Australian Government

Submissions on matters relating to the work programme for urgently scaling up mitigation ambition and implementation referred to in decision 4/ CMA.4

May 2024

Australia welcomes the opportunity to provide views on opportunities, best practices, actionable solutions, challenges and barriers relevant to the mitigation work programme (MWP)'s topic for 2024 – **cities: buildings and urban systems**.

It will be important for the MWP to build and expand on discussions from last year to help parties respond to the collective commitments from the first global stocktake (GST) to keep 1.5 degrees within reach. The MWP is the logical place to take forward the GST's mitigation outcomes, in light of its mandate to urgently scale up mitigation ambition and implementation in this critical decade in a manner that complements the GST. As such, Australia requests the MWP's co-chairs and the UNFCCC Secretariat ensure the follow-up from the GST is fully integrated into this year's global dialogues and investment-focused events. We see significant opportunity this year to discuss the implementation of GST mitigation outcomes through the lens of cities.

1. Opportunities, best practices, actionable solutions, challenges and barriers relevant to cities: buildings and urban systems

Cities account for the majority of global greenhouse gas (GHG) emissions, and this share continues to increase. According to the Intergovernmental Panel on Climate Change (IPCC), urban emissions accounted for 62% of the global share in 2015, and 67-72% in 2020.[1] This share is expected to increase due to growth in urban populations, urban land expansion and growing infrastructure and service demands. The buildings sector also contributes significantly, accounting for 21% of global GHG emissions in 2019, from which 57% comes from offsite generation of electricity and heat, 24% from direct onsite emissions, and 18% from embodied emissions from the use of cement and steel.[2] In this context, strong mitigation action in cities is crucial, including accelerating action to transition energy systems in this decade.

The three key mitigation strategies identified by the IPCC to reduce emissions in cities are:

(i) reducing or changing urban energy and material use towards more sustainable production and consumption across all sectors, including through spatial planning and infrastructure;

(ii) electrification and switching to net-zero-emissions resources; and

(iii) enhancing carbon storage in the urban environment through urban green and blue infrastructure, which can also offer multiple co-benefits.[3]

[1] IPCC, AR6, Working Group III: Mitigation of Climate Change, Chapter 8: Urban systems and other settlements (ipcc.ch)
[2] IPCC, AR6, Working Group III: Mitigation of Climate Change, Chapter 9: Buildings (ipcc.ch)
[3] IPCC, Chapter 8: Urban systems and other settlements (ipcc.ch)

This underlines the critical importance of reducing emissions in the energy sector. Discussions this year should build on last year's discussions on accelerating just energy transitions. There are also strong linkages between this year's topic and key GST mitigation outcomes, including the call in paragraph 28 of 1/CMA.5 for parties to contribute to global efforts to, among others, triple renewable energy capacity and double the average annual rate of energy efficiency improvements by 2030, transition away from fossil fuels in energy systems and accelerate emissions reductions from road transport.

There is also an opportunity to design this year's dialogues to complement discussions in the UAE just transition work programme (JTWP), and vice versa, recognising just transitions can support robust and equitable mitigation outcomes. Australia looks forward to discussions through the JTWP on just transition pathways to achieving the goals of the Paris Agreement through NDCs, NAPs and LT-LEDs.

1.1 Buildings

Australia supports a **focus on buildings at the first global dialogue and investment-focused event of 2024**, recognising the value of targeted discussions to enhance participation of relevant experts and allow for more comprehensive consideration of each topic. The buildings sector covers the energy used for constructing, heating, cooling and lighting homes and businesses, as well as appliances and equipment installed in them.[4] According to the International Energy Agency (IEA), improvements in the technical efficiency of buildings and equipment, material efficiency, behavioural changes, and greater electrification could cut energy bills by one-third and make up to 50% of carbon reductions by 2030.[5]

In Australia, the built environment is responsible for nearly one third of total national emissions. Enhancing energy efficiency, demand flexibility and electrification in the buildings sector are key priorities of the Australian Government to reduce emissions and cut energy bills for households and businesses. Our upcoming Built Environment Sector Plan – one of six sectoral transition plans under development alongside a new Net Zero Plan and our next Nationally Determined Contribution (NDC) and 2035 target – will identify further opportunities to reduce emissions.

1.1.1 Suggested subtopics

- **Energy efficiency in buildings (new buildings and retrofitting existing buildings)**

  Alongside significant mitigation potential, there are important co-benefits to enhancing energy efficiency in buildings, such as improving energy affordability, enabling electrification by reducing peak demand, improving comfort and health, and creating new jobs. Discussions on energy efficiency at the first MWP global dialogue in 2023 recognised energy efficiency as a vital building block for energy transition as a core mitigation measure to be considered across all sectors. This year's topic presents a valuable opportunity to discuss in more detail the key opportunities and challenges to achieve this in the buildings sector, including in the context of parties' agreement at COP28 to contribute to global efforts to double the average annual rate of energy efficiency improvements by 2030.

  We see value in discussing best-practice standards, information, regulation and policy for improving energy efficiency for new builds and by retrofitting existing buildings. This could

[4] International Energy Agency (IEA), 2023, Buildings - Energy System - IEA
[5] IEA, Energy Efficiency 2023, What does doubling global progress on energy efficiency entail? – Energy Efficiency 2023 – Analysis - IEA

include the use of minimum energy efficiency standards, rating systems, disclosures, information tools for consumers, financial incentives such as grants or tax relief, and targeted support for low-income households to reduce barriers related to high-upfront costs.

Case Study: National Australian Built Environment Rating System (NABERS)

NABERS is a voluntary rating system that measures a commercial building's sustainability performance. It provides a one-to-six-star rating system for building efficiency across energy, water, waste and indoor environment. Clients have reduced their energy use by an average of 30-40% over a 10-year period, with significant cost savings. NABERS is a national program managed by the Government of the state of New South Wales in Australia and is overseen by a national steering committee comprised of all state and territory governments, as well as the Australian Government. The program has been taken up in international markets – the United Kingdom, New Zealand and Germany – and has published a Global Guide to Energy Efficiency in Commercial Buildings[6].

- **Electrification and renewable energy in buildings**

  According to the IEA's Net Zero Scenario, around 20% of global emissions reductions by 2030 will be achieved through electrification.[7] Participants at the MWP's first global dialogue in 2023 recognised the key role electrification, alongside rapid and large-scale deployment of renewable energy, will play in the global energy transition, and their role in creating new industries, jobs and stimulating economic growth.

  The high mitigation potential and co-benefits of electrification backed in by renewables also applies to the context of building sector decarbonisation. We see value in considering electrification in buildings in the context of parties' agreement at COP28 to triple global renewables capacity by 2030 and transition away from fossil fuels in energy systems.

  In particular, Australia would value discussions on policies and programs to accelerate renewables and storage capacity in residential and commercial buildings, grid integration and coordination of consumer energy resources (e.g. rooftop solar and community batteries), and best practice approaches to manage rising electricity demand.

Case Study: Capacity Investment Scheme (CIS)

The CIS provides a national framework to encourage new investment in renewable capacity, such as wind and solar, as well as clean dispatchable capacity, such as battery storage. Through the CIS, the Australian Government seeks competitive tender bids for renewable capacity and clean dispatchable capacity projects to deliver an additional 32GW of capacity by 2030, fill expected reliability gaps as coal exits the market, and deliver the Government national target of 82% renewable electricity by 2030. The Government provides revenue underwriting for successful CIS tender projects, with an agreed revenue floor and ceiling, to provide a long-term safety net and decrease financial risks for investors. Through the CIS and other policies and programs, renewable energy in Australia is growing rapidly.

[6] National Australian Built Environment Rating System (NABERS), 2022, Global Guide to Energy Efficiency in Commercial Buildings.

[7] IEA, 2021, Net Zero by 2050: A Roadmap for the Global Energy, Net Zero by 2050 – Analysis - IEA

- **Decarbonising heating, cooling and cooking**

  According to the IPCC, the majority of building sector emissions come from the production of electricity and heat within buildings.[8] The demand for space cooling has tripled since 1990 and will continue to grow as the impacts of climate change are felt around the world.[9] Reducing emissions from space and water heating, cooling, cooking and other appliances and equipment is a critical component of building sector decarbonisation, closely linked to improving energy efficiency and accelerating electrification.

  We would particularly support a focus on the potential of heat pumps to decarbonise space and water heating, standards and labelling programs for appliance efficiency, and accelerating access to clean cooking facilities in developing countries.

Case Study: Household Energy Upgrades Fund and other energy efficiency incentive programs

The Household Energy Upgrades Fund provides $1 billion to turbocharge financing options for household energy upgrades – working with the Australian Clean Energy Finance Corporate to partner with banks and other lenders to upgrade homes with solar PV, modern appliances and other improvements. This will reduce emissions in residential homes and help more than 110,000 Australian households lower their energy bills. The fund joins several existing state and territory programs to incentivise sustainable home upgrades. For example, the Australian Capital Territory's Home Energy Support Program provides up to $5,000 in rebates for eligible homeowners to help with the costs of installing energy-efficient products, including reverse cycle heating and cooling hot water heat pumps and electric stove tops and ovens.

- **Addressing embodied carbon in building construction**

  Embodied carbon in buildings refers to GHG emissions associated with materials and construction processes throughout the whole lifecycle of an infrastructure or building asset, including material extraction, transportation, manufacturing, construction, use, replacement, demolition and end of life. These emissions are strongly impacted by the decisions made during the planning, design, procurement, delivery and maintenance of new construction projects. Although embodied carbon generally represents a lower proportion of building sector emissions than energy usage, these emissions are harder to abate. Over time, as the Australian electricity grid decarbonises, emissions from embodied carbon are expected to account for a greater share of an asset's carbon footprint over its lifecycle.[10] Given the long lifespan of building assets, construction decisions made today will lock in emissions from embodied carbon well into the future. It is crucial to accelerate action in this decade to address embodied carbon in buildings as countries strive for net zero by mid-century.

  Australia recommends this year's first MWP global dialogue address opportunities and challenges to reduce emissions in construction materials, including the steel, cement and aluminium sectors, best practice approaches to developing robust embodied carbon

[8] IEA, 2023, Buildings, Buildings - Energy System - IEA
[9] IEA, 2023, Buildings: Space Cooling, Cooling - IEA
[10] Infrastructure Australia, 2024, 'Embodied Carbon Projections for Australian Infrastructure and Buildings'

measurement systems, incentives for low carbon construction, including driving market demand and risk reduction and opportunities to recycle and reuse construction materials.

Case Study: Green steel in Australia

Turning iron ore into steel is an energy and emissions intensive process that accounts for 7% to 9% of global GHG emissions.[11] Australia produces almost half of the world's iron ore and has a unique opportunity to contribute to global emissions reductions.[12] Ore processing expertise, future low-cost renewable energy, abundant iron ore reserve, established infrastructure, and plentiful land are amongst Australia's advantages that position us well to play a role in transitioning the value chain. Through the Powering the Regions Fund's Critical Inputs to Clean Energy Industries program, the Australian Government is investing to secure a low-emissions future for Australian steelmaking. Targeted support for primary steel producers will maintain domestic production, reduce emissions, and support pathways to continue lowering emissions in the sector in the future. For example, the Government has provided funding for a project to reline and upgrade a blast furnace at the Port Kembla Steelworks and purchase and commission a low-carbon electric arc furnace at Whyalla Steelworks.

1.1.2 Recommended speakers and participants

- Commonwealth Scientific Industrial Research Organisation (CSIRO) – Energy Efficiency
- International Energy Agency – Technology Collaboration Programmes (Cities, District Heating and Cooling, Energy Efficient End-Use Equipment, Energy in Buildings and Communities, Energy Storage and Heat Pumping Technologies)
- Mission Innovation – Urban Transitions Mission
- Clean Energy Ministerial – Industry Deep Decarbonisation Initiative (work on green materials for buildings)

1.2 Urban systems

Australia supports a **focus on urban systems at the second global dialogue and investment-focused event of 2024.** As for buildings, we see significant potential to build on last year's discussions on energy transition and consider how parties can accelerate action this decade to implement key GST outcomes through the lens of urban systems. Potential subtopics under the umbrella of urban systems include:

- Electrification and renewable energy integration in urban energy systems
- Urban greening
- Digitalisation
- Circular economy
- Integrated, whole-of-economy planning

We will provide further views on this topic in a separate submission ahead of the second dialogue.

[11] IEA, 2022, Steel, Iron & steel - IEA
[12] Commonwealth Scientific and Industrial Research Organisation (CSIRO), 2023, Low Emissions Steel, https://research.csiro.au/tnz/low-emissions-steel/

1.3 Cross-cutting issues

- **Partnering with local governments and community-based stakeholders**

  Decarbonising the buildings sector will require engagement of all levels of governance, including local governments, councils and other community-based stakeholders. Local governments are well placed to drive implementation of national and regional climate policies but are often under resourced. Partnerships between cities, national and regional governments, and international organisations and networks will be crucial to mobilise resources, overcome barriers and facilitate the development of well-designed policy attuned to the needs and experiences of communities.

  The COP28 Coalition for High Ambition Multilevel Partnerships for Climate Action, joined by 72 countries, recognises the value of enhancing collaboration and coordination between national and subnational governments. The outcome of the first global stocktake similarly acknowledges the important role of subnational authorities and community stakeholders and encourages international cooperation and information exchange at all levels (1/CMA.5 paragraphs 158 and 162).

  We support discussion of opportunities and challenges to strengthen engagement and collaboration between national, regional and local governments and community stakeholders as a cross-cutting issue at this year's dialogues and events.

  Case Study: Australian Building Codes Board (ABCB)

  The ABCB is the standards-writing body in Australia responsible for development of our National Construction Code, which sets minimum requirements for buildings to achieve safety and health, amenity and accessibility and sustainability. All levels of government in Australia (federal, state and territory, and local), as well as industry, are represented on the board. Local governments are represented by the Australian Local Government Association, which speaks for 537 councils across the country. This approach helps support fit-for-purpose decision-making based a diverse range of perspectives.

- **Co-benefits for adaptation and development**

  Policies and measures to reduce emissions in buildings have significant potential to support adaptation and development objectives. For example, improving energy efficiency in buildings can lower emissions and energy usage, improve thermal comfort, air quality and well-being (including in the event of extreme heat), and reduce financial stress. According to the IPCC, decarbonised building stock can have 'significant macro- and micro-economic effects, such as increased productivity of labour, job creation reduced poverty, especially energy poverty, and improved energy security that ultimately reduces net costs of mitigation measures in buildings'.[13] Australia would value discussion of co-benefits for adaptation and development in the context of policies and measures to decarbonise the buildings sector as a cross-cutting topic.

[13] IPCC, AR6, WG III, Chapter 9: Buildings, pg. 956.

Case Study: Predictive weather files to support climate resilient buildings

Australia's Commonwealth Scientific Industrial Research Organisation has developed up-to-date weather data to use in software to explore the impact of climate change on building energy consumption. This data can simulate energy use for different building designs under expected weather conditions, to test performance, including assessing the effects of climate change. It helps to inform the design of commercial buildings, both to reduce emissions and improve resilience against expected future heatwaves.

- **Addressing structural barriers to attracting private investment**

  According to the IEA, global investment in clean energy will need to reach $4.5 trillion per year by the early 2030s, from approximately $1.8 trillion in 2023.[14] Private investment is crucial to filling this gap and substantial progress has been made in recent years. Global investment in clean energy is rapidly accelerating and outpacing investment in fossil fuels. The private sector is investing significantly to take advantage of emerging economic opportunities. However, this investment remains concentrated in major economies. Attracting private capital is a genuine challenge for many developing countries.

  The MWP's investment-focused events are a valuable opportunity for parties and non-party stakeholders to share experiences, challenges and expertise on creating robust enabling environments and addressing structural barriers to attracting private investment for mitigation action. This includes best practice and lessons learnt for attracting and de-risking private sector investment in developing economies.

Case Study: Australian Development Investments

Australia is working through innovative financing partnerships to deploy concessional investment to support climate projects and attract greater private investment. The Government has established Australian Development Investments, a new vehicle providing up to $250 million as a catalyst for private impact investment in the Indo-Pacific for climate change and gender equality initiatives. The Government has already announced three investment windows as part of Australian Development Investments, including $50 million to support climate and clean energy-focused Indonesian SME enterprises, $21 million for Investing in Women, and $13 million to stimulate private investment in clean energy infrastructure and market development in Vietnam.

- **Nationally Determined Contributions (NDCs) and investment**

  Countries are increasingly recognising the role ambitious NDCs can play in catalysing investment. NDCs are a clear signal of direction and ambition that governments can send to investors, global capital markets and the wider international community. NDCs can provide long-term investment certainty to inform decision-making. This is particularly effective when they are linked to longer-term plans to reach net zero and are backed in by whole of economy planning, sectoral transition plans and project pipelines. Australia suggests discussion of the NDC-investment nexus at this year's investment-focused events,

[14] IEA, Net Zero Roadmap, 2023, pg. 15, Net Zero Roadmap: A Global Pathway to Keep the 1.5 °C Goal in Reach - 2023 Update (iea.blob.core.windows.net)

recognising the opportunity to complement related discussions in the G20 and other major international forums.

Case Study: Australia's Net Zero Plan and Sectoral Plans

The Australian Government is developing a new Net Zero Plan which will articulate how Australia will transition to a net zero economy. It focuses on maximising the benefits of the global transition to net zero and providing long-term policy certainty to drive investment. There is strong demand for this in Australia – investors, industry, and other stakeholders have called for a clear and credible plan with sectoral detail. Australia is also developing six sectoral decarbonisation plans, covering all major sectors of the Australian economy (electricity and energy; transport; industry; agriculture and land; resources; and the built environment). There plans will underpin and inform, Australia's 2035 emissions reduction target.

2. Process considerations

Australia appreciates the efforts of the MWP co-chairs to deliver two global dialogues and investment-focused events in 2023. We welcome ongoing willingness to respond to feedback from participants and to take forward a learning by doing approach. At the next global dialogue, we see value in adjusting the organisation and format to provide more time for discussion under each subtopic. Allowing for the consideration of opportunities and barriers together, rather than on separate days, would avoid duplication and leave more time for in-depth discussion.

We support the call to enhance non-party participation, including relevant experts, international organisations, Indigenous Peoples and Indigenous Organisations, and expand virtual participation opportunities, as agreed by Parties at COP28. Leaving more time for discussion under each subtopic would enhance participation opportunities for non-party stakeholders and virtual attendees. Utilising virtual breakout rooms for only virtual participants during sessions that have previously required in-person attendance (e.g. World Café sessions) would also improve active engagement of virtual participants.

Australia sees value in the organisation of complementary, virtual-only dialogues between experts on specific subtopics to leverage the MWP's convening power to support enhanced peer-to-peer technical exchanges between countries. We are strongly supportive of regional dialogues, which are open to all interested participants but focused on specific regions, to allow for in-depth discussion of different regional issues and contexts.