CONCEPT NOTE

For the meeting of the

INTERDEPARTMENTAL TASK FORCE ON AFRICAN AFFAIRS (IDTFAA)

on the theme

“Energy Technology for Universal Access and Just Energy Transition for Africa”

scheduled on

Monday, 27 June 2022 (Director-Level)
09:00 – 10:30 am (EST) on Microsoft Teams

Friday, 1 July 2022 (Principal-Level)
09:00-10:30 am (EST) on Microsoft Teams

ENERGY INNOVATION AND TECHNOLOGIES FOR UNIVERSAL ACCESS AND JUST TRANSITION

I. BACKGROUND

The reserves and varieties of energy resources, both renewable and non-renewable, on the continent provide Africa with great opportunities to improve energy access, accelerate economic growth and industrialization, reduce poverty, and maximize earnings from energy commodities through value addition and diversification.

Renewables accounted for 29.5% of total electricity consumption worldwide in 2020[1], mainly driven by exponential growths in wind and solar energy capacity additions. The growth in renewables over the last decade is also linked to the falling costs of renewables worldwide.

The continent is not mobilizing enough investments at the domestic and international levels to accelerate the uptake of renewables. For example, over US$2.8 trillion was invested in renewables globally over the last 20 years with Africa getting only 2% of the investments, despite its huge renewable energy potentials and the need to provide access to over half of the population.

Although the installed generation capacity in Africa grew at an average 5.6% per year from 2009 – 2019, the low levels of access coupled with increasing population and energy demand suggests a significant increase in capacity is required to meet the target of universal energy access by 2030.

Non-renewable energy, especially fossil fuels play major roles in the energy systems and economies of African countries. About 77% of the electricity generated on the continent is from fossil fuels, while the transport and industrial sectors rely almost entirely on these fuels. Fossil fuels including coal, oil, and natural gas, account for about 50 – 80% of government revenues for major producing countries on the continent[2]. Despite having significant reserves of fossil fuels, more than 40 African countries are net oil importers indicating the high dependence of African economies on fossil fuels, mainly petroleum products, thereby being highly exposed to volatile world oil prices, jeopardizing their balance of payments positions.

African countries universal access, and just energy transition will involve the accelerated deployment of energy efficiency and renewable energy technologies.

Looking into innovation and energy technologies are key drivers that African Member States ought to consider charting the way forward in their quest to delivering the solution to power Africa, provide universal access to energy with just energy transition, anchored on the African common position on energy access and energy transition.

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[1] International Energy Agency (IEA), 2021. World Energy Outlook 2021. Available at: https://www.iea.org/topics/world-energy-outlook

[2] International Energy Agency (IEA), 2021. World Energy Outlook 2021. Available at: https://www.iea.org/topics/world-energy-outlook

II. RATIONALE OF AFRICA'S POSITION ON RENEWABLE AND NON-RENEWABLE ENERGY

The currently low levels of access to modern energy services on the continent means that Africa will have to utilize all forms of its abundant energy resources including renewable and non-renewable energy to meet its energy needs. As the continent with the lowest energy consumption and the growing energy demand, the way forward for Africa is not about making a choice between energy resources and systems, but how the continent could strike a balance in meeting its energy demand in the short-, medium-, and long-term, using a combination of both renewables and non-renewables. In the short- to medium-term, fossil fuels, especially natural gas will have to play a crucial role in expanding modern energy generation, access, and energy efficiency, in addition to accelerating the uptake of renewables.

The long-term ambition for Africa as stipulated in the AU Agenda 2063 is to unleash Africa's hidro-electricty potential. This means the energy sector will have to follow a low carbon and climate-resilient trajectory in the long-term, which will provide opportunities for meeting development challenges while also adapting to and mitigating the impacts of climate change at the same time. In the short- to medium-term, Africa will continue to deploy both renewable and no-renewable energy systems to meets its current and increasing energy demand on the continent. In the long-term, Africa will ensure a smooth transition towards developing an energy system based on renewable and clean sources of energy.

While the long-term goal of Africa is to invest on clean energy sources, the current realities, and the specific needs of the continent in the energy sector call for a strong and well-structured energy planning so that each African country gains energy policy space to determine its own energy mix in the short, medium and long terms[3]. Therefore, it is essential to design the energy mix for African Member States considering energy innovation and technologies, energy system options, energy investment planning, and environment policies within the context of accelerating energy access and just energy transition in Africa.

To achieve this ambitious goal for universal access and just energy transition in Africa, the IDTFAA, together with the African Energy Commission (AFREC), IRENA, the IAEA and UNIDO are undertaking an effort to develop a mapping of energy technologies and deployment roadmaps, through various case studies. The roadmaps will enable African governments, industry, and financial partners to identify and define needed steps, to implement measures to accelerate the innovation and technology uptake.

The underlying rationale of this mapping exercise and African energy deployment case studies is to advance the uptake of low-carbon technologies in industrial applications in African countries while ensuring a just energy transition in Africa.

[3] African common position on energy access and transition (Afrec)

III. OBJECTIVE

There are four objectives. They are anchored on goal 7 Agenda 2063: building African environmentally sustainable and climate resilient economies and communities, through just energy transition.

1. Provide stakeholders with a strategy to harness the potential of energy innovation and technologies to accelerate energy security, access, and just energy transition through deployment of energy efficiency and renewable energy technologies.
2. Support policy makers evaluate the benefits of deploying clean energy technologies and design appropriate market structure and mechanisms that would results in attractive return on investment and spur financing into African energy market.
3. Strengthen the capacities of African countries stakeholders regarding energy innovation and technologies deployment roadmaps for renewables and non-renewables, by sharing knowledge on African best practices, and raising awareness of key issues and proposing effective and solutions proven in practice.
4. Strengthen national energy policy making to ensure sustainable, adequate, affordable, competitive, and reliable supply of energy at the minimum cost, which is aimed at meeting national needs, and at the same time protecting and conserving environment and climate.

This roadmap starts by discussing the status of the technologies covered. The baseline must be just energy transition. It continues with a review of current and future energy innovation and technologies options, and then outlines a vision for deployment in four sectors:

i. Healthcare
ii. Agriculture
iii. Industry
iv. Digitalization and connectivity

The technological assessments, and the actions and milestones will be based on selected African countries case studies (Cameroon, Egypt, Kenya, Morocco, Senegal, South Africa), and selected sectoral assessments conducted by UNIDO, IAEA, IRENA; and an extensive expert review).

IV. OUTCOME

The expected outcomes are driven by the African common position on energy access and transition[4]. They also echo the call to action by the UN Secretary-General to prioritize the transformation of our energy systems and speed up the shift to renewable energy, being cognizant of Africa imperatives of its just energy transition.

1. In providing the solution to these challenges, African Member States should consider various non-renewable energy and renewable energy

[4] MINISTERS IN CHARGE OF TRANSPORT AND ENERGY - DECLARATION OF THE SECOND EXTRAORDINARY SESSION OF THE SPECIALIZED TECHNICAL COMMITTEE ON TRANSPORT, TRANSCONTINENTAL AND INTERREGIONAL INFRASTRUCTURE, AND ENERGY (STC TTIIE) - 14 - 16 June 2022

generation technologies to offer predictable, stable, and competitive energy cost, affordable for industries and households[5].

2. Provide input to the African Group of Negotiators (AGN) for onward transmission to the African Ministerial Conference on the Environment (AMCEN) and the Committee of African Heads of State and Government on Climate Change (CAHOSCC) for endorsement and presentation to the COP27.

3. Support the development of national energy transition masterplans and resource mobilisation strategies for Member States and RECs, and strategies to accelerate implementation.

4. Develop knowledge services for the development and implementation of a continental framework and programme on innovation and technology transfer that will enable Member States to access, manufacture, adopt, and adapt energy access and transition technologies to their local and national needs.

5. Support African Member States to accelerate efforts towards facilitating energy access and transition through the allocation and mobilisation of domestic financing, creation of conducive environment for private sector participation and increased commitment to regional integration of energy markets.

V. QUESTIONS TO GUIDE THE DISCUSSION

There is significant amount of energy resources on the continent, which are unevenly distributed across regions and countries. Many African countries also have small energy markets, which present barriers to potential investments.

1. What strategies could be actioned for improved access and energy transition to help create regional and continental energy markets that will attract investments to accelerate Africa's economic transformation?

2. What specific technologies could be integrated into wider African energy mix in the short-, medium- and long-term?

While global cooperation and coordination is critical, as reminded by the UN Secretary-General, domestic policy frameworks must urgently be reformed to streamline and fast-track energy projects, including renewables, and catalyze private sector investments.

3. What could be example of policies and processes to reduce market risk and incentivize investments in energy technologies, and to support modern energy transmission systems which are key to accelerating the uptake of wind, solar, geothermal, hydro, within the context of just energy transition?

[5] Levelized Cost of Energy - an overview | ScienceDirect Topics