



SUBMISSION

Submission to the Senate Select Committee on Australia's Productivity - Clean Energy, Electrification, Net Zero and the Environment

Submission to Senate Select Committee – October 2026

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About the Smart Energy Council

The Smart Energy Council (SEC) is Australia's peak body for the renewable energy and storage industry, representing over 700 member companies across solar, battery storage, energy management, and related clean energy sectors. Our membership spans technology manufacturers, installers, retailers, financiers, and policy advocates, all committed to accelerating Australia's transition to clean, affordable energy.

Introduction

The Smart Energy Council (SEC) welcomes the opportunity to provide an additional submission to the Senate Select Committee on Australia's Productivity.

We appreciate the Committee's focus on commercial building electrification, transport, sustainable aviation fuel, waste-to-energy, and product stewardship for electric vehicles and solar panels, as outlined in recent hearings.

We further welcome the Committee's invitation for additional evidence on how strategic productivity growth and other policy measures can drive productivity in the environment sector and related industries including agriculture, forestry, fishing, and mining. Avenues to more efficiently build out renewable energy projects and encourage private investment in environmental policy, projects and sustainability are core to the SEC purpose. SEC's members operate at the intersection of these industries, and we address these matters directly in this submission.

The SEC is the peak independent body for Australia's smart energy industry, representing over seven hundred residential, commercial, and large-scale renewable generation and storage companies, smart transport, manufacturing and stewardship organisations, and the renewable hydrogen and ammonia industry. Our members are central to Australia's productivity transformation, enabling cheaper, cleaner energy and supporting the shift to net zero emissions.

Our submission builds on our previous contribution to the Productivity Commission's interim report *Investing in cheaper, cleaner energy and the net zero transformation*, which we broadly supported.

Summary of Recommendations

Commercial Building Electrification

Recommendation 1: Develop a National Commercial Building Electrification Roadmap that aligns electrification with distributed energy resources, demand flexibility and productivity objectives.

Recommendation 2: Introduce targeted investment incentives, including accelerated depreciation, concessional finance and tax measures, to support commercial electrification projects.

Recommendation 3: Enable commercial buildings to participate fully in demand response, virtual power plant and energy flexibility markets.

Recommendation 4: Address landlord-tenant split incentives through standardised green leasing and benefit-sharing arrangements.

Transport Productivity and Electrification

Recommendation 5: Reform the Fuel Tax Credit framework through a cap-and-reinvest model that supports productivity-enhancing transport investments.

Recommendation 6: Support electric truck deployment through purchase incentives, accelerated depreciation, concessional finance and fleet transition programs.

Recommendation 7: Accelerate investment in freight charging infrastructure and streamline network connection processes.

Recommendation 8: Maintain nationally consistent electric vehicle incentives to support fleet turnover and lower operating costs.

Recommendation 9: Implement nationally harmonised EV charging standards and infrastructure requirements.

Recommendation 10: Hypothecate future road-user-charge revenue into EV charging infrastructure and transport electrification initiatives.

Recommendation 11: Establish a nationally consistent EV policy framework to reduce compliance burden and improve investment certainty.

Sustainable Aviation Fuel and Renewable Fuels

Recommendation 12: Prioritise Sustainable Aviation Fuel (SAF) for aviation applications where electrification is not currently feasible.

Recommendation 13: Direct renewable diesel toward sectors that remain difficult to electrify, including mining, agriculture and heavy industry.

Recommendation 14: Establish a SAF and renewable fuels investment framework incorporating capital support, feedstock certification and long-term market incentives.

Waste-to-Energy and Industrial Transformation

Recommendation 15: Develop nationally consistent Waste-to-Energy definitions and regulatory frameworks.

Recommendation 16: Require lifecycle emissions assessments and continuous emissions monitoring for all Waste-to-Energy facilities.

Recommendation 17: Ensure Waste-to-Energy policy settings do not undermine recycling, reuse and resource recovery outcomes.

Recommendation 18: Require transparent economic assessments demonstrating productivity and public-benefit outcomes.

Recommendation 19: Position Waste-to-Energy as a residual waste treatment solution within a broader circular economy framework.

Product Stewardship and Circular Economy

Solar Panels and Batteries

Recommendation 20: Establish a national product stewardship scheme for solar panels and stationary batteries.

Recommendation 21: Introduce mandatory recycling and material recovery targets.

Recommendation 22: Invest in domestic recycling, remanufacturing and resource recovery capacity.

Recommendation 23: Implement producer responsibility obligations for manufacturers and importers.

Recommendation 24: Create nationally consistent regulations governing battery transport, storage, reuse and recycling.

Recommendation 25: Support the development of second-life battery markets and applications.

Recommendation 26: Invest in advanced recycling technologies and innovation.

Recommendation 27: Establish a national collection network serving metropolitan, regional and remote communities.

Recommendation 28: Introduce product design standards that improve repairability, reuse and recyclability.

Recommendation 29: Develop a national product data, traceability and reporting framework.

Recommendation 30: Use government procurement to support markets for recycled and recovered materials.

Recommendation 31: Support domestic processing and reuse of recovered critical minerals and strategic materials.

Electric Vehicles

Recommendation 32: Establish a national EV battery stewardship scheme.

Recommendation 33: Develop standards for second-life EV battery applications.

Recommendation 34: Implement nationally consistent EV battery recycling and disposal requirements.

Environmental Regulation and Approvals Reform

Recommendation 35: Ensure Environment Protection Australia and Environment Information Australia are adequately resourced to deliver efficient assessments.

Recommendation 36: Finalise and implement National Environmental Standards to improve regulatory certainty and consistency.

Recommendation 37: Establish specialist approvals teams with regional expertise to reduce assessment delays.

Recommendation 38: Limit any Coordinator-General function to circumstances where it demonstrably improves assessment efficiency.

Recommendation 39: Explicitly recognise renewable energy, transmission infrastructure and critical minerals projects as strategically important to Australia's productivity and economic transition.

Agriculture, Renewable Energy and Critical Minerals

Recommendation 40: Develop national guidance supporting agrivoltaics and other dual land-use renewable energy developments.

Recommendation 41: Harmonise state and territory approval pathways for renewable energy projects on agricultural land.

Recommendation 42: Establish consistent community engagement and landholder benefit-sharing frameworks.

Recommendation 43: Implement prioritised and parallel approval pathways for critical minerals and renewable energy infrastructure projects.

Recommendation 44: Improve coordination and information sharing between Commonwealth and state regulators to eliminate duplication.

Recommendation 45: Support the responsible deployment of digital and AI-assisted approvals systems to improve assessment efficiency.

Recommendation 46: Recognise critical minerals supply chains as essential infrastructure supporting national productivity, energy security and economic resilience.

Overarching Recommendation

Recommendation 47: Place electrification, renewable energy deployment, transport decarbonisation, circular economy initiatives, approvals reform and critical minerals development at the centre of Australia's long-term productivity strategy.

Electrification of Commercial Buildings

Electrification of commercial buildings is one of Australia's most significant productivity opportunities. Electrified commercial and industrial buildings reduce operating costs, improve energy efficiency, and unlock demand-side flexibility that supports grid stability.

The Smart Energy Council's Missing Middle research demonstrates that commercial buildings represent a major untapped opportunity for emissions reduction, energy cost savings and grid flexibility. While electrification technologies are commercially available and increasingly cost-effective, deployment is often constrained by upfront capital costs, split incentives between landlords and tenants, limited access to finance, and barriers to participation in energy markets.

The report finds that policy should not focus solely on replacing fossil fuel equipment with electric alternatives. Instead, commercial building electrification should be integrated with rooftop solar, battery storage, smart energy management systems and demand-response capabilities to maximise both economic and system benefits.

1.1 Key Recommendations

National Commercial Building Electrification Roadmap

Develop a coordinated national roadmap that aligns building electrification with distributed energy resources (DER), energy productivity and demand flexibility objectives. This should include nationally consistent regulations, support for efficient electric technologies, and pathways for commercial buildings to participate in electricity markets.

Targeted Investment Incentives

Introduce accelerated depreciation, investment tax incentives and concessional finance for commercial electrification projects. The Missing Middle report identifies upfront capital costs as one of the primary barriers preventing otherwise economic investments from proceeding.

Unlock Demand Flexibility

Enable commercial buildings to participate in demand response, virtual power plants and aggregated flexibility markets. The report highlights demand flexibility as a significant but underutilised resource that can reduce system costs, support renewable energy integration and improve grid reliability.

Address Split Incentives

Develop measures to overcome landlord-tenant barriers that prevent investment in energy upgrades, including standardised green lease arrangements and mechanisms for sharing the benefits of electrification and DER investments.

1.2 Expected Outcomes

A commercial building electrification strategy informed by the Missing Middle report would:

- Reduce operating costs for businesses.
- Accelerate uptake of distributed energy resources and battery storage.
- Increase flexible demand available to the electricity system.
- Improve energy productivity and competitiveness.
- Reduce emissions from commercial buildings.
- Support a more reliable and lower-cost electricity system.

Commercial and Industrial building electrification should be viewed not simply as a decarbonisation measure, but as an opportunity to unlock the full value of commercial buildings as active participants in Australia's future energy system.

2. Transport Productivity: Heavy Vehicles, Light Vehicles and Road User Charging

Transport remains one of Australia's most productivity-constrained sectors due to high fuel costs, diesel dependence, and slow EV uptake.

Heavy vehicles

Diesel use accounts for 17% of Australia's emissions, and the current Fuel Tax Credit (FTC) scheme creates a strong incentive to continue diesel consumption:

It returns off-road users 51.6 cents per litre or \$191 per tonne of CO₂ compared with the current price of an ACCU at around \$37.

This is a structural productivity barrier.

We reiterate our support for the cap-and-reinvest model, which would mobilise billions in clean capital investment without affecting farmers or small operators.

Electrification of Freight

Freight transport is essential to Australia's productivity, but it remains heavily dependent on imported diesel, exposing businesses to fuel price volatility and increasing emissions.

Electrification offers a pathway to lower operating costs, improved energy security, and a more efficient freight network.

Electric trucks are significantly more energy efficient than diesel vehicles and have lower maintenance requirements, reducing whole-of-life operating costs for freight operators. As vehicle costs continue to fall and charging infrastructure expands, electrified freight is expected to become the most cost-effective option across a growing range of freight tasks, particularly urban, regional and depot-based operations.

However, the higher upfront cost of electric trucks remains a major barrier to adoption. Targeted government support, including purchase incentives, concessional finance, accelerated depreciation arrangements and fleet transition programs, can help bridge the initial cost gap and accelerate deployment. Similar support has played a critical role in scaling electric vehicle markets internationally and can help Australian freight operators access productivity gains sooner.

Freight electrification also strengthens Australia's productivity by reducing reliance on imported fuels and enabling transport to be powered by low-cost domestically generated electricity. Combined with Australia's abundant renewable energy resources, electrified freight can improve business competitiveness while supporting emissions reduction objectives.

Key Recommendations

To realise these benefits:

- Governments should support electric truck purchases,
- Invest in freight charging infrastructure,
- Streamline grid connection processes, and
- Remove regulatory barriers that delay fleet uptake.

A coordinated approach will accelerate the transition to a lower-cost, more productive and more resilient freight sector.

Light vehicles

We caution against removing EV purchase incentives without replacement measures:

Any change to existing incentives must be paired with other measures so as not to reduce the uptake of electric vehicles.

Key Recommendations

- Nationally consistent EV incentives and charging standards
- Hypothecation of road-user-charge revenue into EV infrastructure
- A single national scheme to reduce compliance burden and improve productivity.

3. Sustainable Aviation Fuel (SAF) and Renewable Diesel

The Committee's focus on sustainable aviation fuel (SAF) is timely. Australia must adopt low-carbon liquid fuels as an interim measure while electrification and hydrogen aviation mature.

Key Recommendations

- SAF should be prioritised for hard-to-abate sectors, not used to prolong fossil diesel use.
- Renewable diesel should be directed to mining, agriculture, and heavy industry where electrification is not yet feasible.
- Government should establish a SAF and Renewable Diesel Investment Framework to accelerate domestic production, including:
 - capital support for biorefineries
 - feedstock certification standards
 - long-term offtake agreements with airlines and freight operators

This aligns with our broader position that incentives must drive genuine decarbonisation rather than delay transitions.

4. Waste-to-Energy and Industrial Transformation

Waste-to-Energy: Productivity-Focused Recommendations

Waste-to-Energy (WtE) can only contribute to national productivity if it is deployed in a way that strengthens rather than undermines Australia's circular-economy, emissions-reduction, and waste-avoidance objectives. Current proposals often rely on long-term feedstock contracts, high gate fees, and optimistic emissions assumptions that risk locking in inefficient system design and higher long-term costs for households and councils.

Key Recommendations

- Adopt nationally consistent definitions and standards for WtE, including clear treatment of biogenic waste, to reduce regulatory duplication and improve investment certainty.
- Require independent lifecycle emissions assessments and continuous emissions monitoring to ensure WtE facilities operate within Australia's decarbonising energy system without overstated climate benefits.
- Protect recycling and organics recovery by preventing feedstock lock-in arrangements that reduce flexibility and undermine higher-value waste streams.
- Mandate transparent economic modelling, including gate-fee impacts on councils and households, to ensure WtE proposals demonstrate genuine productivity gains compared with alternatives such as advanced recycling and improved landfill-gas capture.
- Position WtE strictly as a residual treatment option, ensuring it complements rather than competes with waste-avoidance, reuse, recycling, and FOGO expansion.

This reflects our broader Safeguard Mechanism position that compliance should catalyse industrial transformation:

Move beyond a narrow focus on emissions accounting to assess whether the mechanism is catalysing industrial transformation and infrastructure investment.

5. Product Stewardship: Solar Panels, Batteries and EVs

Australia's clean energy productivity depends on robust stewardship systems for solar panels, batteries, and electric vehicles.

Solar panels and batteries

A Productivity and Circular Economy Opportunity

Australia's clean energy transition depends not only on the deployment of solar panels and batteries, but also on establishing effective end-of-life management systems that recover valuable materials, support domestic manufacturing and reduce waste. As installations continue to accelerate across households, businesses and large-scale energy projects, a growing volume of solar panels and batteries will reach replacement, upgrade or end-of-life stages over coming decades. The absence of nationally consistent stewardship arrangements risks creating a significant productivity loss through the disposal of valuable resources and the underutilisation of emerging recycling industries.

Evidence from Smart Energy Council-led recycling pilots demonstrates that solar panel decommissioning is occurring much earlier than previously forecast, primarily due to

technology upgrades and system repowering rather than product failure. Nationally, an estimated 3.4 million solar panels were decommissioned in 2025, with volumes expected to grow substantially in coming years. At the same time, Australia's solar fleet contains significant quantities of silver, copper, aluminium, silicon and other critical materials that can be recovered and returned to productive use. The Smart Energy Council estimates this resource recovery opportunity exceeds \$7.3 billion by 2043.

Productivity gains can be achieved by treating end-of-life solar and battery assets as a source of valuable secondary resources rather than waste. Developing domestic collection, reuse, repair, remanufacturing and recycling capacity can create regional employment, stimulate private investment, strengthen sovereign manufacturing capability and reduce reliance on imported critical minerals. This aligns closely with Australia's broader productivity, circular economy and Future Made in Australia objectives.

However, current market arrangements remain fragmented and inefficient. Recycling infrastructure remains underdeveloped, logistics costs are high, state-based regulatory approaches are inconsistent, and businesses face limited certainty regarding future stewardship obligations. Lessons from existing product stewardship arrangements suggest that voluntary approaches are vulnerable to free-rider behaviour and underinvestment, while nationally consistent mandatory schemes provide stronger investment signals and better resource recovery outcomes. The Productivity Commission has similarly recognised the value of regulated product stewardship arrangements for solar photovoltaic systems.

The Smart Energy Council supports the establishment of nationally consistent product stewardship schemes for solar panels, batteries and electric vehicle batteries. Such schemes should support collection networks, material recovery targets, traceability systems, second-life applications, advanced recycling technologies and domestic processing capability. Government procurement policies should also encourage the use of recycled materials and recovered critical minerals, helping create long-term demand and improving commercial viability.

A strong stewardship framework will improve resource productivity, foster new industries, reduce landfill disposal and support Australia's transition to a more circular and competitive clean energy economy. By ensuring solar panels and batteries remain productive assets throughout their lifecycle, Australia can maximise the economic value of its clean energy investments while strengthening supply chain resilience and supporting sustainable growth.

Key Recommendations

- A national product stewardship scheme for solar panels and stationary batteries.
- Mandatory recycling and material recovery targets.
- Investment in domestic recycling capacity to reduce reliance on overseas processing.
- Clear producer responsibility obligations that require manufacturers and importers to contribute to collection, recycling and disposal costs.

- Nationally consistent regulations governing the transport, storage, reuse and recycling of batteries.
- Incentives for battery second-life applications, including stationary energy storage.
- Funding for research, development and commercialisation of advanced recycling and resource recovery technologies.
- Establishment of a national collection network to improve access to recycling services in regional and remote communities.
- Product design standards that improve repairability, recyclability and material recovery rates.
- A national data and traceability framework to track products through their lifecycle and improve recovery outcomes.
- Government procurement policies that support products containing recycled critical minerals and recovered materials.
- Development of domestic markets for recovered glass, aluminium, silicon, lithium, nickel, cobalt and other valuable materials.

Electric vehicles

The Committee's interest in EV stewardship is critical. Australia must prepare for large volumes of end-of-life EV batteries and components.

Key Recommendations

- A national EV battery stewardship scheme
- Standards for second-life applications (e.g., stationary storage)
- Clear rules for recycling, reuse, and safe disposal

These measures directly address lost productivity from unmanaged waste streams and align with the Committee's focus on circular economy efficiency.

6. Regulatory Reform and Approvals Efficiency

The SEC strongly supports reforms that accelerate renewable energy project approvals. The Environment Protection Reform Act 2025 and related legislation, passed by Federal Parliament on 28 November 2025, deliver the most significant overhaul of the EPBC Act

since 1999, establishing Environment Protection Australia (EPA), Environment Information Australia (EIA), and a suite of National Environmental Standards. As stated in our previous submission:

The Australian government may wish to consider specific arrangements for renewable energy projects including template adaptive management frameworks.

With the reforms now in staged implementation through to 2028, and the most consequential changes to the new approval tests tied to the National Environmental Standards which are due to commence by 1 December 2026, the priority has shifted from legislative design to delivery.

Key Recommendations

- Adequately resourcing EPA and EIA so that new statutory timeframes and standards do not create fresh bottlenecks during the transition
- Finalisation of the Matters of National Environmental Significance and Environmental Offsets Standards on schedule, to give proponents and investors certainty
- Specialist strike teams with regional ecological expertise
- A Coordinator-General only if it materially improves efficiency
- Explicit consideration of the energy transition and the critical minerals supply chains it depends on for approval decisions

These reforms are essential to unlocking productivity gains from faster deployment of renewable energy, transmission, storage, and as addressed in Section 7 below; from faster delivery of the critical minerals projects that supply chain depends on.

7. Productivity in the Environment Sector and Related Industries: Agriculture, Forestry, Fishing and Mining

The Committee has invited further evidence on how strategic productivity growth and policy reform can drive productivity in the environment sector and related industries such as agriculture, forestry and fishing, and mining. This includes avenues to reduce red and green tape and encourage private investment in environmental policy, projects and sustainability. SEC members sit at the intersection of these industries: renewable energy and storage projects increasingly share land with agriculture, depend on the critical minerals the mining sector produces, and are subject to the same environmental approvals and offsets regime as forestry and land management activities. We offer the following evidence and recommendations.

7.1 Renewable energy and agricultural land use

Well-designed co-location of renewable generation and storage with agriculture and grazing under solar arrays, cropping between wind turbine rows, and agrivoltaic design. This allows farmers to diversify income while land continues to be used productively. Uncertainty about planning treatment, native title and heritage overlaps, and inconsistent state approaches to prime agricultural land assessment currently add avoidable cost and delay to co-located projects.

Key recommendations

- National guidance on dual land-use (agrivoltaic and grazing co-location) design standards, to give planning authorities, landholders and proponents a consistent basis for assessment
- Streamlined, harmonised state land-use approval pathways for renewable projects on agricultural land, avoiding duplicative assessment of the same agronomic and heritage matters
- Standardised community and landholder benefit-sharing frameworks to build regional support and reduce approval contestation

7.2 Mining, critical minerals and the clean energy supply chain

SEC members depend on a reliable domestic and global supply of critical minerals eg. copper, lithium, nickel and rare earths used for solar panels, batteries, wind turbines and transmission infrastructure. Approvals timeframes for resources projects have lengthened materially: the Minerals Council of Australia reports that average decision times for resources projects increased 60 per cent, from 2.3 years in 2019 to 3.8 years in 2025, and estimates that a 12-month delay across the new mining project pipeline could cost the Australian economy \$51 billion in cumulative GDP. More than 5,000 km of transmission lines and 26,000 homes are caught in the same approvals backlog, illustrating that this is a shared bottleneck for mining and clean energy infrastructure alike. Industry analysis of the Greenbushes lithium expansion points to a 24-month approval extension adding roughly \$85 million in cost and an 18-month delay to production which is the kind of overlapping Commonwealth and state assessment SEC has long argued should be streamlined, not duplicated.

Key recommendations

- Prioritised, parallel (not sequential) assessment pathways for critical minerals and clean energy enabling infrastructure that share the same approvals bottleneck
- Commonwealth support for information-sharing between Commonwealth and state regulators so identical environmental and heritage criteria are not assessed twice under separate legislative frameworks

- Cautious support for AI-assisted approvals tools of the kind piloted through Minerals Week 2026, provided their use is transparent and does not reduce assessment quality or public accountability
- Recognition of critical minerals supply for batteries, solar and wind manufacturing as part of the "energy transition" consideration recommended in Section 6

Conclusion

Australia's productivity challenge is inseparable from its energy transition, and as the Committee's expanded terms of reference recognise the health of the environment sector, agriculture, forestry, fishing and mining industries depend on and support it. Electrification, clean fuels, stewardship reform, modernised approvals systems, and a properly functioning market for private investment in nature will together reduce costs, improve competitiveness, and accelerate progress toward sustainable renewable energy.

The Smart Energy Council thanks the Senate Select Committee for the opportunity to provide this submission and welcomes further engagement on the matters raised.

If you have any queries on the issues raised, please do not hesitate to contact Rob Potter, Head of Policy and Advocacy, rob.potter@smartenergy.org.au.

Kind regards,

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Smart Energy Council