrastructure and housing programs, while supporting SME supply chains and regional manufacturing that meet these targets. This would stimulate the uptake of loweremissions materials such as blended cement, steel alternatives, and recycled construction inputs—many of which are underutilised in the state's infrastructure pipeline.

2. Land use and agriculture: enabling integrated emissions and nature outcomes

The land sector remains central to meeting emissions targets while restoring natural capital. However, land-based schemes have been hampered by integrity concerns and fragmented delivery. NSW can make significant progress by supporting:

- Regenerative and Indigenous-led land management,
- Reformed credit schemes with transparent governance,
- Long-term regional institutions that support landholders to participate effectively.

This approach requires sustained investment, not one-off grants, and integration of biodiversity, cultural, and emissions outcomes through place-based stewardship models.

3. Distributed energy systems: supporting local decarbonisation and energy resilience

Decarbonisation will depend not only on large-scale generation but on the effective integration of distributed energy resources (DER). Hepburn Energy's approach offers a working model of community-owned, multi-technology DER—combining wind, solar, battery storage, and plans for green hydrogen within a democratically governed cooperative (Hepburn Energy, 2024). This structure ensures local reinvestment, public legitimacy, and responsiveness to regional needs.

NSW should support community-scale clean energy systems through investment in orchestration platforms, regulatory simplification, and co-governance models—particularly in areas not well served by the existing grid.

- 1. Decarbonise infrastructure through public procurement reform: Apply lifecycle emissions requirements, low-carbon materials targets, and reuse incentives across all major state-funded infrastructure and housing projects.
- 2. Invest in integrated land-sector emissions programs: Support regenerative and Indigenous-led land management through long-term stewardship models with embedded governance and integrity safeguards.
- 3. Expand support for community-scale distributed energy systems: Enable local energy systems with co-investment, streamlined regulation, and planning support for regional orchestration and storage.

Q12. What are the most important ways to measure and report on progress towards net zero in NSW?

Response:

Measuring and reporting progress towards net zero requires a balanced approach that captures not only technical emissions metrics, but also system readiness, equity, and institutional effectiveness. Over-reliance on high-level emissions inventories can obscure delivery risks, community disengagement, or unintended consequences.

1. Maintain robust, transparent emissions inventories aligned to sector plans

State-wide and sector-specific emissions inventories should remain the foundation of performance reporting. However, reporting must be updated regularly, independently verified, and aligned with the NSW Net Zero Plan sectors and priority initiatives. Methodologies should be made publicly accessible and consistent with national accounting frameworks to support transparency and comparability.

2. Report on delivery, not just outcomes

Beyond tonnes of CO₂-equivalent, NSW should track implementation indicators such as:

- Proportion of government-funded projects using lifecycle carbon tools,
- Uptake of low-carbon procurement frameworks (e.g. MECLA pledges),
- Coverage and effectiveness of community energy and land sector delivery platforms,
- Integration of net zero targets into state and local government budgets.

Such metrics provide early signals of systemic progress and help identify delivery barriers before targets are missed.

3. Include distributional and governance metrics

Progress toward net zero must also be assessed in terms of who is benefiting, who is bearing costs, and whether governance arrangements are inclusive, trusted, and fit for purpose. NSW should publish indicators on:

- Access to programs by regional, Indigenous, and low-income communities,
- Representation of stakeholders in co-design and decision-making processes,
- Institutional capacity to deliver emissions reductions across sectors.

These measures help ensure that the transition remains fair, legitimate, and responsive.

- 1. Strengthen sector-aligned emissions inventories with public verification: Align reporting frameworks to priority sectors, publish methodologies, and ensure independent review of emissions data.
- 2. Track implementation and system readiness indicators: Measure program uptake, procurement reform, delivery coverage, and integration of net zero targets into planning and budgeting processes.
- 3. Include distributional and governance metrics: Monitor access, equity, and governance participation to ensure a fair and inclusive transition.

Q13. Is there anything else you would like to share with the Commission?

Response:

In addition to the specific sectoral, institutional, and delivery issues addressed above, several cross-cutting challenges deserve attention if NSW is to meet its net zero objectives in a way that is effective, equitable, and durable.

1. Strengthen institutional accountability through aligned mandates

A recurring barrier to emissions reduction in government and industry alike is misalignment between policy intent and operational mandates. For example, agencies tasked with infrastructure delivery, natural resource management, or housing often lack embedded net zero requirements, leading to missed opportunities. NSW should align agency KPIs, procurement settings, and regulatory frameworks with climate objectives to improve wholeof-government accountability.

2. Build delivery capability in regional and community institutions

Significant investment is needed in the human and institutional capability required to deliver on climate goals. This includes not only technical skills (e.g. in carbon accounting or energy engineering) but also:

- Governance skills to manage cross-sector partnerships,
- Cultural competence to work effectively with First Nations and regional communities,
- Long-term investment in trusted intermediaries such as cooperatives, NFPs, and local government alliances.

Without this, delivery will remain fragmented and inequitable.

3. Support procurement and supply chain reform through supplier engagement

Emissions reduction cannot be achieved by government and large corporations alone. As outlined in a recent publication (Guerin, 2021), working directly with suppliers to address emissions risks, data gaps, and capability issues is essential. Suppliers are often willing but under-resourced partners in transition. NSW should invest in engagement, training, and contractual frameworks that support them to contribute meaningfully.

- 1. Align agency mandates and incentives with net zero objectives: Embed climate outcomes into infrastructure, housing, and land sector delivery KPIs and reporting frameworks.
- 2. Invest in governance and institutional capability at the local level: Build long-term capacity in regional and community-based organisations to lead implementation across sectors.
- 3. Support supplier engagement and supply chain readiness: Fund engagement mechanisms, training programs, and risk-sharing models to assist suppliers in high-emissions sectors to reduce their footprint and meet new procurement standards.

References

Guerin, T. F. (2022). Business model scaling can activate and grow the biogas-to-grid market in Australia. *Renewable & Sustainable Energy Reviews*, 161, 112389. https://doi.org/10.1016/j.rser.2022.112090

Guerin, T. F. (2025). Governing innovation responsibly: What the ACCC's renewable gas case reveals. *Governance Directions*, 77(6), 11–15.

MECLA (2023). *Impact Report: A summary of sector progress toward low embodied carbon materials*. Materials and Embodied Carbon Leaders' Alliance. <u>https://www.mecla.org.au/resources</u>

Guerin, T. F. (2021). Tactical problems with strategic consequences: A case study of how petroleum hydrocarbon suppliers support compliance and reduce risks in the minerals sector. *Resources Policy*, 74, 102310. <u>https://doi.org/10.1016/j.resourpol.2021.102310</u>

Guerin, T. F. (2022). Business model scaling can be used to activate and grow the biogas-togrid market in Australia to decarbonise hard-to-abate industries: An application of entrepreneurial management. *Renewable and Sustainable Energy Reviews*, 158, 112090. https://doi.org/10.1016/j.rser.2021.112090

Guerin, T. F. (2022). Using integrated risk assessment to enable on-site re-purposing of construction wastes from renewable energy projects to confirm highest value re-use. *Environmental Science and Pollution Research*, 29(6), 8909–8920. https://doi.org/10.1007/s11356-021-16283-2

Guerin, T. F. (2023). Directors must take care not to overstate environmental benefits of products and services. *Governance Directions*, 75(1), 808–813. <u>https://bit.ly/49OwHZp</u>

Guerin, T. F. (2024). Gaps in budget funding for nature. *Governance Directions*, 76(6), 183–188.

Guerin, T. F. (2024). Governance: The vexed question for construction companies—How to govern during the crisis for housing demand without compromising net-zero objectives? *Governance Directions*, 76(10), 270–274.

Guerin, T. F. (2025). Future fit or falling behind? Lessons from recent governance research. *Governance Directions*, 77(5), 13–17.

Guerin, T. F. (2025). Natural capital risk and the federal budget: An emerging governance gap. *Governance Directions*, 77(4), 9–14.

Hepburn Energy. (2024). *Annual Report 2024: Powering our community energy future*. Hepburn Wind Cooperative Ltd. Retrieved from <u>https://www.hepburnenergy.coop</u>