ECOWAS Master Plan for the Development of Regional Power Generation and Transmission Infrastructure 2019 - 2033
Presentation Outline

A. Background

B. ECOWAS Master Plan for the Development of Regional Power Generation and Transmission Infrastructure 2019 - 2033

C. Conclusion
BACKGROUND
Establishment, Vision and Mission of WAPP

- **Establishment:**
  WAPP was created in 1999 by Decision A/DEC. 5/12/99 and established in 2006 through Decisions A/DEC. 18/01/06 and Decision A/DEC. 20/01/06 by the Authority of ECOWAS Heads of State and Government.

- **Vision:**
  To integrate the national power systems into an unified regional electricity market

- **Mission:**
  To promote and develop infrastructure for power generation and transmission, as well as, to assure the coordination of electric power exchanges between ECOWAS Member States
Members of WAPP in February 2019 (35#)
Organisational Structure

GENERAL ASSEMBLY

EXECUTIVE BOARD

ORGANISATIONAL COMMITTEES

• EOC
• SPEC
• FC
• HRGC
• DCC

GENERAL SECRETARIAT

Information & Coordination Centre

Administration & Finance Department

Planning, Investment Programming & Environmental Safeguards Department

MDs of WAPP Member Utilities

Responsible for execution of WAPP policies and decisions

WAPP Donors’ Coordination Committee
ONGOING STRATEGY BY WAPP TO ACHIEVE VISION

IMPLEMENTATION OF MASTER PLAN

PERIODIC WAPP BUSINESS PLANS

REGIONAL ELECTRICITY MARKET

DEVELOPMENT OF WAPP INFORMATION AND COORDINATION CENTER
High Growth of electricity demand (about 8% in average per annum)

Insufficient generation fleet compared to demand, despite a significant potential

Young interconnected power system with operational issues

Very gradual integration of renewable energy resources
Why develop this new Master Plan?

- Ongoing investments within ECOWAS Member States, including the updates of national power generation and transmission Master Plans;
- Renewed drive of the sub-region to better integrate renewable energy resources into the energy mix especially in light of economics with Solar;
- Completion of integration of all of the national power systems of the ECOWAS mainland countries in 2020;
- Near-term commissioning of the WAPP Information and Coordination Center and operationalization of the regional electricity market within the ECOWAS region;
Consultant commenced work in January 2018 and:

- Visited all mainland ECOWAS Member States to collect data and hold discussions with key stakeholders of national energy sectors;

- Performed an economic study to identify the necessary least cost investments in generation and transmission;

- Verified through technical studies that the proposed generation and transmission investments will lead to stable and reliable operation conditions for the WAPP interconnected system.
Main Results of new Master Plan : 2019-2033

- **75 (#) regional projects** deemed priority for the period 2019-2033, with an estimated total investment requirement of **US$36.39 billion**

- **28 (#) transmission line projects** of approximately **22,932 km** of high-voltage transmission lines at an estimated cost of **US$10.48 billion**
  - Including transmission line projects that shall enable WAPP interconnect beyond its current area of coverage – Northern Africa through Morocco, Central African Power Pool to Inga Dam

- **47 (#) generation projects** with a total capacity of approximately **15.49 GW** at an estimated cost of **US$25.91 billion**
  - The generation projects comprise:
    - 31.1% thermal projects operating mainly with natural gas and
    - **68.9% renewable energy projects** (10.67 GW) of which 29.5% involve Variable Renewable Energy (VRE) projects (3.15 GW solar, wind);
    - VRE projects constitute 20.33 % of the total generation in the priority list.
Interconnection Rollout in the Short Term: 2019 to 2022

+4,940 MW
+8,419 km

Interconnection of all mainland ECOWAS Countries by 2019/2020

- 330 kV Ghana – Togo – Benin
- 225 kV Laboa – Ferke in Côte d’Ivoire,
- 225 kV Kayes (Mali) – Tambacounda (Senegal)
- 225 kV CLSG  225 kV 2nd Circuit CLSG
- 225 kV OMVG
- 225 kV Guinea – Mali
- 225 kV Bamako – Manantali in Mali
- 225 kV Kayes (Mali) – Kiffa (Mauritania)
- 330 kV Nigeria–Niger– Benin/Togo – Burkina
- 330 kV Ghana – Burkina – Mali
Interconnection Rollout in the Medium Term: 2023 to 2029

+8,669 MW

+4,234 km

- 225 kV Manantali (Mali) – Linsan (Guinea)
- 225 kV Labé – Koukoutamba in Guinea,
- 225 kV Fomi (Guinea) – Boundjali (C. d’Ivoire)
- 225 kV Segou – Bamako in Mali
- 330 kV WAPP CTB Reinforcement
- 225 kV San Pedro (CôdI) – Buchanan (Liberia)
- 225 kV Boundjali (CôdI) – Bougouni (Malé)
- 330 kV Côte d’Ivoire – Ghana
Interconnection Rollout in the Long Term: 2030 to 2033

- +1,883 MW
- +10,279 km

- 225 kV OMVG Western Segment Reinforcement
- 330 kV 2nd North–South Line in Ghana
- 330 kV WAPP Eastern Backbone in Nigeria
- 330 kV WAPP Western Backbone
- 330 kV Bobo (Burkina) – Ferke (Côte d’Ivoire)
- 330 kV Nigeria – Niger Reinforcement
- WAPP – North Africa through Morocco
- WAPP – CAPP to Inga
Consideration by Governance Structures....

- **ECOWAS Master Plan for the Development of Regional Power Generation and Transmission Infrastructure 2019 - 2033:**
  - **September 19-22, 2018** - Experts from WAPP Member Utilities as well as Ministries in charge of energy of ECOWAS Member States, ECOWAS Commission, UEMOA Commission, sub-regional organizations and WAPP Technical and Financial Partners;
  - **October 13, 2018** : 39th Meeting of Executive Board of WAPP;
  - **November 9, 2018** : 13th General Assembly of WAPP;
  - **December 4, 2018** : 13th Meeting of ECOWAS Ministers in charge of Energy;
  - **December 11, 2018** : ECOWAS Parliament;
  - **December 13-15, 2018** : 81st Ordinary Session of ECOWAS Council of Ministers;
  - **December 22, 2018** : 54th Ordinary Session of ECOWAS Heads of State and Government - *Adoption through Supplementary Act A/SA.4/12/18*
CONCLUSION
Key Takeaways.....

- Construction of **22,932 km** of high voltage transmission lines envisaged at an estimated cost of **US$10.48 billion**;

- Development of a total capacity of about **15.49 GW** (10.67 GW of Renewable Energy) at an estimated cost of **US$25.91 billion**;

- All mainland ECOWAS Member States shall be interconnected in the short term;

- **330 kV Transmission Backbone** from Senegal to Nigeria;

- Master Plan envisions interconnection of WAPP to Northern Africa through Morocco and interconnection of WAPP with Central African Power Pool to Inga;
WAPP: “Lighting Up West Africa”

THANK YOU FOR YOUR ATTENTION

WAPP Secretariat
06 BP 2907 Cotonou – République du Bénin
Tel : + (229) 21 37 41 95 / 21 37 71 44
Fax : + (229) 21 37 41 96 / 21 37 71 43
Email: info@ecowapp.org
Site: www.ecowapp.org