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31 January 2025

To: The Treasury
Re: 2025-26 Pre-Budget submissions

Dear The Hon Stephen Jones MP, Assistant Treasurer and Minister for Financial Services,

The Institute for Energy Economics and Financial Analysis (IEEFA) is grateful for the opportunity to present its submission to the 2025-26 Pre-Budget consultation. IEEFA is an 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.

IEEFA is supportive of the government's proposed financial support for green metals and green hydrogen, such as Hydrogen Headstart and the Hydrogen Production Tax Incentive. Australia is faced with growing overseas competition in the emerging green iron space, which could have significant implications for Australia's biggest export.

In addition to existing and proposed new government funding, IEEFA believes some strategic interventions in energy performance and electrification could deliver strong emissions reductions and help alleviate the cost-of-living crisis and upcoming gas market tightness. IEEFA also believes that some government expenditure could be redirected to programmes that will be more effective in delivering a net zero emissions economy by 2050.

IEEFA recommends the government:

- Prioritise funding energy performance and efficient, flexible electrification.
- Support the deployment of distributed storage and demand flexibility.
- Focus the funding of hydrogen on the most valuable, efficient use cases.
- Remove funding from the Beetaloo and Middle Arm gas ventures.
- Review an end date for the Fuel Tax Credits Scheme.

Please do not hesitate to contact us for any further information.

Kind regards,

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Prioritise funding energy performance and efficient, flexible electrification

Household energy efficiency and electrification

Australian homes built before the mid-2000s were not required to meet stringent thermal efficiency standards and exhibit very poor thermal performance. Cost-effective retrofit solutions are available to improve the thermal efficiency of existing homes, including adding or replacing ceiling and wall insulation, and draught-proofing. However, uptake of these solutions has been slow.

Additionally, the appliance stock in Australian households is dominated by low-efficiency gas and resistive electric appliances. Australia is lacking a national scheme to incentivise uptake of energy efficiency upgrades or efficient electric appliances.

The federal government has previously committed funding for direct energy bill rebates. However, larger and more permanent energy bill reductions could be achieved if this funding was redirected to support household energy efficiency upgrades and purchases of efficient electric appliances.

The federal government has previously committed $300 million to upgrade community and social housing premises in partnership with state and territory governments. This funding is critical as tenants in these dwellings do not have the agency to make permanent energy efficiency upgrades, and community housing operators often face funding barriers.

The existing commitment is expected to support upgrades in 60,000 dwellings – around 15% of all social and community housing premises. Topping up this funding to reach a greater number of dwellings would lead to more wide-reaching energy bill reductions, and more material reductions in peak demand contributions from social and community housing.

Industrial heat pumps

IEEFA recently estimated that industrial heat pumps (IHPs) could cut energy use by 80% or more in the food and beverage and alumina sectors, and could make a material contribution to alleviating expected gas shortages in Victoria and Western Australia (WA), where those sectors are largely located.

While commercially available IHPs are already cost-effective in many food and beverage applications, there are very few on-the-ground examples. The New Zealand experience shows that a small amount of government funding (less than NZ$50m) for demonstration and deployment, combined with capacity-building, technical assessments and engagement programmes, was able to catalyse the industry. While the Australian Renewable Energy Agency (ARENA) has some funding available for industrial decarbonisation, it is largely focused on regional sites, whereas food and beverage businesses are often located in metropolitan areas. Moreover, the ARENA funding is not appropriate for small-scale projects such as IHPs – three

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quarters of the IHP projects supported by the New Zealand government received less than NZ$1m in co-funding. Unlocking this opportunity requires a dedicated and comprehensive programme.

In addition, funding is needed to demonstrate the application of Mechanical Vapour Recompression (MVR) – a series of heat pumps – in the alumina sector. MVR could replace two thirds of alumina energy use and reduce WA gas demand by about 74 petajoules (PJ) a year, more than half of the gas shortage forecast for the early 2030s. The technology needs to be derisked through small-scale demonstration and support for first-movers. This should be a high priority for ARENA funding and dedicated government engagement to help identify potential projects with industry.

Support the deployment of distributed storage and demand flexibility

One in three Australian households have solar panels on their roofs, which has dramatically reduced mid-day wholesale electricity prices. In Q3 2024, wholesale prices were negative during 20% of National Electricity Market (NEM) dispatch intervals. South Australia already experiences periods where rooftop solar alone meets 100% of the state's electricity demand.

However, most Australian homes aren't equipped to take advantage of this resource. Most electricity consumption occurs during the evening period as solar output ramps down, and a large portion of low-cost solar energy is unutilised. Energy costs could be reduced if Australians were able to better utilise our world-class solar resources. This could be enabled in several ways:

- **Incentivise demand flexibility for households**

  Electric hot water systems, such as heat pumps, could be shifted to operate during periods with low-cost solar energy. Existing schemes such as the Small-scale Renewable Energy Scheme (SRES) and the Greenhouse and Energy Minimum Standards (GEMS) Act should be updated to require dynamic management capabilities, or passive management if a rooftop solar system is present. Furthermore, the federal government should fund a heat pump hot water system roadmap targeting commercial and residential strata buildings.

  Unlocking flexibility in air conditioning loads could also be highly impactful to reduce peak demand. The federal government should consider subsidising add-on devices that introduce smart capabilities to existing reverse-cycle air conditioners, and introduce 'smart' requirements for new air conditioners more broadly.

- **Incentivise distributed battery uptake**

  Distributed batteries can allow households to store cheap solar energy in the middle of the day (from their own solar panels or the grid) and consume it during evening peak periods, reducing their contribution to peak demand. This results in direct energy bill savings for

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consumers, and indirect savings for the energy system as a whole, by slowing peak demand growth.

In recent years, batteries have experienced rapid cost reductions. Some jurisdictions are implementing programmes to support household battery uptake, and the Australian Energy Market Operator forecasts distributed batteries to make up nearly 80% of total storage in the NEM by 2050. The federal government should support the uptake of residential batteries. This could be via direct subsidies, incorporation into the SRES, or a combination of both.

- **Incentivise electric vehicle uptake, and remove barriers for bidirectional charging**

  One of the most cost-effective forms of distributed energy storage is an electric vehicle (EV), which can be considered a 'battery on wheels'. IEEFA has noted that Australia's flagship EV policy, the New Vehicle Efficiency Standards, ignores the potential benefits that EVs can provide to the electricity grid, which could potentially generate thousands of dollars a year in revenue for consumers while also offsetting large-scale build costs in the electricity system, benefiting all consumers.

  The federal government should consider further targeted incentives to increase uptake of EVs, for the purpose of providing grid services. This must be accompanied by initiatives that reduce barriers to Vehicle-to-Grid uptake, including the development of an EV grid integration plan and establishment of a Consumer Energy Resources (CER) technical standards body.

Focus funding of hydrogen on the most valuable, efficient use cases

There needs to be a switch in focus from green hydrogen exports, which look structurally expensive, towards domestic use of green hydrogen in sectors like ammonia and iron and steel production.

IEEFA recently made the case that existing Australian ammonia production should be prioritised for the use of green hydrogen subsidies. Ammonia is a logical first user of green hydrogen because it is made from hydrogen; it cannot be decarbonised through alternative solutions; and a material share of green hydrogen can already be introduced at existing ammonia production plants without requiring any costly equipment change. Using green hydrogen at existing plants could deliver triple benefits: alleviating tightness in Australia's gas market; reducing domestic emissions; and kick-starting the green hydrogen industry.

However, the vast majority of projects considered to receive Hydrogen Headstart funding are aimed at exports rather than local use. If it was instead prioritised for use in existing ammonia plants, the remaining cost premium would be very affordable for miners who consume half of Australia's ammonia through explosives.

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Iron and steel making is a key application for green hydrogen in Australia. The industry in Australia looks unlikely to be competitive if it goes down the path of using gas to reduce iron ore into iron. Low gas prices in the Middle East will give that region a major advantage. Australia should be looking to reduce iron ore with green hydrogen at the earliest opportunity.

Green iron, produced by reducing high-quality iron ore with green hydrogen, will be the primary feedstock for green steel. However, global competition is intensifying, with regions such as Brazil, the Middle East and Africa vying for a significant share of the green iron market in the coming decades. Australia must act swiftly to establish itself as a key player in this emerging industry. Research by IEEFA highlights that, with a more pragmatic approach to hydrogen deployment, iron and steel production could serve as a pivotal industry to launch Australia's hydrogen era.

IEEFA has identified significant economic risks in funding projects that blend hydrogen into gas distribution networks. A large body of evidence finds that blending hydrogen into gas distribution networks does not make financial sense, and offers limited decarbonisation benefits compared with direct electrification. Research from IEEFA has highlighted that such initiatives present risks to consumers.

Several gas network businesses in Australia promoted the use of hydrogen in their networks, even receiving federal government funding via ARENA to build commercial-scale hydrogen production and blending facilities. This funding would be more valuable if redirected to measures such as direct electrification.

Remove funding from the Beetaloo and Middle Arm gas ventures

In its World Energy Outlook 2024, the International Energy Agency (IEA) indicates a challenging decade for the LNG industry. Surging supply is set to outstrip demand, creating an LNG supply glut that is likely to persist well into the 2030s. The IEA analysis shows that no new LNG supply is required until 2040 at the earliest under its Stated Policies Scenario (STEPS). In this context, the government should carefully consider any further funding of large-scale gas ventures such as the Middle Arm precinct or development of the Beetaloo Basin.

The forecast of a global gas glut that could last until the end of the next decade eliminates any economic rationale for developing the Beetaloo Basin. The development of the Beetaloo would require significant public financing to fund infrastructure-related programmes given the remoteness of the Beetaloo Basin. This expenditure underlines the risk that development of the Beetaloo may not be commercially viable.

These funds should be redirected to providing financing to develop a renewable energy zone in the Northern Territory, which has vast landmass and is endowed with abundant solar resources that could be harmonised with more solar PV capacity. This in turn will reduce the Territory's reliance on gas-fired power generation and encourage the development of a low-emissions industrial precinct as an alternative to the plans for current gas-fuelled Middle Arm precinct.

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Review an end date for the Fuel Tax Credits Scheme

IEEFA recommends that a review of the Fuel Tax Credits Scheme (FTCS). The subsidy should not be increased in the 2025-26 budget, and the government should consider announcing an end date or phase-out of this subsidy. The OECD also recommends that Australia reduce or eliminate the scheme.

The FTCS is one of the top twenty most expensive items in the Federal Budget and costs more than government spending on the Army or Air Force. The FTCS, which cost the Federal Budget $9.6 billion in 2023-24, is Australia's single largest fossil fuel subsidy. Increasing the FTCS subsidy has been the predominant driver of Australia's increase in fossil fuel subsidies, which increased to $14.5 billion in 2023-24 from $11.1 billion in 2022-23.

Continuing to maintain and increase the FTCS distorts the price and market signals that may otherwise incentivise companies to electrify their truck and transportation fleets. Under the scheme companies pay no fuel tax for non-road vehicles. Announcing an end date for this subsidy could generate greater incentives for companies to invest in switching out their diesel fleets, which are a large source of carbon dioxide emissions in Australia and are forecast to increase in number.

The emissions from non-road diesel engines totalled around 29.5 million tonnes of carbon dioxide-equivalent (CO_2-e) in 2018, based on 640,000 non-road diesel engines registered in 2018. DCCEEW analysis expects this number to increase to around 750,000 units by 2028, and to around 945,000 units by 2043. If these units all have the same efficiency as diesel engines in 2018, that would mean emissions from non-road diesel engines could increase 17%, to 34.6 million tonnes of CO2-e in 2028, and increase 48%, to 43.6 million tonnes by 2043.

Additionally, possibly due to a lack of emissions standards, a 2020 study found that non-road diesel engines emitted almost double the amount of particulate matter as the entire on-road fleet in 2018 per litre of diesel used. This means that non-road diesel engines subsidised by the Federal Government pose greater health and emissions risks than on-road diesel engines. Diesel engine exhaust increases the risk of cardiopulmonary diseases and is a human carcinogen. Australia's lack of emissions standards for non-road diesel engines, leaves it lagging behind other jurisdictions such as the US and the EU, which have had standards in place since the 1990s.

Removing one of the most expensive subsidies in Australia would free up substantial government capital. This could be used towards supporting decarbonisation and electrification of non-road diesel engines, increasing distributed energy storage solutions, or towards developing future low-carbon industries that present long-term net benefits for the Australian economy.