

Submission from Norway with views for the first global dialogue relevant for the topic *accelerating just energy transition* under the mitigation work programme.

Norway welcomes the chosen topic for the mitigation work programme, *accelerating just energy transition*. Norway believes the topic will facilitate productive discussions to identify how we can urgently scale up mitigation ambition and implementation in this critical decade. We also welcome the opportunity to provide our views on opportunities, best practices, actionable solutions, challenges and barriers relevant to the topics of the dialogues.

The mitigation work programme should be used as a tool to scale up mitigation ambition and implementation. Focused dialogues on how to accelerate just energy transition will be key to facilitate ambitious outcomes. The dialogues will inform the UNFCCC processes and the decisions under CMA, however it is important to keep the dialogues and the formal negotiations separated.

In the dialogues it is important to facilitate active participation from non-party stakeholders. The mitigation work programme should not only be for parties but should also foster inspiration, information and guidance for other stakeholders, including local communities, industry etc. to increase their ambition and implementation. To this effect, we find the limit of 2 active participants unfortunate, as it could possibly limit the opportunity for expert voices to be heard.

Parties have resolved to pursue further efforts to limit the temperature increase to 1.5 °C. We cannot reach this target without accelerating the energy transition. This will require substantial energy system changes over the next 30 years, including reduced fossil fuel consumption, increased production of renewable energy sources, and increased use of electricity as well as alternative energy carriers.

The scientific evidence need to be the backbone of all discussions. The IPCC WGIII report gives a solid foundation to build the discussions upon. The dialogues should also draw upon relevant work already undertaken under the UNFCCC and the Paris Agreement. Parties have also made several decisions relevant for the topic that should be the starting point for the dialogues, including, but not limited to:

- accelerate the development, deployment and dissemination of technologies, and the adoption of policies, to transition towards low-emission energy systems, including by rapidly scaling up the deployment of clean power generation and energy efficiency measures
- accelerating efforts towards the phasedown of unabated coal power and phase-out of inefficient fossil fuel subsidies, while providing targeted support to the poorest and most vulnerable in line with national circumstances and recognizing the need for support towards a just transition.
- In f The Sharm El Sheikh Implementation plan, Parties gave guidance on the need for energy transition through paragraph 12, 13 and 14. For example, Parties stressed the importance of enhancing a clean energy mix, including low-emission and renewable energy, at all levels as part of diversifying energy mixes and systems, in line with national circumstances and recognizing the need for support towards just transition.

It is important to note that just transition has two separate agenda items (SBSTA agenda item 9/SBI agenda item *Work programme on just transition pathways* and SBSTA agenda item 11/SBI agenda item: *Matters relating to the forum on the impact of the implementation of response measures serving the Convention, the Kyoto Protocol and the Paris Agreement*). A workshop in addition the Forum for the Implementation of Response Measures is organizing an in-session workshop on the 5th of June on country-driven strategies on just transition and economic diversification focusing on challenges and opportunities. A delineation between the different agenda items would help avoid duplication.

Specific views, input and experience related to the topic

Norway welcomes the topic and subtopics chosen by the co-chairs. We believe that they tie well in with existing work by the constituted bodies of the Paris Agreement. The work program should not exist in a vacuum and in isolation from other work already undertaken on the topic and subtopics chosen by the co-chairs, but use all relevant work undertaken by the UNFCCC Subsidiary Bodies and Constituted Bodies under the UNFCCC, including the Technology Executive Committee, the Forum on Implementation of Response Measures and its Katowice Committee on the implementation of response measures and the Paris Committee for capacity building, as well as the FWG LCIPP. Building on this work will ensure uniformity, conformity, and compliance with decisions across activities implemented under the Paris Agreement.

The Technology Executive Committee has published several technology briefs and recommendations to the CMA and the COP on energy, international cooperation, addressing financial, technological and capacity-building needs, barriers and enablers. The Forum for Implementation of Response measures and its Katowice Committee on the implementation of response measures is set up to address socioeconomic effects of the implementation of mitigation measures. This is done through, among others, build awareness and enhancing information-sharing through the exchange and sharing of experience and best practices, and prepare technical papers, case studies, concrete examples and guidelines.

The role of IPCC WGIII report in the dialogues

Norway considers that the dialogues should focus on **how** we can accelerate the just energy transitions. The IPCC WGIII report chapter 6.4 outlines several mitigating options. In addition to the work already undertaken as referred to above the WGIII provides valuable starting points for the dialogues.

In order to illuminate opportunities, best practices, actionable solutions, challenges and barriers relevant to the topics of the dialogues, we have highlighted some of the options presented by the IPCC that we believe are important to accelerate just energy transitions. We have outlined general challenges and opportunities that could be important for how to implement these solutions. Finally, we give some concrete examples from our national context.

Economic measures to incentivize renewable energy

Figure 6.18 in the IPCC WGIII report shows that for many renewable energy technologies, the costs are already lower than the fossil fuel equivalent. However, there are local variation, and historical dependencies which give clean energies disadvantages. Section 6.7.3 highlights the challenge of

energy system lock-in and path dependence. Economic measures to incentivize the energy transition towards use of renewables, such as carbon pricing, can help accelerate the deployment, despite possible disadvantages.

- **Challenge:**
 - Greenhouse gas emissions represent a cost for society as a whole, which is not directly apparent to the emitter.
 - Build-out of energy systems with greenhouse gas emissions give path dependence, and can lock in solutions that are not compatible with a future net-zero world.
- **Opportunity:**
 - Cross-sectoral economic policy instruments (climate taxes) form the basis for decentralized, cost-efficient and informed actions.
 - Increased revenue for the government.
- **Example:**
 - The main instruments of Norwegian climate policy are taxes on greenhouse gas emissions and emissions trading.
 - Taxes on GHG-emissions were first introduced in 1991 and today GHG-taxes and emission allowances (EU ETS) cover close to 85 per cent of greenhouse gas emissions in Norway.
 - In 2030 the price of CO₂ is planned to reach 2000 NOK per ton, approximately equivalent to 200 Euro per ton.
 - In the assessment of policies and measures, cross-sectoral effects and long-term effects on technology development and deployment should also be taken into consideration.

Technological development

The IPCC WGIII report also shows the expected decrease in cost for various renewable technologies. This development must be supported and accelerated through systems of innovation that promote renewable energies.

- **Challenge:**
 - While broad measures like carbon pricing incentivize research, development and innovation, nascent markets for new technology might not respond in time for accelerated transition. These might lag, creating a barrier.
- **Opportunity:**
 - Promotion of innovation can help develop markets for nascent technologies.
- **Example:**
 - Norway has several innovation programs that cover the development chain from basic research, innovation, scale-up of new technologies, and early market introduction. This helps make new technologies commercially viable.
 - Enova SF is a state enterprise that contributes to reducing greenhouse gas emissions, development of energy and climate technology and a strengthened security of supply. Enova establishes instruments with the aim of achieving lasting market changes, to help efficient energy and climate solutions be preferred without support.

Wind energy

The IPCC WGIII report section 6.4.2.2 discusses wind energy and shows how costs have declined by 18% since 2015. However, it also highlights how onshore land availability is becoming a limiting factor. Offshore wind has a big potential, but is costly and still in early stages in many parts of the world.

- **Challenge:**
 - Land is a scarce resource, and land-based wind might not be the optimal solution in all areas.
 - Offshore wind has unique challenges with nature above and below the sea surface, integration with existing fishing boats and transport ships.
 - Other important challenges are, inter alia, land-use land use-change and the ensuring the rights of indigenous peoples.
- **Opportunities:**
 - Wind power remains one of the biggest potentials for renewable energy generation.
 - Offshore wind represents large wind resources, and if done right, can avoid many area conflicts.
- **Example:**
 - The Norwegian government has established a system for opening up areas for offshore wind energy deployment, including measures to balance considerations for nature and other users of the sea. The government will provide financial support in the form of contracts-for-difference schemes. Deployment can give cost reductions for future developments.

Energy system integration

The IPCC WGIII report section 6.4.3 discusses Energy System Integration and highlights both the economic and technical challenges of integrating larger amounts of variable energy.

- **Challenge:**
 - Energy generation capacity until recently has been controlled and predictable. With growing amounts of variable energy entering the system, the existing infrastructure needs to change to accommodate the new paradigm.
- **Example:**
 - Norway's hydroelectric baseload is a benefit for the energy transition. At the same time the scale-up of wind power and solar power will introduce large amounts of variable renewable electricity which poses major challenges for an electrical system designed in a different context. To aid this transition, both local energy storage through ground heat and pumped hydro power is being encouraged through broad R&D support schemes.