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To: Climate Change Authority
Re: 2026 Annual Progress Advice consultation paper

Thank you for the opportunity for the Institute for Energy Economics and Financial Analysis (IEEFA) to provide input to the Climate Change Authority (CCA)'s 2026 Annual Progress Advice consultation paper.

IEEFA is an independent energy finance think tank that examines issues related to energy markets, trends and policies. The Institute's mission is to accelerate the transition to a diverse, sustainable and profitable energy economy.

In this submission we have outlined IEEFA's relevant analysis and perspectives on the reference pathways, preliminary analysis, priority policy opportunities and the Safeguard Mechanism.

Kind regards,

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Reference pathways and preliminary analysis

Question 1: What are your views on the proposed approach for setting reference pathways to assess progress, including strengths, limitations and any alternative approaches that should be considered?

The reference pathway proposal offers key improvements on the status quo, by:

- Increasing government/stakeholder ability to assess progress.
- Identifying required sector-specific attention, including policy reform.
- Laying groundwork for future formal sector-specific emissions reduction targets.

CCA's preference for highly individualised sector pathways, and an adaptive and instructive – rather than rigid and prescriptive – approach to their formation, has merits. But the risks include:

- Inviting insufficiently ambitious action relative to what is technically feasible.
- Jeopardising longer-term net zero achievement through unrealised short-term potential.
- Placing heavier burden on certain sectors and states/localities where they concentrate.

The CCA's proposed non-linear, high ambition pathways for transportation and electricity reflect high confidence that established trendlines will continue. But it is unclear that other sectors warrant more linear, less ambitious pathways. For example:

- Decarbonising the resources sector largely requires evolving and adapting solutions that underpin electricity and transportation progress.
- In industry:
    - The "hard-to-abate" label can obscure the short-term potential of measures including energy efficiency, decarbonised electricity, electrification of low heat, or the circular economy.
    - Continued efficiency improvements can bring forward the price crossover between renewables and fossil fuels in industrial applications such as hydrogen electrolysers.
    - Abandoning a "production-centric" lens can help eliminate genuinely difficult emissions, e.g. materials efficiency can reduce demand for goods such as traditional clinker cement, which generates unavoidable process emissions.

In response, CCA could:

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- Expand reference pathway ambition to reflect what would be technically feasible with additional policy support.
- Maintain existing pathways but develop parallel "best practice benchmarks" for highest technically feasible mitigation under optimal conditions, with international references.

Additions to CCA's proposed "metrics tracking economic transformation" could include:

- Economy-wide energy efficiency improvement (either % or volumetric change).
- Renewable share of electricity consumption in the resources and industry sectors (%).
- Low- or zero-emissions goods, e.g. green metals, production (volumetric).
- Fossil to electrification substitution in resources and industry (%).

Question 2: What signs are you seeing of emissions reductions across industries, businesses, households or investors? What barriers or delays to abatement are you observing?

Key signs of emissions reductions we are observing include:

- The pace and scale of residential battery uptake since the commencement of the *Cheaper Home Batteries Program* has far exceeded most forecasts.
- Residential battery uptake is accompanying a surge in rooftop solar capacity additions.
- Electricity sector emissions have dropped as renewable energy and storage have displaced gas and coal.
- Transport sector emissions have dropped with lower petrol use, which could be attributed to more fuel-efficient vehicles and growing adoption of electric vehicles (EVs).
- Emissions reductions in resources and industry have mostly come from facility closures and Australian Carbon Credit Unit (ACCU) offsets. But committed investments in the past 2-3 years could see future production-centric improvement, e.g. Rio Tinto's renewable power purchase agreements for Gladstone aluminium; Fortescue's Pilbara renewables/electrification drive; Orica's final investment decision on Hunter green hydrogen.

Key barriers or delays to abatement we are observing include:

- Uptake of household energy efficiency upgrades remains well below economic levels.
- There are inadequate solutions to accelerate uptake of rooftop solar, batteries or efficient technologies in rental properties, which comprise 30% of households.

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- Large-scale renewable energy is not being deployed at an adequate rate to meet the Renewable Energy Target (RET). Key challenges identified by stakeholders include transmission buildout delays; planning approvals; grid connection process and curtailment / negative pricing; grid access and congestion; lack of clear market incentives; environmental assessments; coal closure uncertainty, community opposition / social licence; and tax treatment.

- The Iran war-linked fuel crisis revealed the depth of Australia's diesel dependence in freight and other transport, mining, and agriculture. Diesel has considerably inelastic demand, which is both an emissions and energy security liability. The policy landscape – including road user charges, the Diesel Fuel Tax Credit (DFTC) system, the continuing lack of efficiency standards in some sectors (e.g. heavy vehicles), and uncoordinated infrastructure provision – have heavily contributed to overdependence.

- Safeguard Mechanism-covered facilities and operators continue to rely on ACCU offsets rather than onsite abatement strategies for compliance. This is driven by economic and policy imperatives – for example, for resources companies the DFTC benefits significantly exceed the cost of offsets, removing any economic incentive for abatement.

- Developing bankable Australian green industrial projects – both greenfield and brownfield – remains challenging. Major barriers include a lack of effective carbon pricing (especially among Australia's trading partners), lack of guaranteed offtake/demand for clean goods, and an underdeveloped enabling environment, e.g. poor grid/renewable access.

- Long approvals timelines for projects providing upstream inputs into green exports (e.g. high-grade magnetite for direct reduced iron) are slowing the pace of investment in Australia. In the case of green iron, these inputs are forecast to be undersupplied by 2030, potentially restricting Australia's ability to compete in this market.

Priority policy opportunities

Question 3: What do you see as the top priorities for climate policy reform and why?

Top priorities for climate policy reform include:

- Targeted policies to increase uptake of DER and energy efficiency technologies in the residential sector. This could include minimum energy efficiency rental standards, updated minimum energy efficiency standards for appliances, and a comprehensive national incentive program for household energy upgrades.

- Improved consideration and integration of the demand side into energy planning, regulations and markets. This includes energy efficiency, solar, storage and demand flexibility. (New Zealand began using demand response in 2007 and now meets over 16% of peak demand through demand response programs, while in some US states it is used to meet more than 10% of peak demand for electricity.)

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- Developing a comprehensive, long-term framework for coal exits that provides more certainty on coal closure timelines and therefore more certainty for investors in replacement capacity. A recent Clean Energy Investor Group survey found that introducing coal closure certainty was the second-most effective regulatory or policy measure to unlock greater renewables investment in Australia (after an expedited transmission rollout).

- Reforming the Safeguard Mechanism to incentivise decarbonisation of resources and industry in particular. This should primarily seek to limit the use of ACCUs and incentivise investment in onsite abatement.

- Reforming the DFTC – perhaps by capping the level of rebates able to be claimed – to remove a disincentive to decarbonisation of resources, transport, and downstream industry.

- Provide additional demand-side support and directing existing grant support for clean exports towards integrated projects using renewable energy and with secured offtake. This could avoid failures seen in clean industry projects in the US and EU.

Question 4: What actions could help households adopt solar, batteries, electric vehicles and home electrification?

Key actions that could help households adopt solar, batteries, EVs and home electrification include:

- A comprehensive national incentive scheme for household energy upgrades: the Small-scale Renewable Energy Scheme (SRES) is currently limited to rooftop solar, batteries and hot water systems. State-level incentive schemes vary considerably in their scope and availability.

- More accessible financing via no- or low-interest loans for household energy upgrades. The Clean Energy Finance Corporation (CEFC)'s *Household Energy Upgrade Fund* has had very limited success, reaching only 4,100 households.

- A national phase-out plan for gas and inefficient electric appliances.

- Updated minimum energy efficiency standards for major household appliances, for instance via modernising the Greenhouse and Energy Minimum Standards Act.

- Minimum energy efficiency standards for rental properties.

- Mandatory disclosure of household energy ratings at point of sale or lease.

- Ensure distribution network revenue regulation enables DER integration. Network revenue regulation was designed to reward distribution businesses for facilitating one-

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way flows of electricity, including construction of assets to meet peak network flows. Networks today need to enable two-way flows and DER integration.

- A managed plan to deal with the physical and financial implications of phasing down gas distribution networks.

- Governments should also consider developing demand response requirements for major household appliances. This would help support the grid through more flexible demand-side resources.

Question 5: What are the key barriers to the growth of low emissions industries in Australia? What government policies or initiatives could most effectively strengthen demand for Australian low emissions products and services, including low carbon liquid fuels? Please provide evidence or analysis to support your views.

- An uneven playing field between grey and green industrial production is the principal barrier. This would ideally be corrected via a market incentive which appropriately prices the lower environmental impact of green production, inclusive of traded commodities.

- Safeguard Mechanism reform is a priority in the current environment. Coupled with direct and indirect subsidies to fossil fuel use, the Safeguard Mechanism does not incentivise green industrial production. Removing the incentive to offset emissions through cheap ACCUs is critical. Safeguard facilities can also generate carbon credits from only partially reducing highly emitting activities, in a manner that truly green operations cannot. This imbalance should also be addressed (see Question 6 for more detail).

- Lack of guaranteed demand compounds the challenge of creating bankable clean industrial projects. Government can act as a direct or indirect – i.e. through conditions placed on contracted services – off-taker of green goods. It can also invite private demand through direct mandates or indirect incentives, including fiscal/regulatory (e.g. relaxed competition laws for coordinated buying) reforms. In addition, creating a market for environmental certificates (similar to the approach of the RET or the New Vehicle Efficiency Standard) can subsequently increase physical trade.

- Economy-wide targets for production and consumption of green goods could also accelerate market creation. Australia could provide clearer and more ambitious taxonomy and certification regimes for clean industrial goods, to attract finance and demand. Taxonomies and certification regimes should still channel finance and other support to 'transitional' industries and facilities that have credible decarbonisation plans.

- Other valuable regulatory supports include embodied carbon limits and performance-based (over prescriptive) standards regimes. The latter, already established in Australia's transport sector, could allow market acceptance of lower emission goods with differing physical characteristics but ability to demonstrate the same functionality as incumbents.

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- Given the reliance of many Australian industrial sectors on exports and foreign direct investment – and related energy and resource security interdependencies – coordinating both demand- and supply-side with trading partners would be ideal. Australia and its partners could build new green trade agreements and institutions where necessary.

- Government should still consider additional production-centric reform. Future Made in Australia aid could be finetuned to meet intermediate needs – for example, production credits for precursor products such as alumina in addition to aluminium, and publicly derisked procurement of production inputs, led by renewable energy (as has been pioneered at the Tomago smelter).

- Other necessary decarbonisation-enabling support measures include: tailoring grid infrastructure provision and access regimes to heavy industry needs; priority tracks for green over grey project approvals; providing common user infrastructure, workers, and precompetitive R&D; and facilitating industry co-location and efficiency-boosting economic integration.

- Policies could integrate support with existing priorities. Governments could set a mandated level of low emissions liquid fuels in newly announced oil storage requirements being developed in response to the Iran crisis, for example.

The Safeguard Mechanism's contribution to national targets

Question 6A: The Safeguard Mechanism's current baseline decline rate is calibrated so the scheme delivers a proportional share of Australia's 2030 emissions reduction target. What are the advantages and disadvantages of continuing this approach beyond 2030? If the proportional share approach should be maintained, how should it take account of Australia's 2035 target range?

As noted in response to Question 1, there is a risk that any benchmark/pathway-setting exercise sets the bar too low. Australia's measurement of emissions and its progress on reducing them, which is reinforced with the Safeguard Mechanism design, exacerbate this risk.

The land use sector's carbon sink has thus far done substantial work in Australia's progress towards climate targets and has benefitted from historical recalculation of its impact. Safeguard coverage also only extends to 30% of gross emissions, applies a sector-wide baseline to electricity, and allows offsets and factors including variability in production levels and the definition of facility boundaries to exert more influence than onsite abatement efforts.

A proportional share approach would have more utility if Australia's regulatory landscape could place a hard cap on gross emissions at an aggregate and individual facility level. Substantial progress could still be achieved by aligning aggregate and individual decline rates more towards the highest technically achievable onsite abatement. This could be achieved by benchmarking all facility progress against best-performing peers, rather than historical or industry average results.

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Current coal mining baselines provide an example of perverse outcomes under the current system. The failure to distinguish between above- and below-ground mining, despite their different emissions profiles, has consequences. Because below-ground mines have higher emissions, the Safeguard baseline imposes a greater level of emissions reduction on them compared to above-ground sites (through the operation of the industry average). This ensures that the emission decline trajectory for above-ground coal mines is much less than the 4.9% per annum assumed as the general target and shifts obligations to other sectors – especially when the use of offsets is considered (ensuring gross emissions do not decrease as required).

Question 6B: If a different approach to setting the baseline decline rate should be used (instead of the proportional share approach), what should it be and why?

Consideration should be given to setting baseline decline rates based on best-performing facility benchmarks, ideally with reference to international best practice. Reduced dependence on ACCUs to meet baseline compliance is also a priority.

There is also a need for greater differentiation between facility baselines. Above- and below-ground coal mines should be determined as separate sectors to ensure an appropriate decline rate is imposed.

Question 7: Should decline rates differ across facilities or sectors beyond existing arrangements for trade exposed, baseline adjusted (TEBA) facilities? What evidence would support differentiation, and what principles should guide how any differentiation is applied?

Decline rates across facilities and sectors would necessarily diverge if they were benchmarked against best-performing equivalents. TEBA baseline adjustments might also have diminished relevance if carbon border adjustments could be implemented.

Onsite abatement

Question 8: How should we assess the extent to which the Safeguard Mechanism is driving onsite abatement? What metrics, data sources or methods should we use, and how should we account for changes in production, operational conditions and emissions variability?

It is currently easy to observe that Safeguard-covered facilities face relatively little pressure to pursue onsite abatement. Even where onsite abatement might be pursued, it is less easy to disaggregate the Safeguard effect from other factors, including the impact of other policies.

BHP's decision to shelve a multi-billion dollar decarbonisation plan announced in 2022 for the Pilbara could, for example, be compared with similarly placed iron ore miner Fortescue's decision to stay the course with onsite abatement. Both companies faced the same choice to resort to offset-based Safeguard compliance and continuation of DFTC-assisted carbon-intensive production. Their alternative decision-making must thus be attributed to other factors.

Resource companies receive far greater DFTC rebates for diesel use than the cost of Safeguard exceedances. This acts as an overwhelming disincentive to investment in onsite abatement. This

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was highlighted in the application for the extension of expansion of coal mining at the Hunter Valley Operations (HVO) facility, which is under consideration by the NSW Independent Planning Commission (IPC). Despite exceeding Safeguard baseline emissions by 60% over the life of the project, HVO has no firm abatement strategy and is relying solely on the use of offsets to mitigate more than 15 million tonnes of carbon dioxide-equivalent that the mine will emit over its extended lifetime. The NSW Department of Planning, Housing and Infrastructure (DPHI) has accepted this use of offsets as reasonable, ensuring the deferral of any abatement strategy over the life of the project (if approved by the IPC).

The measurement and quantification of fugitive methane emissions is likely to have implications for assessing how the Safeguard Mechanism is driving onsite abatement in the coal and gas sectors. The ongoing use of "emissions factors" to estimate methane emissions (by applying multipliers to production/output) contributes to underreporting of Australia's methane emissions, and current policy settings are inadequately driving abatement.

Improving methane measurement, reporting and verification will provide a clearer basis for assessing onsite abatement at coal and gas facilities. It may also improve the financial case for companies to implement abatement, because underestimation of methane emissions affects company estimates of the additional revenue from capturing methane (which can then be sold).

Question 9: What evidence is available on onsite abatement activities at Safeguard facilities, including for activities planned, underway or completed since the reforms commenced? Where possible, please provide information on emissions impacts, timing, costs and barriers.

The evidence is actually the reverse, in that abatement strategies in coal and other sectors are avoided and offsets purchased. This evidence is discussed in the papers cited above.

With respect to fugitive methane emissions, shortcomings with the Safeguard Mechanism limit its ability to effectively drive onsite methane abatement. These limitations, along with the issue of undermeasurement and underreporting, include:

- Inappropriate baselines and reduction rates for facilities where emissions are underreported.
- Omission of facilities that would otherwise be covered by the Safeguard Mechanism if their emissions were accurately and reliably reported.
- The continued use of less reliable estimation methods, rather than direct measurement, which removes or reduces the financial incentive for abatement.
- Unlimited access to carbon offsets, which can undermine the financial incentives for abatement, even where the long-term costs are similar, due to lower initial capital requirements.
- Increasing baselines for coal mines, which mean large mines will have no effective requirement under the Safeguard Mechanism to reduce their emissions.

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Question 10: Should the Safeguard Mechanism play a stronger role in encouraging onsite abatement, relative to allowing flexibility through Australian Carbon Credit Unit Scheme (ACCU) use? What objectives should guide this assessment? Are additional incentives or constraints warranted? If so, what options should be considered and why?

The Safeguard Mechanism should play a stronger role in encouraging onsite abatement. The flexibility of ACCU use is a disincentive to investing in new production technologies, even where this might be economically rational in the long term, i.e. where operational savings associated with high upfront capital expenditure might deliver lower total cost of ownership over an asset's lifetime. Again, the Safeguard Mechanism's design should seek to benchmark compliance against the highest technically achievable decarbonisation. Where it can be proven that facility- or Australia-specific conditions make it difficult to replicate best practice, allowances might still be made, including access to additional financial or regulatory support. Reliance on ACCUs for compliance should nevertheless be progressively phased down.

The flexibility of ACCU use, combined with the financial incentive under the DFTC to use diesel in mining activities (and the disproportionate relationship between the DFTC benefit received versus the ACCU cost paid), ensures there is a financial disincentive to abate onsite emissions. Given this disincentive exists through the interaction of the DFTC with the Safeguard Mechanism, consideration should be given to adjust the Mechanism to remove the disincentive and incentivise onsite abatement. Severely constraining the use of ACCUs to offset baseline exceedances (e.g. limiting their use to a certain percentage above the baseline) would have this effect. Without this change, it is unlikely that miners will invest in onsite abatement and will continue to rely on offsets, ensuring that gross emissions do not decline as required.

Please note this does not address concerns with the appropriateness of using nature-based offsets against fossil fuel emissions, which lies outside IEEFA's expertise (other than to note this approach has been questioned by scientists).

There may be merit in applying steeper decline rates for the coal and gas sectors given the short-term heating impacts of methane and the growing body of evidence that Australia's methane emissions are underreported. Further, there are available technologies that can materially reduce fossil fuel methane emissions. For instance, the International Energy Agency noted in 2024 that available technologies can abate about two thirds of fossil fuel methane emissions. In practice, the application of steeper declines for coal and gas may create the necessary incentives to drive faster methane emission abatement.