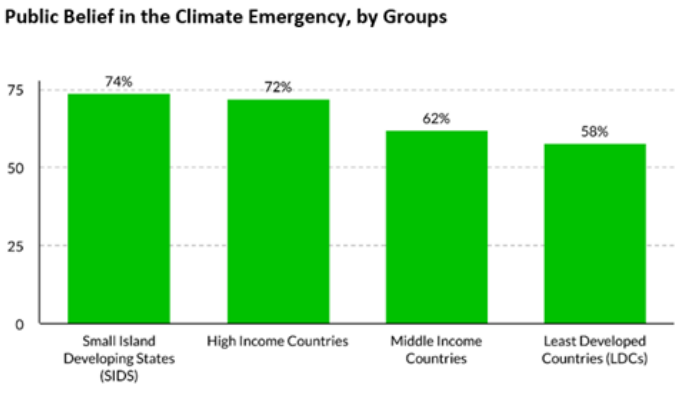
Global climate policies

Background Note[1]

Introduction – The need for climate action

The window to keep future global temperature increases to safe levels and avoid climate tipping points is closing rapidly. Flattening the climate curve means that countries should reduce their net greenhouse gas emissions to zero by mid-century. This necessitates curbing global emissions at an unprecedented pace, including in the coming decade: being on a pathway to limiting warming to well below 2°C or 1.5°C requires cutting annual GHG emissions by one quarter to one half from current levels by 2030, respectively. As we have seen during the COVID-19 crisis, even a severe worldwide recession reduced carbon emissions in 2020 by only 7 percent and emissions are rising again as economies recover. If the world does not act over the next decade, it will be locked into higher warming levels, with serious risks of further destabilizing the global climate system. A delayed and disorderly transition will be much more costly in terms of future economic growth and create serious risks for global financial stability, further compromising growth. By contrast, bold and prompt policies will not only limit climate-related financial risks but also help countries attract the resources needed to finance their low-carbon transition. Exploiting this huge opportunity requires increasing policy certainty for financial institutions and the private sector by clearly communicating the countries' plans for the transition.[2]

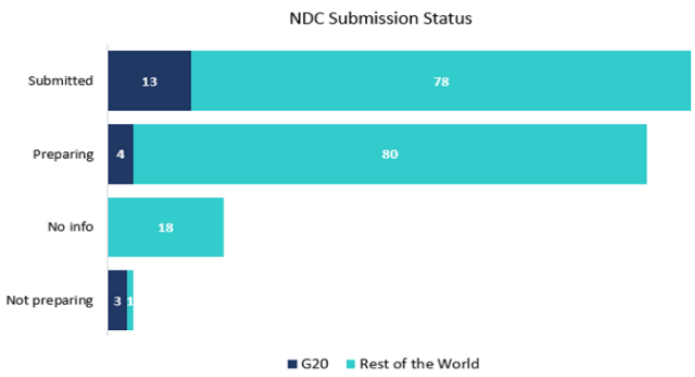
The current juncture provides a unique opportunity to orient recovery strategies and develop forward-looking policies to avert further entrenching fossil fuels while promoting a just and smooth low-carbon transition. Despite the strong support for environmentally-friendly measures in some countries, total stimulus packages still lean heavily towards business-as-usual, with recovery measures even shoring up fossil fuel industries in some countries.[3] This raises



[1] Prepared by an informal working group including staff of AFD, IEA, IMF, OECD, UNDP and WTO. The content reflects the combined contributions of the authors, and they do not necessarily represent the views of their organisations.
[2] An increasing number of firms—including those in carbon-intensive sectors such as fossil fuel extraction and automobile manufacturing—have come to recognize the inevitability of a transition to a low-carbon economy and would welcome a clear policy path.
[3] See, for example, October 2020 IMF Fiscal Monitor and OECD Green Recovery Database. IEA analysis finds sustainable recovery efforts are currently only mobilizing a small fraction of the $1 trillion increase in clean energy

the concern that there is misalignment between how countries are striving to meet short-term objectives – e.g. boosting income, jobs, and growth – and long-term environmental commitments, for example net-zero emissions goals and Nationally Determined Contributions (NDCs) under the Paris Agreement. Yet, the public's awareness of the risks from a looming climate change crisis has been heightened by recent natural disasters and the COVID-19 crisis. An Ipsos poll conducted globally for the IMF found that 43 percent of people surveyed reported being more worried about climate change now than they were before the pandemic, with only 7 percent saying they are less worried. A recent global survey of public opinion on climate change, conducted by UNDP, the University of Oxford, and a number of non-governmental organisations ("the People's Climate Vote") showed that a majority of people surveyed consider climate change a global emergency, with the level of concern highest in high-income countries and small islands and developing states (above 70 percent) and lowest in least developed countries (58 percent)[4]. The response of science and technology during the pandemic, and success in creating effective vaccines in record time, also set hopeful examples for the leaps that are needed in innovation, development and commercialization of low-carbon technologies. In addition, the policy responses of governments to the COVID-19 crisis have demonstrated that many major economies are capable of unprecedented and drastic action when called for. To build on this window of opportunity to accelerate the low-carbon transition, well-designed policy mixes need to be put in place, including equitable fiscal and regulatory policies. This will provide a clear signal of the G20's ambition on climate issues and the energy transition.

There is an urgent need to signal to the world that the G20 is serious about tackling climate change. Governments have set emissions reductions targets in their NDCs to the Paris Agreement, which are being revised ahead of COP26 in November 2021. However, the UNFCCC Synthesis report indicated that many G20 countries have yet to submit enhanced pledges. As of June 7, 2021, thirteen G20 members have submitted their updated/new NDCs, representing around 32 percent of total GHG emissions. Four countries, (Canada, China, Indonesia, and South Africa) representing another 31.5 percent of global emissions, are expected to submit NDCs before COP26.



investment needed in 2020 and 2021 and do not avoid the rebound in emissions in a Paris-compliant trajectory (IEA Sustainable Recovery Tracker 2021, forthcoming).

[4] Flynn, C., Fisher, S., & Browning, P. (2021, January). The Peoples' Climate Vote. United Nations Development Programme. https://www.undp.org/publications/peoples-climate-vote.

A growing number of countries worldwide (67 accounting for 69.8 percent of emissions to date) have announced "net zero emissions" objectives by mid-century. As of May 31, 2021, fifteen G20 members had committed to a net-zero pathway. As illustrated in the table, a majority of these countries aim to reach net zero by 2050, with only Germany aiming for 2045. China and Indonesia pledged to reach net zero by 2060 and 2070, respectively. Many of these countries have also submitted Long-Term Strategies or are in the process of preparing or updating an older version (e.g., UK and the USA) to reflect this new net-zero commitment. But few G20 countries have put them into law.

Target Year and Level of Net-zero Commitment

2045	2050	2060	2070
Germany	Argentina	China	Indonesia
	Brazil		
	Canada		
	EU		
	France		**Unclear**
	Italy		Australia
	Japan		
	South Korea		
	South Africa		
	UK		
	USA		

Legislation
In national policy/strategy incl. NDC
Public commitment/ announcement

The next critical step is to operationalize targets by translating them into concrete policy actions that can be taken over the next 5 to 10 years, providing much-needed clarity and transparency to firms and households on how the objectives will be reached.

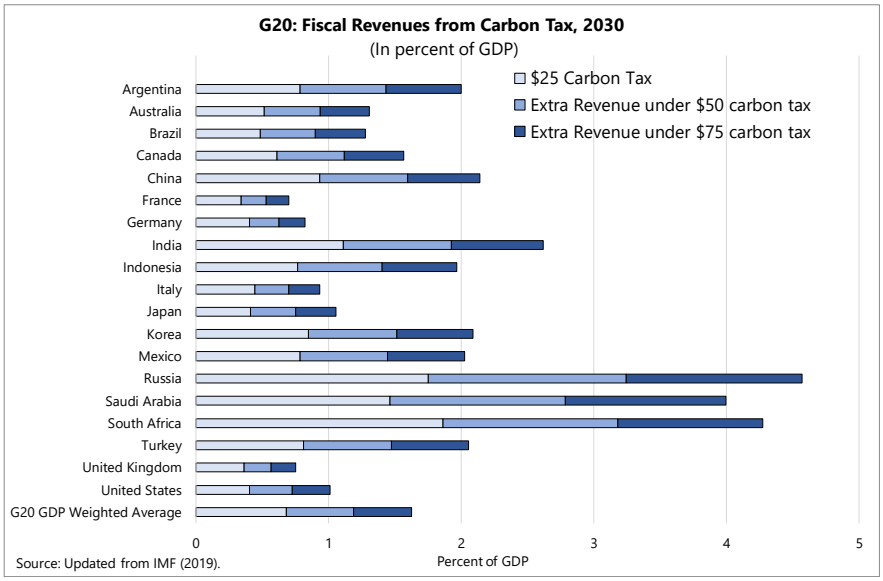
A comprehensive strategy

The extent of the task requires a comprehensive strategy, including a package of mitigation instruments, public investment, and policies for a just transition. Countries need to adopt an effective and tailored policy mix, including pricing instruments and market-based mechanisms supporting investment in green infrastructure and technology development to shape a just transition towards carbon neutral economies and societies.[5] The different elements are all needed and mutually reinforcing. Green investments are critical to provide the needed infrastructure for clean technologies and to support the development and deployment of new low-carbon technologies, thereby enabling the substitution away from high-carbon sectors, including in response to carbon pricing. Among mitigation instruments, carbon pricing (in the form of a carbon tax or an emissions trading scheme) cost-effectively provides across-the-board incentives for increasing energy efficiency, cutting back carbon-intensive production and consumption choices, and redirecting investment to clean technologies. Phasing out fossil fuel subsidies also helps remove cost and price distortions that favor traditional, polluting industries, thus enhancing robust carbon pricing policies. Where carbon pricing is subject to acceptability constraints or would not be sufficiently effective, regulations or feebates at the sectoral level are alternative mitigation instruments. However, only carbon pricing and the removal of fossil fuel subsidies come with public sector revenues that can be used to help achieve a just transition without adding to public debt. By creating durable and transparent incentives to reduce emissions, carbon pricing brings coherence and is a catalyst for the overall climate policy effort. Conversely, carbon pricing alone is not enough; carbon prices need to be part of a coherent policy package, including public investments in key infrastructure and support to technology development, to make carbon price signals effective. Last

[5] Financial sector policies—such as the development of a taxonomy of green and brown assets, and the requirement of disclosures of climate-related risks—also have a key role to play to steer private investment toward sustainable projects.

but not least, carbon pricing, the removal of fossil-fuel subsidies, and green investments can all support a just transition, as explained below.

Policies for a "just transition" should be an integral part of the comprehensive strategy. Transition policies could negatively impact vulnerable households and workers employed in high-carbon sectors, requiring fair compensation measures and assistance with job transitions. Moreover, some countries face the double challenge of providing energy access (electricity and clean cooking and heating) while reducing the carbon footprint of their energy system. They need the help of the international community. Cohesive policy packages should integrate the objectives of creating incentives to abate and of protecting vulnerable firms, workers, and regions. The adoption of long-term low greenhouse gas emission development strategies can be integrated into broad fiscal reform packages, where the distributional outcome of the overall package is key. For example, carbon pricing and the progressive phasing out of fossil fuel subsidies, while contributing to reducing emissions, can improve the fiscal space of countries, providing them with resources to finance a just transition. The potential revenue gains from carbon pricing are around 1-3 percent of GDP on average in the medium term if carbon prices drive the transition to net zero (see Figure for an illustrative scenario). These resources can be used to compensate vulnerable households through targeted cash transfers, reductions in labor taxes, or investments in clean energy access. Vulnerable workers can be protected through cash transfers, stronger social safety nets, retraining and relocation schemes, and green public investments that create job in new low-carbon sectors and support the development of new green industries in regions more severely affected by the low-carbon transition. Finally, curbing fossil fuel use is also desirable on domestic grounds to reduce deaths and morbidity rates from local pollution and produce other co-benefits for sustainable development and poverty reduction. [6]



While each country is responsible for putting in place its own mitigation strategy, there would be mutual—and potentially very large—benefits from policy coordination. As regards fiscal, regulatory and pricing instruments, multiple options for harmonization and collaboration exist, including coordinating the recovery packages stimulus, linking emissions trading schemes, sectoral

[6] IMF (2019), Fiscal Monitor: How to Mitigate Climate Change and IMF (2021), Proposal for an International Carbon Price Floor Among Large Emitters https://www.imf.org/en/Publications/staff-climate-notes/Issues/2021/06/15/Proposal-for-an-International-Carbon-Price-Floor-Among-Large-Emitters-460468.

approaches, agreements on carbon price floors, and multilateral fossil fuel subsidy reform. Scaling up the mitigation policies, including carbon pricing, is difficult when countries act unilaterally due to concerns about competitiveness impacts and that other countries may not enact similarly aggressive measures. Reinforcing the Paris Agreement with a carbon price floor arrangement could provide an effective mechanism to address these concerns.[7] Limiting the arrangement initially to large emitters could help provide focused negotiation while capturing the vast majority (85 percent) of global emissions. And simultaneous action to scale up carbon pricing in large emitters would be the most effective way to address concerns about competitiveness and cross-country policy uncertainty and to avoid the introduction of carbon border adjustment measures which would be far less effective at scaling up global mitigation and could potentially escalate into a trade war. The arrangement would likely need pragmatic design however, to accommodate cross-country equity concerns (e.g., through more ambitious price floors for advanced economies, or through compensation mechanisms and technology support for lower-income countries) and alternative (but emissions equivalent) approaches in countries where pricing is constrained. This is particularly important given the significant heterogeneity in climate policy approaches across countries, and suggests that attempts to coordinate should not necessarily be limited to carbon pricing alone. Non-pricing policies can play an important role, but common and shared metrics to measure country efforts should be developed. Beyond carbon pricing, a coordinated approach at the G20 level across finance, infrastructure, energy and climate tracks to coordinate action over investment in a green economy would also help leverage positive spillovers, making the transition easier for all. By creating a large market for green technologies, it would spur their development and deployment, enable more learning-by-doing, and generate mutually beneficial knowledge spillovers.[8] A coordinated green investment push would also boost global activity beyond what each country could do individually, providing a stronger boost to the recovery from the COVID-19 crisis.

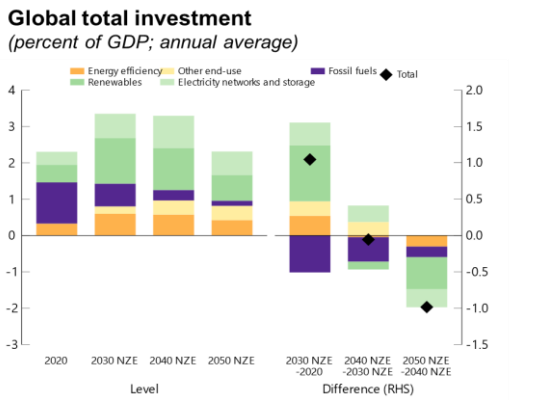
A roadmap of key actions

Recognizing the need to convert commitments into policy actions while reaping the benefits of acting jointly, we identify below a possible roadmap of key policy actions. An ambitious mitigation scenario will require putting in place a roadmap with well-sequenced and broad-ranging environmental reforms, including both carbon pricing and supporting spending measures. Effective communication and coordination between the ministry of finance and the line ministries, as well as a systematic dialogue with citizens (including communication of the objectives and benefits, both environmental and socio-economic) will also be crucial determinants of reform success.

[7] Alternative cooperation mechanisms, like climate clubs, could equally be considered.

[8] Another area of collaboration is the harmonisation of technical standards and certifications for key low-carbon technologies and coordination of schemes, where possible. An environmental goods agreement could also help create a large market for green goods and technologies and facilitate their dissemination.

Green investments. Investing in low-carbon energy infrastructure and technologies, and increasing efficiency in the transformation, distribution and use of energy is a key strategy for the decarbonization of G20 economies. Nearly every NDC under the Paris Agreement addresses the energy sector: energy is the most common sector of focus of Climate Promise countries, with 79 percent of countries updating or adding energy-related actions in their NDCs.[9] Radically transforming the energy system will require both a substantial scaling-up of investment over the next two decades, and a shift in composition from fossil fuels to renewables, electricity networks, energy efficiency and the electrification of end-uses. Public policies are vital to mobilize finance. In the energy sector, depending on the ownership structure, investment will be privately or publicly financed. On average globally, about 30 percent of additional investment is expected to come from public sources, with additional public investment needs to reach net zero emissions estimated at a cumulative 2 percent of GDP (with a range between 0.5 and 4.5 percent) for the decade 2021 to 2030.[10] The remaining 70 percent of the additional investment would come from private sources. Mobilizing private finance will require putting in place adequate financing, institutional, and regulatory frameworks, as well as appropriate and predictable carbon prices, fiscal and other policies.



Sources: International Energy Agency; and IMF staff calculations.
Note: First three bars represent the annual average over the decade except for 2020 (average over 2015-2020). Last two bars show the difference between two decadal average.

Table 1: Additional Cumulative Investment Needs for the Decade 2021 to 2030

Source	Sectors	Period considered	Public investment need *(percent GDP)*	Total investment need *(percent GDP)*	Climate target
(OECD 2017)	All	2016-2030	1. 9	6.3	2.0 °C
(McCollum et al. 2018)	Energy	2016-2050	2.1	7.1	1.5 °C
Range of models			0.4 to 4.4	1.3 to 14.6	
(IEA 2021)	Energy +	2021-2030	2.7	9.9	NZE by 2050
(EIB 2021)-EU only	All	2021-2030	2. 1	4.7	55% reduction by 2030

Source: (OECD 2017), (McCollum et al. 2018), (IEA 2021), (EIB 2021) and IMF staff calculations.

[9] Agriculture, Forestry and Land Use is the second most common sector, with over half of Climate Promise countries (countries which the UNDP is helping enhance their NDCs) strengthening inclusion of nature-based solutions.
[10] See IEA report "Net Zero by 2050" (https://www.iea.org/reports/net-zero-by-2050) and IMF G20 Background Note "Reaching Net Zero Emissions" (https://www.imf.org/external/np/g20/pdf/2021/062221.pdf).

Note: The investment need is the difference between the investment required for the climate change scenario less investment in the baseline. The share of public investments in total investments is based on the historical average split between public and private investment in these sectors. The estimate of average GDP for the denominator is taken from the G-Cubed baseline scenario (IMF 2020). Percent of GDP for (IEA 2021) are calculated with each year's GDP separately. For the other sources average estimated GDP for 2021 to 2030 is used. (McCollum et al. 2018) compares six Integrated Assessment Models for which the average and, below, the range are reported. (EIB 2021) refers to investment needs in the EU; all other publications refer to global investment needs.

Recovery packages to support the recovery from the COVID-19 crisis offer a unique opportunity to finance investments in new green technologies (e.g., R&D, energy efficiency, renewables, improved transmission and distribution networks, carbon capture and storage) while supporting the creation of a large number of new jobs, enhancing energy security and improving energy affordability. As the global economy moves beyond the recovery, governments should also go beyond the mere tracking of green stimulus and recovery spending, and towards a more comprehensive system of green budgeting (including, for example, examining both the "brown" and "green" incentives budgets are offering). This would help to systematically align budgets with NDCs and the Paris Agreement goals, and enable the right incentives for net zero pathways. To this end, G20 governments could also better harness the potential of all public development banks (PDB) that spearhead green investments.[11] These banks have a mandate to finance socially valuable but financially less attractive or highly risky projects, as well as capital-intensive infrastructure projects with positive spillovers to support industrialization, job creation or public service delivery.[12] With 539 financial institutions spread across the world, they represent a collective financial capacity of 10 percent of annual investment worldwide. A growing number of PDBs are setting new targets to allocate their funding to suitable environmental and climate protection projects, including through a closer cooperation among themselves like in the International Development Finance Club.[13] But harnessing their full potential will require a clear mandate on sustainable development from their shareholders and closer coordination between governments and PDBs on identifying the areas where their actions

[11] G20 governments are all shareholders of public development banks (multilateral, regional, national and sub-national) that have launched their first global coalition in November 2020 (https://financeincommon.org/). An inclusive G20-led global coalition of public development banks could significantly contribute to a big push for green investment by bridging the coordination gap between multilateral, regional, national and sub-national development banks. The joint work undertaken in climate finance by MDBs and the IDFC has demonstrated the benefits from wider coordination (International Development Finance Club: https://www.idfc.org/).

[12] More generally, PDBs can provide long-term or concessional resources, initiate knowledge-sharing and technical assistance programs, and promote private sector involvement. Mobilizing additional financing from PDBs will therefore be critical to meet a wide range of developmental objectives.

[13] Gathered in Paris during the first edition of the Finance in Common Summit, PDBs committed to "to support the transformation of the global economy and societies towards sustainable and resilient development", affirmed their "determination to collectively shift our strategies, investment patterns, activities and operating modalities to contribute to the achievement of the SDGs and the objectives of the Paris Agreement, while responding to the Covid-19 crisis" and welcomed "Governments' support and measures aiming at unleashing their potential to better serve their policies". On energy transition, they committed "to increase the pace and coverage of investment in renewable energy, energy efficiency and clean technologies to accelerate equitable access to clean energy and the energy transition" and to support "sustainable alternatives to fossil fuel investments and consider ways and means of reducing these investments", in the perspective of COP26.

would be more effective to promote green, resilient and inclusive development. The Report of the Eminent Persons Group to the G20 made such recommendation in 2018. Mobilizing capital from the private sector will also require strong efforts to improve investment frameworks, create pipelines of bankable projects and use international public financing effectively to reduce perceived risks and bring down the high cost of capital (the latter, especially in EMDEs).[14,15] Financial sector policies—such as the development of a taxonomy of green and brown assets, and the requirement of disclosures of climate-related risks—play a key role to steer private investment toward sustainable projects. These issues are discussed in greater depth in working groups 2, 3 and 4.

Carbon pricing. Carbon prices (explicit or implicit) will need to rise significantly over time if they are to drive mitigation in line with the objectives of the Paris Agreement.[16] A growing number of countries, including a majority of the G20, have some form of carbon tax or emissions trading system. Despite indications of rising momentum for carbon pricing (e.g. recently strengthened roles for pricing in Canada, China, Germany, the European Union, and Korea), such explicit carbon pricing schemes only cover a fifth of global emissions. Even with a broader definition of carbon pricing, the OECD estimates that around 60 percent of carbon emissions from fuel combustion are not priced at all, across OECD and G20 countries.[17] In addition, in many cases prices are at low levels—indeed the global average price from formal carbon pricing schemes is only $3 per ton of CO_2. Price signals are also eroded by ongoing, large-scale government support for fossil fuel production and consumption.[18] According to IMF estimates, policies equivalent to a global carbon price of $75 per ton are needed by 2030, on top of existing policies, to get on track with climate stabilization goals.[19] All forms of carbon pricing systems should be considered including carbon taxes, taxes on energy use, emissions trading systems, and removal of fossil fuel subsidies. Where explicit carbon pricing is subject to acceptability constraints or would not be sufficiently effective, measures at the sectoral level are needed, such as regulations and sector-specific feebates. Contrary to carbon pricing and

[14] See IEA report 'Financing Clean Energy Transitions in Emerging and Developing Economies' (June 2021), https://www.iea.org/reports/financing-clean-energy-transitions-in-emerging-and-developing-economies.

[15] Mobilizing and facilitating private investment in sustainable infrastructure will require: (i) addressing the lack of sufficient investment-grade projects and resulting investment risks by scaling up green project pipelines; (ii) clarifying the relationship between fiduciary duty, duty of care and consideration of climate-related risks in financial market regulation to encourage asset owners to issue "green" mandates; (iii) allowing securitized products for infrastructure, or specifically including sustainable infrastructure in existing regulation for securitized products, to appeal to some large investors' appetite for liquidity and to allow investment at scale; (iv) establishing more precise and consistent definitions of which investments are "green" to facilitate investment through added confidence and assurance for investors; and (v) examining the need for long-term contracts, state guarantees and other risk mitigation measures. Some of these issues are covered in other working groups.

[16] For elaboration of the points in this paragraph, see IMF/OECD (2021), Tax Policy and Climate Change: IMF/OECD Report for the G20 Finance Ministers and Central Bank Governors, April 2021, Italy, www.oecd.org/tax/tax-policy/imf-oecd-g20-report-tax-policy-and-climate-change.htm.

[17] The broader definition considers carbon price signals from fuel excise taxes in addition to carbon taxes and emissions trading systems.

[18] The latest OECD-IEA estimates of support to fossil fuel production and consumption are $475 billion across 81 economies (2019).

[19] IMF (2019). Fiscal Monitor: How to Mitigate Climate Change.

the removal of fossil fuel subsidies however, they come with a higher administrative burden and do not generate public sector revenues that could help finance policies for a just transition.

A recognition by the G20 of the central importance of carbon pricing to generate the necessary substantial emissions reductions, and of the inadequacy of current prices, would be an important first step to provide markets the guidance they have been asking for, avoid a further build-up of stranded assets and pave the way to an orderly and just transition. This could take the form of a regular independent stocktaking of current carbon pricing policies (including how they are impacted by fossil fuel subsidies), effective price levels across G20 countries and whether these are adequate to achieve G20 countries' commitments, and the interaction with other mitigation instruments. This stocktaking would complement the regular monitoring of the reform of fossil fuels subsidies in the G20 energy, environment and Sherpa tracks. The next level of ambition could have a group of willing G20 countries agree to impose a minimum carbon price or a set of equivalent measures.

Minimum ambition: Recognize the importance and benefits of carbon pricing. Participate in a regular stocktaking of countries' carbon pricing measures, including the price levels (implicit or explicit), the amount of emissions covered, and their effectiveness. Assess whether the present level and coverage of carbon pricing is consistent with mitigation commitments that will be presented at the next COP26 and with what is needed by 2030 to be on track with emissions neutrality by mid-century. Evaluate the interaction and integration with other major non-pricing instruments and how these might be scaled up. Kick-off monitoring process of fossil fuel subsidy reforms through the G20 and APEC Peer Reviews on Fossil Fuels Subsidies.

Medium ambition: Along with regular stocktaking, reach a better shared understanding among the G20 of the challenges of implementing carbon pricing (inter alia measurement along with approaches to implementing, carbon leakage risk, distributional issues, etc.) and of the range of potential solutions (such as a minimum price floor arrangement envisioned in the higher ambition outcome). This might include agreeing on a plan for further work needed to understand and develop such a measure.

Higher ambition: Develop a practical, equivalent, and coherent arrangement for minimum effective carbon pricing among countries, through explicit prices or equivalent measures, with floor prices increasing predictably to deliver Paris-aligned emissions reductions over the next ten years. Address the practical design issues (e.g., prices for countries at different levels of development, transfer or compensation mechanisms, emissions covered, monitoring, accommodation of alternative approaches such as regulations, feebates, and investment). Facilitate a review mechanism to ensure stability, equivalence, consistency and broaden participation.

A clear and easily monitorable roadmap. Translating NDCs and net zero commitments into intermediate operational targets will provide guidance and a framework of reference to both public and private actors, helping steer their investment decisions in support of a low-carbon transition. Laying out a roadmap with goalposts also helps identify where key progress needs to be made, articulate strategies to meet these goalposts, coordinate actions across main stakeholders, and ensure easy monitoring that sufficient progress is achieved toward the ultimate goal. The proposed intermediate targets below focus on the energy and transportation sectors—where technologies

are available to make much progress over the next 10 years—and on supporting the development and deployment of low-carbon technologies for hard-to-abate sectors. They draw on the analysis of roadmaps to net zero by mid-century by the International Energy Agency as published in a recent report.[20] To step up climate action in the global energy sector, the International Energy Agency's recent report suggests that the following near-term commitments would be needed to put the global economy on a path to net zero by mid-century:

- Collectively acknowledge that public and private financial flows should align with the goals of the Paris Agreement.
- Expand public resources for the research, development and early deployment of low-carbon technologies towards the required tripling of public spending by 2030, with a strong focus on technologies for hard-to-abate sectors (heavy industry, long-distance transport, advanced bioenergy, and carbon capture storage and utilization). The IEA net-zero pathway requires $90 billion of public spending by 2030 to complete a portfolio of clean energy demonstration projects, in contrast to $25 billion currently budgeted by governments. G20 collaboration is critical to deliver the acceleration of clean energy technologies, including through relevant international fora, such as the Mission Innovation[21]—a global initiative launched at COP21 to accelerate the pace of innovation and make clean energy widely affordable, Clean Energy Ministerial, and IEA Technology Collaboration Programmes.
- Put in place appropriate financing and policy frameworks to contribute to the needed tripling of renewable power investment by 2025 and the scaling-up of a range of clean energy technologies that would enable fast emissions reductions from existing energy infrastructure, leading to net-zero carbon electricity systems in advanced economies by 2035 and globally by 2040.
- Through public development banks and direct financing, mobilize $35 billion annual investment into clean electrification to provide new electricity for 95 million people every year in low-income developing countries and achieve universal access by 2030.
- With strengthened efficiency standards and electrification, enhanced financing frameworks, and public investments in key sectors (such as energy-efficient buildings, motors in industry, equipment and vehicles), ensure that the energy efficiency of the global economy increases by 50 percent by 2030.[22]
- Commit to end sales of new internal combustion cars from 2035 onwards.

[20] See IEA report "Net Zero by 2050" (https://www.iea.org/reports/net-zero-by-2050).
[21] Mission Innovation (MI) is an initiative of 24 countries and the European Commission. When launched the target of MI was to double Governmental Investment in Clean Energy Innovation. http://mission-innovation.net/wp-content/uploads/2019/01/6.1.37-Mission-Innovation-Joint-Launch-Statement.pdf.
[22] Energy efficiency is measured as the ratio of GDP to energy use.