ENGINEERS AUSTRALIA

Committee Secretary
Senate Standing Committees on Environment and Communications (ECSEN)
PO Box 6100
Parliament House
Canberra ACT 2600
Email: ec.sen@aph.gov.au

Re: ECSEN consultation on Climate Change Bill (2022)

Engineers Australia is the peak body for Australia's engineering profession with jurisdictional authority for engineering professional standards as Australia's signatory to the International Engineering Alliance (IEA). We have been operational for over 101 years and have over 114,000 members representing all engineering disciplines and operating in all of Australia's economic sectors.

Engineers Australia appreciates this opportunity to provide its views on the recent climate change bills, including the *Climate Change Bill 2022* (Bill-1) and *Climate Change (Consequential Amendments) Bill 2022* (Bill-2).

Context

Engineers Australia welcomes the passing of both bills in the lower house on 4 August 2022, as well as their referral to the Senate Environment and Communications Legislation Committee (inquiry) on 28 July 2022, which is scheduled to report on 31 August 2022.

The terms of reference for this inquiry are the provisions contained in both bills.

Bill-1, which is the main focus of this submission, sets out three objectives: to set out targets, to promote accountability and to ensure that independent advice from the Climate Change Authority (CCA) informs the settings of targets and annual ministerial climate statements.

Overarching comments

Engineers Australia expresses in-principle support for the Government's intent to enshrine into law Australia's Nationally Determined Contribution (NDC) emissions reduction targets by the end of 2022.

Thirty years on from Australia ratifying the United Nations Framework Convention on Climate Change (Convention), there is clearly still an inherent need for enhanced accountability and ambition that aligns national climate responses to appropriately and sufficiently addressing human-induced climate change. The IPCC recently found that the impacts of climate change affects all life and every region on earth, and as recent lived experiences demonstrate, Australian's remain increasingly vulnerable to what is readily accepted as frequent and extreme climate events.[1]

Engineers Australia and its members are keenly interested in better understanding the implications of these bills for the engineering profession; and it remains attentive to the inquiry's proceedings and findings as well as the Senate's debate when it sits on 5 September 2022; it also stands ready to productively engage in future consultations.

Climate response

Many Engineers Australia members are concerned that Australia's international climate commitments, including achieving net zero emissions by 2050 (at the latest), are vulnerable to the geo-political, energy-security and skills challenges of the day both domestically and internationally.

Engineers Australia maintains there is no scope to delay meaningful, ambitious and pragmatic climate action at pace and scale in Australia's national interest as well as the global interest.

[1] https://www.ipcc.ch/2021/08/09/ar6-wg1-20210809-pr/

Engineers Australia, through its recent Climate Change Position Statement (Statement), expresses concern at the Intergovernmental Panel on Climate Change's (IPCC) finding that a 43 per cent reduction on 2010 levels of global emissions by 2030 and a mid-century net zero carbon budget is still likely to temporarily overshoot the 1.5°C temperature goal. This in turn is expected to impose irreversible and adverse impacts on eco-systems, biodiversity and the world's most vulnerable communities which are least responsible for global emissions.

In its Statement, Engineers Australia advocates for:

- → Principles of near zero emissions, climate resilience, and a circular economy in all policy, regulations, standards and technical specifications applicable to engineering
- → A standardised means of calculating the emissions footprint of engineering works, operations, products and services across the entire project and product lifecycle
- → A mechanism to factor external costs including greenhouse gas emissions into product design, use, maintenance and project feasibility assessments as well as decommissioning, abandonment and/or re-purposing
- → A means of assessing the exposure of new and existing engineered systems to climate disruptions to inform and motivate mitigation and adaptation responses
- → A means of monitoring and measuring progress to inform learning and improvement actions needed for climate change mitigation and adaptation
- → Improved education and training of members of the engineering team and the wider community on climate change, resilience and sustainability.

The proposed bills do not undermine any of these preferred positions, and indeed could directly and/or indirectly materially support them.

Highest possible emissions reduction ambitions

The IPCC WGIII report notes that global cumulative net CO_2 emissions over the last decade (2010-2019) are about the same size as the projected remaining carbon budget 'likely' to limit warming to 1.5°C.[2] The term "likely" in this context is cited to ambiguously indicate a 66 to 100 per cent likelihood of remaining below the 1.5°C carbon budget by the end of the century; and by doing so it acknowledges that national climate policy settings are necessarily informed by high, and many argue as unacceptable, levels of scientific uncertainty.

Prudent risk management to climate policy setting is essential. Parties to the Convention, including Australia, are obligated to behave in a manner consistent with its Article 3.3 'precautionary principle', where it is enshrined that a lack of full scientific certainty is not sufficient reason for postponing measures that can prevent or minimise the causes of global climate change or can mitigate its adverse effects.

The proposed bills represent but one element among many that can help give effect to the precautionary principle by supporting with greater certainty the climate goals of the Paris Agreement. They do this by going some way to holding to greater account on a whole of Government basis to Parliament the sufficiency and effectiveness of Australia's climate responses.

This is especially true in regard to the Government justifying why it deems Australia's interim and long-term targets as sufficient from both a scientific and global equity perspective (i.e., Australia behaving like a responsible global citizen) and demonstrating how they can and will be effectively achieved at least-cost and disruption to the national economy.

Given the uncertainties associated with what might otherwise be reasonably considered a 'safe' level of cumulative emissions to halt global warming consistent to the goals of the Paris Agreement, Australia as with all other UNFCCC Parties have a legal and ethical obligation to observe the precautionary principle.

Engineers Australia's recent Statement respectfully challenges in this regard whether Australia's levels of ambition, as represented by its formally communicated pledges in its NDC, are well aligned with the best available science of the IPCC.

Bill-1 prescribes Australia's net greenhouse gas emissions at 43 per cent below 2005 levels by 2030 (to be implemented as both a point in time target and an emissions budget for the period 2021-2030); and net zero

[2] IPCC WGIII (2021) Technical Summary; TS16

emissions by 2050 (noting this refers to all of Australia's greenhouse gases while the IPCC refers to net zero CO_2 (only) by 2050).[3]

The climate maths of these settings indicate that the 2030 point target could require annual emissions to reduce from 500MtCO_2-e (2021) to about 355MtCO_2-e (i.e., annual emissions reductions of about 16MtCO_2). To achieve net zero emissions by 2050 from the 2030 point target, could require emissions to reduce by about a further 18MtCO_2-e per year.[4]

Aggregating these simple calculations over the two periods (2021 – 2050) derives an Australian carbon budget of around 7.6GtCO_2 (i.e., scope 1 and 2 emissions only, excluding scope 3 emissions); this represents between 1.2 per cent to over 4 per cent share of the remaining global carbon budget (400GtCO2 +/-220GtCO_2).[5] Given Australia generates just over 1 per cent of global emissions, this could suggest that it is on a mitigation trajectory that is disproportionately (and arguably inequitably) reliant on acquitting a greater share of the finite global emissions budget.[6]

Furthermore, the official emissions projections released in late 2021 for meeting the Coalition's 2030 targets indicated that they were expected to be met and overachieved with current policy settings (i.e., Technology Investment Roadmap).[7] This suggests that the level of abatement required to achieve the Government's current 43 per cent reduction might be less than otherwise expected. If the current target is normalised with the projected level of overachievement, which amounts to some 33MtCO_2-e in 2030, then a revised target of 48 per cent below 2005 level seems plausible with little to no proportional increase expected in required abatement efforts.[8]

Revising the current target with a more ambitious one (as discussed above) would signal strong sovereign leadership by Australia in honouring its obligation under Article 4.3 of the Paris Agreement to communicate its highest possible ambition in its NDC; and if the above calculation remotely holds true, it will seem reasonable that Australia could revise its 2030 mitigation ambition to (for example) at least a halving of emissions on 2005 levels in 2030.

Engineers Australia strongly supports Bill-1 requirement for the CCA, including advice sourced from other reputable organisations such as the Commonwealth Scientific and Industrial Research Organisation (CSIRO), to provide regular frank and fearless advice to the Government.

It would like the CCA (and others) to update future assessments of Australia's carbon budgets to include at least an 83 per cent likelihood of meeting a 1.5°C carbon budget (and covering all greenhouse gases, not just CO_2); this would bring much closer alignment to the IPCC's best-case budget estimates and scenarios.[9]

Engineers Australia also strongly supports the CCA informing all future national emissions reduction targets and budgets to be included in Australia's updated NDC pledges (2035, 2040 and 2045) on a scientific and economic basis (i.e., especially implications for regional Australia). This will be essential in providing a clear road map for businesses and communities alike to achieve net zero emissions by at least mid-century.

Policy priorities

Engineers Australia strongly emphasises that it is the cumulative concentration of atmospheric emissions at any point in time that matters (i.e., carbon stock approach) and less so the annualised emission reduction targets relative to arbitrary baseline years.

To put Australia's mitigation challenge into perspective, regardless of whether its net zero emissions budget by 2050 is between 7 or 8GtCO_2-e, both will be exhausted by the mid-2030s at current emissions.[10]

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[3] IPCC WG1 (2021) Summary for Policy Makers (SPM), Box SPM.1, p12

[4] 2005: 664MtCO_2-e; 43 per cent reduction in 2030 = 355MtCO2-e; 2021-2030 annual reductions = 16MtCO_2-e and 2031-2050 annual reductions = 17MtCO_2-e to get to net zero emissions (excluding offsets which essentially increase the amount that can be emitted in any period)

[5] IPCC WGIII (2021) Technical Summary; TS16

[6] Refer CSIRO; the 7.6GtCO2-e estimate seems comparable to the CCA's (2014) projected trajectory for the period 2021–2050 of about 7.9GtCO2 e (noting that the CCA's analytical approach attributes only a 50 per cent likelihood of limiting warming to below 2 degrees)

[7] Coalition's targets of 26 to 28 per cent below 2005 emissions levels by 2030; October 2021 projected achievement under High Technology Sensitivity Scenario of 38 per cent reduction on 2005 levels (388MtCO_2-e)

[8] Abatement difference between High Technology Sensitivity Scenario (388MtCO_2-e) and 43 per cent reduction on 2005 levels (355MtCO_2-e) is 33MtCO_2-e; subtracting this from committed 2030 emissions is 323MtCO_2-e; estimating a revised target of 323MtCO_2-e on 2005 levels is about 48 per cent

[9] IPCC WGI Table SPM2 page 29

[10] Note: this is without any ability to trade emissions rights internationally

Objectively this calls into question whether Australia is well positioned to facilitate the longer-term economic structural reforms required to deliver permanent decarbonisation (i.e., in and beyond 2050) as well as potentially climate positive outcomes (i.e., negative net emissions) going forward.

Australia's transformation pathway(s) to net zero emissions will be equally reliant on economic reforms that drive emissions reductions in consumption through demand-side measures (conservation, efficiency gains) and ultimately decarbonise point source emissions from production, while also increasing the circularity of resource use (reducing, reusing and recycling of materials).

Engineers Australia sees significant economic opportunity for local services to increasingly substitute for global supply solutions especially in energy conservation, storage, renewable energies and zero and near emissions solutions; all of which currently face significant security of supply and reliability constraints.

Engineers Australia strongly supports all actions that raise the transparency and legitimacy of climate disclosures, including Bill-1 requiring the minister to make annual statements to Parliament on Australia's progress in reducing emissions, relevant international developments, the government's climate change policies and the effectiveness of the government's climate change policies. Needless to say these statements will need to be scientifically rigorous in representing Australia's emissions performance and communicated in a manner that can be readily understood by the general public that avoids ambiguous and/or politicised language.

Engineers Australia welcomes the recent amendment to Bill-1 in the lower house to require statements to report on the individual and aggregate policy impacts of climate and non-climate policies (i.e., inefficient subsidies and taxes that result in perverse climate outcomes) on all sectors. This will provide for regular and predictable adjustments of policies across sectors to better align their emissions performances with the legislated targets.

The bills clearly complement already mandated reporting requirements under the National Greenhouse and Energy Reporting (NGER) scheme, the Emissions Reduction Fund (ERF) and the Safeguard Mechanism. As such, ministerial statements should also consider being informed in a timely manner by, and include a summary of, the emissions performances and impacts of major corporates and their projects as reported under all of these schemes.

These bills do not impose legal obligations on the Government should legislated targets not be met, but they are anticipated to have climate policy implications far beyond the signalling of national mitigation ambitions. They will do this by:

- → Requiring government agencies and regulators to have legal regard to these climate targets in their legislative oversight when making approvals and compliance decisions (Bill-2)
- → Simultaneously serving to keep (what will be) an evolving climate policy development landscape 'on track' in a predictable manner regardless of which political party is in power
- → Sending consistently strong signals to the public and private sectors to help establish bankable expectations to continue investing in solutions to reduce emissions at pace and scale
- → Implicitly coupling the agendas of an evolving Safeguard Mechanism and the Government's indication of new environmental legislation under the *Environment and Protection Biodiversity and Conservation Act* (EPBC) including potential consideration of a climate trigger.

Further, these bills do not bind states or territories. Engineers Australia suggests that the emissions performance of sub-national government ambitions and actions also be assessed regularly, transparently and independently within a broader national context, and included in the minister's statement to Parliament.

These bills do not introduce any concept of a carbon price. Engineers Australia respectfully suggests however that these kinds of policy approaches (i.e., market determined or administratively administered) are not mutually exclusive to the rapid advances that can be enabled by these bills through a better coordination of national climate policy settings compared to current arrangements.

For example, in 2009 the Hawke independent review of the EPBC recommended an interim climate trigger be introduced by way of regulation until the commencement of a carbon pricing mechanism. Engineers Australia remains supportive of all environmentally dependable and cost-effective climate policies and remains particularly interested in the Safeguard Mechanism evolving into an economy-wide carbon pricing mechanism by giving effect to declining allowable emissions baselines (and/or other alternatives) constrained to Australia's carbon budget.

Engineers Australia notes that the Safeguard Mechanism is currently limited in its coverage to corporate facilities emitting more than 100,000tCO_2-e scope 1 emissions a year; necessary policy considerations will be how to expand scheme coverage (i.e., liable entities, emissions thresholds, emissions scopes, property rights) while avoiding

discrimination to and/or imposing disadvantage on new entrants and/or emissions-intensive or trade-exposed sectors.

Engineers Australia also observes that while offsets continue to play a crucial role in achieving net zero emissions at lowest cost and will be especially important for very hard to abate sectors, further policy consideration should be given on how complementary they actually are relative to achieving and accelerating reductions in Australia's point source emissions.

Concluding observations

Many of Engineers Australia members consider the proposed bills represent progressive and sensible climate policy and anticipate they can and will help accelerate much needed investment certainty in engineering solutions, innovations, and practices.

The bills will send a clear and consistent message to both public and private sectors that sustainability and environmentally responsible decisions are central to the drivers of innovation in facilitating more climate-friendly and value-adding economic outcomes. They will also ensure an evidence-based approach to future national policy reforms and targets setting.

Engineers Australia's members recognise that the 43 per cent target serves as a floor and not a ceiling when it comes to reducing emissions, and that the types of legal arrangements set out in these two bills can give strong effect to enhanced climate action. This includes more deeply embedding in, and accounting for, climate change in both private and public sector investment decisions as well as by all levels of governments (and agencies) having regard for their policy and programmatic relevance in all future advice, developments, administration, approvals and decisions.

Through affording a greater level of public scrutiny via mandated public consultations and reporting requirements that complement the existing mandatory reporting arrangements under NGERS and the like, these bills will help broaden the community voice on the impact and sufficiency (or otherwise) of individual measures as well as in aggregate to achieve Australia's emissions reduction targets in a manner consistent with the specified guiding principles (which Engineers Australia supports) as well as broader climate objectives (i.e., adaptation and resilience).

Of critical importance to the delivery of Australia's net zero emissions future will be timely access to skilled workers; this requires the right policy, legislative and regulatory settings (which are arguably not in place today) to support the training and development of a workforce sufficiently skilled to implement the engineering requirements of decarbonised infrastructures, systems and nascent technologies at both pace and scale; this in turn may also foreseeably see Australia continue to face the challenges of rising demand for globally scarce resources and materials.

Engineers Australia remains supportive of the Government's bills for the forementioned reasons, and it stands ready to engage in all ongoing and complementary climate policy developments. It urges the Senate to fully debate these bills with integrity and in the national and international interest.

In closing, Engineers Australia's Climate Change Position Statement firmly grounds engineering perspectives in science and risk management. It acknowledges that when projected consequences are anticipated and/or deemed unacceptable, what can be done should be done unless proven impracticable. Applying this principle to the IPCC's recent findings indicates that the attributed levels of confidence would not be considered acceptable in any engineering code. For example, the IPCC's best-case global carbon budget of an 83 per cent likelihood of limiting warming to 1.5°C could be fully exhausted well before 2033 assuming a linear draw down of emissions. And the IPCC's very low greenhouse gas emissions scenario (SSP1-1.9) finds that an overshoot of the 1.5°C threshold is plausible and probable (i.e., up to a 50 per cent likelihood).

Both of these findings highlight a greater need for policy settings to give effect to the UNFCCC's precautionary principle and that the window for acting within acceptable engineering risk parameters has arguably passed. Consequently, Engineers Australia calls on the Government to demonstrate urgency and agency in its climate responses, on the basis of applied engineering science coupled with prudent risk management.

Regards,

Mark Bonner, Head – Climate Smart Engineering