Australian Greens' additional comments

1.1 Climate change will have severe consequences that will intensify in the coming years and decades. However, these developments are not all in the distant future. For example, as recent summers in Australia have shown, hot days and heatwaves are already more frequent and more severe.

1.2 This inquiry has clearly established that climate change is putting substantial numbers of Australia's buildings and infrastructure assets at risk. Damage and disruption to these assets will have significant implications for the liveability of our communities and cities, and for our economy.

Need for mitigation

1.3 The Australian Greens have developed a range of recommendations focused on how the Australian Government can guide the built environment sector and infrastructure owners to become more climate-resilient, taking into account the various interdependencies that are key features of critical infrastructure systems.

1.4 However, without strong global action being taken urgently to reduce greenhouse gas emissions there is an appreciable risk of catastrophic consequences to which we will be unable to adapt. While adaptation is critical, there are clear dangers in assuming that all climate scenarios of capable of being adapted to. The existential risk to society as we know it, both in Australia and globally, is real and must be faced. Therefore, the Australian, state and territory governments must ensure that both effective mitigation and adaptation measures are taken.

1.5 Accordingly, the Australian Greens urge the Australian Government to:

- commit to Australia reaching net zero greenhouse gas emissions by 2040;
- adopt additional negative emissions goals to drawdown greenhouse gas emissions; and
- implement effective policy measures to achieve the net zero target and negative emissions goals.

1.6 A national target for reaching net zero greenhouse gas emissions would follow the examples set by states such as New South Wales, Victoria, Queensland and Tasmania.

Recommendation 1

1.7 That the Australian Government commit to a target of net zero greenhouse gas emissions for Australia by 2040 and the actions necessary to achieve this target.

Informing better decision-making

1.8 To enable communities, business and governments to make informed decisions about climate change adaptation, it is of critical importance for up-to-date assessments of climate risks to infrastructure to be available, including estimates of the value of the assets at risk. Current figures relating to risk from sea level rise are from 2011 and based on 2008 values—this is not adequate for decision-making today.

1.9 Accordingly, the Australian Government should fund the preparation of a National Climate Change Risk Assessment, which would be updated at regular intervals. The newly established ARC Centre for Excellence for Climate Extremes could support the development of the risk assessment. Furthermore, Infrastructure Australia would be well placed to undertake a national audit of at-risk infrastructure.[1]

1.10 In undertaking a climate risk assessment, however, it is essential to consider extreme risks and worst-case scenarios. There is a consistent pattern of projections underestimating climate risks. Fundamentally, it is better for adaptation measures to be capable of withstanding the gravest scenarios rather than risking that the measures will be insufficient. To provide clear guidance to decision-makers, planners and policymakers that they should ensure their adaptation measures are capable of being resilient in the worst of the possible foreseeable circumstances, the Australian Government should acknowledge that IPCC scientific assessments are conservative and might underestimate the extent and of climate risks. As a related matter, Australian Government policies and actions relating to climate change should reflect the possibility that current projections might not account for the speed or extent of climate change.

1.11 Finally, the Australian Greens urge the Australian Government to review the allocation of funding providing for climate change research, with a view to providing ongoing support to the NCCARF and increasing funding to key agencies such as CSIRO for research into climate extremes.

Recommendation 2

1.12 That the Australian Government fund the preparation of a National Climate Change Risk Assessment that includes assessments of extreme risks and worst-case scenarios for Australia's built environment. This assessment should be updated regularly, such as every five years.

1 Infrastructure Australia's statutory functions include conducting audits to determine the adequacy, capacity and condition of nationally significant infrastructure, taking into account forecast growth as well as economic, social and environmental sustainability. *Infrastructure Australia Act 2008*, s. 5.

Recommendation 3

1.13 That the Australian Government commission and fund Infrastructure Australia to lead a national audit of at-risk infrastructure including, but not limited to, the following areas:

- **road and rail networks;**
- **ports and airports;**
- **water, stormwater and irrigation infrastructure;**
- **electricity generation, transmission and distribution infrastructure;**
- **telecommunications infrastructure;**
- **housing and building infrastructure, including the policies and standards underpinning the planning, development and construction of buildings and communities; and**
- **coastal defences.**

Recommendation 4

1.14 That the Australian Government provide:

- **ongoing funding to support the National Climate Change Adaptation Research Facility; and**
- **additional funding to CSIRO and other relevant Commonwealth agencies to support further research into climate extremes.**

Urban and coastal planning

1.15 In considering the evidence received about urban and coastal planning, it is clear that taking measures to adapt to climate change in the near-term will ultimately be fairer and more cost effective than delaying action. All levels of government can promote this by developing planning strategies and taking planning decisions that are appropriate given the known risks of climate change. The Australian, state and territory governments should also ensure that statutory frameworks governing planning decisions require climate change to be considered.

1.16 Evidence received during this inquiry strongly supports the development of nationally consistent and authoritative benchmarks and guidelines regarding key climate change risks, such as sea level rise, rainfall and the management of flood-risk. Regional variations will be required and nationally consistent guidance should not impede effective local responses. However, key stakeholders presented a compelling argument that a more consistent approach to these issues would encourage more effective planning and adaptation.

1.17 Furthermore, the Australian Greens question some of the current assumptions used in planning, particularly the projected sea level rise of 0.8 metres by 2100. Assumptions such as this appear inadequate for risk management. As discussed above, for climate change adaptation to be effective there is a need for governments and other

decision-makers to plan for extreme or worst case scenarios. The current approach taken in Australia is in contrast to the scenarios used to inform planning elsewhere, such as the US Army Corps of Engineers' recommendation that a global mean sea level rise scenario of 1.5 metres by 2100 be used for planners, with a 2.0 metre rise being a 'credible upper bound'.[2]

Recommendation 5

1.18 That the Australian Government lead the development of nationally consistent benchmarks and guidelines on climate risks, particularly sea level rise, for use as part of state and local government planning decisions. The benchmarks and guidelines should be based on comprehensive scientific assessments and include consideration of worst-case scenarios and climate extremes.

Recommendation 6

1.19 That an overarching objective regarding the need to effectively plan for climate change be included in all state and territory planning legislation.

1.20 Including specific references to climate change in planning legislation should encourage better outcomes in a range of matters; however, there is also a need for governments to take specific actions regarding land-use planning and climate risks in the urban environment.

1.21 There is a range of options available to governments that can be taken immediately, including planting trees to reduce urban heat, setting targets for cities to reuse rainwater, and considering innovative approaches such as the use of lighter coloured building and road surface materials. State, territory and local governments are taking such actions—the Australian Greens urge governments to continue pursuing successful urban design features such as these and that successful programs be replicated across the country. The Australian Government should support improved outcomes in this area by funding research to identify and quantify the benefits associated with measures to address urban heat.

Recommendation 7

1.22 That the Australian Government commission research to enhance the information available to policymakers regarding the full range of social and economic costs associated with heat stress.

1.23 In particular, the Australian Government should commission research to estimate the potential health system savings and other economic benefits that

2 Center for Climate and Security, *Military Expert Panel Report Sea Level Rise and the US Military's Mission*, 2nd edition, February 2018, https://climateandsecurity.files.wordpress.com/2018/02/military-expert-panel-report_sea-level-rise-and-the-us-militarys-mission_2nd-edition_02_2018.pdf (accessed 2 May 2015), p. 16 (citation omitted).

could be realised by taking measures to reduce the severity of the urban heat island effect.

1.24 Finally, it is necessary to address retreat as a means to manage key climate risks, particularly sea level rise. Managed retreat, such as requiring new development to occur further away from the shore, is an effective form of adaptation to minimise the costs that will ultimately be incurred. It is acknowledged that the concept of retreat is a difficult subject for local and state governments to consider. However, it would be negligent of these governments not to contemplate and plan for this contingency.

1.25 The Australian Government also has an interest in ensuring that managed retreat strategies are developed. In particular, this is due to the financial support it provides as part of the Natural Disaster Relief and Recovery Arrangements—it follows that there is an incentive for the Australian Government to ensure that natural hazard risks are minimised. In addition, the Australian Government can support decisions in this policy area by involving national scientific institutions such as CSIRO. Accordingly, the Australian Government should initiate discussions with state, territory and local governments about planning for managed retreat (it is noted that some jurisdictions, such as Western Australia, have published strategies addressing this issue).

Recommendation 8

1.26 That the Australian Government request state and territory governments to ensure effective coastal retreat strategies are developed in their jurisdictions. To inform the development of these strategies, the Australian Government should ensure that the state and territory governments have ready access to expert advice from relevant Australian Government departments and agencies.

Building design

1.27 As this report has established, climate change presents an array of risks to the structural integrity of dwellings and commercial buildings in Australia. Extreme heat events and other natural hazards linked to climate change also risk the health of building occupants. Although minimum building requirements have been enhanced at various times for new buildings, it is clear that the overwhelming majority of dwellings in Australia could be more resilient to climate risks. Taking effective action to address these issues now is necessary for the health and safety of building occupants, as well as to minimise the extent of change that will inevitably be required in future.

1.28 Heatwave events are of particular concern. Policymakers and homeowners take measures to reduce risks associated with extreme events such as bushfires, flooding and cyclones. However, heatwaves are Australia's deadliest natural hazard and the number of deaths from heatwaves (such as the 374 deaths associated with the 2009 Melbourne heatwave) is not widely recognised. Similarly, inadequate attention appears to be given to how the internal temperatures in many buildings can reach unsafe levels for sustained periods.

1.29 Australians are fortunate to have a robust framework for ensuring that new buildings and new building work on existing buildings are subject to appropriate minimum requirements. To help guide effective climate change adaption, the Australian Greens have developed recommendations intended to assist the development of appropriate enhancements to building standards. In particular, additional research should be commissioned urgently to better understand the connections between heat stress and building design to inform evidence-based policy development.

Recommendation 9

1.30 That the Australian Government request that the Australian Building Codes Board develop minimum requirements for the National Construction Code that are specifically designed to address heat stress risks associated with internal temperatures.

1.31 To facilitate the development of amendments to the National Construction Code, it is further recommended that the Australian Government provide funding for research into:

- **how overheating in highly rated energy efficient dwellings can be created where there can be inadequate ventilation; and**
- **the behaviour of building occupants during heatwave periods.**

Recommendation 10

1.32 As part of the research into the full range of social and economic costs associated with heat stress called for in recommendation 7, estimates should be developed of the potential health system savings and other benefits that could be realised through enhanced building standards. In particular, the research should consider the benefits associated with retrofitting low efficiency dwellings to keep internal temperatures within safe ranges during extreme heat events.

1.33 Governments have a key role in ensuring adequate information is available to assist informed decision-making by homeowners and tenants. This includes developing programs to encourage retrofitting of existing dwellings. For the jurisdictions that already have such programs, given the scale of the challenge climate change presents for Australia's dwelling stock, further work could be undertaken to encourage greater participation in them.

1.34 In addition, governments should ensure that prospective owners of dwelling and tenants are provided with information to assist them to understand and compare the energy efficiency of different buildings. Disclosure of such information is already required in the Australian Capital Territory and should be mandatory across Australia.

Recommendation 11

1.35 That all state and territory governments develop educational resources and introduce or expand existing financial incentive programs designed to

encourage homeowners to undertake cost-effective retrofitting of existing dwellings.

Recommendation 12

1.36 That all state and territory governments legislate to require that an energy rating measuring passive energy performance must be disclosed to prospective buyers and tenants when a residential property is offered for sale or is available to rent.

1.37 The Australian Greens have also considered whether governments should identify a target date by which all existing dwellings would be required to be of a suitable standard for addressing any significant heat risks associated with their local climate. Given the projections available about the increased frequency of heatwave events in Australia's major urban centres, such a response would be appropriate for ensuring adaptation efforts keep pace with the changing climate.

1.38 The preceding recommendations about building standards, research and education should be implemented as a starting point. As a next step, policymakers should then identify an appropriate measurement of heat stress in residential buildings and how comparisons about heat stress can easily be made, either through existing building rating systems or as part of a new system. Following this, an appropriate deadline for building owners and the building industry to reach an identified minimum rating could be developed, with exemptions potentially available for certain types of buildings such as heritage buildings. Given that governments know that millions of homes across Australia are not suitable for extreme heat events, it would be irresponsible for those governments not to take all reasonable actions to ensure their citizens' living spaces are safe in a warming climate.

Recommendation 13

1.39 That state and territory governments consider whether to set a deadline by which all residential properties for sale or rent in their jurisdiction must meet a prescribed energy rating.

1.40 Finally, government should lead by example. For example, governments can contribute to climate change adaptation through procurement decisions, such as by requiring new office space to meet higher standards than the minimum required under the National Built Environment Rating System. Other buildings managed by the government should also be retrofitted to make them more resilient to climate risks. There is a particular need to assist people in public housing who rely on governments to provide safe living conditions.

Recommendation 14

1.41 That the Australian, state and territory governments require that new office space used in the public sector meet high standards of climate resilience and sustainability, including higher energy efficiency standards than the minimum required under the National Built Environment Rating System.

Recommendation 15

1.42 That state and territory governments invest in measures to improve energy efficiency and to reduce heat stress risk in public housing.

Transport and utilities

1.43 Decisions about transportation and utilities infrastructure involve all levels of government. Given the long economic lives intended for these assets, and the recovery of costs from customers, decisions about these types of infrastructure have implications for generations of Australians. Accordingly, these decisions need to be taken with care, following best practice approaches and informed by the most up-to-date scientific information available about climate change projections.

1.44 As discussed above, a key role for the Australian Government is ensuring that reliable information about climate risks is available to inform decision-making. However, the Australian Government could also perform a leadership role in promoting a best practice approach to infrastructure projects. In particular, the Australian Government should engage with key organisations in the built environment sector to encourage effective post-project reviews to be conducted in order to learn from decisions made about climate-related risks.

Recommendation 16

1.45 That the Australian Government work with organisations representing the built environment sector to identify options for ensuring that robust post-project reviews of infrastructure projects are conducted.

Transport

1.46 Given the significant amounts of funding provided by the Australian Government for transportation projects, the Government is well placed to guide the development of climate resilient transportation networks throughout Australia. As a first step, the Australian Government should develop a national transportation plan to guide a transition to net zero emissions transportation. This would also support recommendation 1 regarding net zero emissions by 2040 for all sectors of the economy.

1.47 Although examples such as the Brisbane Airport Parallel Runway Project are encouraging, other evidence received during this inquiry suggests that climate risks are generally not well accounted for as part of transportation projects. Developing a national transportation plan would provide an opportunity to ensure best practice decision-making around climate risks occurs for all transportation projects. Ideas for how the climate risks that existing assets face could be managed more effectively could also be progressed as part of the development of the plan.

Recommendation 17

1.48 That the Australian Government develop a national plan for passenger and freight transport that:

- **outlines a transition to net zero emissions transport; and**
- **ensures decision-making and planning processes for transportation infrastructure projects are appropriate in the face of climate change.**

Water infrastructure

1.49 It is acknowledged that state and territory governments have given attention to the need to secure climate resilient water supplies. It is also recognised that water infrastructure in Australia generally provides a reliable and suitable service. Nevertheless, climate change will present further challenges that state and territory governments will need to address. With ageing water infrastructure assets in many cities and the need to build and maintain infrastructure assets to service a growing population, it is timely to consider these issues.

1.50 Growing urban populations and the expectation of more intense rainfall events due to climate change will require a different approach to planning water infrastructure assets and systems. In particular, it is no longer appropriate to rely on historical rainfall events when designing water infrastructure. Future climate projections need to influence asset design requirements.

1.51 State and territory governments should also ensure that state-owned water corporations and local governments have the resources necessary to undertake effective maintenance of existing water, sewage and stormwater assets. In addition, state governments should develop an overarching plan to ensure that adequate renewal of these assets occurs.

1.52 To support state governments to achieve better outcomes in the water sector, there is also a role for the Australian Government, through agencies such as CSIRO and the Bureau of Meteorology, to ensure state governments and entities designing water sector assets have access to reliable climate-related information to inform infrastructure design.

Recommendation 18

1.53 That state and territory governments:

- **require the design of new water supply, sewerage, sewage treatment and stormwater assets to be informed by reliable climate projections as well as historical data; and**
- **ensure state-owned water corporations and local governments have the resources and support necessary to undertake effective maintenance of water supply, sewerage, sewage treatment and stormwater assets.**

Recommendation 19

1.54 That the Australian Government support state governments to ensure that water sector assets are climate resilient by offering ongoing access to advice from Commonwealth scientific agencies on relevant climate risks.

Electricity infrastructure

1.55 It is clear that a transformation has been underway for some time in the electricity sector with the growth of renewable energy. The implications of climate change are also easier to imagine in this sector compared to others—heatwaves and bushfires already cause significant disruption and pressure governments to act. Consequently, the implications of climate change for the energy market have received significant attention. Government policy, however, has not been consistent—this lack of policy certainty has understandably attracted criticism.[3]

1.56 The electricity sector is undergoing fundamental change through the growth of renewable energy generation and the successful introduction of supporting technologies such as large-scale energy storage. Although clean energy and reform of the electricity sector is essential for addressing climate change and reducing electricity costs, it is also a necessary response to the matters examined by this inquiry. For example, a more decentralised electricity network would help overcome many of the climate change-related risks to existing electricity infrastructure, such as how extreme weather events can damage key transmission or distribution assets and cause widespread outages. It is critical that regulatory arrangements are updated to facilitate the development of a clean energy system, including by facilitating decentralisation.

1.57 As a first step, the National Electricity Objective contained in the National Electricity Law should be amended to progress the transition of the energy market to clean energy and to support Australia's obligations under the Paris Agreement. At present, the Objective focuses on the long-term interests of electricity consumers regarding price, quality, safety, reliability and security of supply.[4] It is, however, also in the long-term interests of energy consumers that the electricity sector responds effectively to climate change in a way that guarantees a secure and affordable supply of electricity.

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3 See, for example, Investor Group on Climate Change, 'Investors need certainty on carbon policy for the energy sector', *Media release*, 9 October 2017, https://igcc.org.au/wp-content/uploads/2017/10/IGCC-MR-Response-to-CET.pdf (accessed 24 April 2018); Business Council of Australia, 'Energy and climate change', www.bca.com.au/policy-agenda/energy-and-climate-change (accessed 24 April 2018).

4 At present, the National Electricity Objective states: 'The objective of this Law is to promote efficient investment in, and efficient operation and use of, electricity services for the long term interests of consumers of electricity with respect to: (a) price, quality, safety, reliability and security of supply of electricity; and (b) the reliability, safety and security of the national electricity system'. *National Electricity (South Australia) Act 1996* (SA), s. 7.

1.58 Referring to clean energy in the National Electricity Objective would provide a clear statement of the Australian, state and territory governments' intentions for the electricity sector to support the reduction of Australia's emissions. This would provide the sector with the long-term certainty needed to inform business investment decisions. The Australian Greens believe that the Objective should be amended to require the sector to transition to net zero emissions by 2030, with this revised Objective supported by strategies to encourage a transition to 100 per cent renewable energy across Australia.

1.59 The Australian Greens also consider that an overarching national transition plan for Australia's electricity system is also urgently required. The Government should prioritise the development of a national transition plan that includes consideration of innovative approaches to support renewable energy and the decentralisation of the electricity networks, such as local energy trading.

Recommendation 20

1.60 That the Australian Government pursue, through the Council of Australian Governments Energy Council, amending the National Electricity Objective to require the electricity sector to reach net zero emissions by 2030.

Recommendation 21

1.61 That the Australian Government develop a comprehensive energy transition plan that includes:

- **reform of the National Electricity Market rules and revised tariffs to support the growth of renewable energy and ensure networks are prepared to efficiently respond to changes in the energy market;**
- **a mechanism for the orderly retirement of coal fired power stations; and**
- **innovative approaches to enable peer-to-peer energy trading.**

Recommendation 22

1.62 That the Australian Government:

- **continue and expand the Renewable Energy Target beyond 2020 and consider adopting renewable energy reverse auctions, such as those adopted by the Australian Capital Territory and Victoria, to bring more new generation into the National Electricity Market;**
- **adopt a National Energy Storage Target of 20 gigawatts of multi-hour storage by 2030;**
- **ensure regulatory arrangements support the continuing deployment of grid level battery storage and household solar and battery storage technologies; and**
- **commit to not providing any direct funding, subsidies or other support for the construction of new coal fired power stations in Australia.**

Health, education and public recreation

1.63 Many of the preceding recommendations are relevant to addressing the issues discussed in this chapter. In particular:

- addressing fundamental issues with building design and urban planning will relieve some of the climate-related adaptation pressures that the health, education and other sectors face;
- the research called for in recommendation 7 to enhance the information available to policymakers regarding the full range of social and economic costs associated with heat stress should include an assessment of the potential savings to the health system; and
- actions to address the urban heat island effect would also be beneficial for public health.

1.64 In addition, there is a need for an overarching national strategy for managing the implications of climate change for human health. The strategy should support planning to enable the health system to adapt and meet the increasing demands it will face due to climate change. As part of this strategy, particular consideration should be given to ensuring that health services are resilient to extreme events, and to the resources the health care sector will require to cope with extreme heat events.

Recommendation 23

1.65 That the Australian Government work with the state and territory governments to develop a national climate change and health strategy.

1.66 The Australian Greens have also developed recommendations relating to health, education and public recreation infrastructure for state and territory governments to consider. The first is straightforward—state and territory governments should require that new health and education facilities not be built in at-risk areas and that the new buildings are highly resilient to climate risks such as extreme temperatures. Similarly, when existing facilities in at-risk areas require replacement, they should be relocated.

1.67 State and territory governments also should develop dedicated programs to ensure that vulnerable populations with specific health needs live in dwellings that can provide safe internal temperatures. In addition to supporting better health outcomes for residents, such programs could reduce the costs incurred in the health system. The Victorian Government's Healthy Homes Program potentially provides a useful model that could be expanded on and adopted elsewhere.

Recommendation 24

1.68 That state and territory governments require proposals for new health and education facilities to be subject to rigorous assessment of climate-related risks, including the risks associated with the proposed location and building design.

1.69 It is further recommended that state and territory governments commence planning to ensure that facilities in high-risk locations that are nearing the end of their useful life are replaced with new facilities in more suitable locations.

Recommendation 25

1.70 That:

- **the Victorian Government's Healthy Homes Program be expanded to cover all of Victoria; and**
- **other state governments introduce programs similar to the Healthy Homes Program to reduce the climate-related health risks faced by low-income individuals with complex healthcare needs.**

Recommendation 26

1.71 That state and territory governments work with local governments and water authorities to increase the use of rainwater, stormwater, recycled water and other water sources to maintain the green infrastructure used for public recreation.

Government decision-making frameworks

1.72 As this report has established, climate change presents significant and inevitable risks for many buildings and infrastructure assets in Australia. It is incumbent on the Australian, state and territory governments to ensure that legislation relating to environmental and planning decisions is appropriate to account for the inevitable consequences of climate change. Furthermore, effective strategies and policy measures need to be in place to facilitate successful mitigation and adaptation.

1.73 Some state and territory governments have developed comprehensive responses to climate change through legislation, strategies, planning policies and grants programs. Nevertheless, there is much more work to be done. Both state government strategies and many submissions to this inquiry have identified the same areas of concern. This suggests that action taken to date is insufficient. In particular, as discussed above, changes to planning frameworks will be required, including the need for planning decisions to account for worst-case scenarios rather than conservative projections. Ensuring that state and territory government actions are effective will also require ongoing commitment by these governments and regular critical assessment of progress.

1.74 Regrettably, the approach taken at the Commonwealth level has clearly been inadequate for meeting the challenge that climate change presents. Successive Australian governments have varied significantly in their approach to climate change. Ratification of the Paris Agreement is a promising development, but overall it appears we are in a lost decade of national climate policy. Most notably, the repeal of the price on carbon pollution and the abolition of the independent Climate Commission by the

Abbott Government are standout examples of the Australian Government failing to secure a safe, clean future for future generations.

1.75 There is an urgent need for the Australian Government to provide strong, consistent leadership on climate change mitigation and adaptation. Actions by state and local governments, business and communities are impeded by the lack of a comprehensive national response.

1.76 In particular, the Australian Government can provide much-needed leadership by replacing the ineffective National Climate Resilience and Adaptation Strategy with a comprehensive and ambitious national strategy. To ensure the new strategy is developed effectively, the Department of the Prime Minister and Cabinet should lead a whole-of-government approach to its preparation. In many respects, this process would be akin to that underway to develop Australia's first Voluntary National Review on the 2030 Agenda for Sustainable Development and the Sustainable Development Goals.

1.77 National leadership and coordinated action on climate change across all areas of government policy and the economy could also be facilitated by establishing a COAG Council on climate change. A permanent multijurisdictional body is needed to coordinate action by all Australian governments. As climate change is an issue of critical national importance, it is appropriate for this body to be part of the COAG framework.

1.78 Other initial steps that the Australian Government should take include:

- reinstating an independent and adequately funded climate change commission to ensure decision-makers have access to authoritative advice on how to effectively adapt to climate change;
- committing funding to research activities needed to inform effective climate change adaptation; and
- ensuring that Commonwealth programs and payments such as those for natural disaster recovery build community resilience rather than simply restoring infrastructure to its previous standard.

Recommendation 27

1.79 That the Australian Government replace the National Climate Resilience and Adaptation Strategy with a comprehensive and ambitious national climate change mitigation and adaptation strategy.

1.80 This new whole-of-government strategy should contain sector-based national targets and timeframes for emissions reductions against which performance can be measured. The strategy should also incorporate strategies relating to transport (recommendation 17), energy (recommendation 21) and health (recommendation 23).

Recommendation 28

1.81 That, in addition to recommendation 6 on state and territory planning legislation, the Australian, state and territory governments review all environmental legislation to ensure that adequate consideration of the effects of climate change is expressly required as part of assessment and decision-making processes.

1.82 In particular, the introduction of a greenhouse trigger should be a key issue for consideration as part of the upcoming independent review of the *Environment Protection and Biodiversity Conservation Act 1999*.

Recommendation 29

1.83 That the Australian Government pursue the creation of a COAG Climate Change Council.

Recommendation 30

1.84 That the Australian Government establish an independent statutory authority to:

- **provide Australians with an independent and reliable source of information about climate change science; and**
- **assist stakeholders to understand and implement effective adaptation techniques, including by acting as a 'one stop shop' that can direct stakeholders to relevant Commonwealth departments and agencies.**

Recommendation 31

1.85 That the Australian Government's National Resilience Taskforce develop recommendations for the Government to consider that would facilitate more frequent betterment of assets that need to be reconstructed or repaired following natural hazards.

Local government

1.86 The Australian Greens are grateful to the local governments that participated in this inquiry for the valuable evidence they provided. This evidence has greatly informed our recommendations and emphasises the need for all governments to ensure climate risks to buildings and infrastructure are managed appropriately.

1.87 As local governments are at the frontline of responding to climate change, it is essential that they have the resources and knowledge necessary to carry out effective planning and adaptation activities. Certain local governments, such as the City of Melbourne, have developed comprehensive strategies and are taking a range of actions to improve the climate resilience of their jurisdiction. Generally, however, local governments do not have the financial resources and ready access to expert evidence needed to address climate risks. They can also face realistic threats of legal action by those dissatisfied with their decisions regarding climate risks. Furthermore, local

governments are in the unenviable position of needing to consider the short-term and long-term interests of their current constituents and future residents.

1.88 Many of the above recommendations are intended to assist local governments to develop successful climate change adaptation measures. However, questions regarding funding and liability are primarily matters for state governments to address. Under New South Wales legislation, exemptions for liability exist regarding decisions made by councils in good faith regarding flood liable land, land that might be affected by a coastline hazard and land that is subject to the risk of bushfire. Other state governments should introduce similar exemptions for their local governments.

1.89 Finally, the provision of sufficient financial resources for local governments to act on climate risks is of vital importance for enabling timely and least-cost adaptation. Local governments face practical and statutory restrictions on the revenue they can raise to pay for their activities. State governments must ensure local governments have adequate financial resources to address the threat of climate change. In addition, the Australian Government should provide specific purpose payments to the states to support local governments to adequately maintain and build climate resilient infrastructure. The new COAG Climate Change Council recommended above could consider an intergovernmental agreement to provide policy and operational guidance on the payments.

Recommendation 32

1.90 That state governments provide local governments with exemption from liability for decisions made in good faith relating to the use of land that is subject to climate change risks, such as flooding, coastal hazards and bushfires.

Recommendation 33

1.91 That the Australian Government provide specific purpose payments to the states to assist local governments to improve the resilience of infrastructure assets most at risk to climate change.

Conclusion

1.92 Unmitigated climate change will radically alter life in Australia, so it is vital that we prepare effectively and avoid a too-little-too-late response.

1.93 Without strong global action being taken urgently to reduce greenhouse gas emissions, there is an appreciable risk of catastrophic consequences to which we will be unable to adapt. While adaptation is critical, there are clear dangers in assuming that all climate scenarios are capable of being adapted to. The existential risk to society, both in Australia and globally, is real and must be faced.

1.94 Accordingly, it is essential that the Australian Government commit to stronger climate change mitigation. The current commitment to reduce emissions by 26 to 28 per cent below 2005 levels by 2030 is inadequate. Strong mitigation is essential, as

there are limits to the extent of climate change to which we can adapt, and many natural systems will not be able to evolve or adapt at the rate that would be required.

1.95 In addition to being ambitious in reducing emissions, we must ensure that our houses, communities, cities and infrastructure are more resilient to climate risks.

1.96 It is easy to envisage decision-makers falling into the trap of not prioritising adaptation because they are overwhelmed by, or have formed a fatalistic attitude towards, climate risks. Others might pursue limited measures based on conservative projections of climate risk. Both of these courses of action are irresponsible and unacceptable. Thoroughly planning for climate risks, particularly those that will be most severe in decades to come, is difficult when governments, businesses and individuals face other immediate pressures—but doing so is vital. Delaying action simply shifts the burden on to future generations, who will be forced to pursue more dramatic and costly adaptation measures.

1.97 The built environment sector, local governments and civil society have taken actions in response to climate risks. Several state and territory governments have also developed targets and strategies. It is time for the Australian Government to assist these efforts by providing greater leadership on how to adapt to climate change.

1.98 This inquiry has demonstrated the need for urgent action. With what is known about climate change, governments across Australia have a responsibility to their citizens to take effective action now. Business as usual is not acceptable.

Senator Janet Rice
Chair