



G20 GERMANY 2017

**Paper for Discussion:
Draft Elements of a G20 Action Plan on
Climate and Energy for Growth**

**Berlin
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A. Setting the Scene

Ensuring economic growth, sustainable development and prosperity are at the heart of the G20 agenda. The increasing impact of human induced climate change presents significant challenges to stable, inclusive and sustainable economic growth. It is already leading to high costs harming the global economy, acting as a risk multiplier that jeopardizes past and future progress in poverty reduction and sustainable development, while undermining political stability. Thus our economies and energy systems need to be transformed at an unprecedented scale and speed. Driving forward the implementation of the Paris Agreement and the 2030 Agenda in a coherent and mutually supportive manner will provide us with significant opportunities for modernizing our economies, for enhancing competitiveness, and stimulating employment and growth, while securing social inclusion. Making this transformation an economic success is imperative.

Our action will be guided by the global long-term goals of the Paris Agreement, to hold the increase in the global average temperature to well below 2°C above pre-industrial levels and to pursue efforts to limit the temperature increase to 1.5°C above pre-industrial levels; to increase the ability to adapt to the adverse impacts of climate change and foster climate resilience; to make finance flows consistent with a pathway towards low greenhouse gas emissions and climate-resilient development. The temperature goal requires achieving a balance between anthropogenic emissions by sources and removals by sinks of greenhouse gases in the second half of this century.

The energy system is the backbone of our economies. At the same time, it is responsible for the major share of greenhouse gas emissions. Only an energy system that secures sustainable energy services for all at affordable prices, in line with the objectives of the Paris Agreement, can create the basis for the prosperity of future generations. Acknowledging our major share of global greenhouse gas emissions and global energy demand, and aiming to reduce and manage the risks stemming from climate change, we are committed to taking the lead in transforming our economies and in particular our energy systems, while acknowledging different national circumstances and priorities.

To achieve this, we need to set the right framework conditions for investments into low emission energy systems and climate resilient infrastructure. By taking a coherent and integrated approach, we seek to turn these investments into co-benefits for sustainable development, inter alia, in terms of energy security, energy access, poverty reduction, good health, environmental integrity, quality education and decent work. Such sustainable development will increase countries' capacity for mitigation, adaptation and resilience within G20 and beyond.

Welcoming the progress made under the Chinese, the Turkish and the Australian G20 Presidencies, we recall our Leaders' commitment from Hangzhou to identify new and sustainable drivers of growth. We welcome the OECD's report "Investing in Climate, Investing in Growth", the IEA/IRENA

report “Perspectives for the Energy Transition: Investment Needs for a Low Carbon Energy System”, as well as the World Bank report “Sovereign Climate and Disaster Risk Pooling – Joining Forces to Manage Climate and Disaster Risks”.

Seeking to build resilience, to improve sustainability and to take responsibility, we closely collaborate on climate and energy issues to successfully address the challenges of climate change, the required global energy transition and sustainable development. To express our commitment, we have agreed on this G20 Action Plan on Climate and Energy for Growth. We will implement this Action Plan jointly with the G20 Action Plan on the 2030 Agenda.

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B. Nationally Determined Contributions

The timely, transparent and robust implementation of Nationally Determined Contributions (NDCs) is as crucial for achieving the objectives of the Paris Agreement as for raising their ambition over time. Implementation of the climate objectives as defined in NDCs is intrinsically linked with the 2030 Agenda and its Sustainable Development Goals. Strong alignment between climate and development action is imperative and needs to be mutually reinforcing. Ambitious NDC implementation has the potential to create tremendous opportunities for technological innovation and economic leapfrogging as well as for enabling private investment and creating jobs. Greater levels of mitigation can reduce the cost of adaptation efforts.

Scientific analysis (e.g. UNEP gap report 2016) shows that the full implementation of the initial round of NDCs will not suffice for a “well below 2 degrees” scenario. However, successes and convincing experiences with implementing the first round of NDCs are prerequisite to ensure that each successive nationally determined contribution represents a progression beyond the current nationally determined contribution and reflects the highest possible ambition, respecting common but differentiated responsibilities and respective capacities, in the light of different national circumstances.

Preparing for the implementation of NDCs is likely to be most effective through sharing of best practices, mutual learning and support, on both mitigation and adaptation. Countries with the capacity to lead in implementing their NDCs could decide to play an active role and allow other countries to learn from their experiences; i.e. through multi-stakeholder formats that have proven to be instrumental in formulating and implementing ambitious NDCs, such as the NDC Partnership (see inset) or other capacity building initiatives. Multilateral development banks through their policies could also play a supporting role in this regard.

Meaningful preparation and ambitious implementation not only includes the alignment between NDCs and sectoral policies, but also careful consideration of medium-term development, infrastructure and budget planning.

(for information purposes only)

The NDC Partnership was launched during a high-level event at COP22 in Marrakech hosted by the COP22 Presidency Morocco. Already, [30] developing countries and [14] developed countries as well as [9] international organizations have become members of the Partnership, amongst these 12 G20 members – emphasizing their commitment to maintain the momentum in implementing the Paris Agreement.

The NDC Partnership is a new coalition of developed and developing countries and international institutions working together to ensure countries receive the technical and financial support they need to achieve ambitious climate and

sustainable development targets as fast and effectively as possible. For these efforts to succeed, governments, international institutions and non-state actors must find new ways to share information, to learn from each other and to coordinate their actions, globally and at the country level.

The Partnership's objective is to enhance cooperation so that countries have more effective access to the technical knowledge and financial support necessary to deliver on their Nationally Determined Contributions (NDCs) and related SDG commitments. The Partnership aims to better align these global and in-country efforts and to improve understanding of existing resources.

Potential G20 Actions

- The G20 could agree to lead by example through effectively implementing the commitments reflected in their Nationally Determined Contributions (NDCs). They could furthermore decide to increase cooperation among themselves to facilitate mutual learning, best practice sharing and capacity-building, reiterating their commitment to the progressive enhancement of NDCs over time.
- The G20 could consider actively engaging in the 2018 facilitative dialogue with view to taking stock of the collective progress towards the long term temperature goals and to potentially informing the preparation of new NDCs by 2020 (for Parties with an NDC containing a time frame up to 2025) or to facilitating the communication or updating of these contributions (for Parties with an NDC containing a time frame up to 2030).
- The G20 could ask other players, e.g. the OECD, Multilateral Development Banks or other international organizations to assist with identifying additional potentials for scaling-up mitigation and adaptation actions for the implementation of NDCs in G20 countries, as a contribution to the 2018 facilitative dialogue.
- The G20 could decide to support Non-G20 partner countries in NDC implementation relating to both mitigation and adaptation, including through South-South cooperation. Respective support could, among others, aim at strengthening the alignment between climate actions as defined in NDCs and development strategies in line with the 2030 Agenda and the relevant Sustainable Development Goals.
- G20 members could commit to aligning their development cooperation activities (including the portfolios of their development finance institutions) with NDCs as well as with the long-term goals of the Paris Agreement.
- The G20 could decide to confirm their appreciation of the NDC Partnership, for example by joining the Partnership, and could encourage other countries to join as well.

C. Ambitious Long-Term Low Greenhouse Gas Emission Development Strategies

The Paris Agreement invites countries to develop long-term low greenhouse gas emission development strategies (“2050 strategies”). 2050 strategies serve to translate the goals of the Paris Agreement into national, country-specific strategies. While 2050 strategies will always reflect countries’ different national circumstances and priorities, they can help align climate policy objectives with national efforts to implement the 2030 Agenda, thus empowering economies and societies to embrace the transition to a low greenhouse gas emission future in a fair and equitable manner.

Given the energy sector contribution to global greenhouse gas emissions, such long-term low greenhouse gas development strategies need to include well-designed long term strategies for the energy sector, addressing all other sectors as well, including the end use sectors of transportation, industry and buildings, and their increasing interaction.

Well-designed long-term strategies are associated with a number of benefits: They have the potential to inform policy making, can assist with aligning financial flows with the goals of the Paris Agreement and thus generate those investments needed for transforming our economies and in particular our energy systems. They can help avoid costly lock-in effects into long-lasting high carbon infrastructure, and thus reduce the risk of misallocated investments that could result in stranded assets. They also encourage necessary innovation towards green infrastructure development.

Clear and transparent information, for example on infrastructure pipelines and performance, as well as learning from experience are important prerequisites for developing 2050 strategies. Best practice sharing, cooperation and exchange with G20 peers as well as non-G20-countries are conducive in this regard. Several initiatives could assist with this task. The newly emerging 2050 pathways platform (see inset) – once operational - could provide a platform for knowledge exchange and learning. The Global Infrastructure Hub (see inset) could assist with developing methodologies on monitoring infrastructure investment and performance across countries to allow for their long-term alignment with the Paris goals.

(for information purposes only)

The **2050 pathways platform** was launched by Climate Champions Laurence Tubiana and Hakima El Haite on November 17 2016 at the COP 22 in Marrakech as a multi-stakeholder initiative that aims to support countries, cities and regions seeking to develop long-term, net zero-GHG, climate-resilient and sustainable development pathways through capacity-building and best practice exchange. Already, 22 countries have started or are about to start the process of preparing a 2050 pathway and have pledged to support the platform. In addition, some 15 cities (through C40 and ICLEI), 17 sub-national states, regions and cities, through the Under 2 coalition, and 196 businesses, through the We Mean Business Coalition and the Science Based Target initiative have joined the 2050 pathways platform.

(for information purposes only)

The **Global Infrastructure Hub** was launched by the G20 in 2014 and has a mandate to grow the global pipeline of quality, bankable infrastructure projects. Infrastructure investment are vital to underpin the transition to a low-carbon and climate-resilient future as well as to spur growth and sustainable development. Currently, there is a lack of clear and transparent information on infrastructure investment “pipelines”. Where information is available it is not necessarily aligned with the goals of the Paris Agreement; there also is a stark deficit on the part of adaptation-oriented projects. The Global Infrastructure Hub could play a role in closing existing data gaps; achieving an alignment of infrastructure pipelines with the Paris goals by developing respective methodologies.

Potential G20 Actions

- The G20 could agree to lead in preparing their 2050 long term low greenhouse gas development; meaning that 2050 strategies would be communicated well ahead 2020 i.e. at or before the Facilitative Dialogue in 2018.
- The G20 could consider establishing a format for best practice sharing as well as mutual support and cooperation for developing 2050 strategies, which would also benefit non-G20 countries. The 2050 Pathways Platform could provide this format once fully operational.
- The G20 could consider working with the G20 Global Infrastructure Hub to close data gaps on infrastructure investment pipelines, allowing for a better alignment of these pipelines with the Paris goals.
- The G20 could also decide to make more explicit the link between long-term strategies and the realignment of finance flow towards low GHG and climate resilient infrastructure development.

D. A Reliable Framework for the Energy Sector Transition

Energy security and access to affordable and sustainable energy for all are necessary preconditions for inclusive economic growth and prosperity. Having this in mind, there is the need to transform energy systems to sustainable low greenhouse gas emission systems by mid-century at the latest.

Transforming energy systems needs to be in line with the objective of limiting the increase of the global average temperature to well below 2 degrees Celsius. Different national circumstances, challenges and priorities, such as domestic energy resources, economic development, energy access and energy demand dynamics all impact the way each country manages its energy transition. These transitions will require substantial changes in energy production and consumption, including significant energy productivity improvements. The transition to low emission energy systems is technically feasible and economically viable, and early action can significantly reduce the costs of reaching a low greenhouse gas emission system [increase cost efficiency].

Substantial investments, in particular in the end-use sectors industry, heating and cooling, and transport, are necessary to realise the transformation of energy systems. Setting up favourable transparent and reliable framework conditions, based on long-term energy sector development strategies, will attract adequate investments and technological innovation in all sectors. In this regard, robust long-term energy sector development strategies will inform policy making and increase investor certainty, helping to minimise lock-in effects and stranded investments in the energy sector. Comprehensive long-term energy sector development strategies need to take into account the supply and demand sides, including electricity, transport, buildings, and industry, and their increasing integration. When designing long-term energy sector development strategies national circumstances and priorities need to be considered. Adequate structural change policies are needed to accompany the transformation processes.

Energy transitions rely on a broad array of low carbon technologies. Energy efficiency [in particular in the end use sector] and clean energy, in particular renewable energy, will play an important role in future energy systems. Near-term, scaled-up spending on research and development for technological innovation is particularly important to ensure the availability of crucial technologies. Bringing down technology costs, removing non-economic barriers to reduce transaction costs and establishing de-risking measures for capital-intensive clean energy investments are important areas for G20 collaboration.

Scientific analysis, regular monitoring and evaluation and resulting policy adjustments are of particular importance for successful energy transition processes; the work of international and national research institutes and think tanks adds great value to these efforts.

Voluntary cooperation and best practice exchange within the G20 and beyond can provide significant support to transition processes.

Potential G20 Actions

- The G20 could commit to transforming energy systems to sustainable low greenhouse gas emission systems by mid-century the latest.
- We could commit to exchanging best practices of national long-term low greenhouse gas energy sector strategies in the G20.
- In this regard, we could ask IEA and IRENA to support our efforts in providing a regular monitoring report with relation to the transformation of the energy sector and further investment needs.
- The G20 could agree to deepen our exchange with national and international research institutes and think tanks working on long-term energy scenarios, aspiring to support their efforts through facilitating networking and mutual learning.
- We could commit to jointly strengthening our efforts and incentives for clean energy technologies and our RD+D collaboration to accelerate development and deployment of the technologies required for reaching the goals of the Paris Agreement.

D.1. Promote Energy Efficiency as First Fuel

Energy savings and a strong increase of the energy productivity of our economies are primary goals. The UN 2030 Agenda for Sustainable Development therefore states the aim of doubling the improvement rate of energy efficiency globally. Scaling up energy efficiency is key for a successful long-term transformation of energy systems.

Energy efficiency is the “first fuel” and is a no-regret option in reducing carbon emissions, improving energy security, ensuring economic growth and strengthening industrial competitiveness. Energy efficiency contributes a large share to the energy sector transformation. Significant additional investments are needed to foster technological innovation and economic growth.

Joining forces is crucial for developing frameworks for new business models and policies to ensure necessary investments in energy efficiency measures covering all sectors. Moreover, it is essential to strengthen and coordinate international cooperation in the field of energy efficiency.

The buildings sector has the potential to significantly improve energy efficiency. In this regard, the Global Alliance for Buildings and Construction (GABC) has identified an international agenda for the

buildings sector and set policy recommendations for all actors along the value chain for the development of national building strategies.

While significant progress has been achieved, continuing the implementation of the “G20 Energy Efficiency Leading Programme (EELP)” adopted under the Chinese G20 Presidency will be important.

Potential G20 Actions

- We could seek to strengthen international collaboration through the establishment of an improved institutional arrangement (the hub). Such an improved institutional arrangement could involve all interested countries and international energy efficiency initiatives. It could coordinate the continuation of ongoing activities and facilitate knowledge exchange between existing initiatives.
- The new hub could provide a “Global Energy Efficiency Status Report” to assess the global development of energy efficiency across all sectors as well as all international activities that improve energy productivity.
- We could decide the continuation of the ambitious implementation of the G20 Energy Efficiency Leading Programme (EELP)” and encourage international organisations to provide sectoral policy recommendations and continue exchange of best practices.
- With the G20 Energy Efficiency Forum, we could ask the new hub to create an annual platform for exchange among G20 representatives and energy efficiency experts.
- We could call on other countries beyond G20 to join our efforts in scaling up energy efficiency.

D.2. Scaling up Low Carbon Technologies: Renewable Energy and Other Low Carbon Sustainable Energy Sources

By mid-century the transition to low carbon energy technologies would need to be completed. Clean energy, in particular renewable energy, has a significant role and a huge potential for the transition to a low greenhouse gas economy in all G20 countries. While costs for renewable energy technologies have tremendously decreased over the past years, the challenge of integrating rising shares of variable renewable energy for a cost effective energy sector transition needs to be addressed.

Aiming at a low carbon energy system in the medium- and long-term, the energy sector transition needs to span the power sector and the end use sectors alike, meaning that renewables deployment needs to move beyond the power sector more broadly into the heating and transport sectors.

Bioenergy will play an important role in the energy transition, but its production and use need to be designed in a sustainable manner.

While significant progress has been achieved, continuing the implementation of the Voluntary Action Plan on Renewable Energy and the G20 Toolkit of Voluntary Options on Renewable Energy Deployment will be important and international cooperation and best practice sharing could be joined by other countries beyond the G20.

Natural gas is a necessary complementary energy carrier in the transition process, being supportive in ensuring system flexibility in the power sector and substituting for higher emitting fuels in the heating and transport sectors.

All countries that opt to use nuclear energy need to ensure highest standards of nuclear safety, security and non-proliferation. Carbon capture and storage can play an important role for countries that opt to use it; intensified RD&D in particular in the field of industrial process emissions is significant.

Potential G20 Actions

We could agree to take the following joint actions in order to scale-up low carbon technologies:

- We could agree to continue to ambitiously implement the Renewable Energy Action Plan and the Renewable Energy Toolkit.
- In this regard, we could ask IEA and IRENA to further work on renewable energy pathways in different sectors and electrification options for the end use sectors as well as their additional potential for increased flexibility in the entire energy system and to report back in 2018.
- Recognising the impact of risks in reducing the financing costs of low carbon technologies, we could commit to jointly taking forward the work on the Renewable Energy Toolkit, in particular on risk mitigation instruments, to mobilise private sector investments in low carbon technologies.

D.3. Realizing Access to Modern Energy Services for All

Billions of people in the world live without access to modern energy services: 1.1 billion people do not have access to electricity, while 2.9 billion rely on the traditional use of biomass for cooking. They are facing insufficient, unreliable and too costly supply and are exposed to significant indoor air pollution due to burning of solid fuels, which causes millions of premature deaths per year. It would therefore be a strong and important signal for the G20 to reaffirm their commitment to working together to ensure access to affordable, reliable, sustainable and modern energy for all (Sustainable

Development Goal 7). This would include recognition for the role of Sustainable Energy for All (SEforALL) in this regard.

Access to modern and sustainable energy is a key enabler for poverty eradication, productive economic activity, climate protection, social inclusion, health, education, and gender empowerment. The G20 could therefore strengthen their efforts to contribute to achieving universal access to energy services by focusing on improved investments, in energy for productive use, transport, cooking, heating and cooling.

The G20 could welcome the progress made under the Turkish and Chinese G20 Presidencies by adopting the Energy Access Action Plans on Sub-Saharan Africa and the Asia-Pacific region and could continue to support their implementation process and to explore the widening of the geographic scope of their efforts to other regions.

In addition, it would be helpful for the G20 to acknowledge and welcome the progress made in operationalizing the Africa Renewable Energy Initiative (AREI) and to support its aim of addressing the twin challenges of improving universal access to energy and mitigating climate change by significantly scaling up renewable energy deployment in Africa.

Furthermore, the G20 could acknowledge progress made by the Renewable Energy Cooperation Programme (RECP) in supporting the development of markets for renewable energy technologies and welcome its role to promote access to energy, private sector investment and sustainable economic growth.

Potential G20 Actions

- G20 States could reaffirm their support for accelerating the access to and investments in affordable, reliable, and sustainable and modern energy to reduce energy poverty.
- The G20 could reaffirm the continuation of the implementation of the energy access action plans for Sub-Saharan Africa and the Asia-Pacific region, including reporting on progress at the Energy Sustainability Working Group Meeting, and by exploring the widening of the geographic scope of these initiatives to other regions, striving for universal energy access.
- The G20 could strengthen the cooperation in the field of modern and sustainable energy access by supporting and aligning G20 activities with existing initiatives and institutions, such as Sustainable Energy for All (SEforALL), the World Bank Energy Sector Management Assistance Programme (ESMAP), or Energising Development (EnDev).
- The G20 could furthermore confirm their support to the Africa Renewable Energy Initiative (AREI) and the Africa Renewable Energy Cooperation Programme (RECP) and actively contribute to their

objectives through a variety of mechanisms. To that end, the G20 could, amongst others things, pursue voluntary support options, including enhancing coordination and collaboration, improving policy and regulatory environments and explicitly support specific AREI and RECP work areas.

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E. Aligning Financial Flows with the Goals of the Paris Agreement

In Paris, all countries agreed to the new goal of making finance flows consistent with a pathway towards low-greenhouse gas emissions and climate-resilient development. Developed countries also reiterated their commitment to mobilise an annual USD 100 billion from public and private sources by 2020 and to continue this through 2025 for mitigation and adaptation in developing countries.

Private financial markets play an increasing role in financing the transition to a low carbon and climate resilient economy. In fact, the largest share of the financing volume will have to come from private financial markets. Green finance can play an enabling role in this respect. Many private actors are already shifting their portfolios to better align them with the Paris agreement goals as well as related Sustainable Development Goals. Clear signals from governments to support such activities would have the potential to spur such shifts. These could include, inter alia, the alignment of public expenditure and infrastructure planning with the goals of the Paris Agreement, the use of instruments for carbon pricing, the phase-out of Inefficient Fossil Fuel Subsidies.

G20 governments are well placed for setting framework conditions that are conducive to making finance flows consistent with the goals of the Paris Agreement, both nationally and internationally. The G20's Green Finance Study Group (GFSG) has identified key barriers for taking into consideration climate risks into investment decisions, as well as options to strengthen green finance and encourage the mainstreaming and mobilisation of finance for environmentally sustainable development. Further work is on-going. The recommendations of the Financial Stability Board's (FSB) Task Force on Climate Related Financial Disclosure will support investors and firms to improve voluntary reporting on their exposure to climate risks and better understand possibly related financial risks. This, as well as the GFSG's work on "Environmental Risk Analysis", will support progress towards developing a much-needed new generation of risk analysis tools as well as a more efficient use of publicly available environmental data in financial assessments as a basis for investment decisions.

Potential G20 Actions

- The G20 could reemphasize the need to align financial flows with the goals of the Paris Agreement. The G20 could commit to creating the right framework conditions, nationally and internationally, to accelerate the required shift in public as well as private sector investments into low-carbon and climate-resilient projects. They could also welcome respective voluntary initiatives of the private sector.
- The G20 could invite relevant organisations to analyse on-going activities within the G20 for making finance flows consistent with the Paris goals and, building on this, to make policy

recommendations for strengthening these efforts and present this analysis at the 2018 G20 summit.

- The G20 could recognise the Green Climate Fund as a key funding mechanism to support a paradigm shift in the global response to climate change by financing low-emission and climate-resilient projects and programs in developing countries. In this context, the G20 could commit to continuing their support to the GCF.
- The G20 could welcome the work of the GreenInvest dialogue platform in advancing Green Finance to the benefit of developing countries. They could also encourage further work on identifying, assessing and, where relevant, managing unintended negative impacts for developing countries through a global transition towards Green Finance, such as on cost of capital for the most climate-vulnerable countries, as well as on analysing ways of a better alignment of inward investment with the climate and SDG agenda.
- The G20 could welcome the reports by the FSB task force on climate related financial risk disclosure and the Green Finance Study Group and welcome a continuation of this work, and invite the private sector to apply the recommendations produced.

E.1. Ramping Up Ambition for the Implementation of the Paris Agreement – Role of the Multilateral Development Banks (MDBs)

The transformation towards climate-resilient and low greenhouse gas emission development pathways as aimed for by the Paris Agreement requires massive investments into climate-proof, sustainable infrastructure in the coming years and decades. MDBs' ability to provide large-scale financing, their potential to leverage private climate finance, and their presence around the globe place them in an excellent position to contribute to the transition to a low greenhouse gas emission and climate-resilient development, including the achievement of related SDGs. MDBs could therefore come up with a profound Joint Climate Action Plan.

In addition, the G20 International Financial Architecture working group has called on MDBs to adopt principles for crowding in private finance. The principles would guide MDBs to increase crowding-in of private capital on several levels: through de-risking of countries and sectors by means of appropriate reforms and capacity building, which would also enhance the country's investment climate, as well as through expanding and standardising risk sharing instruments to allow private actors to be involved.

Potential G20 Actions

- The G20 could call on all MDBs to present a Joint Climate Action Plan for the next G20 Presidency, setting forth how the MDBs can align their activities with the long term goals of the Paris Agreement and, consequently, with NDC implementation. Such a Joint Climate Action Plan could inter alia cover individual long-term strategies for low greenhouse gas emissions and climate-resilient development including commitments on climate finance, notably adaptation finance and private climate finance mobilisation, the climate-proofing of their portfolio, risk mitigation measures for ambitious climate investment, the development of risk-sharing mechanisms for adaptation and resilience challenges, the enhancement of methodological harmonisation in carbon metrics, adaptation metrics and climate finance reporting, as well as the coordinated support for NDC implementation. The Joint Climate Action Plan could be elaborated by 2018 and presented to the G20 summit in 2018.
- In view of the principles for crowding in private finance, the G20 could call on MDBs to detail and specify how private sector finance can be further mobilised towards meeting the 2030 Agenda and the objectives of the Paris Agreement.

E.2. Carbon Pricing

The use of carbon pricing and market mechanisms is advancing apace within the G20, with schemes already in operation or scheduled at national and regional level. A strong point for these instruments is the multitude of design options. The choice of carbon pricing and market instruments should be guided by the specific characteristics of targeted sectors and the country's climate policy objectives, preferences and national circumstances. Moreover, the revenues generated by these instruments could be used to finance further climate mitigation or adaptation activities, to reduce distortionary taxation, and to advance other societal goals. Effective carbon pricing and market instruments are key in terms of redirecting investments to low-carbon technology and infrastructure and need to be aligned with other policy measures. International cooperation has the potential to enhance the cost-effectiveness of these instruments and to enable countries to increase mitigation ambitions and resilience of economies over time.

Potential G20 Actions

- The G20 could recognize the importance of market based instruments for cost efficient greenhouse gas mitigation to achieve the objectives of the Paris Agreement.
- The G20 could initiate an open dialogue and best practice exchange on the role and design of market based instruments, including carbon pricing and other effective policy measures, as part

of the G20 reporting on progress in 2018, and taking into account already existing fora provided for example by the world Bank or the OECD.

E.3. Inefficient Fossil Fuel Subsidy Reform

Inefficient fossil fuel subsidies (IFFS) encourage wasteful consumption of fossil fuels, thereby increasing energy demand and energy dependence and distorting the energy market to the disadvantage of low-carbon technologies, impeding investment in clean energy sources, while putting a strain on public budgets.

In light of our overall transition objectives it is important to avoid market distortions of inefficient fossil fuel subsidies and to avoid misplaced investments in unsustainable long-term infrastructure.

Providing those in need with essential energy services, including the use of targeted cash transfers and other appropriate mechanisms is, however, still important.

The US-Chinese peer reviews was concluded, the German-Mexican peer review is ongoing and Indonesia and Italy have announced to continue the process. Further progress in the G20 peer review process would be needed.

Potential G20 Actions

- The G20 could reaffirm their commitment to rationalising and phasing out, over the medium term, inefficient fossil fuel subsidies that encourage wasteful consumption, with the clear ambition to complete this process by 2025, recognising the need to support the poor.
- All G20 countries which have not yet done so could be encouraged to initiate a peer review process of inefficient fossil fuel subsidies as soon as feasible.
- The G20 could welcome the OECD/IEA progress report [to be presented at SWG-2] and its recommendations on how to further develop and improve the G20 peer review process, based on recent experience, and how to facilitate phasing out inefficient fossil fuel subsidies that encourage wasteful consumption. The G20 could agree on intensifying our exchange on inefficient fossil fuel subsidy reform.

F. Scaling up Resilience and Enhancing Adaptation Efforts

Climate change and its impacts threaten the prospect of sustainably reducing poverty and combatting hunger, putting at risk past and future development achievements. The effects of climate change can be seen and felt globally. Rising sea levels, more intense droughts, more frequent heat waves in cities and densely populated areas, and heavy rain and flooding with major damage to buildings and infrastructures are just some of the impacts already being felt. Whilst poor and vulnerable people are most affected by these extreme weather events, they are least able to cope and to adapt to them. This is the reason why the Paris Agreement attaches the same importance to adaptation as to mitigation and, for the first time, establishes the goal to increase the ability to adapt to the adverse impacts of climate change and to foster climate resilience.

Taking into account these goals as well as the 2030 Agenda and the Sendai Framework for Disaster Risk Reduction, the G20 could aim to further improve the resilience of people, livelihoods, and public budgets against climate and disaster risks and protect the poor and vulnerable. To achieve this, the G20 could strive to integrate adaptation efforts and climate resilience considerations in overall development and infrastructure planning, investment decisions and to make finance flows consistent with pathways towards a climate-resilient development. In particular, the G20 could commit to enhancing climate and disaster risk management and finance as well as insurance solutions in poor and vulnerable countries and regions.

Climate risk insurance schemes are gaining traction ranging from regional sovereign disaster risk pools to agricultural harvest loss insurance for smallholders. This has led to the substantial expansion of climate risk pools, including the African Risk Capacity (ARC) in Africa, the Caribbean Catastrophe Risk Insurance Facility (CCRIF) in the Caribbean and Central America, as well as the establishment of the Pacific Catastrophe Risk Insurance Company (PCRAFI) in the Pacific. Together with international initiatives for building resilience such as Climate Risk Early Warning Systems Initiative (CREWS), InsuResilience and the National Adaptation Plan (NAP) Global Network, they enable poor and vulnerable countries to better adapt to climate change and avoid reallocating budgets and to provide faster and more cost-efficient support in the case of a disaster. Nonetheless, significant insurance coverage gaps remain.

Potential G20 Actions

- The G20 could establish a “Global Partnership for Climate and Disaster Risk Finance and Insurance Solutions” to bring together relevant partners with the aim of closing the protection gap by improving risk information, facilitating joint learning and the participation of local stakeholders as well as by expanding existing regional platforms.

- The G20 could develop a work program and report on its progress by 2018 to incentivise loss reduction and resilience building efforts as well as to further enhance risk coverage for poor and vulnerable people and countries against medium-term risks. For this purpose, the G20 could invite the World Bank, by building on the key lessons of its ongoing work on “Sovereign Climate and Disaster Risk Pooling”, to assist in identifying additional potentials for improving and scaling-up climate and disaster risk finance and insurance solutions.

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G. Global Climate Action Agenda and Transformation in Other Fora and Processes

The implementation of the Paris Agreement will only be successful by mainstreaming the long-term goals of the Paris Agreement across all sectors and linking the implementation to other fora and processes.

[Global Climate Action Agenda]:

The Global Climate Action Agenda (GCCA) plays a key role as catalyst for the implementation of the Paris Agreement and acts as a bridge between climate activities of parties and non-party actors. The GCCA-initiatives help countries facilitate new ambitious action on the ground and showcase innovation as a driver for ambitious climate action.

[HFCs]:

The decision by the parties to the Montreal Protocol in Kigali to include hydrofluorocarbons (HFCs) into the reduction obligations of the Protocol introduces a sector specific mitigation approach for these substances that are also covered by UNFCCC, thus creating synergies between both regimes. The decision offers the opportunity to significantly reduce the contribution of these substances to climate change until 2047. The HFC phase down is expected to avoid up to 0.5 degree Celsius of global temperature rise by 2100, while continuing to protect the ozone layer.

[Aviation and Shipping]:

International aviation and shipping undoubtedly result in considerable anthropogenic emissions, prompting both sectors to undertake their fair share of efforts to reaching the goals of the Paris Agreement. Activities are channelled via the International Civil Aviation Organisation (ICAO) and the International Maritime Organisation (IMO).

[Land Use, particularly Forests]:

The Paris Agreement mandates all countries to conserve and enhance sinks and reservoirs of greenhouse gases, including forests and other ecosystems. Land use, particularly related to forests, is a critical component for reaching a greenhouse gas balance in the second half of the century and thus reaching the goals of the Paris Agreement. Not only is there a strong emission reduction potential, but land use, and particularly forests, can provide negative emissions as a potential carbon sink. Almost all G20 countries included land use and conservation, sustainable management and restoration of forests in their NDCs in order to protect the climate, conserve biological diversity and achieve the SDGs.

Potential G20 Actions

[Global Climate Action Agenda]:

- The G20 could support the Marrakech Partnership for Global Climate Action and acknowledge the growing momentum of voluntary efforts, initiatives and coalitions of cities, regions, companies and investors from across the world to support parties on the implementation of the Paris Agreement, in particular with regard to climate action before 2020.
- The G20 could focus on selected initiatives (at city, region or company level) and pledge to support those initiatives as light-house initiatives which inspire other stakeholders to take swift action.

[HFCs]:

- The G20 could commit to completing their respective domestic procedures to join the Kigali Amendment as soon as possible and then furthermore pledge to swiftly implement the Amendment while increasing efforts to phase-down HFCs even before its entry into force.

[Aviation and Shipping]:

- The G20 could support the IMO on driving forward the roadmap (agreed in October 2016) towards the reduction of GHG emissions in the shipping sector.

[ICAO]:

- The G20 could decide to voluntarily participate in the “Carbon Offsetting and Reduction Scheme for International Aviation” with the objective to achieve carbon neutral growth from 2020. The G20 could furthermore commit to supporting ICAO’s ongoing efforts to elaborate and implement further emission reductions related to CO₂- and non-CO₂-emissions from aviation.

[Land Use, Particularly Forests]:

- The G20 could reiterate their commitment to conserve and enhance carbon sinks and reduce sources of emissions, particularly related to forests.
- The G20 could pledge their support to the Paris Leaders' Statement on Forests' goals of slowing, halting and ultimately reversing deforestation by increasing agricultural productivity in a sustainable way and at the same time strengthening forest protection and restoration through ambitious public private partnerships.
- The G20 could commit to driving increased supply and demand in their countries and beyond for deforestation-free commodities and equally commit to doing their part in providing support to developing country parties for halting deforestation and restoring forests.

- The G20 could furthermore opt for the establishment of guidance for monitoring and tracking progress related to land use elements where more commonality is needed to ensure comparability and transparency in implementing the Paris Agreement.

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H. Way Forward

The G20 Sustainability Working Group could present a G20 Action Plan on Climate and Energy for Growth to the Sherpas for Leaders' consideration at the Hamburg Summit.

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