# **The United Kingdom of Great Britain and Northern Ireland's submission to the United Nations Framework Convention on Climate Change** on the Mitigation Work Programme, ahead of the second Global Dialogue

provided in line with the mandate given in November 2022[1]


[1] Paragraph 14, Decision FCCC/PA/CMA/2022/L.17

## Introduction

The UK is pleased to present this submission that sets out priorities for organising the first Global Dialogue of 2024 to maximise meaningful participation, key inputs for the sub-topics, what the key thematic outputs will need to address, important existing solution areas and best practice for the sub-topics that we expect to discuss this year. It is vital for the Mitigation Work Programme (MWP) activities to **remain solutions-focused and lead to clear, collective next steps** on how to accelerate implementation of current Nationally Determined Contributions (NDCs) and long-term low emission development strategies (LT-LEDs), and inspire raised mitigation ambition to keep temperature rise below 1.5°C. Areas of focus for the MWP activities and suggested actions are drawn from existing best practice, lessons learnt from the challenges and barriers experienced by the UK, key findings from relevant thematic organisations and through sectoral initiatives that the UK participates in.

We acknowledge the important ongoing work that is being progressed to identify Means of implementation (MOI) for climate action and strengthen enabling environments, both inside and outside the UNFCCC. To this end, the MWP also has a role to continue its work on enabling environments which support greater investment for energy transitions, as part of wider progress in this area.

The UK priorities for the 2024 Global Dialogue discussions can be summarised under the following thematic areas:

1. **Buildings and energy transition**

- Accelerating action to decarbonise *all* sectors within the energy system;
- Strengthening international collaboration to scale our collective ambition and accelerate the transition to clean technologies and sustainable solutions;
- Supporting fair and inclusive Just Transitions;
- Enhancing the overall public offer of international assistance needed for the decarbonisation of the built environment; and
- Promoting research, development, and demonstration (RD&D).

2. **Data collection**

- Improving data availability, the alignment of standards and the use and adoption of adoption of Life Cycle Assessments;
- Strengthening global initiatives to establish and share open source environmental and social data on resource use and buildings;
- Developing voluntary standards for whole life cycle environmental impacts of buildings, with a clear and binding pathway towards making them mandatory; and
- Promoting the extension of the life of the existing building stock and circularity.

3. **Low carbon products**

- Developing aligned standards for low emission and near-zero emission construction products; and
- Growing demand commitments for low and near-zero emission construction products.

4. **Energy efficiency**

- Agreeing fuel poverty targets and strategies to ensure energy efficiency improvements reach the people and buildings that need them most; and
- Launching public campaigns to promote cost-effective energy efficiency measures.

**5. Heat decarbonisation**

- Enhancing knowledge sharing and best practice;
- Considering the need for an international pledge to reduce taxes and other charges on electricity and potentially increasing them on fossil fuels to incentivise low carbon heating;
- Collaborating on R&I on heat pumps and other low carbon heating systems; and
- Undertaking heat network planning in major urban areas.

**6. Urban mobility**

- Committing Paris-aligned phase out dates for the sale of new ICE vehicles;
- Enhancing policy development and implementation capabilities across EMDEs;
- Enabling electricity grid infrastructure improvements; and
- Enhancing efforts on battery supply chains and trade conditions.

## Content for the Global Dialogue discussions

To best use the time remaining, all discussions of the work programme should focus on what is collectively required to align with a 1.5°C pathway by reducing greenhouse gas emissions 43% by 2030 compared to 2019 levels, achieving global peaking by 2025 at the latest, implementing the GST outcomes, and implementing the objective of the MWP.

The UK welcomes the focus on **'Cities: buildings and urban systems'** in the context of delivering on the energy transition outcomes from the GST. Tackling emissions in cities will be key for meeting global climate goals. According to the IEA's 2021 Empowering Cities for a Net Zero Future report, cities accounted for more than 50% of the global population, 80% of global GDP, two-thirds of global energy consumption and more than 70% of annual global carbon emissions. It is expected that by 2050 this will grow, and more than 70% of the world's population will live in cities (IEA, 2021). Cities can be more efficient and have lower emissions per capita, for example in the UK London has the lowest per capita emissions, as the urban nature of the transport system and the high population density results in lower emissions than the UK average when total emissions, including non-domestic (residential) emissions, are spread across residents (DESNZ, 2023).

Globally, the buildings sector is also a major emitting sector, with emissions from building operations and those embodied in materials used in construction accounting for around a third of total energy system emissions (IEA, 2023). Under current trajectories emissions from buildings will continue to grow, driven by rapidly expanding floorspace which could be double 2020 levels by 2060 (WRI, 2023). Similarly urban land areas are expected to grow significantly, and could triple between 2015 and 2050, and thus have implications for carbon lock-in as the infrastructure built in line with the increase in urban land will lock-in patterns of energy consumption for decades (IPCC, 2022).

This transition also presents a significant opportunity to inform our linked collective efforts to accelerate the transition away from fossil fuels, including tripling renewables, doubling energy efficiency and phasing down coal.

We note the importance of keeping sectoral strategies and commitments under review in line with ambitious NDCs and net zero LT-LEDs, and drawing from best practice and solutions under existing

sectoral collaborative initiatives, international organisations and resources available to Parties and non-Party stakeholders to inform this.

## 1. Buildings and energy transition

Recognising the importance of delivering on the commitments in the Global Stocktake, including to transition away from fossil fuels in energy systems so as to achieve net zero by 2050, a range of actions are of critical importance. We must accelerate action to decarbonise all sectors within the energy system: power, transport, industry, buildings etc.

Sustained reductions in greenhouse gas emissions in the built environment in line with 1.5°C pathways require a tripling of global renewable energy capacity and a doubling of the global average annual rate of energy efficiency improvements by 2030. Zero- and low-emission technologies such as renewables and low-carbon hydrogen, and abatement and removal technologies such as carbon capture and utilization and storage, are particularly important in hard-to-abate sectors which are central to the built environment.

The technologies needed to deliver around 35% of the CO2 reductions needed to reach net zero by 2050 are still in prototype phases (IEA). Alongside greater global investment and collaboration in R&I, it is vital that national and sectoral strategies and policies are regularly updated to reflect the latest available technological innovations, reflecting and helping to drive the increasing global proliferation of technological solutions thanks to policies, investment and falling costs (IEA).

In the UK, the Powering up Britain: Net Zero Growth Plan and UK Innovation Strategy set out how research and innovation (R&I) is a key enabler for net zero. Published in October 2021, the UK's Net Zero Research & Innovation Framework, and its delivery plan, published in March 2023, together set out the key net zero R&I challenges across the UK, including in the Industry, Transport, Power and Heat, and Buildings sectors, for delivering on the UK's Net Zero Strategy (submitted to the UNFCCC as the UK's LT-LEDS). We have allocated £4.2bn over the period 2022-25 to address these R&I challenges and to accelerate the commercialisation of innovative, low-carbon technologies, systems and business models.

Collective actions for Parties and non-Party stakeholders to consider as part of efforts to accelerate sectoral decarbonisation:

- Strengthen international collaboration, cooperation, and coordination, which is vital to scale ambition and accelerate the transition. The Breakthrough Agenda provides a coordination framework for scaling and joining up action across high emitting sectors, guided by recommendations from the International Energy Agency (IEA) and UN High-Level Champions. Furthermore, countries should consider supporting leading international initiatives delivering work under the Breakthrough Agenda framework, specifically those under the Buildings, Steel, Cement & Concrete, Power, and Road Transport Breakthroughs given their relevance to the built environment and urban systems.
- Endorse the Global Cooling Pledge launched at COP28, which is supported by 68 countries and aims to reduce cooling-related emissions across all sectors and sustainably adapt to the impacts of extreme heat. The Pledge includes 16 commitments. There are opportunities to share best practices and actionable solutions on how we meet individual solutions and commit to work together with the aim of reducing cooling-related emissions across all sectors by at least 68% globally relative to 2022 levels by 2050, consistent with limiting global average temperature rise to 1.5°C and in line with reaching global net-zero emissions

targets with significant progress and expansion of access to sustainable cooling by 2030. This aim will be advanced through individual countries' domestic actions as consistent with their domestic plans and priorities, and international collaboration.

- Deliver the 2030 targets on renewables and energy efficiency launched at COP28 and supported by 132 countries, with the aim of tripling the global installed capacity of renewable energy sources to at least 11 TW by 2030 and doubling the global rate of energy efficiency improvements from about 2% to over 4% by 2030. The Power Breakthrough, which is co-led by Morocco and UK and aims to make clean power the most affordable and reliable option for all countries to meet their power needs efficiently by 2030, is coordinating international initiatives to deliver tangible outcomes in support of the renewable and energy efficiency targets by COP29.
- Support Just Transitions that are fair and inclusive, create decent work opportunities, and leave no one behind. The UK has supported efforts domestically not least through its Green Jobs Taskforce and internationally, including through the COP26 Just Transition Declaration. We will work constructively within the Just Transition Work Programme towards outcomes which support increased climate ambition, enable country-led economic transitions underpinned by inclusive climate policies and ensure just transitions towards net zero by or around mid-century that are fair, inclusive and leave no one behind.
- Further enhance the overall public offer of international assistance needed for the decarbonisation of the built environment, including for enabling technologies and infrastructure, with the goal of mobilising private investment at scale in emerging and developing countries.
- Promote research, development and demonstration (RD&D) and integrate R&I into policies and strategies for sectoral decarbonisation, recognising that the technologies needed to deliver around 35% of the CO2 reductions needed to reach net zero by 2050 are still in prototype phases (IEA).

Further inputs to draw on for the Global Dialogues:

- The Breakthrough Agenda was launched at COP26 and is steered by the UAE, Egypt, UK, US, India, Germany, Morocco, and Canada. It has the backing of 57 governments and over 100 international initiatives, and aims to strengthen international collaboration to make clean technologies and sustainable solutions the most affordable, accessible, and attractive option in key sectors and in all regions by 2030. Individual sectoral Breakthroughs help coordinate the landscape of international initiatives to align policy outcomes with annual expert recommendations made by the IEA and UN High Level Champions in the Breakthrough Agenda Report, covering a range of issues from standards & certification, demand creation & management, RD&D, finance & investment, and knowledge & skills.
- Mission Innovation is the primary intergovernmental forum for cooperation in clean energy technology development and demonstration. Its Missions, private-public alliances that are working towards tipping points in the cost and scale of clean energy solutions, include:
    - Urban Transitions Mission, which aims by 2030 to deliver at least 50 large-scale, integrated demonstration projects in urban environments around the world, providing a pathway for all cities to adopt net-zero carbon solutions as the default option.
    - Mission Innovation's Innovation Community on Sustainable Heating and Cooling brings together the global R&I community for heating and cooling of buildings and

facilitate research collaborations and accelerate private investment to deliver innovation and impact across the field.

- The UK and Brazil launched at COP28 two new country platform-style Hubs for Industrial Decarbonisation and Hydrogen. The aim is to coordinate, aggregate and simplify access to a full package of global assistance to accelerate Brazil's industrial decarbonisation. It is a direct response to the recommendation of the Priority Actions launched under the Breakthrough Agenda at COP28, backed by 30 countries, that included commitments to strengthen the international assistance offer to support accelerated developing country transitions in hard-to-abate sectors. India and Sweden are also collaborating on a related initiative – an Industry Transition Partnership – also launched at COP28.
- Leadership Group for Industry Transition (LeadIT) is a coalition of countries, companies and industry experts working to achieve net zero emissions from heavy industries by 2050. It was launched at the UN Climate Action Summit in September 2019 and is supported by the World Economic Forum. LeadIT is a key partner in the delivery of the Brazil-UK Industrial Decarbonisation and Hydrogen Hubs launched at COP28.
- The Super-efficient Equipment and Appliance Deployment (SEAD) Initiative is a voluntary collaboration among governments working to promote the manufacture, purchase, and use of energy-efficient appliances, lighting, and equipment worldwide. SEAD is an initiative under the Clean Energy Ministerial (CEM) and the Energy Efficiency Hub (EE Hub) and is coordinated by the International Energy Agency. At its core, SEAD is about governments working together to save energy, turning knowledge into action to advance global market transformation for energy efficient products. SEAD's 24 participating governments collaborate to accelerate and strengthen the design and implementation of appliance energy efficiency policies and related measures.
- The Climate Club is an open, inclusive, and ambitious high-level forum for cooperation on accelerating climate action and increasing ambition, particularly in the field of industry decarbonisation, with a specific focus on carbon leakage, definitions and standards for low carbon products, and improved technical and financial assistance.

## 2. Data Collection

Data and technology are key enablers for achieving the decarbonization and resilience of the buildings and construction sector. Data can inform decision-making, support policy design and implementation, monitor and evaluate progress, and foster innovation and collaboration to ensure that investments in buildings and construction are climate-target-aligned investments.

At the international level, 2024 is a pivotal year for reporting for all aspects of climate as the Enhanced Transparency Framework (ETF) is implemented. This is a UNFCCC Framework which provides Parties with a standardised set of metrics to report against. Reports under the ETF (called Biennial Transparency Reports) are due by December 2024 and are crucial to ensure that comprehensive, consistent and comparable data is gathered across all countries. This is imperative as it is these reports which will inform the next Global Stocktake in 2028. It is important to encourage maximum implementation of the ETF to ensure the greatest possible visibility of our collective progress against climate targets.

However, data availability, quality, and accessibility are often limited and uneven across countries and regions. Similarly to what has been done through the UNFCCC with the ETF, data needs to be harmonized and methods (e.g. Life Cycle Assessments) standardized to allow for comparability and interoperability between technologies. Differing methods and access to data causes increased costs

of measuring and reporting emissions of construction products and buildings and reduces their ability to decarbonise through lack of comparability at product and building level.

Collective actions for Parties and non-Party stakeholders to consider as part of efforts to accelerate sectoral decarbonisation:

- Engage with the Buildings Breakthrough and initiatives such as the Whole Life Cycle Policy Coalition to improve data availability and alignment of standards.
- Adopt policies to deliver Near Zero Emissions Buildings through the use and adoption of Life Cycle Assessments.
- Develop and align universal principles and standards to enable more consistent, transparent, and comparable methodologies and frameworks to assess and report Whole Life Carbon and, in future, the broader sustainability performance of buildings.
- Support global initiatives to establish and share open source environmental and social data on resource use and buildings to enable accessible, full scope Life Cycle Sustainability Assessments and better inform associated decision making.
- Develop voluntary benchmarks for whole life cycle environmental impacts of buildings, with a clear and binding pathway towards making them mandatory.
- Value the extension of the life of the existing building stock, promote circularity and promote long service life, through data collection, guidelines, capacity building, economic incentives and policy tools.

Further inputs to draw on for the Global Dialogues:

The Buildings Breakthrough Priority Action B1 on standards and certification calls for initiatives to develop common, global principles to align Life Cycle Assessment methodologies and to develop definitions for Near Zero Emission and Resilient Buildings by COP30. This work is being led by the Whole Life Cycle Policy Coalition (WLCP.Co), a working group hosted by the GlobalABC that formed in 2023 to coordinate initiatives and drive global consensus on Whole Life Cycle issues such as standards and data alignment.

## 3. Low Carbon Products

The UK is working with industry to establish an embodied emissions reporting system, alongside a system of ‘voluntary product standards’ to benchmark the embodied emissions intensity of selected industrial products such as steel, cement, and concrete. These policies will support consumers (including businesses and governments) with greater transparency on the embodied emissions of products. It will provide simple ways to recognise low and high carbon products and support better understanding of how purchasing power can be used to support the transition to net zero. These policies could also boost the competitive position of low carbon products, helping to mitigate carbon leakage risk.

The UK’s approach to establishing voluntary product standards will likely be to endorse pre-existing industry-led initiatives within the respective sectors. Currently, there are different definitions of low carbon steel, cement and concrete emerging, that use different approaches to calculating the embodied emissions benchmarks used for comparing products. A key part of the government’s role will be to ensure that there is an effective consensus, and not a multiplicity of standards that could become confusing and undermine our objectives to support the transition to low carbon production.

Policies to support improved data on the embodied emissions of products and support product comparisons will be most effective if delivered in an internationally coordinated way. However, there are key challenges in this space, including:

- variation in the life cycle analysis standards used to assess the embodied emissions of products, with standards often not currently being interoperable;
- existing standards being insufficiently precise – e.g. allowing for differing approaches to the allocation of emissions.

This can negatively impact the effectiveness of embodied emissions assessments. There is also a range of benchmarking schemes, risking potential fragmentation in countries' understanding of what constitutes low carbon or 'green' products or confusion within the domestic market as different procurers may use different methodologies.

To address this, countries should work together through leading international initiatives and national and international standards bodies in a coordinated way to support international alignment on embodied emissions reporting and support efforts to drive consistency in embodied emissions reporting. Countries should also engage with key centres of expertise and international partners, and commission data quality research on key existing life cycle analysis standards to support delivery of a reporting and benchmarking system which can be used to drive consistent and robust embodied emissions reporting and product comparisons.

The UK is leading in the transition to low-carbon building products through our Timber in Construction Roadmap which sets out our commitments for safely increasing the use of timber in construction in England. The roadmap was published on 11th December 2023. The roadmap has been co-created with cross-government and cross-sector involvement. It takes a holistic approach, identifying seven priority themes across the timber supply chain and building process. The commitments in the roadmap utilise and encourage research into Modern Methods of Construction and the role of timber in the reduction of embodied carbon in the built environment, as well as explore and address the barriers to uptake of timber, greater circularity in the supply chain, increasing skills and capacity in the construction and timber sectors, and increasing sustainable timber supply. They will also address fire safety and durability concerns. Guided by fire safety and structural considerations, key opportunities for the safe growth of timber use in England will be in low-rise buildings using traditional and modern methods of construction, and in a wide range of commercial and non-residential settings.

<u>Collective actions for Parties and non-Party stakeholders to consider as part of efforts to accelerate sectoral decarbonisation:</u>

- Accelerate the development of standards for low emission and near-zero emission construction products by:
    - working to finalise the interoperability of common emissions measurement methodologies for steel through 2024;
    - sharing knowledge to accelerate the adoption of emissions reporting by the mid-2020s; and
    - working to develop guidance to ensure definitions are compatible with net zero for net-zero certification of existing definitions/thresholds and subsequent claims guidance.
- Commit to rapidly growing demand commitments for low and near-zero emission construction products, by working together to develop packages of coordinated high-quality

public and private procurement and purchase agreements, including by joining the CEM IDDI Green Public Procurement Pledge launched at COP28.

Further inputs to draw on for the Global Dialogues:

- The Whole Life Cycle Policy Coalition is a sub-working group within the Materials Hub of the GlobalABC. The working group has 181 members from 41 countries, including leading international organisations aimed at promoting lower carbon construction. The aims of the WLCP.Co are to support data collection infrastructure for emissions of materials and buildings; grow consensus on complex methodological aspects of Life Cycle Assessments; provide a space to present case studies of successful policies; and diversify the voices working on Life Cycle Assessments by actively engaging with EMDEs.
- The Clean Energy Ministerial's Industrial Deep Decarbonisation Initiative (IDDI) is a coalition of 10 governments working with the private sector, think tanks and academia to stimulate the demand for low and near-zero emissions materials, starting with steel, cement and concrete. The IDDI advocates for public procurement commitments via its Green Public Procurement Pledge to stimulate the demand for green products and is working to harmonize systems for emissions reporting and benchmarking of industrial products.
- The IEA Working Party on Industrial Decarbonisation (WPID) is a forum for IEA Family governments, industrial organisations, and other relevant public and private stakeholders, to work together on key substantive questions towards accelerating industrial decarbonisation. The initial focus area of the WPID is on definitions related to what constitutes 'near-zero emission' and 'low-emission' in heavy industry, how standards can support their use, and how they can be used in policy.
- The Steel Breakthrough, co-led by Germany and UK, aims to make 'near-zero emission steel the preferred choice in global markets, with efficient use and production established and growing in every region by 2030' and is coordinating international initiatives to deliver tangible outcomes by COP29 / COP30 in the areas of standards and certification, demand creation, RD&D, trade, and finance and investment.
- The Cement & Concrete Breakthrough, co-led by Canada and UAE, aims to make 'near-zero emission cement the preferred choice in global markets, with efficient use and near-zero emission cement production established and growing in every region by 2030' and is coordinating international initiatives to deliver tangible outcomes by COP29 / COP30 in the areas of standards and certification, demand creation, RD&D, and finance and investment.
- The Climate Club is an open, inclusive and ambitious high-level forum for cooperation on accelerating climate action and increasing ambition, particularly in the field of industry decarbonisation, with a specific focus on carbon leakage, definitions and standards for low carbon products, and improved technical and financial assistance.
- The Forest and Climate Leaders' Partnership (FCLP) is a coalition of 17 countries committed to advancing policies and approaches that support low carbon construction and increase the use of wood from sustainably managed forests in the built environment. The FCLP's mission is to accelerate global progress to halt and reverse forest loss and land degradation by 2030, while delivering sustainable development and promoting an inclusive rural transformation. When used sustainably and holistically as part of a suite of solutions, wood and other bio-based materials in construction can offer a win-win for the built environment, forests, climate and people.

## 4. Energy Efficiency

The COP28 UAE Consensus commits countries to work together to double the global average annual rate of energy efficiency improvements from around 2% to over 4% every year until 2030 and make energy efficiency the "first fuel" at the core of policymaking, planning, and major investment decisions. We reiterate that action on energy efficiency and scaling up renewables will need to be taken forward alongside holistic efforts to accelerate the transition away from fossil fuels (including coal power), building on last years' discussions under the MWP and GST.

The UK has made significant progress driving domestic efficiency standards, setting its own national ambition to reduce total energy consumption by 15% by 2030. Around half of homes now have an energy performance of C or better (from a range of A through to G), up from 14% in 2010. This is despite particular challenges in the form of a very old building stock with a high proportion of uninsulated homes built with solid stone and brick walls that are difficult and expensive to insulate retrospectively.

One area of focus has been on ensuring energy efficiency improvements reach both the people and buildings that need them most. The UK has put in place fuel poverty targets and produced a fuel poverty strategy which is regularly updated. This ensures fuel poverty is at the heart of policymaking, with each major energy efficiency programme targeting both low-income and the least efficient properties, generally only accessible only if a property has an Energy Performance Certificate rating of D or below.

The UK has also provided long term certainty to the supply chain by allocating around £20 billion over two years to improve energy efficiency, including expanding its legal obligation on energy suppliers to identify low-income customers and install efficiency upgrades in their homes, which has resulted 3.7 million measures installed in 2.4 million households since 2013. Meanwhile, to 'promote energy efficiency, electrification and energy demand management' and 'raise public awareness and encourage behavioural change' as required in the COP28 Global Pledge on Renewables and Energy Efficiency, the UK has launched a new online energy advice tool, a telephone line, and a pilot project for in-person advice services. In October 2023 a new public campaign was launched that is running across broadcast, print, online, and radio. These initiatives recognise that while many efficiency measures are highly cost effective, providing bill savings well in excess of what it costs to install them, the public often does not realise the extent of the savings or prioritise them.

<u>Collective actions for Parties and non-Party stakeholders to consider as part of efforts to accelerate sectoral decarbonisation:</u>

- Commit to producing fuel poverty targets and strategies to ensure energy efficiency improvements reach the people and buildings that need them most.
- Commit to launching public campaigns to promote energy advice and the benefits of the most cost-effective energy efficiency measures.

<u>Further inputs to draw on for the Global Dialogues:</u>

- The Super-efficient Equipment and Appliance Deployment (SEAD) Initiative is a voluntary collaboration among governments working to promote the manufacture, purchase, and use of energy-efficient appliances, lighting, and equipment worldwide. SEAD is an initiative under the Clean Energy Ministerial (CEM) and the Energy Efficiency Hub (EE Hub) and is coordinated by the International Energy Agency. At its core, SEAD is about governments working together to save energy, turning knowledge into action to advance global market transformation for energy efficient products. SEAD's 24 participating governments

collaborate to accelerate and strengthen the design and implementation of appliance energy efficiency policies and related measures.

## 5. Heat Decarbonisation

Currently, three-quarters of the global energy requirement for heat is met by burning fossil fuels, and one third of global energy-related carbon emissions can be attributed to the provision of heat. Energy consumption for space cooling is primarily dependent on electricity and to a lesser extent natural gas.

Heat decarbonisation is a priority for many countries with colder climates to reduce emissions from buildings. More widely, electrification has a key role in decarbonising the heating sector and is identified as a key enabler in the COP28 Global Pledge. A major barrier in the UK has been the relatively high costs of electricity compared to gas, with additional charges in the form of "green levies" currently falling mainly on electricity rather than gas. The result is that on average heat pumps are slightly more expensive to run than gas boilers, disincentivising the public to switch to low carbon heating despite it being much more energy efficient. The UK has committed to taking action on reforming our electricity market and "price rebalancing".

The UK views heat networks as another important low carbon technology, particularly in the context of cities and urban areas. Heat networks supply heat from a central source via a network of pipes carrying hot water and can use any source of heat such as renewables, large rivers, geothermal or waste heat from industry. In high density urban areas, they are often the lowest cost, low carbon heating option. As part of plans to increase heat network coverage to provide up to 20% of total heat in the UK by 2050 (currently they provide 3%), the UK is investing in new networks and introducing heat network zoning in England by 2025. This will identify areas where heat networks are expected to be the lowest cost solution for decarbonising heat.

<u>Collective actions for Parties and non-Party stakeholders to consider as part of efforts to accelerate sectoral decarbonisation:</u>

- Commit to supporting development of the Clean Heat Forum tracker to provide a live and detailed breakdown of clean heat policy in different countries to enhance knowledge sharing and best practice.
- Explore potential for an international pledge to reduce taxes and other charges on electricity and potentially increasing them on fossil fuels, thereby incentivising low carbon heating.
- Commit to collaborating on R&I on heat pumps and other low carbon heating systems.
- Commit to undertake heat network planning in major urban areas.

<u>Further inputs to draw on for the Global Dialogues:</u>

- Clean Heat Forum (CHF) launched under the UN Environment Programme (UNEP)-hosted Global Alliance for Buildings and Construction (GlobalABC), a global platform with over 200 members, including 34 countries. CHF is an international collaboration between national Governments, NGOs, and companies to share best practices and advance global policy away from fossil fuels in the heating sector, meeting twice quarterly through roundtables and deep dive policy exchanges.
- Mission Innovation's Innovation Community on Affordable Heating and Cooling of Buildings has six main areas of focus: thermal energy storage, heat pumps, non-atmospheric heat

sinks and sources, predictive maintenance and optimisation, physiological studies for thermal comfort, and building-level integration.

## 6. Urban Mobility

As of 2019, the largest source of transport emissions is the movement of passengers and freight in road vehicles (6.1 $GtCO_2$-eq, 69% of the sector's total)[8]. Road transport represents 10% of global greenhouse gas (GHG) emissions, the second largest sub-sector source of GHG emissions globally after coal power, and its emissions continue to rise faster than any other sector[9]. Decarbonising on-road passenger and freight vehicles therefore offers significant mitigation potential where the global transition to zero emission vehicles is already avoiding nearly 1.7 million barrels of oil per day[10].

To keep 1.5°C alive, the pace of decarbonisation and the global transition to zero emission vehicles (subsequently referred to as ZEVs – vehicles with zero emissions from tailpipe) needs to be drastically accelerated[11]. To meet the temperature goal of the Paris Agreement, all new cars and vans sold must be zero emission globally by 2040 or by 2035 in leading markets and more countries and stakeholders need to set aligned targets, as guided by the ZEV Declaration[12]. The Breakthrough Agenda report shows collective targets also accelerate cost reduction of ZEVs for consumers. Targets should be supported by clear implementation plans and policies from governments. In addition to cars and vans, enabling 100% zero-emission new truck and bus sales by 2040 globally will also be key. Getting on track will require further electrification as part of holistic and sector-wide policies to reach net zero in the Transport sector[13].

In addition, without scaling up action globally, a two-tiered transition could also become entrenched where leading markets move more quickly to ZEVs: based on current trajectories, over half of global Internal Combustion Engine (ICE) vehicle sales will be in Emerging Markets and Developing Economies (EMDEs) in 2040, with the share of electric vehicles (EVs) on the road being 45% lower compared to leading markets. This will be insufficient to keep 1.5°C alive. The Zero Emission Vehicle Transition Council, co-chaired by the US and UK, is coordinating international partners to strengthen international assistance, including through a Rapid Response Facility, partnership with India and a global roadmap to support Emerging Markets and Developing Economies that was launched at COP28. The first of an annual publication, coinciding with COPs to 2030, the next Roadmap publication – to launch new actions and provide progress updates on previously published actions – will be launched at COP29.

<u>Collective actions for Parties and non-Party stakeholders to consider as part of efforts to accelerate sectoral decarbonisation:</u>

- Further strengthen international collaboration and cooperation across the road transport sector via the Road Transport Breakthrough and its five priority actions – demand creation, finance and investment, supply chains, charging infrastructure and trade conditions.
- On demand creation, this includes committing to Paris-aligned phase out dates for the sale of new ICE vehicles – 2040 globally (cars, vans as well as medium- and heavy-duty vehicles) and 2035 in leading markets (cars and vans). Supporting the ZEV Declaration is another key step that governments can take if this aligns with their domestic planning[15]. In addition to national governments, this request is also applicable to sub-nationals, businesses, investors and fleet operators, amongst others.
- On finance and investment, we would welcome countries, initiatives and wider non-state actors working together via the Road Transport Breakthrough to deliver the Global ZEV Transition Roadmap. The Roadmap outlines actions that governments and wider partners will take to significantly strengthen international support for Emerging Markets and Developing Economy (EMDE) countries this decade – actions that can lead to more countries benefitting

from green economic growth, reduced GHG emissions, cleaner air and reduced oil dependency, amongst opportunities. Activities being taken forward under the Roadmap currently focus on five strategic challenges and a new publication, outlining progress updates as well as new actions and strategic challenges, will be launched at COP29. The current five strategic challenges include:

  - Enhancing policy development and implementation capabilities across EMDEs.
  - Improving access to and scaling of financial resources.
  - Ensuring wider availability of ZEVs in EMDEs.
  - Accelerating the rollout of charging infrastructure.
  - Addressing ZEV, electric vehicle (EV), and battery component lifecycle management.

- On infrastructure, we encourage international collaboration to enable infrastructure improvements so electricity grids can cope with the scale up, noting that this is a challenge for many countries.
- We would welcome collaborative action to ensure the grids that power ZEVs are fully decarbonised – this includes committing to significantly scaling up clean energy whilst phasing out unabated fossil power generation (with a particular focus on phasing out unabated coal power) as part of a wider effort to phase out unabated fossil fuels to achieve net zero in energy systems. Parties and non-Party stakeholders should aim to achieve this by 2050.
- We would also welcome partners to pool in their efforts to accelerate actions on battery supply chains and trade conditions (with the latter also focusing on the trade of used vehicles).

<u>Further inputs to draw on for the Global Dialogue:</u>

- The Road Transport Breakthrough – which is co-led by India, the UK and the US governments – aims to make ZEVs the new normal by making them accessible, affordable, and sustainable in all regions by 2030. This includes a focus on demand signals, finance and investment, battery supply chains, charging infrastructure and trade in second hand vehicles.
- The OECD International Transport Forum and its Decarbonising Transport Initiative.
- The Zero Emission Vehicle Transition Council (ZEVTC).
- **On demand creation:** Accelerating to Zero Coalition, which leads on the ZEV Declaration; Global Commercial Drive to Zero Programme which leads on the Global MoU on Zero Emission –Medium and Heavy-Duty Vehicles; Mission Innovation and Clean Energy Ministerial Electric Vehicle Initiative (CEM EVI); EV100 and First Movers Coalition.
- **On supply chains:** The Global Battery Alliance, alongside the experiences of the World Economic Forum Circular Cars Initiative, SYSTEMIQ and United Nations Environment Programme (UNEP), amongst others (including academia).
- **On infrastructure:** The International Council on Clean Transportation (ICCT), alongside CALSTART, EV100 (HDVs), Green Grids Initiative, World Business Council for Sustainable Development (WBCSD) and CEM EVI, amongst others.
- **On trade conditions:** UNEP, the International Transport Forum, World Economic Forum and UNECE, amongst others.
- The IEA notes that Thailand and Indonesia are also strengthening their policy support schemes, potentially providing valuable experience for other emerging market economies seeking to foster EV adoption. It would be helpful to have them present their experiences[16].
- The Mitigation Action Facility, established in 2012 by Germany and the UK, is a mid-sized, grants-based multilateral fund that supports developing countries to achieve transformational change in transport, industry and energy sectors. The UK recently announced a further £100m commitment to the MAF, and welcome further donors contributing to this initiative to support the systematic transformations required to reach net zero. Projects can apply for up to £20m through annual calls for proposals.