

Submission to the Productivity Commission on the Inquiry into Net Zero and Productivity

Net Zero, Net Gain: Unlocking Productivity Through a Clean Energy Future

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24 August 2025

Executive Summary

Australia's path to net zero is both an environmental necessity and a generational opportunity to boost productivity. By accelerating electrification, improving energy efficiency, and modernising the infrastructure that underpins our economy, we can unlock innovation, reduce costs, and secure Australia's competitiveness in the global clean economy.

Despite progress, current efforts are uneven. Electricity decarbonisation is advancing, but transmission bottlenecks and system strength gaps are slowing renewable integration. Transport, housing, and industry lag behind comparable economies, while agriculture and heavy industry remain difficult to decarbonise. Without a clear productivity lens, these delays risk eroding competitiveness and missing growth opportunities in export-oriented sectors.

To seize these opportunities, Australia must:

- Strengthen the electricity backbone with a market for system strength and anticipatory transmission planning.
- Accelerate EV adoption through return-to-base fleets and nationwide charging infrastructure.
- Decarbonise heavy industry with hydrogen pilots, carbon capture, and electrification of heat.
- Support agriculture via methane-reducing feed, soil carbon schemes, and plant-based proteins.
- Lift building efficiency with tighter codes, concessional finance for retrofits, and electrification incentives.

Infrastructure is the decisive enabler as renewable energy is the linchpin for the majority of decarbonization efforts. Just as cars only proliferated once roads were built, clean technologies will only scale if their enabling systems — transmission, chargers, hydrogen hubs — are in place. These are not supporting factors; they are prerequisites for productivity gains.

The benefits are substantial: lower long-run energy costs, greater resilience through diversified supply chains, enhanced competitiveness under carbon border tariffs, and the creation of new high-skill jobs. With the right sequencing and investment, Australia can make the net zero transition the foundation for the next wave of productivity growth.

The Challenge

Australia has committed to reaching net zero emissions by 2050, yet progress remains uneven. Electricity decarbonisation is accelerating, but bottlenecks in transmission and [system strength](#) are stalling renewable integration. Electrification of transport, housing, and industry lags comparable economies, and agriculture and heavy industry remain challenging sectors. Without a clear productivity lens, these delays risk undermining competitiveness and missing opportunities for growth in export-oriented industries.

Lessons from Global Leaders

International experience shows that decarbonisation can align with productivity growth when sequenced correctly and supported by enabling infrastructure:

- Norway has achieved over [80% EV penetration](#) in new car sales through a combination of tax incentives and dense charging infrastructure.
- Germany and Sweden are piloting green steel ([HYBRIT](#), [Salzgitter](#)) and hydrogen clusters to decarbonise heavy industry.
- The [EU's Energy Performance of Buildings Directive](#) requires nearly zero-energy new builds by 2030, demonstrating how regulation can lift efficiency standards.
- California has mandated increasing shares of zero-emission truck sales, accelerating fleet turnover.
- Denmark has pioneered renewable-powered district heating networks, cutting urban emissions at scale.

Why Enabling Infrastructure Drives Adoption

Just as mass car adoption in the 20th century only occurred after roads were built, EV adoption today depends on charging infrastructure. Consumers will not switch en masse if the enabling infrastructure is absent. This principle applies across Net Zero: renewable uptake requires transmission capacity; EVs require chargers; industrial decarbonisation requires hydrogen hubs. Infrastructure is not a supporting factor — it is the precondition for productivity gains.

Recommendations

To accelerate the transition and capture productivity gains, Australia should adopt the following reforms:

1. Strengthen the electricity sector backbone by creating a market for system strength and encouraging anticipatory transmission planning informed by developer intent, as seen in Spain and Texas.
2. Accelerate EV adoption by prioritising return-to-base fleets (buses, logistics, councils) and rolling out a nationwide charging network, supported by open standards.
3. Decarbonise heavy industry through pilots in hydrogen-based steelmaking, carbon capture in cement, and electrification of low- and medium-heat processes.
4. Support agricultural transformation through scaling of methane-reducing feed additives and robust soil carbon schemes, while fostering plant-based protein industries.
5. Drive residential and commercial efficiency by tightening building codes, supporting mass retrofits through concessional finance, and incentivising electrification of heating and cooking.

Benefits

Accelerating Net Zero reforms is not just about emissions reduction. It delivers tangible productivity gains:

- Lower long-run energy costs by harnessing abundant renewable resources.
- Greater resilience through diversified supply chains and domestic energy independence.
- Enhanced competitiveness for trade-exposed industries under emerging carbon border tariffs.
- Creation of new high-skill jobs in renewable energy, advanced manufacturing, and green services.

Conclusion

Australia has the resources and capability to lead. By sequencing reforms correctly and investing in enabling infrastructure, the transition to net zero can underpin the next wave of national productivity growth.

About the Author

David Lee is an engineer and energy professional with more than a decade's experience in complex systems delivery for the Australian Department of Defence. David has since completed a Master of Sustainable Energy at the University of Queensland to focus on climate and energy transition challenges. He now works in the Australian energy industry, specialising in grid connection, system security, and policy reform to accelerate renewable integration. His work combines technical expertise with a systems-level perspective on market design, regulation, and sustainability.