FEB 2022

9

9.30 – 12.30 CET

WORKSHOP ONLINE

"Enabling electricity exchanges and trading in the Mediterranean"

Achieving a common technical & regulatory framework to increase electricity exchanges and trading between the two Mediterranean shores.

Organized by Med-TSO MEDITERRANEAN TRANSMISSION SYSTEM OPERATORS MEDREG

With the support of European Union and Union for the Mediterranean Union pour la Méditerranée الاتحاد من أجل المتوسط

PANEL 2 - “Electricity trading in/with the MENA region: what are the missing links/requirements?”

- Moderator and topic introduction: Benoit Esnault, MEDREG
- Panellists:
  - **Roberto Vigotti, RES4MED/RES4AFRICA**
  - J. M. Rodriguez, Med-TSO
  - Tarik Hamane, MASEN
  - Moez Cherif, World Bank
  - Gabriel de Lastours, EBRD

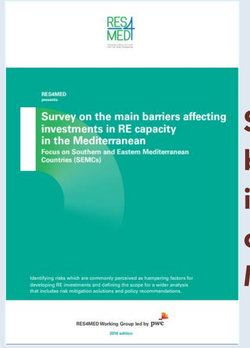
What we have done so far

Southern Mediterranean

1 Webinar on barriers to RE investments

Studies:

Survey 2020: Assessing investment risk in renewable energy



Survey 2016: The main barriers affecting investments in RE capacity in the Mediterranean

Tunisia

2 local events
1 Webinar

Studies:

Job creation study
Etude des mécanismes d'appel d'offres
Country Report
Enabling the development of decentralised routes to market for RES in Tunisia

Morocco

4 local events
2 Webinars

Studies:

Pursuing cross-border PPAs between Morocco and the EU

Accelerating the development on the MV market in Morocco

2 Country Reports

Decarbonization pathway for Morocco

Egypt

2 local events
2 Webinars

Studies:

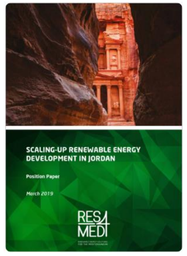
Project Finance for RE system
Country Report

Jordan

1 local event

Studies:

Scaling-up renewable energy development in Jordan



Algeria

2 local events

Studies:

Auction analysis

Integration of Non-Programmable RE in Algeria

RES4Med activities 2022: outline

ANALYSE

Study on Grid Flexibility in Tunisia

The study will assess the flexibility of the grid to accommodate increasing share of variable renewable energy in Tunisia. The study will be presented in a dedicated event.

Study on Seawater desalination in Morocco

Together the MEME, RES4Med will conduct a study on desalination of seawater contributing to Morocco's green transition and hydrogen production. The study will be presented in a dedicated event.

Follow-up study on APV across the Med

RES4Med strongly believes that Agrivoltaic is a win-win solution for Water-Energy-Food Nexus for many countries in the Med. The study will be presented in a dedicated event.

Policy Briefs

RES4Med will publish bi-monthly policy briefs on Morocco and the region by analysing the current trends and provide pathways to enable RE investments.

ADVOCATE

Event on Energy transition in Morocco

During the event, RES4Med will present the studies on Green Hydrogen and Small-PV capacity and discuss ways to foster smart and green cities.

Event on Corporate PPA in Egypt

RES4Med aims to support Egypt in boosting private investments in RE. This event will focus on corporate PPA agreements in Egypt.

Event on Corporate PPA in Tunisia

During this event, speakers and experts will presents the drivers and barriers for corporate PPA agreements in Tunisia

Meeting Moroccan Institutional actors

RES4Med will launch active discussion on renewable energy in Morocco. During the event, actors will define the objectives of the RES4Med Day

Event RES4Med Day in Morocco

RES4Med will organise one-day high-level event involving local institutional stakeholders to share best practices and solutions to match local needs.

SUPPORT

Business to Government Dialogue

Bilateral meetings with local actors

Expand the network of partners

Members and Partners for a better tomorrow

Born in 2012 as RES4MED, RES4Africa Foundation works in support of Africa's just energy transition in order to achieve the SDG7, ensuring access to affordable, reliable, sustainable, and modern energy for all.

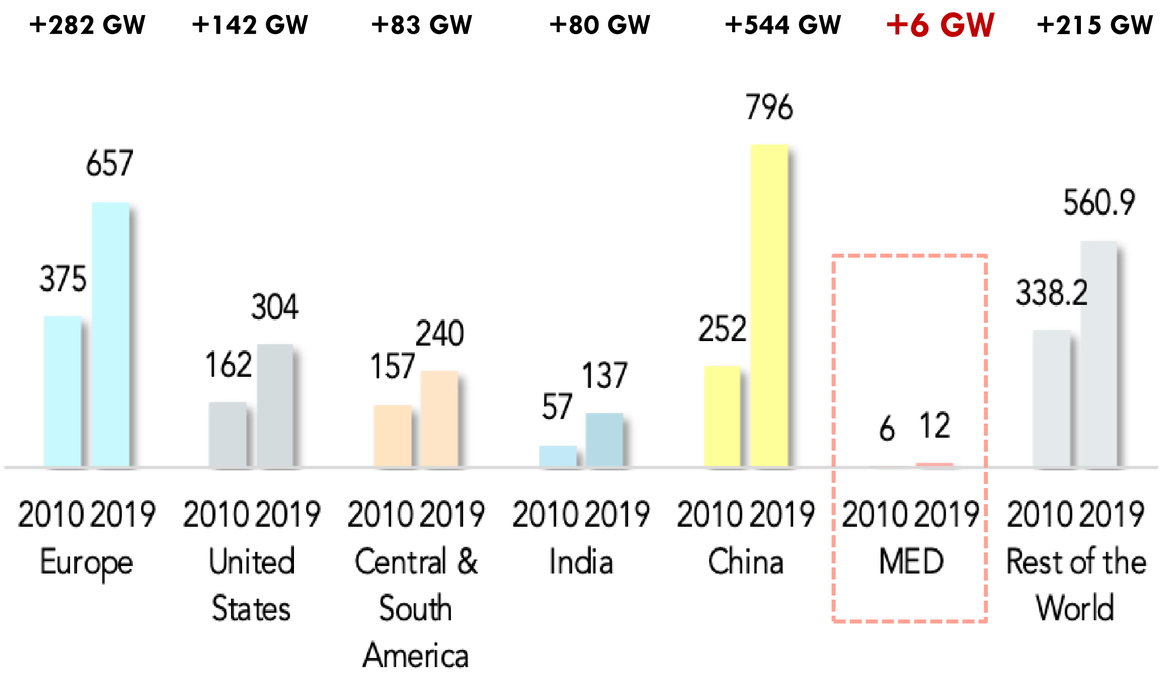
RES4AFRICA FOUNDATION
RENEWABLE ENERGY SOLUTIONS FOR AFRICA

enel Green Power

CONNECTING THE DOTS

10 years of renewable energy in MENA: what has (not) happened?

Only 0.5% of additional RE world capacity occurred in South Med



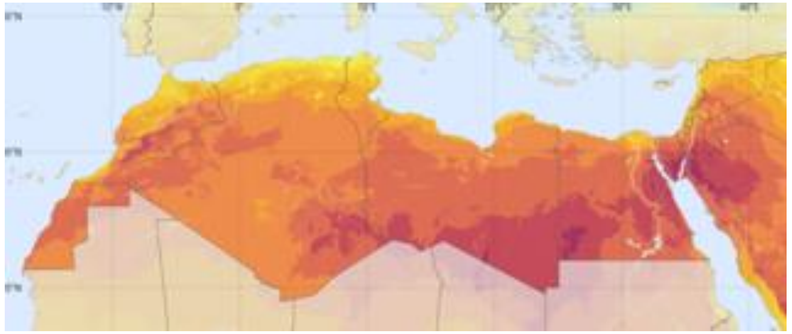
World RE capacity
2010: 1347 GW
2019: 2707 GW

Share of RE installed capacity added 2010 - 2019

	Europe	United States	Central & South America	India	China	MED	Rest of the World
World **+1360 GW**	21%	10%	6%	6%	40%	**0.5%**	16%

Population 2019

	Europe	United States	Central & South America	India	China	MED	Rest of the World
World 7,6 bn ppl	10%	4%	7%	18%	19%	3%	36%



Total Solar **installed capacity** in 2019 0.004051 TW	**Potential Capacity** 1,25 TW
Total **Electricity Demand** in 2019 397 TWh	**Potential Production** 2125 TWh(2)

More than **5 times** MED's electricity demand

(1)The potential of solar capacity in a densely populated area like Italy was estimated to 0.5% of the territory (Enel). Considering for MED 25 000km^2 of occupied land it represent 0,4% of the territory and the equivalent to the size of Sicily. We also considered the land consumption of 1 MW = 0,02 km^2 (BNEF: How Much Land Will Solar Plants Cover, July 2020)
(2)EOH 1700

What hindered RE growth?
Space for improvements still remains at all levels

Regulation

- Politics often interfere with regulatory progress
- Poor or inadequate implementation due to lack of secondary legislation
- Very slow amendment processes

Tenders

- Lack of transparency: and standardized documentation
- Slow auction processes
- Cancellation / downsizing of capacity are common (10.000 MW in the last 10 years as of 2020)
- Local content requirements often too high with unrealistic industrial projects (Algeria)

PPAs

- Lack of bankability
- Currency convertibility issues
- Sovereign Guarantees are often a problem
- In some cases (Algeria) IPPs must secure financing from a local bank, which may be reluctant to fund RES Projects.

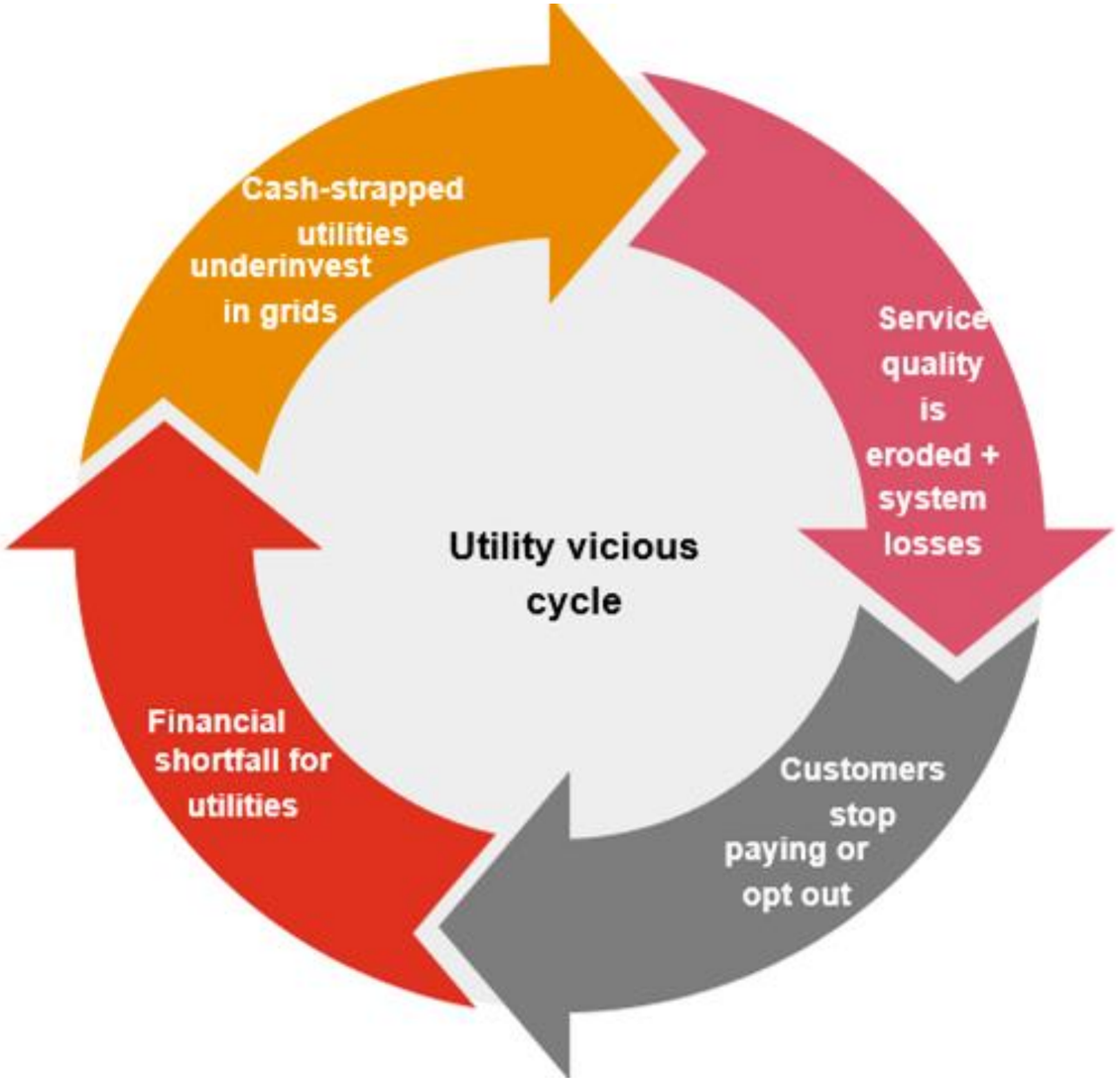
Business Environment

- Eye-catching unrealistic targets (Algeria)
- Lack of transparency on key elements, such as tariffs, that are not published by Regulator

...including for grid development

- **Grids need to be afforded greater attention and investment**
  - **Grid investment** needs are significant and financially distressed utilities may not be able to afford it;
  - **High system losses** are both a cause and an effect of the financial distress;
  - In the 10 countries analysed for the Grids4Africa study*, system losses ranged from 10% to 29% (i.e. de facto electricity which gets generated but is not invoiced).

- **Current business models are not conducive to grid development**
  - **Electricity tariffs** tend to be set too low, at levels that do not guarantee the recovery of the true cost of producing and selling electricity;
  - **Capital assets** must be managed with a view to the future: development plans are need to be followed through and greater funds should be dedicated for preserving / replacing critical infrastructure.



* Algeria, Morocco, South Africa, Ghana, Kenya, Senegal, Ethiopia, Uganda, Zambia, Tanzania

Multiple benefits arise from investments in grids

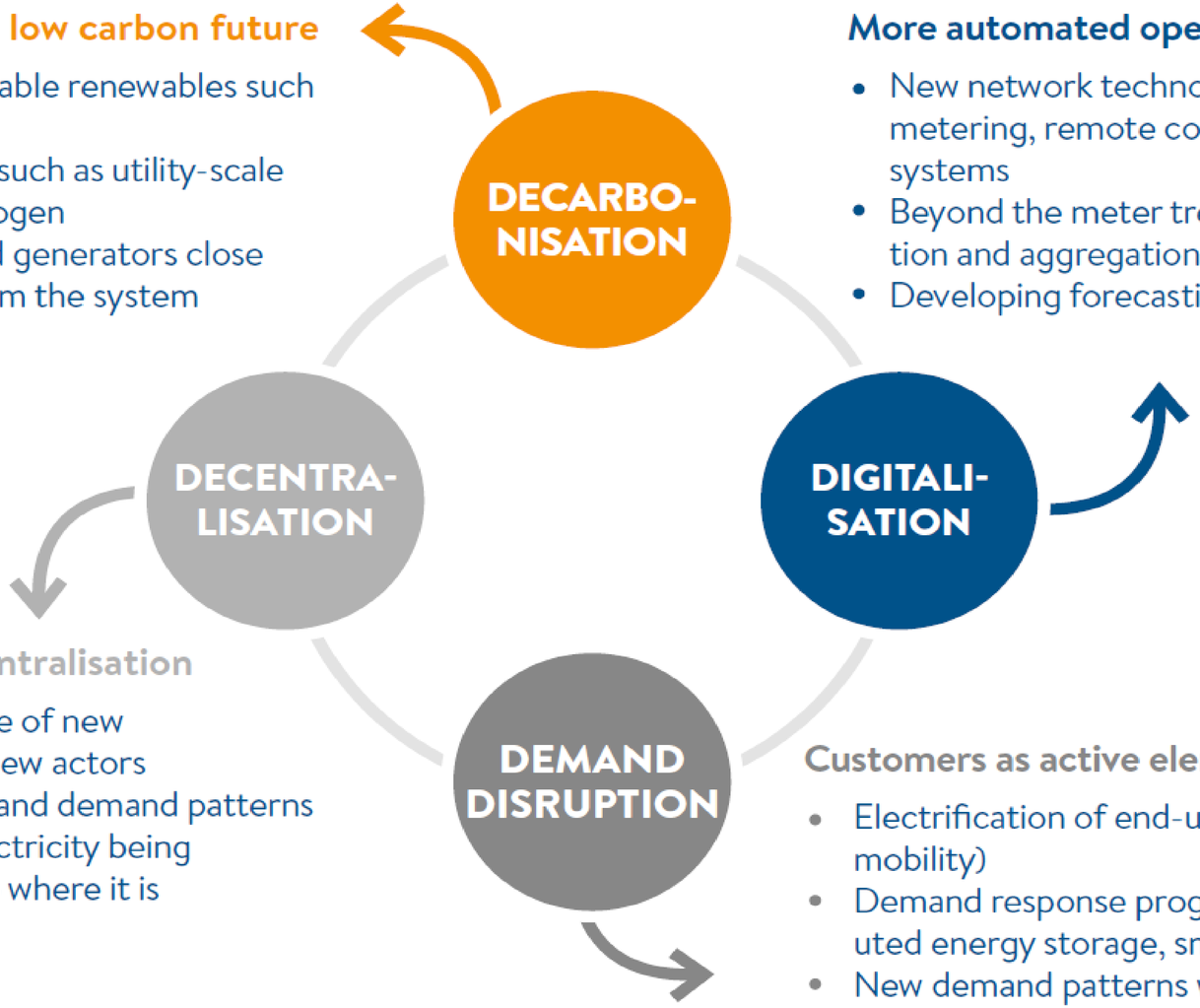
RES4AFRICA FOUNDATION

The transition to a low carbon future

- Penetration of variable renewables such as wind and solar
- New technologies such as utility-scale batteries and hydrogen
- Fossil fuel powered generators close and disconnect from the system

More automated operation of the system

- New network technologies such as smart metering, remote control and automation systems
- Beyond the meter trends such as optimization and aggregation platforms
- Developing forecasting capabilities using AI



Dealing with decentralisation

- Connecting a range of new technologies and new actors
- Changes in supply and demand patterns
- Prosumers and electricity being produced closer to where it is consumed

Customers as active elements of the system

- Electrification of end-uses (industry, heat and mobility)
- Demand response programmes (e.g. distributed energy storage, smart devices)
- New demand patterns with the emergence of flexibility providers

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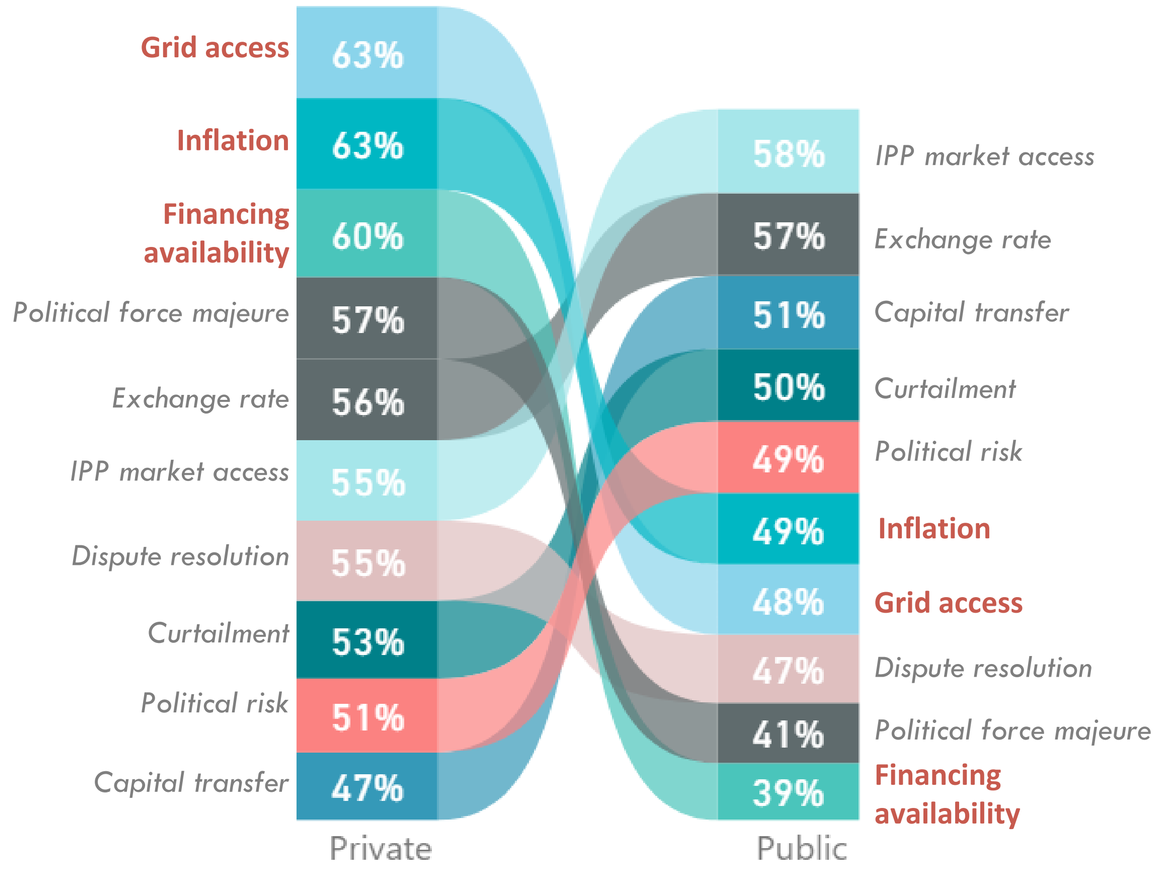
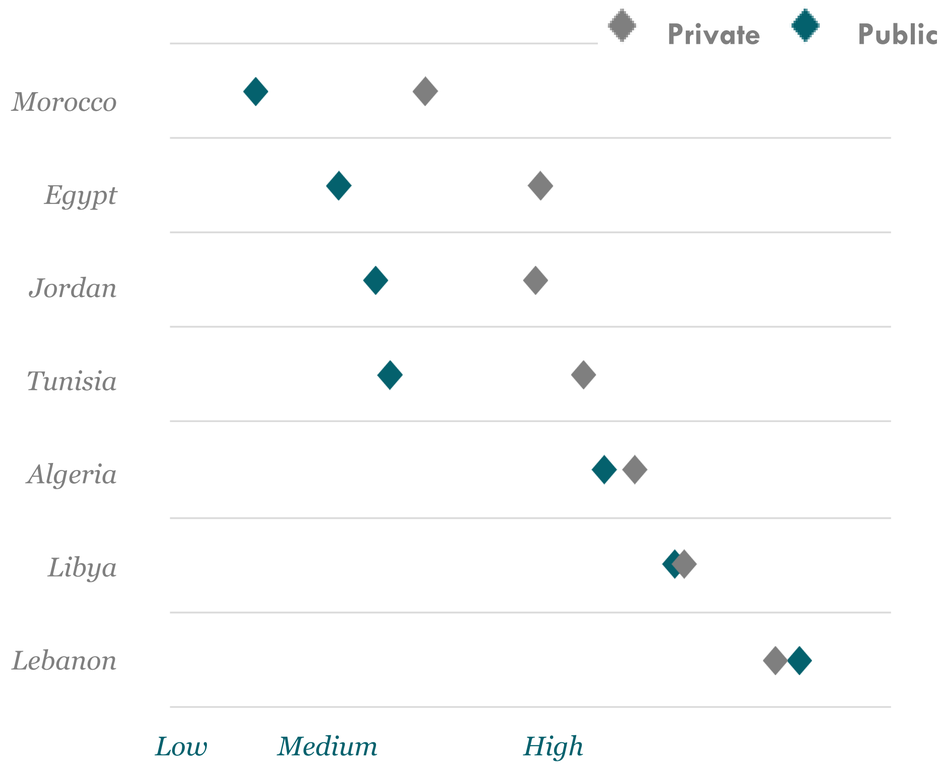
MEDREG

There is a gap in the perception of risks between private and public actors

Perception of risks greatly varies between public and private on grid access, inflation and financing availability



Public actors view differently the investment risks in Morocco Egypt Jordan and Tunisia. While the private and public views coincide in Algeria, Libya and Lebanon



… and in interconnections

Regional interconnection capacity is expected to grow significantly in the next 5-10 years but inter-regional trade is still limited.

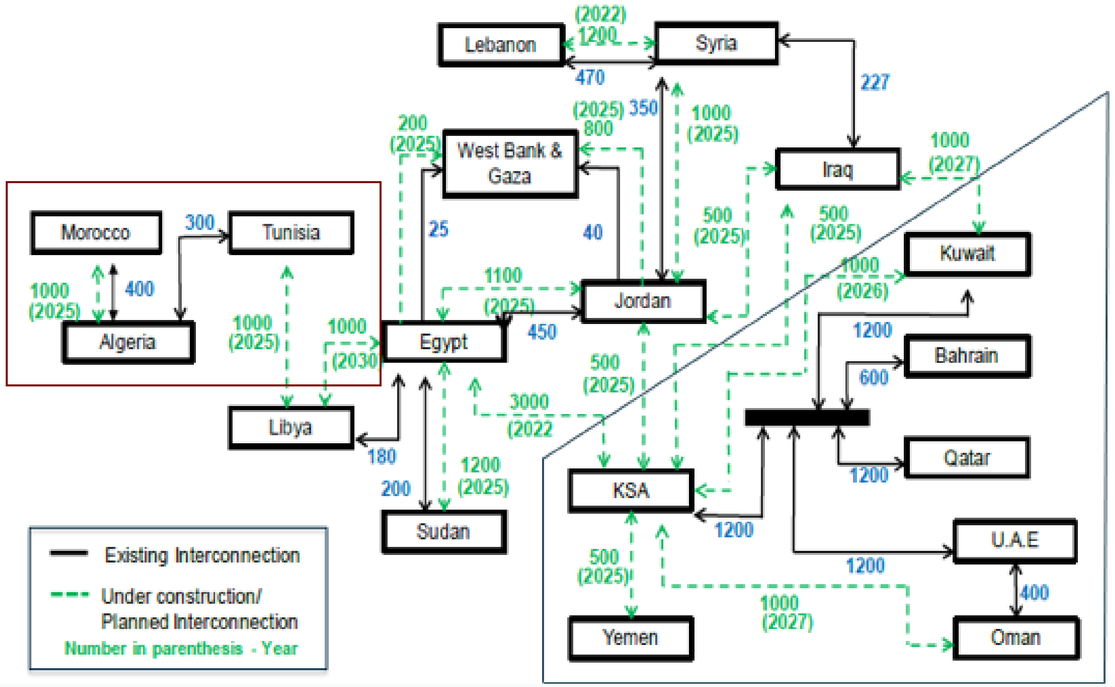
There are 3 main inter-regional connections:

- Morocco – Tunisia – Algeria: fully connected and synchronized with the Pan-European high-voltage transmission network
- EULLPST: Egypt – Iraq – Jordan – Libya – Lebanon – West Bank and Gaza – Syria - Turkey
- GCC: Kuwait – Saudi Arabia – Bahrain – Qatar – UAE – Oman

Only 2% of the total annual generation is traded across borders for various reasons such as lack of trading rules and regulations, technical issues etc. Most are one-off, irregular trades

In Europe about 9% of total annual generation is traded across borders

EXISTING AND PLANNED CROSS BORDER TRANSMISSION INTERCONNECTIONS (MW)



Interconnections can support the energy transition and enhance regional cooperation

Improve **cooperation among countries** to deal with different speeds of domestic reforms

Build a functional electricity market by working on **pricing policies**, to ensure that tariffs match the cost of production

Optimize the region's national resources, increase the capacity utilization of generation resources, and pool resources to reduce additional investments.

Reduce **utilities' inefficiencies**, especially underpricing and collection losses, to unlock new resources for investments

Opportunities arising from Regional Power trading

Upgrading and expanding the region's interconnections will be the key driver for PAEM's success

Maintaining this aspect of the grid ensures that the region's countries can benefit from the opportunities arising from a regional power pool:

Access to new and larger markets

Security of supply and demand

Curtailment reduction

Lower tariffs

Greater potential for RES integration

These opportunities underline the importance of grid development for MENA countries' power sector growth and highlights the increasing complexity of grid management

THANK YOU!

Med-TSO and MEDREG are

Co-Funded by:

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Back up

Roberto Vigotti

Roberto Vigotti is the Secretary General of RES4Africa Foundation, a European think tank gathering 34 stakeholders from the clean energy value chain to accelerate Africa's RE transition, supporting wider participation of private players in delivering investments.

With a Master's Degree in 1971 in Electrical Engineering, Roberto Vigotti spent 35 years in Enel power company R&D Division. Dealing with the most relevant international bodies in the renewable energy sector, during his career he was delegate in the Renewable Working Party of IEA since 1989, where he was Chair for 12 years and started the PV TCP, and member of the Coalition for Action of IRENA. Deeply convinced of the crucial value of education as a factor of progress and change, the taught Power System Analysis as Assistant Professor at University of Pisa for a decade.

When it was still considered an unlikely option, he was already convinced that deploying renewable energy in Africa would result in a positive socioeconomic impact for its population. In 2012, he therefore embarked on the RES4Africa adventure, to support a wider participation of private players in delivering investments in Africa. At RES4Africa, he coordinates a number of activities aimed at transforming Africa's energy sector through public-private dialogue, market-driven analysis, training and capacity building activities, and on-field projects.

RES4Africa Strategic Initiatives and presence in Africa

Missing Link Programme supports African countries in improving the preparedness of policy frameworks

renewAfrica initiative advocates for the creation of a comprehensive de-risking programme for renewable energy investments in Africa

Access to Energy programme supports knowledge-building and development of solutions to foster access to renewable energies in Africa

Grids4Africa programme explores the status of African electricity networks and creates P2P partnerships towards grid extension and reinforcement

RES4Med programme leads public-private dialogue on renewable energy in the Southern and Eastern Mediterranean countries

Sub-Saharan Africa Programme supports a clean energy transition and renewable energy investments in Sub-Saharan Africa

Advanced Training Course (ATC) is RES4Africa flagship institutional capacity building addressed to high-level and middle managers working in RE sector

Micro-Grid Academy (MGA) aims to create working skills and competences for the deployment of decentralised RE and off-grid systems