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DCCEEW
Australian Federal Government
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To whom it may concern,

Climateworks Centre submission on proposed legislative changes to incorporate an emissions reduction objective into the national energy objectives.

Climateworks Centre (Climateworks) welcomes the opportunity to respond to the consultation on proposed legislative changes to incorporate an emissions reduction objective into the national energy objectives (NEO). Climateworks develops expert, independent solutions to assist the transition to net zero emissions for Australia, Southeast Asia, and the Pacific, aligned with the global goal of limiting warming to 1.5 degrees. A non-profit organisation, it was co-founded in 2009 by the Myer Foundation and Monash University, and works within the Monash Sustainable Development Institute.

The transformation of the energy system is crucial for the decarbonisation of Australia's economy. It has substantial emissions in its own right - with electricity generation around a third of national emissions and other stationary energy around another fifth (DCCEEW 2021). Equally important is that a decarbonised energy system enables the decarbonisation of the rest of the economy, notably through electrification with renewable electricity. Climateworks analysis shows that electrification is the least-cost way to decarbonise across other areas of the economy, including cars, other road transport, buildings, and many areas of industry (Climateworks, 2020).

Climateworks views an integrated process for energy system transition as crucial to reaching net zero emissions and making the most of all available economic opportunities. Therefore, we consider the NEO's key task is ensuring legislation catalyses the transformation of the energy system to enable economy-wide emissions reductions in line with the Paris Agreement, in addition to reducing emissions within the gas and electricity markets themselves.

We welcome that the Energy Ministers have identified social-equity, and affordability as important future matters for the NEO. We recognise these matters are outside this consultation's scope, and anticipate engaging with the government on these issues in due course. The rapid shifts in electricity generation, where the total cost is almost exclusively driven by capital costs, rather than fuel, and the scale of investment required across the energy system, mean that further changes are increasingly important and urgent.

Further action beyond the current proposals will be important to enable energy agencies to properly consider the integration of demand/customer-side initiatives and how the market can incentivise

these. For example, initiatives to improve energy-efficiency and demand-management will optimise system costs. There may need to be further changes to the NEO to enable this, or it may be that optimisation of the demand/customer side with supply changes is best dealt with through processes such as the National Energy Transformation Partnership.

Context

Climateworks' scenario analysis shows pathways for Australia to achieve emissions reductions compatible with the Paris Agreement climate goals. On these least-cost pathways, Australia would see:

- about 75 per cent emissions reductions below 2005 levels in the 1.5-degree scenario and
- about 50 per cent reductions below 2005 levels by 2030 in the 2-degree scenarios.

In these scenarios, the transformation of the energy system as a sector of whole-of-economy modelling, underpins three of the four pillars of decarbonisation and unlocks least-cost emissions reductions. These three pillars are:

- Energy efficiency, which supports the optimal use of energy, reduces systems costs and ensures the electricity system can scale up to the size needed to allow electrification of the economy.
- Fully renewable electricity, with near-zero emissions generation by 2035.
- Electrification and fuel switching to zero or near-zero alternatives from fossil-fuel use in buildings, transport and industry.

Our work shows the switch to a clean energy system allows Australia to reduce emissions in line with the Paris Agreement, and transitions Australian industry and exports to respond to the global shift to a net zero economy. For example, our modelling (*Climateworks, 2020*), in part, concludes:

‘...that significant decarbonisation coupled with growth in the capacity of the electricity system is central to all modelled cost-effective pathways to meet Australia's new 2030 emission reduction targets; coal-fired generation completely retires in all scenarios; electrification is one of the most cost-effective options to reduce economy-wide emissions in all modelled scenarios; and in most scenarios, electrification will reach a similarly large scale by 2054, driven by the transport and industry sectors.’

Climateworks considers including emissions reductions in the NEO will have the following benefits:

- Create a strong, clear signal to the market of the government's intention to take action on climate change, and include emissions reduction objectives in relevant policies. This will build on the Climate Change Act and other forthcoming legislative changes.
- Provide direction for energy market agencies, which will help incorporate emissions reductions into existing and emerging mechanisms and processes (such as the Integrated System Plan and the Capacity Investment Scheme).
- Highlight the degree to which changes in the energy system, particularly in the electricity sector, are central to Australia's ability to reach net zero in line with the Paris Agreement.
- Could create the framework to allow planning for the future energy system that enables Australia's net zero economy, rather than dealing with change incrementally.
- Incorporating a 'back-casting' approach using scenario modelling to show alternative pathways to the agreed goal (in this case, net zero emissions and an economy built on using Australia's exceptional clean energy resources).

Question 1 – Do you consider incorporating the emissions reduction objective into the existing 'economic-efficiency' framework is an effective way of integrating the concept into the decision-making of energy market bodies?

Climateworks considers that incorporating the emissions reduction objective into the existing 'economic-efficiency' framework is pragmatic, given it is in line with other objectives' approach and makes it easier for energy market agencies to coherently apply objectives regarding affordability, reliability and emissions reductions. Climateworks suggests the AEMO Integrated System Plan (ISP)(AEMO, 2022b) is a useful tool to guide how to implement emission reductions. This is discussed further in our answer to question 20 which discusses applying the new objective by the energy market bodies. The ISP can be used to consider a whole-of-economy perspective for energy sector changes needed for the long term. For instance, the electricity system does not simply need to decarbonise existing supply, but to also scale up to enable electrification, and the ISP can guide what this could look like. We would note that the future of gas within economy-wide least-cost pathways to net zero emissions is different to planning for economically efficient reductions within the gas system, and hence, a tool to provide a broader perspective is essential.

Question 4 – Does this approach give an appropriate level of clarity as well as discretion to market bodies to consider relevant targets in their decision making? If not, detail your reasons and suggested solutions.

Climateworks suggests a minor change to the proposed new objectives, to provide greater clarity and assist the market bodies in implementation. The relevant sections are:

- Amendment of section 7 – National electricity objective
- Amendment of section 13 – National energy retail objective, and
- Amendment of section 23 – National gas objective.

These amended sections include '**and** (b) the achievement of targets for reducing Australia's greenhouse gas emissions'. We consider it important to change this to: '**while** (b) achieving the targets for reducing Australia's greenhouse gas emissions'. In our view, this change helps recognise the dual importance of the energy system in reaching Australia's emissions reduction targets, without lessening the importance of ensuring that the change keeps the energy system affordable and reliable.

Question 6 – Do you agree that the proposed change to 'consumers of energy' is necessary and appropriate to recognise the interconnections between the two energy markets (gas and electricity) and to enable future decisions to consider the implications for the energy system as a whole?

Climateworks agrees that the change to 'consumers of energy' is necessary to recognise the interconnections between the two energy markets, and that this will support better consideration of the implications for the energy system, within the context of the broader economy.

However, this change may not give sufficient weight to the economy-wide perspective, and we suggest an economy-wide or end-use sector perspective may be assisted by using the Integrated System Plan (AEMO, 2022b). This is explored in our answer to question 20.

We note the difference between the changes to Electricity Law and Gas Law. In the case of the Gas Law, there is a significant challenge in incorporating an emissions reduction objective for gas, as any decarbonisation of the gas system is likely to see a reduction in economic efficiency if considered solely from a gas system perspective. We do not expect this issue to be lessened by the increase of hydrogen within the market, given it is expected to play a relatively small role (AEMO, 2022). Climateworks also notes that the definition of 'gas' will soon be changed to bring hydrogen blends, biomethane and other renewable gases under the national gas regulatory framework.

Climateworks also notes that the ability to measure and account for scope three emissions is becoming increasingly important for consumers.

Question 8 – Do you consider the additional change to the ‘supply of energy’ is necessary given the reasons above?

Climateworks agrees that changing the definition to ‘supply of energy’ is necessary, as there is an urgent need to consider the energy system as a whole. Treating the systems separately (i.e. gas, electricity and retail systems) risks the economic efficiency of the energy system’s decarbonisation. The inclusion of the economic effects of both the supply and use of energy would be desirable, though we note the difficulty of deploying this measure.

Question 9 – Do you agree that the market bodies, when making a decision under the NEL/NER should be empowered to consider the implications for price, reliability, security etc. in the gas market and vice versa? If not, what are other ways of managing the potential implications of the transition on all energy consumers?

Climateworks agrees that Australian energy market bodies should be empowered to consider the whole energy system when making decisions. Climateworks notes the opportunity to use the ISP as a whole-of-economy perspective to assist with decision-making. The use of the ISP is explored in our answer to question 20.

Question 20 – Do you agree with the characterisation of how it is envisaged market bodies’ decision processes might be impacted or changed as a result of the inclusion of an emissions reduction component in the energy objectives?

Firstly, Climateworks recognises the importance of market bodies’ decision processes, given the electricity sector’s double role in enabling Australia to reach net zero in line with the Paris Agreement. Electricity generation is Australia’s largest emissions source, and can also reduce emissions for downstream sectors of the economy (Climateworks, 2020). The decarbonisation of the electricity system is therefore key, as it produces substantial emissions in its own right and enables the decarbonisation of the rest of the economy (industry, buildings, and transport). The NEO should reflect this key role of electricity (AEMO, 2022; Climateworks, 2020).

Secondly, Climateworks considers that market bodies’ decision processes might need to change to relate the updated Energy Law to other initiatives such as the National Energy Performance Strategy, Safeguard Mechanism, the Powering the Regions initiative, and the National Reconstruction Fund. The National Energy Transformation Partnership will play a key role in integrating such initiatives across states, territories, and the Australian Government.

Thirdly, Climateworks considers that market bodies’ decision processes might need to alter to enable a flow of data that can be used to drive change. As mentioned, energy consumers are increasingly interested in their scope 2 and 3 emissions as part of the Climate-Related Financial Disclosure process. New information, data and modelling therefore play a substantial role in enabling change. For example, this data flow could be supported by setting up an energy finance study to supply financial information that encourages private investment in the energy transition. This study could be led by an existing institution, such as the CEFC or one of the energy market bodies. The study would address gaps in foresight information for the future energy system and pricing information about the future system that investors can draw on today, and hence, pull forward the creation of the transformed energy system and market.

Fourthly, the 2022 Integrated System Plan (ISP) (AEMO, 2022b) offers pathways for decarbonisation of the energy system - including guidance on what stakeholders view as the ‘most likely’ scenario. The ISP uses whole-of-economy modelling, with sectoral breakdowns, and could support more effective decision-making. The 2022 ISP shows specific projects for transmission and the changes in electricity use in end-use sectors (including buildings, transport and industry) under different scenarios. However, the ISP is yet to fully consider the different dynamic changes that will be required

if Australia is to reach net zero emissions at a pace in line with the Paris Agreement goals. Future ISPs including the 2024 ISP may include:

- better integration of gas and electricity changes-and how zero carbon gases might alter that balance
- how storage and demand-side management could optimise the system's transformation (including energy efficiency and load shifting)
- improved treatment of risk for investors
- improved consideration of the demand/customer side, and
- optimisation of decentralisation and distributed energy generation and storage.

We understand that the National Energy Transformation Partnership will seek to address these issues – which may change the current scope of the ISP and improve its fit as an assessment guide for the emissions reduction objectives.

Question 21 – Do you have any concerns with regards to the impact an emissions reduction component in the energy objectives may have in broadening the scope of the AEMC's rule making power or the decision-making powers of the other market bodies under the laws and rules?

In terms of broadening the AEMC's rule-making power, or the decision-making powers of the other market bodies, Climateworks is confident that the AEMC and the other market bodies will develop methods for evaluating 'economic efficiency' for energy consumers when they consider the energy system - and do so within the context of the task required for the whole economy to reach net zero emissions. We note that organisations such as Climateworks can support this work.

There are "conflicting policy objectives between the national gas regulatory framework and decarbonisation policies" (AER,2021: Chapter 6). One example is the treatment of depreciation for assets, given the gas law assumes there will be growth. In our view, such growth is inconsistent with least-cost pathways for decarbonising the economy in line with Australia's targets.

Climateworks is commenting elsewhere on the finalisation of the National Energy Performance Strategy (NEPS), including how to ensure that energy market bodies optimally cover demand and supply side issues where possible. The NEPS focuses on sectors where fuel use will change most (industry, and buildings).

We also suggest an increased consideration of active demand management, energy efficiency, distributed generation, and storage to ensure that the transformation of the energy system is effective and economically efficient.

Thank you for taking the time to consider our submission. We welcome the opportunity to brief your team if you would like to explore our responses in further detail.

Yours sincerely,

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