

High-level Dialogue on Energy
Track 2: Energy Transitions
Technical Working Group (TWG) Process

Energy Transitions Theme:

This Theme will focus on energy sector decarbonisation strategies to dramatically increase the application of renewable energy and energy efficiency, including in end-use sectors like transport (e.g. renewable-powered electric vehicles), while ensuring a just transition, including strategies on coal phase-out.

Dialogue Deliverables:

The Co-Leads of each thematic Technical Working Group, with inputs from all members of the group, will compile a Theme Report, of approximately 10,000 ~ 12,000 words, which provides **substantive recommendations with a plan of action for the Theme**, which, together with other Theme Reports, will contribute towards an *action-oriented global roadmap towards the achievement of SDG 7 by 2030 and net-zero emissions by 2050*. The report should be made succinctly and can be widely consumed by a non-technical audience. Each report must include the following components:

- **Goal (~1000 word):** Present the overall goal and targets for the Theme, setting clear ambition in support of the 2030 Agenda and the Paris Agreement.
- **Context (~1000 words):** Introductory section with a state of the sector assessment, providing background and current landscape of the thematic area.
- **Challenges (~2000 words):** Identification of critical barriers to progress by Theme. These may be categorised, e.g., as political, policy and regulatory, financial, market design, and/or behavioural, and levels of urgency can be attached to each barrier, with due consideration to the different circumstances of countries and regions.
- **Recommendations/Plan of Action (~ 5000/6000 words):** A proposed menu of solutions and policy options that respond to the challenges identified and presented in the form of a plan of action to achieve the goal of the Theme, taking into account unique and diverse challenges faced across counties/regions. To be action-oriented, concrete examples of transformational action should also be provided, including where possible implementation details and potential co-benefits.
- **Impacts (~1000/2000 words):** Assessment of catalytic potential impacts of the proposed recommendations on SDG7 in support of the SDGs and net-zero emissions by 2050.

Timeline:

The group will meet four times before the High-Level Dialogue:

First Meeting (22 Feb 2021): Introduction & Concept Note including objectives, deliverables, timeline.

Second Meeting (week of 12 April 2021): First draft, with a draft Matrix of Actions.

Third Meeting (Last week of April 2021): Cross-Technical Working Groups discussions to ensure synergies and coherence.

Fourth Meeting (week of 17 May 2021): Final report, with the final Matrix of Actions.

High-level Dialogue on Energy
Track 2: Energy Transitions
Concept Note for Thematic Report

Root Challenges:

Implementing the 2030 Agenda for Sustainable Development and the Paris Agreement is high on the global agenda. These inherently connected and mutually reinforcing processes are providing a framework for international co-operation, with the goal of a sustainable, prosperous world where no one is left behind. Energy runs through all facets of these global agreements, and it is a decisive element for their achievement.

Over the next decade, every part of the energy-related systems will be affected by changes in demand and supply, developments in policy and continuous technological advancements. The ongoing changes are transformational and already profoundly affecting the system that has evolved over the past century. Notably, previously unimagined possibilities are emerging for millions who lack access to energy.

But the past year profoundly challenged our relationship with energy. The COVID-19 pandemic highlighted the cost of tying economies to the fate of fuels prone to price shocks. The very real challenges facing healthcare systems with unreliable energy access were magnified. The difficulties people faced continuing work or schooling were amplified, with many households without remote access. The energy system – along with the rest of economy – has been shaken to the core.

How the world emerges from this crisis will determine our shared future. There is a window of opportunity to shape a new energy future. This future has to be resilient and inclusive, and transitions must be just. Renewable technologies, coupled with energy efficiency, provide an immediate, cost-effective solution in the quest for economic prosperity, social inclusion and a resilient future. As accelerating uptake brought economies of scale, the cost of wind and solar energy fell drastically, and countries continuously raised their ambitions. Renewable energy capacity has more than doubled between 2010 and 2019¹, reaching over 2.500 GW globally. This is nearly a third of the global installed capacity.

This progress has brought multiple benefits. The renewable energy sector accounted for 11.5 million jobs worldwide in 2019². This number can be multiplied as an ambitious energy transition strategy can bring at least three times more jobs than traditional sources. Every million dollars invested in renewables would create at least 25 jobs; while every million dollars invested in efficiency solutions or energy flexibility would create about ten jobs.

While considerable progress has been made, much remains to be done. The world is lagging behind its set agenda on development and climate. Investments are still reflecting the business-as-usual approach; and solutions for transport, heating and cooling are only beginning to emerge, and supporting infrastructure has yet to evolve. That energy transitions must take place is not in question. The question now is *how* to transition. It is incumbent on all to ensure the global community moves now and moves quickly. Delaying the transitions will only make this job harder later on and bring unnecessary hardship to those already struggling.

¹ IRENA, *Renewable Capacity Statistics 2020* (2020), available at: <https://www.irena.org/publications/2020/Mar/Renewable-Capacity-Statistics-2020>

² IRENA, *Renewable Energy and Jobs – Annual Review 2020* (2020), available at: <https://www.irena.org/publications/2020/Sep/Renewable-Energy-and-Jobs-Annual-Review-2020>

Crucially, for the transitions to truly have a positive impact, justice and fairness must be at the heart of planning and action. Specific actions must be taken across the board, such as **increasing efficient energy generation and use; decarbonising buildings, hard-to-abate sectors; and greening transport.**

It is critical for the world to commit to **using energy efficiently** to support economic productivity growth, lower bills and reduce emissions. Energy efficiency, together with renewables and demand reduction, could account for over 80% of the CO₂ emission reductions needed.³ It will be important for all end-use sectors, and consumers, to use energy as efficiently as possible, with coordination and support from all levels of government.

It is vital the world acts now to prevent locking in expensive high-carbon energy assets with long lifespans, such as **coal-fired power plants.** Globally, about 27% of primary energy needs are met by coal.⁴ Coal plants currently under construction or planned for construction would lead to emissions of approximately 150 GtCO₂ over an assumed 40-year lifetime.⁵ Much of this planned capacity is led by the Asia-Pacific region, which accounts for around 94% of coal plants under construction, planned or announced.⁶ At the same time, 500 GW of existing coal plants with the highest operating costs could be economically replaced with new utility-scale solar PV and onshore wind.⁷ It is imperative the world unites in helping to shift to a modern and resilient system while ensuring a just and orderly transition.

Limiting the rise in average global temperatures to 1.5°C presents significant technical and economic challenges, particularly in some **highly energy-intensive sectors such as buildings, industry and transport.** Four of the most energy-intensive industries and three key transport sectors stand out as the hardest to decarbonise. Those seven sectors could account for 38% of energy and process emissions and 43% of final energy use by 2050⁸ unless major policy changes are pursued now. Without measures in place, energy and process emissions could amount to 11.4 gigatonnes from industry and 8.6 gigatonnes from transport at mid-century.

Decarbonising transport must be a priority. The global passenger car fleet is projected to double by 2050, with an estimated 75% of growth taking place in developing markets.⁹ The transition to increasingly electrified forms of transport and heat, when combined with increased renewable power generation, can deliver around 75% of the energy-related CO₂ emissions reductions needed to limit warming well-below 2°C.¹⁰ The transition is already visible in some countries: Norway sold more electric cars in 2020 than fossil fuel-powered cars,¹¹ while China currently hosts 230 million electric bikes.¹² Cutting transport emissions will have huge benefits for

³ IRENA, *Global Renewables Outlook: Energy Transformation 2050* (2020), available at:

<https://www.irena.org/publications/2020/Apr/Global-Renewables-Outlook-2020>

⁴ BP, *Statistical Review of World Energy* (2019), available at: <https://www.bp.com/en/global/corporate/energy-economics/statistical-review-of-world-energy/coal.html.html#coal-consumption>

⁵ UNEP, *The Emissions Gap Report 2017: Synthesis report* (2017), available at:

<https://www.unep.org/resources/report/emissions-gap-report-2017-synthesis>

⁶ UNESCAP, *Coal Phase-out and Energy Transition Pathways for Asia and the Pacific* (2021), available at:

<https://www.unescap.org/kp/2021/coal-phase-out-and-energy-transition-pathways-asia-and-pacific#>

⁷ IRENA, *Renewable Energy Generation Costs in 2019* (2020), available at

<https://www.irena.org/publications/2020/Jun/Renewable-Power-Costs-in-2019>

⁸ IRENA, *Reaching Zero with Renewables* (2020), available at <https://www.irena.org/publications/2020/Sep/Reaching-Zero-with-Renewables>

⁹ UNEP, *Why does Electric Mobility matter*, available at: <https://www.unep.org/explore-topics/transport/what-we-do/electric-mobility/why-does-electric-mobility-matter>

¹⁰ IRENA, *Global Renewables Outlook: Energy Transformation 2050* (2020), available at:

<https://www.irena.org/publications/2020/Apr/Global-Renewables-Outlook-2020>

¹¹ Reuters, *Electric cars rise to record 54% market share in Norway in 2020* (2021), available at:

<https://www.reuters.com/article/us-autos-electric-norway-idUSKBN29A0ZT>

¹² UNEP, *Why does Electric Mobility matter*, available at: <https://www.unep.org/explore-topics/transport/what-we-do/electric-mobility/why-does-electric-mobility-matter>

our health and prosperity, improving the air we breathe and mitigating climate change. It is imperative that the international community also ensures the materials needed for this transition are sourced fairly and responsibly.

The UN Secretary General's High-level Dialogue on Energy will convene participants to set an ambitious and concrete action agenda to 2030 and beyond. The Technical Working Group on Energy Transitions will be instrumental in providing input to the Dialogue to ensure policymakers, and all relevant actors, have a menu of policy options and a plan of action to tackle the challenges and accelerate energy transitions.

The world stands at a critical juncture, with a choice between reverting to the status quo or trying to reimagine the future. The last time the General Assembly mandated a high-level meeting on energy was in the wake of the oil crisis in 1981. Energy is again high on the global agenda. This is not just about preventing carbon from entering the atmosphere, but about powering schools, businesses and health clinics with affordable, resilient energy that empowers individuals to lead the lives to which they aspire. It is about building back better.

Guiding Questions:

- Where are the main opportunities and challenges of energy transitions?
- What/who are the main levers for accelerating action and what conditions are needed?
- How can changes in patterns of energy demand minimise the challenges and possibilities of stranded assets?
- What advances are needed in technologies, policy improvements, finance innovations, and institutional strengthening for successful energy transitions?
- What measures and policies can encourage investment where it will have the most positive impact and promote a just transition?
- What tools and processes can help countries accelerate energy transitions and promote global solidarity to leave no one behind?
- How can we leverage existing activities and initiatives in the energy space to instigate a decisive shift toward decarbonised and resilient energy future?