

# REGIONAL ENERGY INTEGRATION IN AFRICA

## WORLD BANK ENGAGEMENT


ESMAP / AfDB WORKSHOP, MAY 10, 2023





# REGIONAL MARKETS IS IMPORTANT AREA OF WBG AND ESMAP SUPPORT


- Regional energy integration (REI) initiatives are on the rise
- Energy Transition entails unprecedented expansion and transformation of power sector infrastructure.
- REI is an effective solution to achieve the goal of ensuring universal access to affordable, reliable, sustainable, and modern energy by 2030 and the goals of the 2015 Paris Agreement on Climate Change


WB Climate Change Action Plan 2021-2025: “...The WBG's priorities in the sector include... regional power cooperation and trade.”

 Utilizing untapped potential and decarbonizing power system

 Enhancing power supply security

 Scaling up private sector and stimulating investment and jobs

 Lowering utilities' operating costs and increasing revenues from power export and large users

 Reducing the need for direct support from governments

SIEPAC

MERCOSUR

EU IEM

CAREM

China

BBINS  
\$9b p/a  
2015-2040

ASEAN  
\$14b  
2010-2030

WAPP  
\$5-8b p/a  
2020 - 2040

EAPP  
\$17b  
2020-2030

SAPP  
\$29b  
2017-2040

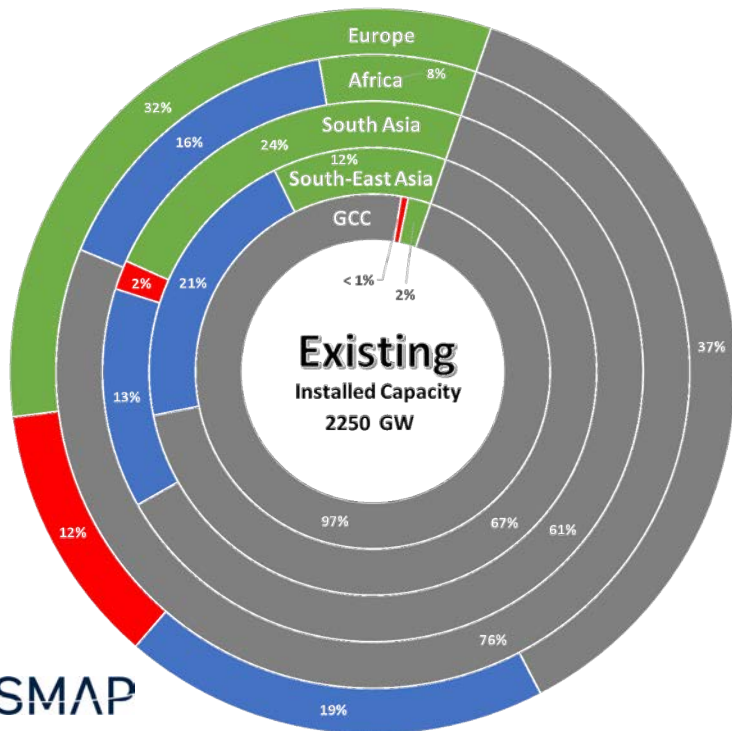
GCCIA

COP26 Green Grid Initiative – One Sun One World One Grid (GGI-OSOWOG):  
“...Interconnected green grids can be transformational, enabling meeting the Paris Agreement targets to prevent dangerous climate change, accelerate clean energy transition, and achieve the SDGs...”

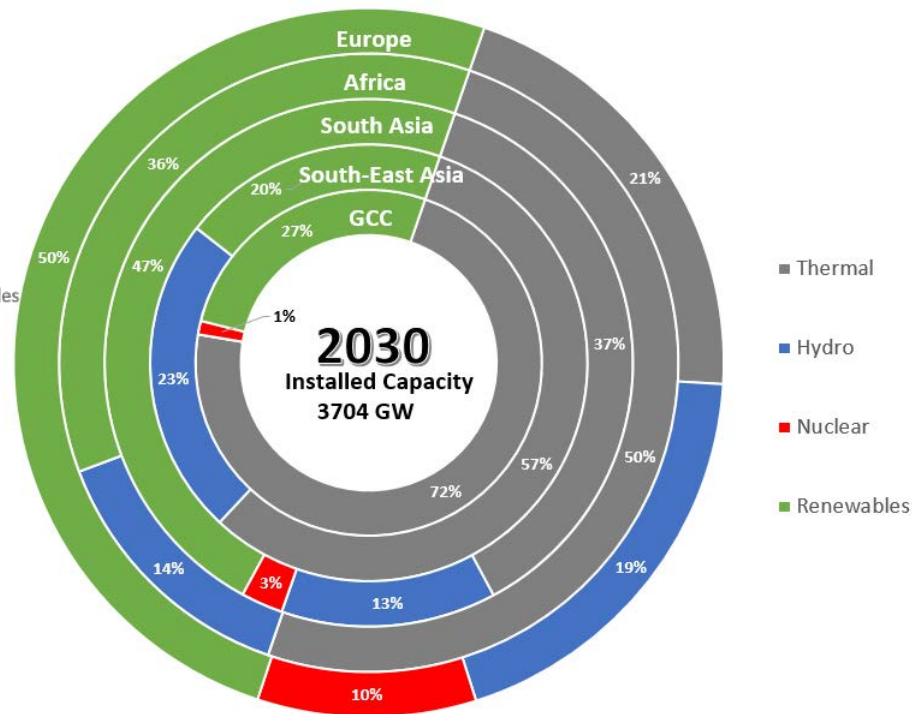
# REGIONAL CONNECTIVITY IS A KEY FOR ENERGY TRANSITION

Regional connectivity will be paramount to boost renewables integration and to ensure security/flexibility of operations in order to achieve the targeted levels of renewable energy share in future generation mix

## Existing Installed Capacity



## Installed Capacity by 2030



# REGIONAL ENERGY INTEGRATION IS AN INTEGRAL ELEMENT OF ESMAP FOUNDATIONS FOR ENERGY TRANSITION PROGRAM

**Policy, Planning, Regulations**

**Policy, Planning and Regulations (PPR):** Create the environment for investment in the sector, promote the least cost, high quality and inclusive service delivery, and facilitate the transition to a new decarbonized, decentralized and digitalized energy sector

**Markets**

**Energy Markets, Connectivity, & Regional Trade (MARCOT):** Regional integration and electricity trade allow the exploitation of economies of scale and comparative advantage to lower the supply cost, facilitate the transition to greener sources, and maintain competitive pressure on utilities

**Pricing**

**Energy Subsidy Reform Facility (ESRF):** Getting price signals right is key for sector to recover efficient costs, attract investment, limit its fiscal burden, and ensure utilities can provide quality service  
Energy subsidies are deliberate policy actions that reduce the net cost of energy purchased, produced or delivered; or increase revenues for producers/suppliers \*

**Utilities**

**Utilities for the Energy Transition (U4ET):** Well-performing utilities can take advantage of new technology opportunities to improve performance and prepare the grid for the clean energy transition; enabling regulation is needed to create incentives for high-quality service delivery including to under-served communities

**Gender**

**Closing Gender Gaps in Energy:** Energy policies are not gender-neutral. Addressing gender gaps in energy will increase efficiency and productivity and decreases costs by providing access to markets to 100% of the population, tackling climate change issues and increasing human rights access

Ensure access to *affordable, reliable, sustainable and modern* energy for all

7 AFFORDABLE AND CLEAN ENERGY



# STATE OF POWER POOLS IN AFRICA AND KEY BUILDING BLOCKS OF HARD AND SOFT INFRASTRUCTURE



CAPP



EAPP



WAPP



SAPP

Stage 1

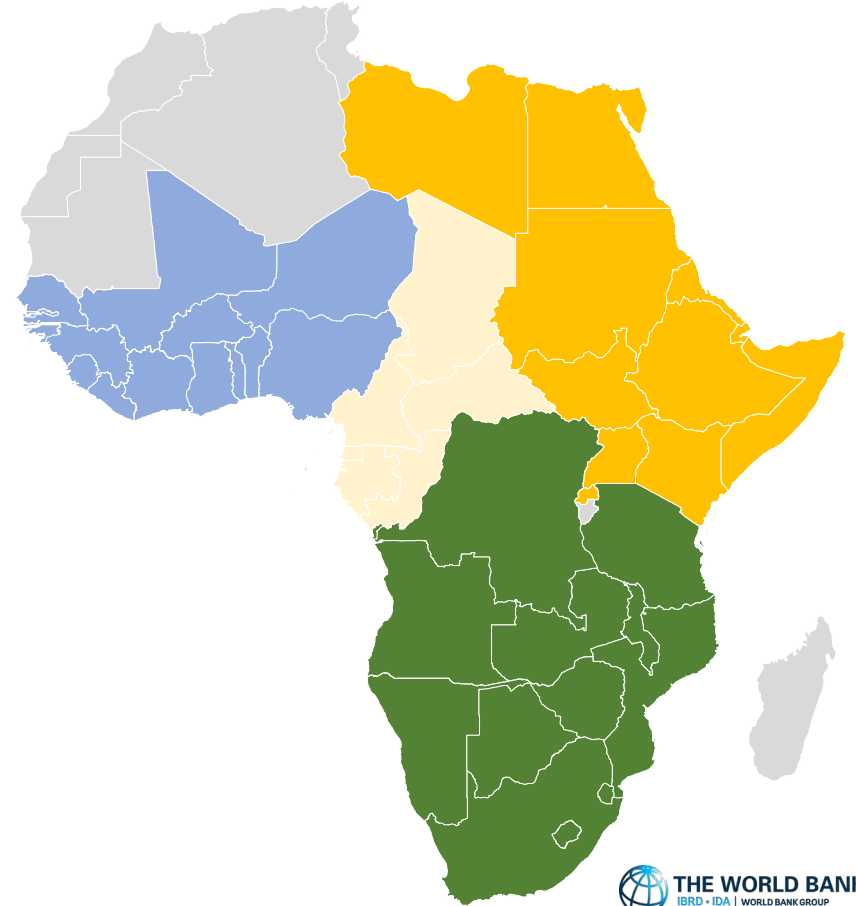
Stage 2

Stage 3

		CAPP	EAPP	WAPP	SAPP
Hard Infra	Regional Interconnection and Generation Infrastructure	No regional system, only a few segments of transmission line between CAPP members.	4 separate system islands (including 10 of 11 countries). Mostly through 'weak' interconnections. In the next 2 years, 8 countries expected to have <u>high capacity</u> interconnections.	3 separate system islands (including 14 countries).	One synchronized grid, with 9 out of 12 countries interconnected
	Planning and Investment Coordination	National planning and investment	Master Plan, mostly for transmission. Update in progress	Regional master plan for Transmission and Generations	Regional master plan (Pool Plan). Regional planning of priority projects
Soft Infra	Cross-border Trading Arrangements	Few bilateral PPAs	Some bilateral PPAs	Bilateral PPAs between the Regional Institution and countries	Bilateral market and Forwards physical markets. Day ahead, Intra-day markets exist
	Technical and/or Regulatory Harmonization	Absence of harmonization of regulatory arrangements	Interconnection Code approved. Implementation still pending.	Harmonization completed in paper. Ongoing enforcement	Operational rules harmonized/synchronized, grid codes are guidelines
	Regional Institutional Architecture	Regional institutional framework at nascent stage. Secretariat remains main executive institution and lacks staffs and resources.	Regional institutional framework exists, but some institutions still to be operationalized, regional institutions with overlapping mandate	Regional institutional framework is developed and to be implemented in 3 phases. Phase 1 operationalization started in 2018	Regional institutional framework highly developed, but some institutions still need to be fully operationalized.

# REGIONAL ENERGY INTEGRATION CHALLENGES IN AFRICA

- The amount of trade is picking up but remains low.
- Increasing political instability – both within and outside of Africa – is threatening to roll back the results of past progress and is hampering the implementation of major regional integration activities in many of the regional power pools (e.g., COVID19, coup d'états, Russian invasion in Ukraine, fuel price and food crisis)
- Limited institutional capacity and unclear institutional architecture – coupled with political instability – leads to inadequate political commitment
- Fragile financial standing of national utilities (especially given the pandemic-related shocks), resulting in their inability to honor trade contracts, is one of the main sources of power trade risks
- Finally, despite the progress on building hard infrastructure, regional transmission infrastructure remains limited. Massive scale up of financing and unlocking of climate funding is required.

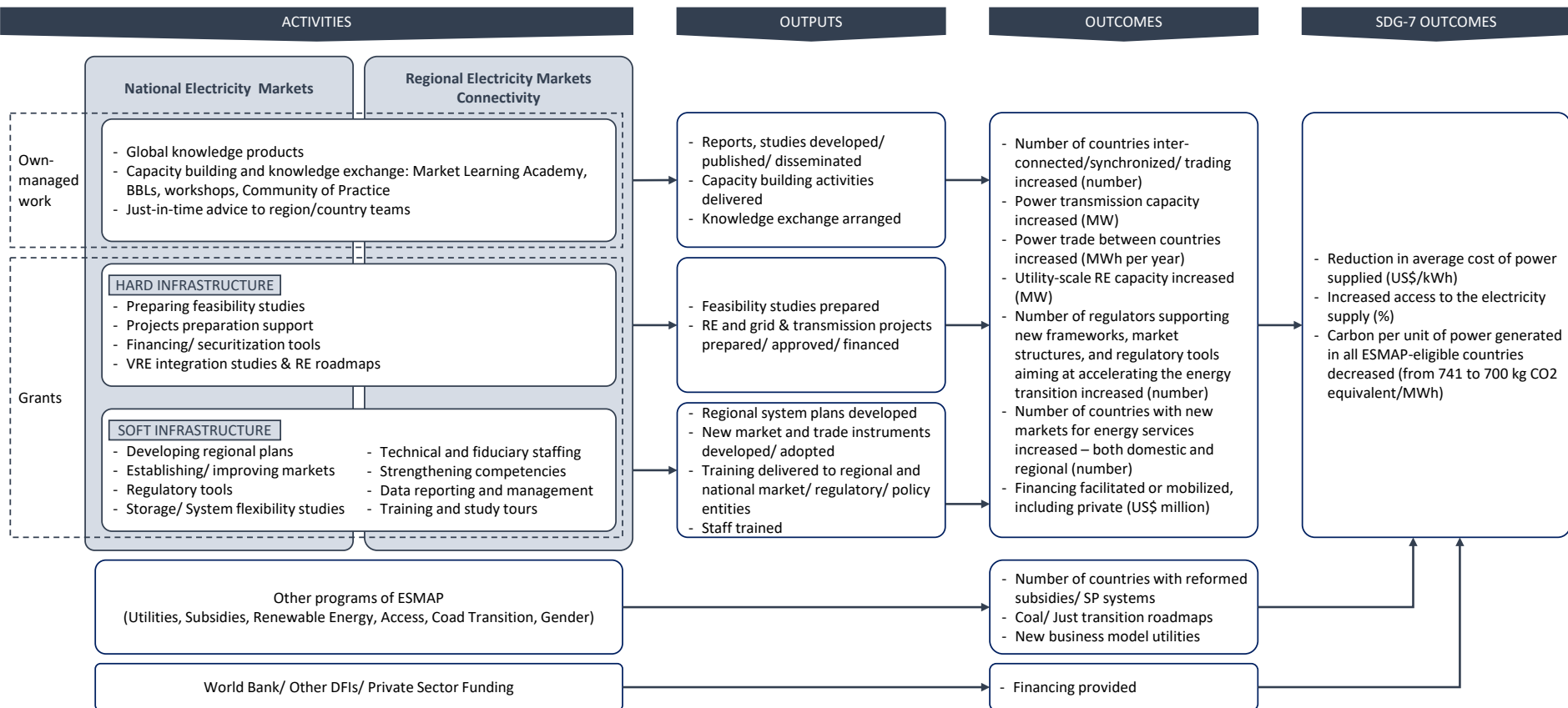


# CHALLENGES AND SOLUTIONS

	CHALLENGES	POTENTIAL SOLUTIONS
	Higher-level REI challenges	
1.1	Increasing political instability – both within and outside of Africa – is threatening to roll back the results of past progress and is hampering the implementation of major regional integration activities in many of the regional power pools (e.g., COVID19, coup d'états, Russian invasion in Ukraine, fuel price and food crisis)	
1.2	Limited institutional capacity and unclear institutional architecture – coupled with political instability – leads to inadequate political commitment	Greater focus on institutional development and an enabling environment, combined with efforts at the national level too
1.3	Fragile financial standing of national utilities (especially given the pandemic-related shocks), resulting in their inability to honor trade contracts, is one of the main sources of power trade risks	MARCOT to potentially take a greater role in supporting national level measures aimed at improving transparency and competition, including possibly competitive procurement of RE generation and ancillary services (e.g., storage), design of new and restructuring of legacy PPAs, managing DER/DM.
1.4	Finally, despite the progress on building hard infrastructure, regional transmission infrastructure remains limited. Massive scale up of financing and unlocking of climate funding is required.	More global awareness raising/advocacy efforts utilizing global partnerships (G20, GGI, OSOWOG, RETA) and events (G20, COP28, other). Hold dedicated REI meetings with all ESMAP donors, utilize the high-level policy decision meetings.  Explore an option of establishing REI window in climate funds.



# ESMAP/MARCOT SUPPORT STRUCTURE AND THEORY OF CHANGE





# ESMAP/MARCOT PIPELINE IN AFRICA

Region	Delivery Timeline	Specific Projects	Grant Amount	RETF/BETF
Africa: Southern Africa	FY24	Regional Energy Transmission, Trade and Decarbonization (RETRADE) Multi-Phase Approach Program (P175190), including	\$ 1 000 000	BETF
	FY24	- Advancing Regional Electricity Market and Operationalization of Regional Transmission Infrastructure Financing Facility (RTIFF)	\$ 5 000 000	RETF
	FY24	- Zambia-Tanzania Transmission Interconnection Project	\$ 2 000 000	RETF
	FY25	- Angola-Namibia Transmission Interconnection Project	\$ 2 000 000	RETF
	FY26	- DRC-Angola Transmission Interconnection Project	\$ 1 000 000	RETF
	FY24	Namibia: Transmission Expansion and Energy Storage - (P177328)	\$ 150 000	BETF
	FY24	Mozambique: Regional Green Energy Corridors Project - (P179797)	\$ 250 000	BETF
Africa: Eastern Africa	FY26	Horn of Africa Regional Integration for Sustainable Energy Supply (HOA RISES) Project (P174175)	\$ 300 000	BETF
	FY24	Uganda-Tanzania Interconnector Project - (P171243)	\$ 400 000	BETF
	FY25	Ethiopia-Somalia (Somaliland) Interconnector	\$ 300 000	BETF
	FY25	EAPP Regional Power Market Support Phase 2	\$ 3 000 000	BETF
Africa: West Africa	FY25	Ghana-Cote d'Ivoire Interconnection Project - (P178923) - Regional Liquidity Enhancing Revolving Fund (LERF)	\$ 5 000 000	RETF
	FY25	Ghana-Cote d'Ivoire Interconnection Project - (P178923)	\$ 250 000	BETF
	FY25	Mali-Mauritania Interconnector / Mauritania Energy Transition Acceleration Program - (P179383)	\$ 750 000	RETF
Africa: Central Africa	FY26	CAPP: 2nd Phase - Institution and capacity strengthening for regional power trade P168185	\$ 500 000	BETF

# MARCOT: PARTNERSHIPS

## Market Development: Innovative Catalytic Solutions



<https://isolaralliance.org/work/osowog>

## Strategic Advisory



<https://globalpst.org>

## Think Tank / Incubator



<http://mission-innovation.net/>



<https://retatheaccelerator.org>

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# THANK YOU

Energy Sector Management Assistance Program

The World Bank

1818 H Street, NW || Washington DC || USA

[www.esmap.org](http://www.esmap.org) || [esmap@worldbank.org](mailto:esmap@worldbank.org)