AFRICAN SCHOOL OF REGULATION

ASR Conference Series

POWER POOLS IN AFRICA: RELEASING THE POTENTIAL OF REGIONAL POWER TRADE

Session 2: Market rules & transmission regulation

May 9th, 2023

The critical importance of "correct" regulation

- **Transmission**
  - Reduce **uncertainty** & avoid **questionable rules** in remuneration & cost allocation in regional markets, to reduce costs & attract investment.
  - Avoid that **transmission charges** discourage trade or distort efficiency.
- **Contracts for cross-border trade**
  - Contracts can hedge against price uncertainty and can increase security of supply, but they must be designed and implemented so that they **do not interfere with the efficient use of resources.**

Transmission

Transmission investment & unnecessary regulatory risks

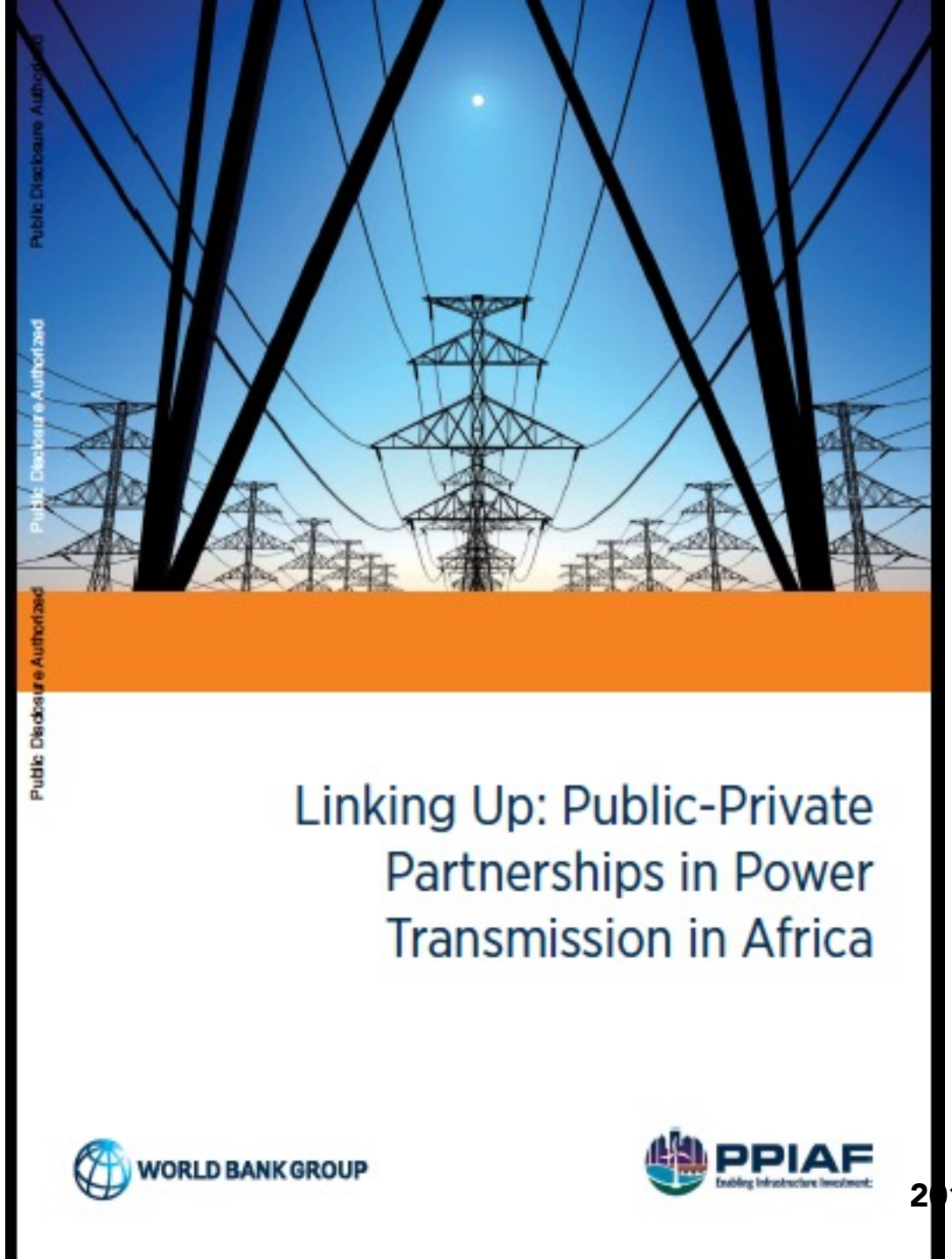
Avoid unnecessary risk in transmission remuneration

- Regulation must try to **avoid unnecessary financial risks** *(which have negative consequences on the cost of capital)* to a natural monopoly activity like transmission, subject to regulation.
  - The next slide offers a list of actions – mostly with origin in **flawed regulation** – that create unnecessary risk *(therefore perfectly avoidable)* in the remuneration of the distribution activity.

Flawed regulation creates investment risks

These are frequent **unnecessary regulatory risks** in the remuneration method

- **Revenues that depend on transactions or volume of utilization**, instead of the actually incurred costs, or standards, or results of an auction
- **Regulatory updates of the historical rate base**, based on “replacement costs”, “market value”, or other creative methods
- **Failure in ring fencing the transmission revenue requirement** in the revenues obtained from the end customer tariffs
- **Questionable cost allocation methods** that lead to opposition to pay charges that are considered unfair
- **Frequent re-calculation of transmission charges** or changes in methodology
- Performance-based **incentives that go beyond the equipment failure**
- Uncertainty in remuneration **beyond the economic life** of the transmission asset



There is a well established business model for private transmission investment , although it still must be adopted in Africa.

Flaws in the regulation of regional markets, & transmission in particular, jeopardize private investment.

Best practice in transmission cost allocation in regional power trade organisations

Regulation for regional trade must be guided by the "Single system paradigm"

The "Single system paradigm"

Design regional regulation so that the expected outcome is as close as possible to that of a sound regulation for *a single system of regional dimension*.

EUROPE


F.Y.R.O.M. - The Former Yugoslav Republic of Macedonia
Greenland (DENMARK)
Jan Mayen (NORWAY)
Greenland Sea
Denmark Strait
Barents Sea
Hammerfest
Tromsø
Murmansk
Norwegian Sea
Reykjavík
ICELAND
Arctic Circle
Kiruna
Luleå
Oulu
White Sea
Arkhangel'sk
NORWAY
Umeå
FINLAND
Lake Onega
Trondheim
Tórshavn
Faroe Islands (DENMARK)
SWEDEN
Gulf of Bothnia
Tampere
Lake Ladoga
SHETLAND ISLANDS
Gävle
Turku
Helsinki
St. Petersburg
Gulf of Finland
Bergen
Oslo
Stockholm
ÅLAND ISLANDS
Tallinn
ESTONIA
RUSSIA
Rockall (U.K.)
ORKNEY ISLANDS
HEBRIDES
Stavanger
Moscow
North Atlantic Ocean
Aberdeen
Skagerrak
Göteborg
Gotland
Rīga
LATVIA
Glasgow
Edinburgh
North Sea
Baltic Sea
Ålland
LITHUANIA
Vilnius
Vitsyebsk
Smolensk
UNITED
DENMARK
Copenhagen
Malmö
Kaliningrad
RUSSIA
Mahilyow
Minsk
Belfast
Isle of Man (U.K.)
Bornholm
BELARUS
Dublin
Irish Sea
Leeds
Manchester
Liverpool
Gdańsk
Hrodna
Homyel'
IRELAND
KINGDOM
Hamburg
Brest
Birmingham
Amsterdam
Bremen
Berlin
Poznań
Warsaw
Kiev
Cardiff
NETH.
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Rotterdam
Łódź
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LIECH.
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Zürich
Bern
Vaduz
SWITZ.
Geneva
Bay of Biscay
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Ljubljana
Zagreb
Bucharest
Constanța
Black Sea
Lyon
Milan
Venice
SLOVENIA
Turin
Bordeaux
Belgrade
Varna
Genoa
CROATIA
BOSNIA AND HERZEGOVINA
SAN MARINO
Bilbao
Toulouse
MONACO
Sarajevo
YUGOSLAVIA
BULGARIA
Florence
Porto
Andorra la Vella
Marseille
Ligurian Sea
Adriatic Sea
Sofia
ITALY
İstanbul
ANDORRA
Skopje
F.Y.R.O.M.
Zaragoza
Corsica
Rome
Thessaloniki
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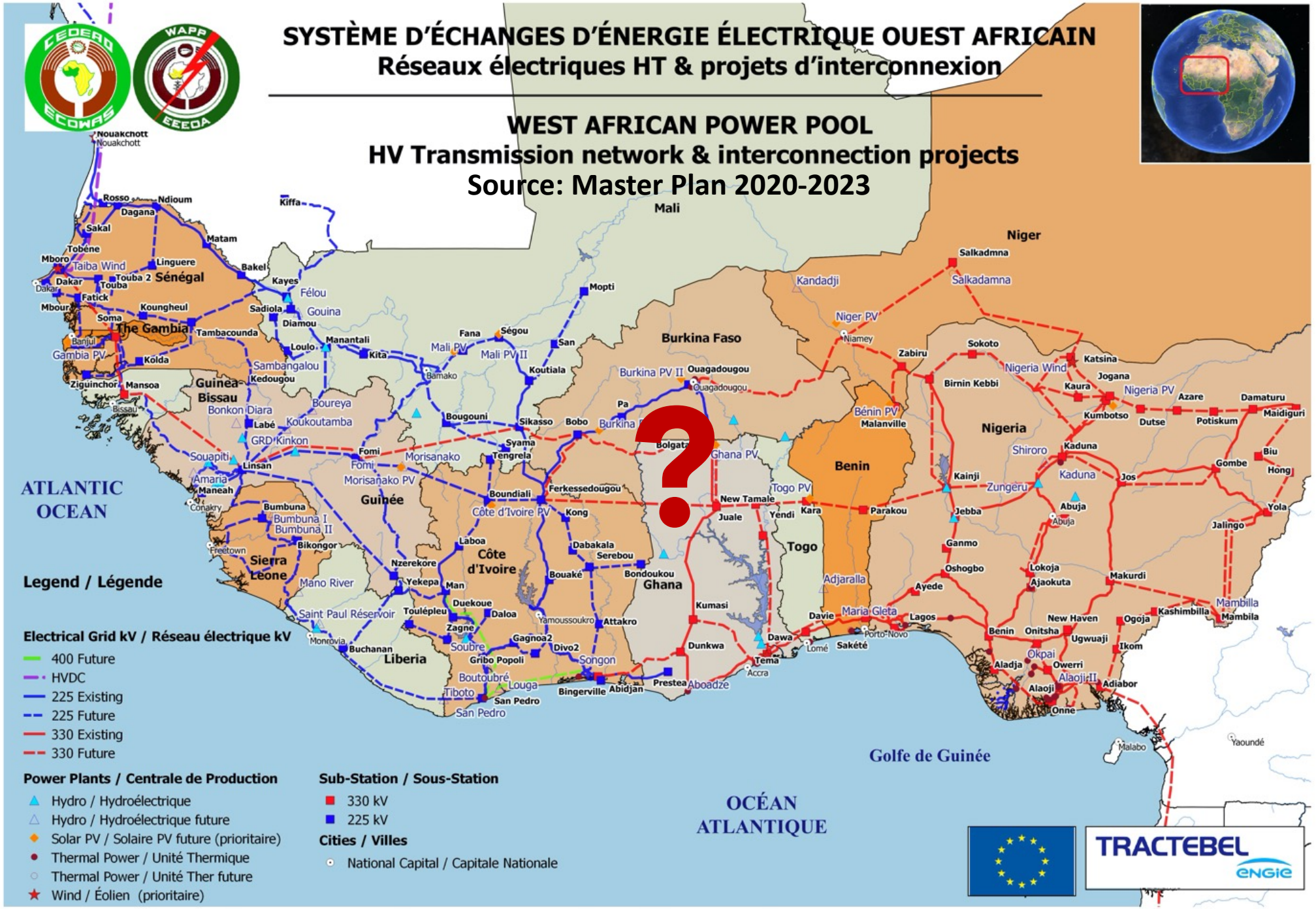
PORTUGAL
Madrid
Barcelona
VATICAN CITY
Tirana
ALB.
Naples
TURKEY
Lisbon
Tagus
Balearic Sea
SPAIN
Valencia
Sardinia
Tyrrhenian Sea
GREECE
Aegean Sea
İzmir
Athens
BALEARIC ISLANDS
Sevilla
Cagliari
Ionian Sea
Mediterranean Sea
Palermo
Gibraltar (U.K.)
Málaga
Sicily
Rhodes
Strait of Gibraltar
Ceuta (SPAIN)
Alborán Sea
Melilla (SPAIN)
Oran
Algiers
Tunis
Crete
Valletta
MALTA
Rabat
Casablanca
MOROCCO
ALGERIA
TUNISIA
Scale 1: 19,500,000
Lambert Conformal Conic Projection, standard parallels 40°N and 56°N
0 300 Kilometers
0 20 300 Miles


Interconnected
network of
ENTSO-E
31.07.2010
Legend
NORTH SEA
BALTIC SEA
ATLANTIC OCEAN
MEDITERRANEAN SEA
BLACK SEA
CASPIAN SEA



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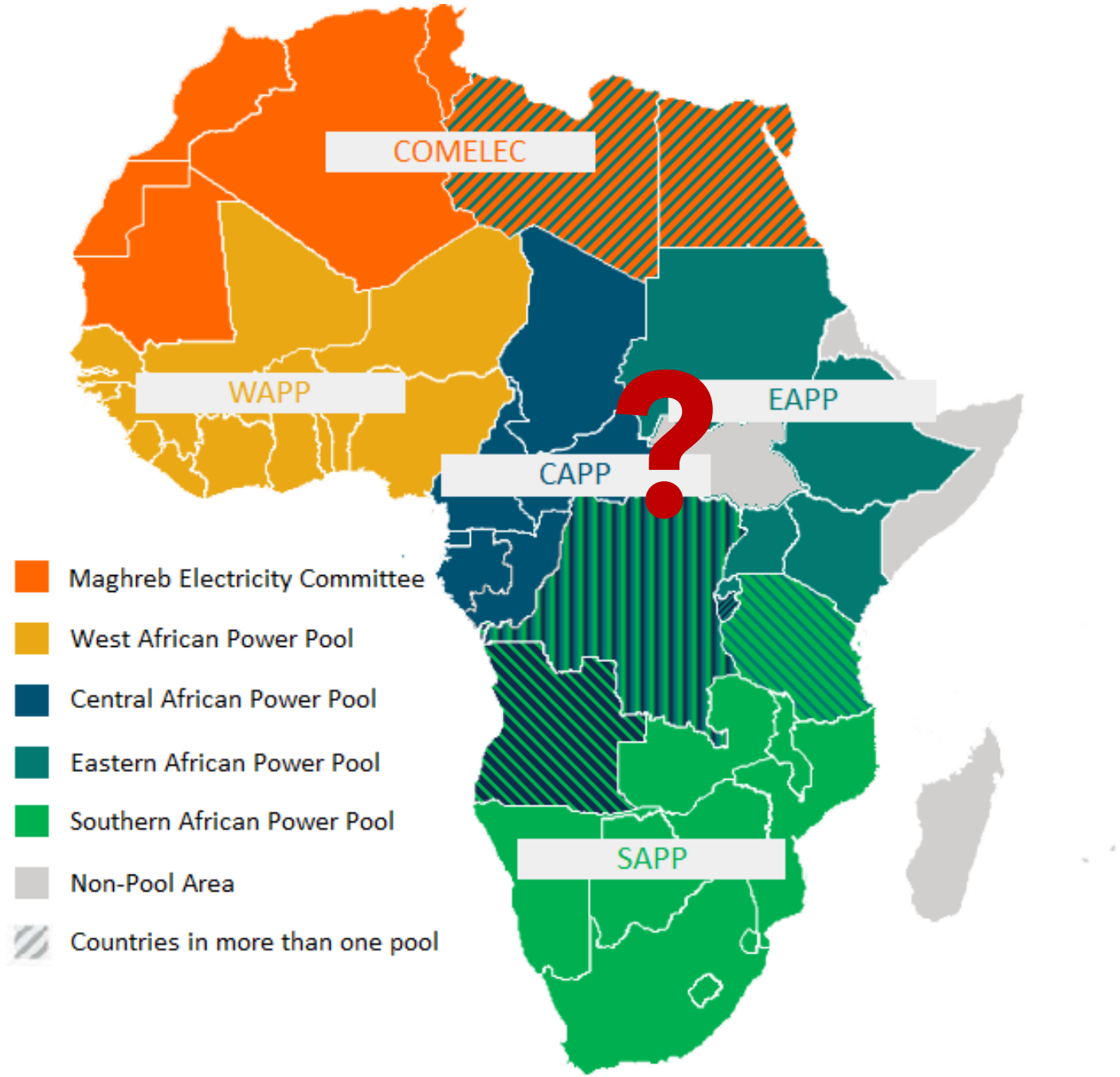
COMELEC
WAPP
EAPP
CAPP
SAPP
Maghreb Electricity Committee
West African Power Pool
Central African Power Pool
Eastern African Power Pool
Southern African Power Pool
Non-Pool Area
Countries in more than one pool

Cost allocation of regional transmission projects
The principles

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RESOLUTION N°006/ERERA/15

Adoption of the Tariff Methodology for Regional Transmission Cost and Tariff

The Regulatory Council,

Mindful of Article 18.5 of Regulation C/REG.27.12/07 of 15 December 2007, as amended, on the composition, organisation, functions and operations of ERERA, and

After the review of the Tariff Methodology for Regional Transmission Cost and Tariff for the West African Power Pool (WAPP) by ERERA's Consultative Committees,

RESOLVE THAT:

1. The Tariff Methodology for Regional Transmission Cost and Tariff for the West African Power Pool, hereby attached, is approved.
2. The Tariff Methodology for Regional Transmission Cost and Tariff for the West African Power Pool shall be published in the ERERA official Bulletin and Website.

Done in Accra, GHANA, on August 18, 2015

Mr. Alagi Basiru GAYE
Council Member

Mrs. Ifeyinwa IKEONU
Acting Chairperson

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THE FIRST ORDINARY SESSION OF THE AFRICAN UNION SPECIALIZED TECHNICAL COMMITTEE ON TRANSPORT, TRANSCONTINENTAL AND INTERREGIONAL INFRASTRUCTURES, ENERGY AND TOURISM (STC-TTIET)
14 – 18 April 2019
Cairo, Egypt

CONTINENTAL TRANSMISSION TARIFF METHODOLOGY FOR INTERNATIONAL BILATERAL TRANSACTIONS

THEME: → DEVELOPING SMART INFRASTRUCTURE TO BOOST AFRICA'S CONTINENTAL TRANSFORMATION AND INTEGRATION

TECHNICAL PAPER

Contracts

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Thanks

And an extra slide…

The format of transmission charges matter

- Regardless of the method employed to determine the transmission network charge for centralized generators, it remains deciding **how to apply the charges**. **Errors to be avoided**:
  - **Do not apply volumetric charges** ($/kWh) to generators, as this artificially modifies their variable cost & thus their dispatch merit order
  - **Do not apply flat capacity charges** ($/installed kW capacity) to generators, as this may overcharge low utilization generators
  - Try to **apply lump sum annual charges** to generators that are not directly linked to actual recent production, to avoid the two previously described mistakes.