

IRENA 14th Assembly Side Event

Integration of CMP as an enabler to support project preparation and mobilizing financing for renewable energy projects

12:30 – 14:00, Tuesday, April 16, 2024

Event Proceedings

Contents

Event summary	2
Introduction from the moderator	2
Opening Remarks	2
Keynote Address	4
Scene Setting	3
Panel Discussion	4
Interventions from CMP partners.....	6
Interventions from the Audience	6
Closing Remarks	9



Event summary

Approximately 90 IRENA member state delegates and partners attended a side event hosted during IRENA's 14th General Assembly on April 16th, 2024. This event showcased the high-level outcomes of the Continental Power Systems Masterplan (CMP) and invited country decision-makers, key African institutions, and international partners to review this progress. The event stressed the importance of institutional capacity building and ownership of energy planning processes across Africa. The CMP, an initiative of AUDA-NEPAD, was highly commended by country delegates, who emphasized the need for continuous efforts to align national and regional planning processes with the continental planning process. The event encouraged more collaboration with partner organizations during CMP Phase 3 activities.

Discussions highlighted the need to align and benchmark energy planning processes and tools with the CMP at national and regional levels. Panel discussions and audience interventions emphasized the ongoing need for institutional capacity building on long-term energy planning, with IRENA's support being crucial to achieving CMP and Africa Single Electricity Market (AfSEM) objectives. Participants noted that the CMP enabled Power Pools to identify and standardize planning tools across various entities without significant financial burdens, and harmonization of planning processes was deemed essential for leveraging interconnections and mitigating regional geopolitical issues. Financing emerged as a key factor for advancing CMP's next steps, with international collaboration seen as vital for de-risking and enhancing project bankability.

Introduction from the moderator



Daniel Schroth, Director for Renewable Energy and Energy Efficiency, African Development Bank (AfDB – exiting topic on CMP, he highlighted the rallying call nowadays that there is no energy transition without transmission for Africa. Expanding on this theme, there is indeed a strong consensus on the critical role of transmission in Africa's energy transition. There is a clear recognition that integrating Africa's power systems through improved transmission infrastructure is crucial for unlocking the continent's renewable energy potential and

achieving a sustainable energy transition.

Opening Remarks



Gauri Singh (International Renewable Energy Agency)- Noted IRENA's commitment to promoting renewable energy in Africa. The DDG highlighted IRENA's collaboration with the African Union and AUDA-NEPAD over the past two years to enhance local capacities for long-term energy planning, with support from the International Atomic Energy Agency. The completion of Phases I and II of the CMP was noted as having laid a solid foundation for aligning energy planning processes across Africa, driving accelerated investment in infrastructure, and harnessing renewable energy sources. The DDG underscored the need to significantly increase investment in power

generation, aiming to expand capacity from 270 GW to 1,200 GW by 2040, with a substantial increase in renewable energy capacity from 60 GW to nearly 750 GW. The DG called for active engagement in discussions and workshops, emphasizing the importance of institutional capacity-building programs, harmonization of national tools with the CMP framework, and developing bankable and financeable renewable energy projects. The DDG urged all stakeholders to bolster coordination, governance, and investment in the African power sector to ensure the realization of shared objectives, achieving universal access to electricity and fostering sustainable development across the continent.



Amani Abou Zheid (African Union Commissioner-Energy and Infrastructure)- IRENA was praised for its outstanding technical contributions to the CMP and COP, which have been instrumental in advancing Africa's energy agenda. Access to energy and clean cooking was emphasized as crucial for Africa's socio-economic progress, highlighting the need for sustainable energy solutions. Africa's abundant natural resources were noted as remaining largely untapped, presenting a significant opportunity for development. The CMP was presented as a chance to integrate identified resources into the Africa Single

Electricity Market (AfSEM), promoting a unified and sustainable energy market across the continent. Substantial investment was outlined as necessary to establish AfSEM, with the CMP's work aiding in regulatory harmonization to facilitate this process. The support of notable projects by the African Development Bank (AfDB), the Programme for Infrastructure Development in Africa (PIDA), and the Africa Green Initiative was acknowledged as critical to the success of the CMP and AfSEM. Moving forward, collective efforts were deemed imperative for the successful implementation of the CMP and AfSEM, with an urgent push for universal energy access and large-scale investment being essential to achieving these goals.

Scene Setting



Asami Miketa (International Renewable Energy Agency): Reiterated that the *Scenarios for the energy transition: Experience and good practices in Africa* report is a summary of webinar series where 9 African countries and 3 technical partners who shared good practice and examples of energy planning. The experiences are structured in 3 pillars: (i) how long-term scenarios are developed; (ii) how scenarios are used for energy planning; and (iii) strengthening institutional capacity for

planning. The Africa unions' vision of a single electricity market builds on the Program for Infrastructure Development in Africa (PIDA).

It was noted that Africa has a lot of renewable energy potential which can be leveraged to bring affordable energy to all and contribute to economic prosperity. Continental level planning is vital as it ensures cross border trade which will minimise energy costs while contributing to regional integration. The Continental plan serves as a blue-print for Africa Single Electricity Market (AfSEM), by bringing together institutions to develop scenario-based master plans and ensure power pools jointly develop long-term scenarios. The robust CMP governance structure seeks to ensure that planning is centred around experts from African institutions rather than external consultant firms.

The System Planning Test (SPLAT) CMP model will be developed based on the SPLAT Africa model using the IAEA Model for Energy Supply System Alternatives and their General Environmental

Impacts (MESSAGE) model. To ensure proper coordination several training courses and weekly check in calls are conducted.

IRENA supports national and regional level planning and planning under 3 pillars, first institutional support, secondly the dissemination of tools and data and finally the peer-to-peer learning component.

IRENA is running a 2-year program in Cameroon to build institutional capacity on the use of the SPLAT model and development of a master plan supported by the Government of Denmark. Additionally, IRENA is currently supporting the development of the Central Africa Power Pool (CAPP) master plan together with 7 counties (power pool members) with funding by the Government of Walloon.

Panel Discussion

**Perspectives shared by the speakers concerning specifically to CMP are in bold texts to stand prominent*



Stephen Dihwa (Southern African Power Pool (SAPP)) - Noted that Africa should be electrically connected and reiterated that the Southern Africa Power Pool (SAPP) supports the formation of the Continental plan. Given that it is vital to fill the energy gap there should be efforts to develop grid connectivity and off-grid plans at the national level. It is also important to evaluate how regional connectivity accounts for the diversity of resources and countries must optimize their resources by strengthening interconnectivity. **The continental power plan should optimise regional power pool plans** and help countries achieve their climate commitments by ensuring sufficient clean energy to balance their electricity imports.



Oscar Kojo Amonoo-Neizer (Energy Commission Ghana)- Noted that reliable energy supply is necessary for economic growth and expansion. Africa's energy requirements have increased over the last decade and will continue increasing to ensure the uplifting of living standards. Africa has diverse resources including oil, gas, hydropower, solar and wind and the continental planning will ensure the leveraging of these resources. It was noted that the African Union Vision 2063 identified energy as a defining infrastructure pillar that will connect Africa.

The potential benefits of the CMP to Africa include: (i) Lower cost of energy given the shared energy resources and a larger market; (ii) Energy security as cross-border energy market options promote diversification; (iii) The establishment of a transparent and harmonised continent-wide tariff-setting regime; (iv) Enhanced energy planning, coordination and implementation; (v) Better management of environmental challenges; (vi) Development of frameworks to ensure effective participation in developing energy systems; (vii) Enhanced investment given the larger integration capacity a single market brings. The implementation of the CMP will result in a sustainable power supply system and the creation of new jobs.



Abel Didier Tella (Association of Power Utilities of Africa (APUA))- Stated that the Africa Single Electricity Market (AfSEM) project was launched in June 2021. The project was included into the 2009 Action Plan of the Forum of African Power Pools, where African power pools started discussions on integrating regional electricity markets into a single market. After 10 years there was work on harmonising the grid code and market while integrating the network. To

illustrate the importance of a single market and **the potential of intercontinental electricity trading**, it was noted that in 2018, 25 percent of energy consumption in Spain was from solar energy imported from Morocco.

He finished by emphasizing that the AfSEM will enhance the penetration of clean energy into the African grid as it will allow countries that rely predominantly on fossil fuel for energy generation to import renewable energy thereby reducing their carbon footprint.



Rashid Abdallah (African Energy Commission (AFREC))- Noted that the Africa Single Electricity Market (AfSEM) and the CMP are **important in attaining the African Union Agenda 2063**.

Electricity represents 20 percent of global energy supply and is projected to increase to 50 percent of global energy supply by 2050 due to the advance in technology and projected population growth. To meet the growing electricity demand it is important to harness all available resources in Africa including geothermal in East Africa, hydro power, wind, and solar energy. Regional and continental planning will ensure proper sharing of resources.

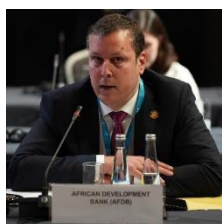
It is vital to develop proper policy and legislation to enable cross-border trading and regulate renewable investment. Additionally, national planning should be based on the outcome of the CMP. While the CMP shall act as an umbrella plan, states must transform their energy sectors through proper planning, build partnerships and leverage on capacity building programs.



Stefano Signore (European Commission)- Noted **that an interconnected grid will ensure a solid and reliable energy system in Africa which ensures the resilience of the energy system**. The work on the CMP is vital as it demonstrates that renewable energy solutions can be deployed at a higher scale. The CMP serves as a positive signal to investors as it demonstrates the technical and economic feasibility of large-scale renewable energy projects. It was reiterated that the country ownership is vital and it is important to ensure adequate capacity

building. Further, the need for accurate and timely data must be met and the constraints posed by data confidentiality should be resolved.

Interventions from CMP partners



Daniel Schroth (African Development Bank (AfDB))- Noted that physical **integration of continental power systems will enable efficient resource utilisation as this will integrate variable renewable energy to the grid and reduce country investment requirements**, thereby, creating a cost-effective supply system. The CMP will increase electricity trade between Africa and Europe, Asia and the Middle East. It was noted that the AfDB plays a key role in Program for Infrastructure Development in Africa (PIDA) and supports the CMP by leading resource mobilisation efforts and through technical assistance. Through AUDA- NEPAD, the AfDB supports energy planning and modelling; the integration of regional energy plans into the continental plan; and the creation of the Central African Power Pool master plan. While the CMP is important, stakeholders should work to finance critical projects such as those identified by the African Working group in line with the Global Grid Initiative. IEA has noted that by 2030, Africa shall need 10 billion US Dollars per annum in investment to ensure a sustainable power system, therefore it is **vital to commence resource mobilisation efforts** as soon as possible.



Mario Tot (International Atomic Energy Agency (IAEA))- Noted that they support the CMP process and are glad that African institutions have taken the lead in the process, while being supported by IRENA and the IAEA at the back end as modelling partners. It was noted that the **energy planning capacity building program of the modelling partners is accessible to all member states and will allow for the training of national teams** on the use of the modelling platform, common with CMP. In conclusion, it was noted that when providing country support, the IAEA first offers support on energy planning before supporting the development of nuclear energy programs.



Thyrsos Hadjicostas (European Union Global Technical Assistance Facility (EU GETAF))- Noted that the European Union is contributing to capacity-building initiatives; has seconded an expert to the African Union; four experts to the AUDA-NEPAD; and five additional experts have been seconded through the AfDB to the regional power pools. It was noted that the outcomes of the CMP include the operationalization and consensus building for the selected PIDA projects. Additionally, as part of the CMP support through AUDA-NEPAD, the 'Mwanga' (means 'light' in Swahili) energy information platform was launched which will ensure the **proper collection and dissemination of all data necessary for energy planning** by the African power pools. It was highlighted that the CMP will ultimately **result in lower carbon dioxide emissions per capita by 2040**, thanks to the integration of more renewable energy in a continentally interconnected grid.

Interventions from the Audience

**Perspectives shared by the speakers concerning specifically to CMP are in bold texts to stand prominent*



Kenya- It was noted that the outcomes of the CMP include enhanced energy security and the harmonisation of policy and energy legislation in the continent. A key contribution of the CMP is the leveraging of diverse resources, and diverse experience and technical capacity, thereby creating economies of scale. Through national and regional energy planning, **countries will identify existing gaps and put in place the relevant response**

actions. It was noted that Kenya conducts least cost power development planning nationally and is planning to integrate its different energy sources in its energy planning system.



Germany- Noted that the success of decarbonisation initiatives is based on sustainable development and that the CMP will be a key enabler given Africa's vast renewable resource base. While there are multiple barriers; key advantages exist in sub-Saharan Africa - including the low level of incumbent fossil fuel architecture, the availability of renewable energy and an interconnected grid as envisioned through the CMP. The following are essential to the success of the African energy transition: (i) Access to energy; (ii) Risk reduction and investment promotion; (iii) An extended and modernised grid; (iv) Support for systemic innovation. Proper energy planning is vital in achieving the objectives of the Paris Agreement and a net zero future.



Portugal- Noted that Africa has a lot of renewable energy potential and there must be adequate development of energy transmission and distribution infrastructure and proper continental integration to address the current energy access issues. In support of the CMP process, it was noted that Portugal has signed a 400 million euro agreement with AfDB to support work in Angola, Mozambique, Cape Verde, Equatorial Guinea, Guinea Bissau and Sao Tome & Principe.



Mali- It was noted that the **CMP coincides with Mali's 2020 to 2040 Energy Master Plan** which aims to define investment in the short, medium and long term while envisioning an interconnected grid which draws on key thermal centres nationally. The Energy Plan will ensure adequate investment to meet national energy needs while emphasizing the importance of an interconnected grid and the management of renewable energy resources to ensure access to low-cost energy nationally.



Eswatini- It was noted that Eswatini is keen to collaborate and share experiences on the long-term energy planning process. In 2018, there was a capacity-building program organized by IRENA and IAEA, which included data analysis, training courses and the importation of skills to Eswatini's planning team which is composed of multi-sectoral experts. Subsequently, this program contributed to the formulation of Eswatini's energy master plan, which outlines sector-specific development pathways until 2034. This plan informs the country's short-term generation plan, which has resulted in the development of a 10 Mega Watt solar photovoltaic power plant. The country is grateful for the support from IRENA and the IAEA and looks forward to the finalisation of the African Continental Power Systems Master Plan, which is **necessary for the continental growth**.



Mauritania- Noted that the **CMP is vital for Africa's energy transition** and in addition to the consolidation of national programs, it should leverage on the continent's resources and promote interconnectivity. Given that Mauritania has a long coastline and has access to major wind and solar resources, there should be ample investment in energy storage solutions and stability of the national grids. Given its position, Mauritania is an intermediary between north and sub-Saharan Africa and will be a key route for energy trade between Africa and Europe. It was suggested that the **CMP should consider the development of green hydrogen** and its use in the green steel industry to ensure that Africa leverages on its competitive advantages to push forward the energy transition.



India- Highlighted that **Africa's power sector is currently at the same stage that India's sector was a decade ago, as such there are important lessons that can be shared** as stated: (i) Interconnection is vital - initially India had 5 grids with little interconnection but managed to build the largest synchronised grids which has been instrumental in the country's growth; (ii) Designing the transparent and non-discriminatory competitive markets is crucial in attracting investment. Currently, 100 giga watts of India's electricity is almost fully funded through foreign investment which allows the government to focus on other priorities aside from the energy sector.



African Renewable Energy Initiative (AREI)- The importance of cooperation and coordination amongst stakeholders was emphasised. AREI seeks to achieve the generation of 300 Giga Watts of energy by 2030 and support the achievement of SDG 7 on the continent. **The expansion of the regional and intercontinental grid will ensure the achievement of AREI's targets** and promote the availability and affordability of electricity in Africa. The importance of proper regulation to attract the private sector was

reemphasised. Finally, based on Egypt's experience in interconnection between Jordan, Libya and Sudan; the country is willing to share their experience in the achievement of the CMP continental integration targets.



Denmark- Noted that they are glad to support the CMP process. Given that the power pools in Northern Europe have enabled countries to upscale renewable energy in their energy mixes, three key lessons can be shared with Africa. First, it is important to focus on the first mile and not the last mile, when building renewable energy systems. The focus on the first mile

is vital because in the initial stages, the issues of intermittency and storage will not pose a major challenge to the energy system. Secondly, it is important to consider the cost of capital and engage the private sector. Finally, to achieve the CMP's vision, it is necessary to build power systems, enhance technical capacity and create an enabling environment that allows for the de-risking of capital and crowding in of private investment.



Ghana- Noted that the CMP is vital as it will help in unlocking investment, accelerate the path to universal electrification and contribute to addressing key social and economic issues. It was noted that Ghana plans to increase the contribution of renewable energy and diversify its energy mix to ensure continued access and security of supply. It was noted that when developing the continental plan, the modelling must be technology neutral and account for any challenges that renewable energy poses to ensure a sustainable plan. Countries should draw lessons from Europe's master plan.

Panelists Final Interventions

Stefano Signore - Given the time pressure on delivering on the investment agenda related to the green energy transition, CMP interim results can already start informing investment efforts. Countries must plan for long term projects while concurrently addressing short term challenges.

Oscar Kojo Amonoo-Neizer – The CMP shall allow for the identification of energy resources on the continent and, with proper planning will result in increased investment and sustainable economic development.

Stephen Dihwa - It is necessary to ensure proper technical expertise to develop and revise the CMP. This approach will ensure sustainability as it will attract foreign investment.

Abel Didier Tella - The CMP is necessary for the achievement of PIDA. It is vital to ensure proper capacity building and adequate resourcing.

Rashid Abdallah - It was noted that (i) the quality of energy data must be improved; (ii) countries must concentrate on energy planning at the national level; (iii) finance is vital; and (iv) countries must start work immediately and focus on the first mile rather than the last mile.

Closing Remarks



Roland Roesch (International Renewable Energy Agency)- Thanked the panelists and audience for their contribution. It was noted that IRENA looks forward to the conclusion of the CMP milestone. The insights generated during the event serve as crucial guidance in enhancing IRENA's future programs on energy planning. All stakeholders were invited to coordinate their efforts in strengthening the national, regional and continental energy planning mechanisms.

