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This brief was shared with participants of the Expert Group Meeting in Support of SDG7 review at the HLPF 2023, 11-12 May, as background information.

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Position Paper From Young Practitioners in Energy Technology and Contributing Practices Towards Implementation and Monitoring of SDG7 2023-2030

Presented to the Expert Group Meeting in Support of the Mid-Point Review of SDG 7 at the HLPF 2023: Ensuring Universal Energy Access and Advancing Just, Inclusive and Equitable Energy Transitions. May 11-12, 2023. United Nations Headquarters, New York.

This document is compiled by a group of young practitioners in energy technology and related practices and concerned youth advocates in support of the implementation and monitoring of SDG7. The background section of this paper presents a discussion of the challenges faced in achieving SDG7 by the year 2030 as observed by the youth. The recommendations section presents the proposals to improve the way forward for implementing SDG7 to meet the targets by 2030. The aim of this position paper is to inform UN-Energy and the stakeholders of the most pressing challenges identified by a group of young people who are actively engaged in the advancement of SDG7 and their recommendations.

1. Background

Universal access to energy should be a human right. It is of critical importance that we recognize how the use of energy is a socio-cultural phenomenon. An entire systems approach is required to unlock the relevant ecosystems that enable universal energy access - not only the effectiveness of technologies. Until the international community recognizes the interdisciplinary and cross-cutting nature of modern, reliable, and sustainable energy systems and services, it is not possible to achieve SDG7 or other SDGs, particularly when the policy framework overlooks the energy difficulties faced by vulnerable groups such as young women, refugees, indigenous people, and internally displaced individuals.

Global geopolitics in energy and power dynamics is slowing the transition to sustainable energy systems and services. We are adamant that world leaders actively support and promote the efforts of a collaborative, sustainable, and just development-and-deployment of these technologies in minority and under-developed communities, while simultaneously enacting strong-and-unwavering policies that decouple the use of fossil fuels for economic gain. Furthermore, there is a remarkable lack of sufficient funding for youth-led energy startups, especially in developing countries. Yet, young people are crucial in bringing innovative ideas and solutions that will lead us to a more sustainable future.

Energy generation and use account for over two-thirds of global greenhouse gas emissions. This means energy must be at the heart of any solution. The growing concerns over climate change are causing many stakeholders to commit to diversifying into renewable energy and other low-carbon energies, but the costs involved remain an impediment to the actual transition. In the process of transitioning into a more renewable energy economy, it is evident that energy storage and intermittent energy production will continue to be a significant hurdle to overcome. Adoption of effective energy storage is still at a considerably low level to support renewable energy integration across the world. Additionally, fossil fuels have been and continue to remain the dominant source of energy, accounting for 83% of global primary energy consumption. Thus, established businesses that rely on them pose a significant hurdle to transitioning to modern and clean energy sources.

Energy access provided under humanitarian conditions remains another challenge. The condition and availability of resources change from community to community, from country to country, and also based on the context of the internally displaced population. There are risks associated with the electricity supply and management methods (wiring, lack of safety measures, lack of understanding of weather impacts) used in the refugee camps and displaced locations posing a danger to everyone. Complex socio-cultural, economic and financial factors act as barriers to the adoption and sustained use of energy technologies for lighting, cooking, cooling, heating and mobility. Furthermore, slow progress and support in innovation and competing interests in innovation are challenges observed globally. In developing countries, and especially in countries with ongoing conflict (or protracted crises), rapid political, socio-economic, safety and security challenges, access to sustainable and eco-friendly energy is, for the majority population, not considered as a priority. Although, in many cases, a sustainable solution to energy access might be part of the socio-political solution to the conflict.

While developed countries have enjoyed improvements in living standards, developing countries continue to struggle to meet their energy demands. Moreover, there are significant disparities in energy access and use, waste management, and recycling between the Global North and South, especially amongst rural and indigenous communities. The recycling capability of the renewable energy generator units widely varies amongst its energy source and host nation's capacity, often limited by socio-economic status. As we move forward, it is imperative that we take meaningful action to address the interlinked energy and climate crises, promote energy efficiency, and accelerate the transition to a sustainable-and-circular, low-carbon economy. We echo the need to decouple the use of fossil fuels and other natural resources for economic gain, especially in the political sphere, which remains a momentous challenge to achieving SDG7 meaningfully.

A just transition is integral to ensuring our new energy economy is long-lasting and beneficial to future communities. Phasing out of fossil fuels and transformation of energy- and emissions-intensive industries, such as steel and cement production, will need to be accompanied by new jobs and economic opportunities to ensure just transition. Policymaking remains a challenge where decarbonization measures are not rolled out in equal partnership with local communities, their independent labor representatives, and the labor unions. Furthermore, with the projections and numbers around how the renewable energy sector will birth green jobs and new clean jobs, there is a lack of adequate capacity-building programs for youth to become skilled workers in achieving a green energy transition. With more than half of the world's population under the age of 30, it is imperative that young and future generations have the same access to the benefits of energy and decent work as the current adults of the world. Every job in the new, clean energy economy must meet standards for decent work alongside incentives to work in a renewable interface. Jobs in polluting sectors cannot be considered decent work, and systems should ensure the safety and re-employment of workers leaving those sectors.

2. Recommendations

This section is divided into two parts. (a) **Young Practitioners:** which provides recommendations that would facilitate the youth to support achieving SDG7, (b) **Technology:** which provides recommendations from young practitioners based on their technical expertise.

a. Young Practitioners

i. ***Establish*** programs to build the capacity of young practitioners with hands-on skill development, inclusive learning, peer education, mentoring, and study tours to empower them to engage in the design, deployment, monitoring, and evaluation stages of modern and clean energy systems.

ii. ***Teach*** the current and the next generation of workers about clean, sustainable, and resilient energy infrastructure and how to develop them. We recommend including these in the middle and high school curricula. The education systems should include topics like decarbonization, energy and climate justice, circular economy, and guidance to adopt within jobs towards energy transition.

iii. ***Expand*** the internship, research, fellowship, and short-term employment opportunities which are paid and protected positions within energy agencies, laboratories, academic institutions, and governing bodies with a special focus on entities that influence clean energy transition.

iv. ***Create*** guidance for training based on clean energy transition scenarios data such that the training can effectively transition into job opportunities for young practitioners in the same sub-sector of energy or similar.

v. ***Conduct*** surveys, research, and assessments on factors leading to young people not changing their career trajectory from fossil fuel-based employment to clean energy or climate technology sector employment.

vi. ***Expand*** safety measures and insurance programs for young practitioners who take up employment in clean energy technologies. Specifically, off-shore and on-shore wind, geothermal, ocean energy related employment.

vii. ***Recognize*** and support energy engineers in the humanitarian sector, especially those in developing countries and countries impacted by conflict or disaster situations. Support, both in capacity and resources, during implementation of work to improve mobility of energy solutions deployed in challenging environments.

viii. ***Provide*** consistent and reliable access to electricity to households with children and youth to support their education as education of children and youth is of utmost importance.

ix. ***Form*** and fund groups of young practitioners aimed at enhancing energy efficiency literacy and contributing to the attainment of SDG7. The groups can then be trained and in turn, carry out awareness campaigns. These groups should comprise young people from rural areas who might have more details of the situation in rural areas which are normally overlooked.

x. ***Recognize*** and support youth-led initiatives that integrate sustainable energy into the water-food-energy nexus and showcase innovative and frugal energy solutions to tackle the energy trilemma.

xi. ***Applaud*** efforts made to secure the first seat for youth at UN's Climate Technology Center and Network Advisory Board, Technical Advisory Group for SDG7 by UN-DESA and encourage more UN bodies and other multilateral entities related to energy to follow.

xii. ***Empower*** youth through revenue generation from carbon taxes as carbon taxation is a formidable instrument that can be used to dissipate absolute concentration on greenhouse gas emissions (GHG) imposed on the emitters and should be enshrined in the policy formulation which will amount to eschew linearity to imbibe circularity energy transition as a means of sustainability.

xiii. ***Recognize*** the rights of and empowering indigenous peoples and local communities, as agents of environmental conservation, are both paramount in conserving the lands that act as natural carbon sinks.

b. Technology

i. ***Increase*** the deployment of renewable and clean power producing technologies like solar, wind, geothermal, hydropower while promoting mixed use of land like agriculture, animal farming, research and development and other economic activities. These technologies increase access to electricity, prevent global warming, create local jobs, and make the overall energy infrastructure more sustainable.

ii. ***Expand*** and facilitate distributed energy production infrastructure to increase access of electricity to people living in remote and tribal areas where it is extremely difficult to establish transmission lines. Several projects with small-scale solar and wind in remote villages have been demonstrated over the years. These projects do not require huge capital and are easy to implement.

iii. ***Deploy*** more grid-scale energy storage systems like batteries, hydrogen, thermal storage, compressed air, pumped-hydro. When the renewable power production is low, these storage systems will supply cleaner energy to people. This will also reduce the dependence on fossil fuels for backup power generation.

iv. ***Establish*** policies and regulations towards greenwashing, especially around mines against violating climate and environmental best practices as the demand for minerals (aluminum, cobalt, iron, lead, lithium, manganese and nickel) is expected to rise in part due to their use in energy storage and electric vehicles technologies.

v. ***Prioritize*** research and development of new clean energy technologies like new photovoltaic materials that are cheaper to produce than silicon solar cells, new battery chemistries with cheap and earth-abundant materials, new thermal and other energy storage systems, sustainable low-carbon aviation fuels. The research and development programs should aim to make these technologies cheaper, more efficient, and safer. For lithium-ion batteries and hydrogen technologies, safety should be an important issue for deployment.

vi. ***Mainstream*** the SDG 7 related technical cooperation that foster innovative technology applications for underprivileged countries on the regional mechanism to accelerate enabling environment and capacity building for Least Developing Countries (LDCs), Small Island Developing States (SIDS), and Landlocked Countries (LLCs).

vii. ***Develop*** a "Global Compact on Energy Transition and Technology Transfer" as a multilateral guiding document that will help developed countries to perform capacity building and technical cooperation to developing countries on their renewable energy

technology transfer and development of innovation including the use of new emerging technology that is applicable to support energy transition.

viii. ***Encourage*** member states to scale up financial and capacity-building resources for technology development and transfer that truly delivers for local communities and vulnerable civil society stakeholders, including supporting countries to develop or update their national Technology Needs Assessments (TNA).

ix. ***Stop*** politicians and policymakers from being able to (personally) financially benefit from any energy service providers by decoupling politics and the achievement of SDGs.

x. ***Increase*** access to clean cooking fuels the application of ethanol-based stoves in institutions, industries, and households in situations electrification is not possible. Ethanol has a relatively very low carbon footprint. Extensive awareness campaigns on the benefits of ethanol-based stoves can ensure wide adoption of this technology.

xi. ***Promote*** conversion of waste to energy as human activity-based waste generation continues to increase and the communities are failing to manage the waste. Converting most of our waste to energy will be a great innovation to strengthen the energy mix.

xii. ***Establish*** flexible financial models such as pay-as-you-go systems and microfinance, which can help increase the adoption of renewable energy technologies like solar systems. Flexible access to financing by individuals for energy solutions will be very strategic for developing nations and many countries in sub-Saharan Africa to achieve SDG7. These models can help overcome the lack of access to traditional banking services and reduce the financial barriers to energy access. Mobilizing finances for philanthropic energy projects will help build energy infrastructure for marginalized communities.

xiii. ***Adopt*** low-carbon hydrogen (green or other) technologies to decarbonize hard-to-electrify sectors. Low-carbon hydrogen produced from electrolysis, methane pyrolysis, and steam-methane reformation with carbon capture can be used for petrochemical refining. It can also be used as the fuel in a fuel cell or combustion engines to power vehicles. It can be mixed with natural gas in power plants to produce power with much lower carbon emissions. It can also be stored inside empty salt caverns to store curtailed renewable power for months and used later to produce electricity to balance the intermittent renewable grid and be used to directly reduce iron ore in steel plants and reduce carbon emission in that sector. Along with carbon capture, hydrogen can be used to produce industrially valuable chemicals. All these strategies will help increase access to low-carbon electricity, chemicals, and reduce dependence on fossil fuels all over the world.

xiv. ***Electrify*** transportation to increase access to transportation for people in the developing nations. Charging infrastructure will have to be developed to achieve this. Small battery powered vehicles will help eliminate fuel cost and make transportation costs cheaper. This will help people in those nations that fight hard to import fossil fuels.

The young practitioners who contributed to this position paper call upon the stakeholders of the Expert Group Meeting in Support of the Mid-Point Review of SDG 7 to consider the challenges discussed in this paper and to support implementing the recommendations presented. This group of young practitioners earnestly look forward to further supporting the implementation of SDG7 towards 2030 and beyond.

Disclaimer

This document includes views and recommendations made by individual 29 young practitioners from 18 countries. The views and recommendations expressed in this document are their own, based on their expertise, and do not reflect or represent the views of their employer or a third party.

Procedure

An invitation to express interest was shared on several young practitioners' networks and ~50 expressions of interest were received. From the expressions of interest, 30 practitioners were invited to draft the initial inputs. Initial inputs were taken until 27th April 2023. Afterward, the document was moved to the moderation process. 17 moderators (with some of whom were included in the 30 input providers in the first phase) were invited in the moderation process. In total there were ~600 impressions of input for the document. The final input document was presented to the United Nations on 5th of May 2023.

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