

# AN INTEGRATED GRID FOR ENABLING THE ENERGY TRANSITION IN THE MEDITERRANEAN

Mediterranean Project 2 Closing Conference

28 October 2020

## MEDITERRANEAN PROJECT 2 AT A GLANCE

*Angelo Ferrante – Secretary General*

## OUR ROLE

- **A bridge between Europe and the MENA Region**, acting as THE reference regional stakeholder for electricity
- Playing a regional reference role for creating a favorable climate for the **development of North-South and South-South interconnections**
- **Launching pilot projects** to strengthen the integration of the MENA Power Systems
- **Support the EC** in its Euro-Mediterranean initiatives



- **21** members from **19** Mediterranean countries
- About **500 million** people served
- Almost **544.000 MW** installed capacity
- Around **400.000 km** transmission lines
- More than **1600TWh** electricity consumption

# THE ACTION PLAN

## Scope: improve the integration of the Mediterranean PS

- How to optimize the use of the existing interconnections
- Assess the possibility to build new lines

## Core activities

- Common technical rules for accessing the grid, operating the systems and sharing resources (grounds for a Med grid code)
- 1st Mediterranean Masterplan (2018), 2nd Mediterranean Master Plan (2020)
- Common web platform on transparency and technical data

## Complementary activities

- Knowledge Sharing and Training programs
- DBMED, the Med-TSO database
- Mediterranean Grid Map (with ENTSO-E)

## EU support

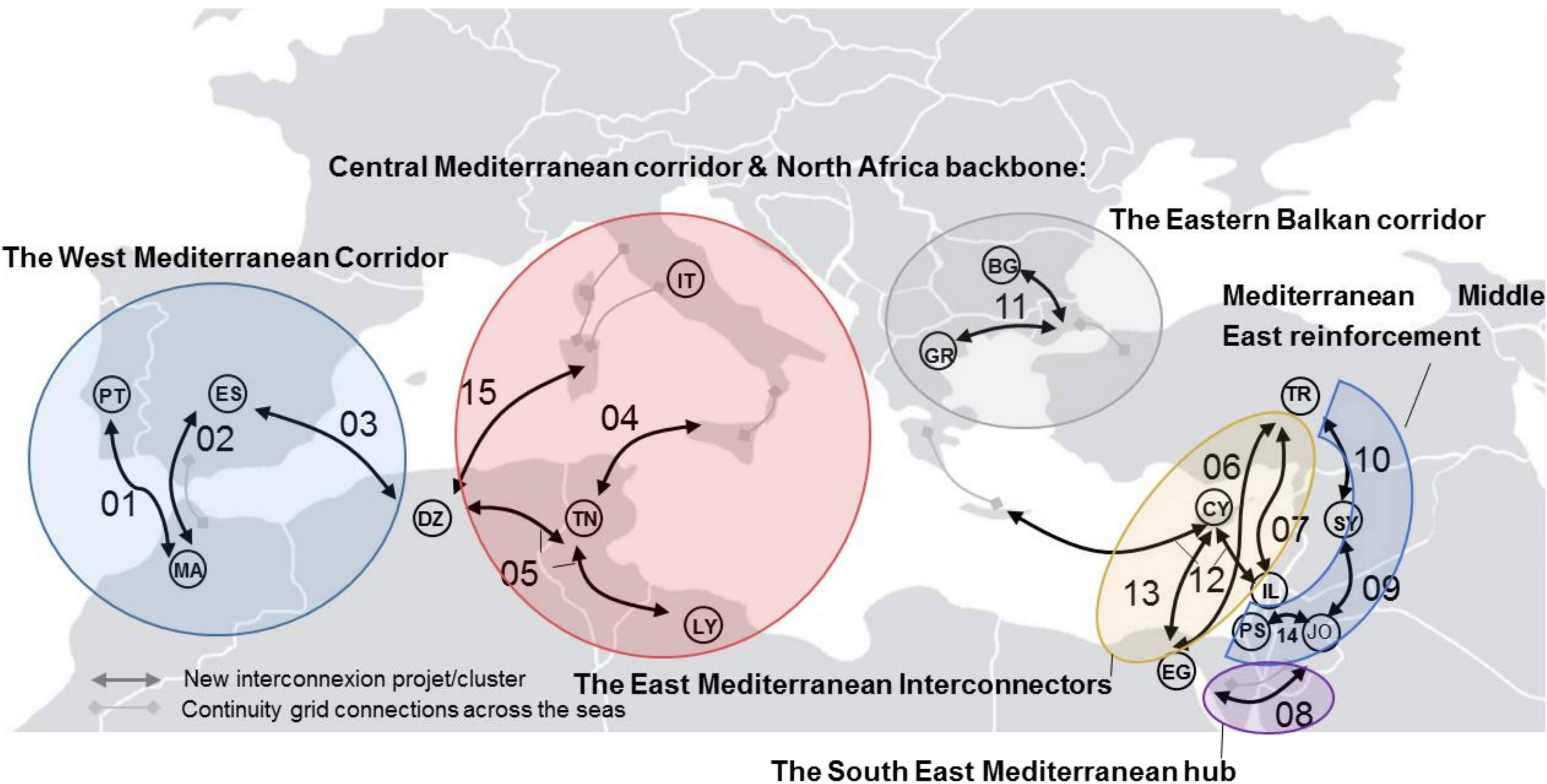
- **MP1 (2015-18)**
- **MP2 (2018-20)**
- **TEASIMED (2020-22)**

# THE ACTION PLAN

Planning of infrastructures	1.1	<i>Mediterranean Network Development Plan</i>
Regulation & Power System rules	2.1.A	<i>Mediterranean Grid Code: System Services</i>
	2.1.B	<i>Proposal of common process for the connection procedure</i>
	2.2.A	<i>Study of potential candidates and proposal of Pilot Project(s)</i>
	2.2 B	<i>Proposal of Tentative Road Map for Pilot Project(s)</i>
	2.3	<i>Proposal of set of data to be published</i>
Scenarios, Adequacy and Market Studies	3.1.	<i>Reference Energy Scenario report – with Market Model and Energy Exchanges</i>
	3.2 A	<i>Guidelines and methodology for Periodic Adequacy Report</i>
	3.2 B	<i>Periodic Adequacy Report</i>
Grid development & Market integration	4.1.	<i>Survey on of solutions for grid integration</i>
	4.2.	<i>Survey on criteria for the allocation of costs and risks</i>
Operation of Power Systems	5.1.1	<i>Design and implementation of a section of the extranet area dedicated to operational data and reports</i>
	5.1.2	<i>Procedure for collection, merge and report of operational data</i>
	5.2.	<i>Periodic report on Operation system behavior and statistics</i>
Training and Knowledge sharing	6	<i>Events of Knowledge Sharing</i>

THE MEDITERRANEAN MASTERPLAN

 15 projects  +18 GW capacity  +4100km HVDC



NO.	INTERCONNECTION PROJECT / CLUSTER	Capacity [MW]	HVDC
1	MA-PT (Morocco – Portugal)	1000 MW	✓
2	MA – ES (Morocco – Spain)	900 MW	
3	DZ- ES (Algeria – Spain)	1000 MW	✓
4	TN – IT (Tunisia - Italy)	600 MW	✓
5	DZ – TN – LY (Algeria – Tunisia - Libya)	1000 MW/2000 MW	
6	TR – EG (Turkey - Egypt)	3000 MW	✓
7	TR – IL (Turkey – Israel)	2000 MW	✓
8	EG – JO (Egypt – Jordan)	550 MW	
9	JO – SY (Jordan – Syria)	800 MW	
10	SY – TR (Syria – Turkey)	600 MW	
11	GR- TR – BG (Greece - Turkey - Bulgaria)	500 MW/500MW	
12	IL- CY- GR (Israel – Cyprus – Greece)	1000MW/1000 MW	✓
13	EG- CY (Egypt – Cyprus), joint with project 12	1000 MW	✓
14	JO – PS (Jordan – Palestine)	100 MW	
15	DZ- IT (Algeria – Italy)	1000 MW	✓

## **REGULATION & POWER SYSTEM RULES**

### **1. Common Target Regulatory Framework (phase II)**

- Proposal of Common Rules for sharing the provision of system services: Mediterranean Grid Code
- Proposal of common process for the connection procedure

### **2. Zonal Target Regulatory Framework and Roadmap**

- Potential candidates and proposal of Pilot Project(s) Zone Rules
- Proposal of Tentative Roadmap for a practical implementation of harmonized rules in Pilot Project

### **3. Transparency & Public information harmonization**

- Proposal of data sets to be published in TSOs and Med-TSO websites and implementation procedure

### **4. Criteria for the allocation of costs and risks**

- Survey on criteria for the allocation of costs and risks.

# SCENARIOS, ADEQUACY & MARKET MODELS

## 1. Development of a set of long-term scenarios and market models

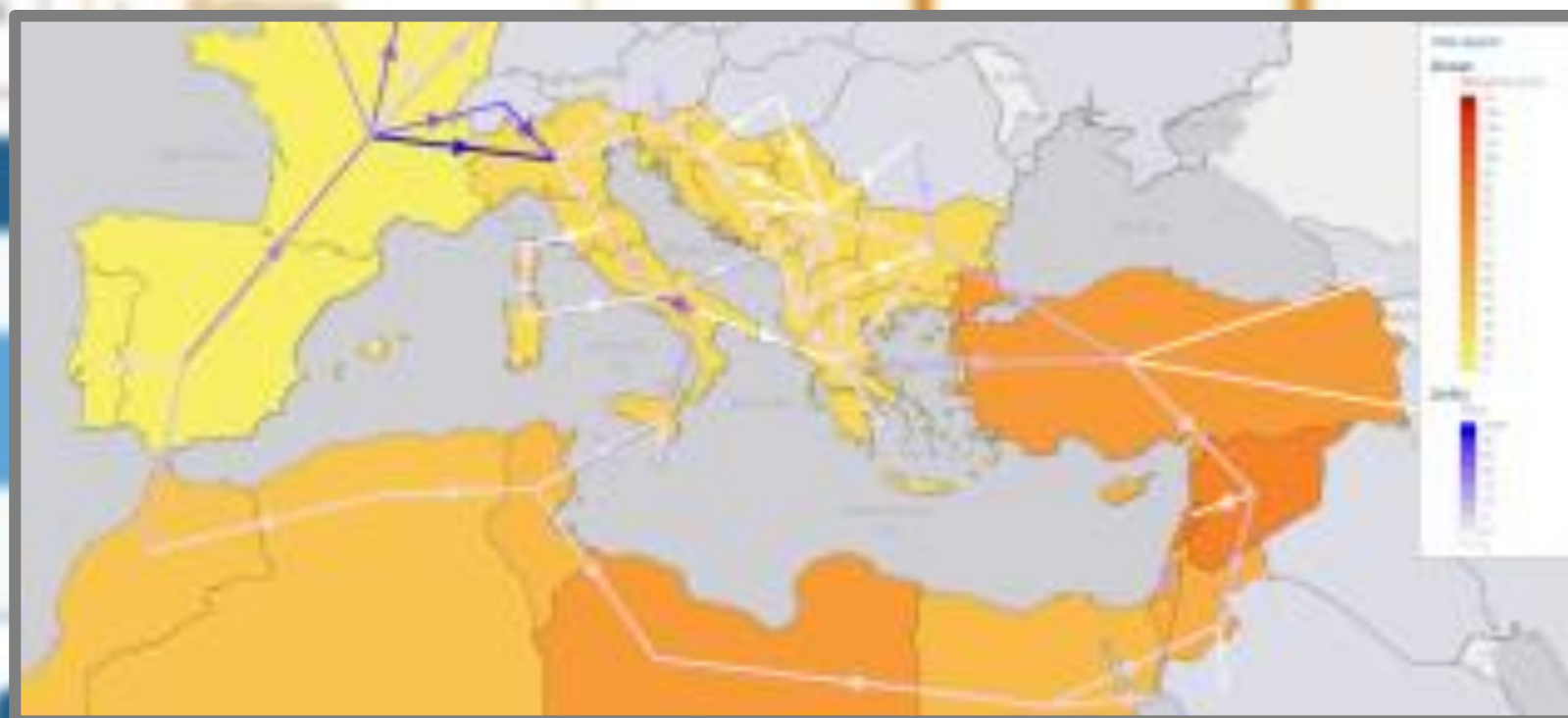
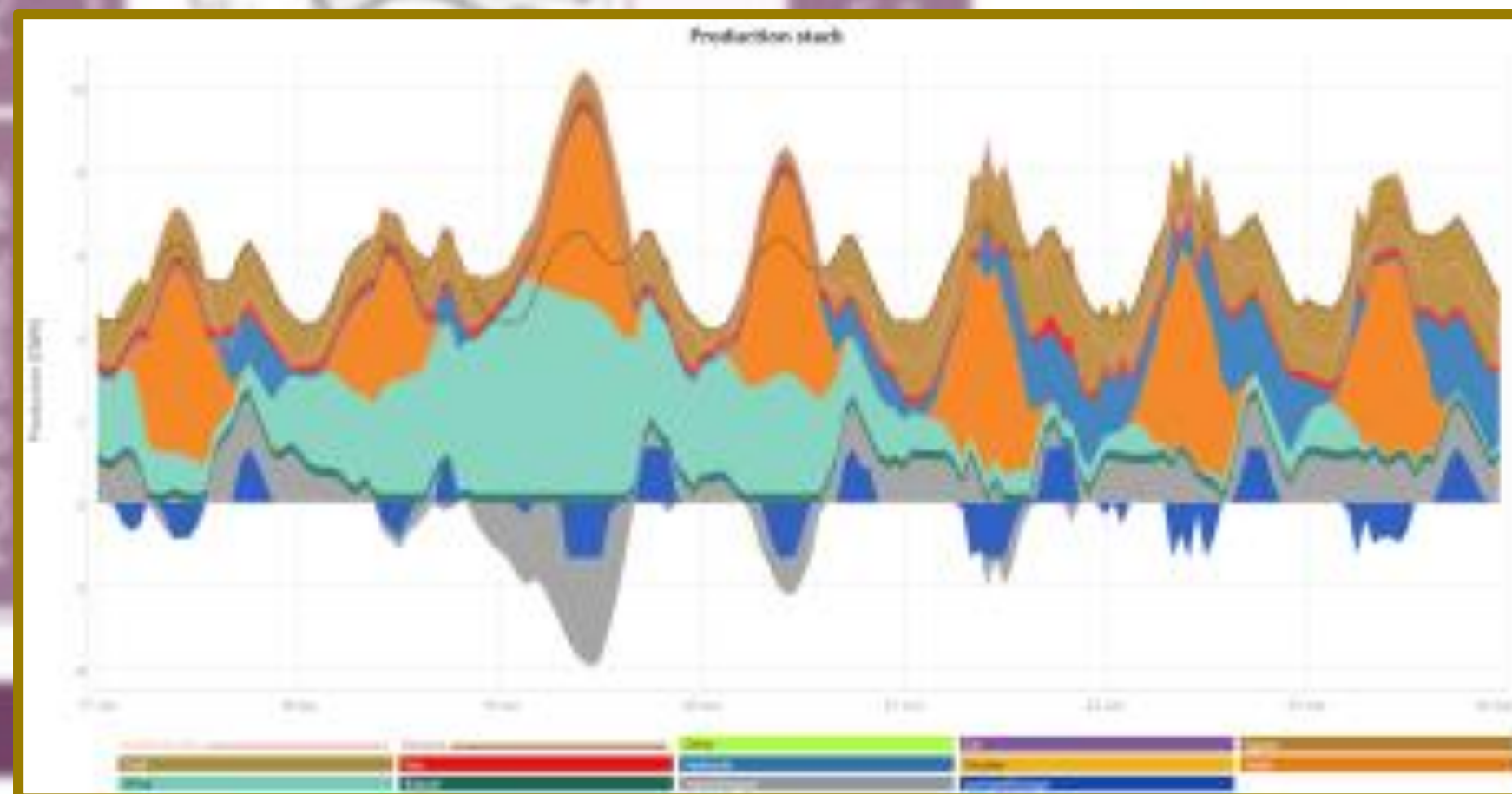
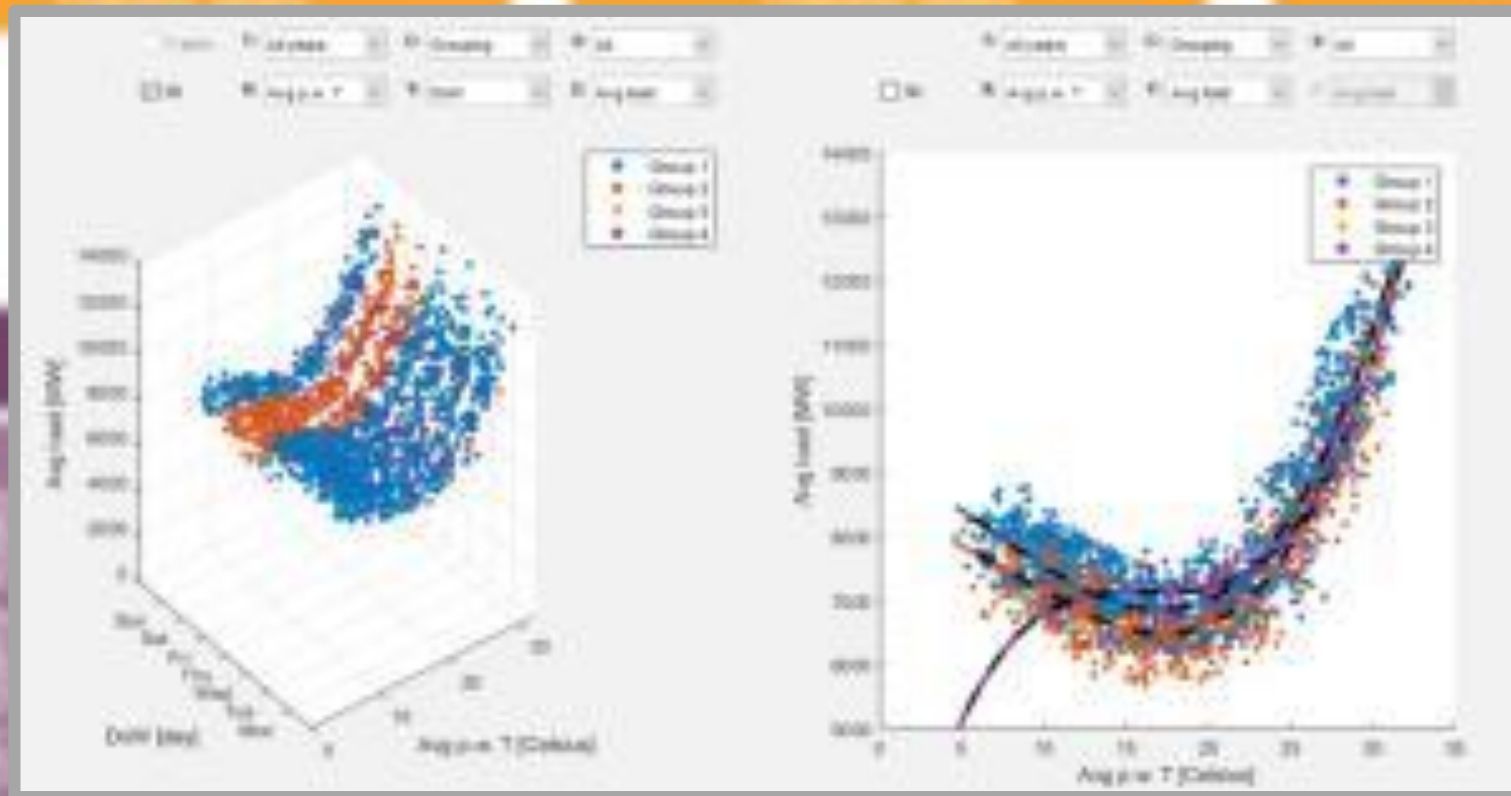
- Scenario Building, for the Mediterranean countries
- Power System modelling, including the whole interconnected area
- Assessment of new interconnection projects (Cost Benefit Analysis)

## 2. Lay the ground for a Med-TSO Seasonal Outlook

- Guidelines and methodology for Periodic Adequacy Report
- Periodic Adequacy Report focused on demand forecast and RES modelling

## 3. Tools and capacity building

- Development of internal capabilities for power system modelling (ANTARES), Electricity demand analysis and forecast (TRAPUNTA)
- Cooperation with ENTSO-e, data sharing (TYNDP2020)



# OPERATION OF POWER SYSTEMS

## KPIs of the regional electricity system

A cooperation approach between the members of Med-TSO has led to the definition of a set of 5 KPIs that the majority of members commonly calculate and agree to publish

- Frequency Deviation Index (FDI)
- Transmission Losses
- Energy Not Supplied (ENS)
- Average Interruption Time (AIT)
- Interconnection Availability

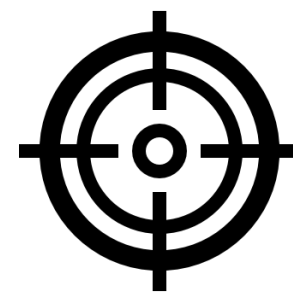
## Common Web Platform

The platform now includes a grid map and statistical data on generation, demand, cross-border exchanges, network development (evolution of the total length of lines and total capacity of transformers) and KPIs



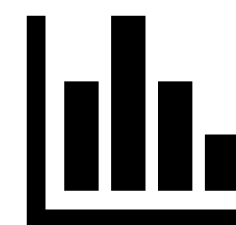
**Future involvements: real-time data on generation and demand, forecasts and information on planned interconnection capacity and market prices**

## TRAINING & KNOWLEDGE SHARING



### OUR MISSION

- Organisation of Knowledge Sharing events.
- Support in terms of training strategy
- Facilitate and reinforce cooperation and attendance of our members



### OUR FACTS

**6** workshops

**258** attendants

**4 , 25 / 5** workshops average evaluation



### TOPICS COVERED

- Scenario building
- HVDC Technology
- Regulation of electricity infrastructure investment  
(*Joint training with MedReg*)
- TRAPUNTA software
- Utility-scale storage technologies and their integration toward a massive RES development
- CBCA methodology (*Joint training with MedReg*)



**15 reports, 6 brochures and  
15 cluster assessment, all  
available on Med-TSO  
website ([www.med-tso.com](http://www.med-tso.com))**



**Full digital navigation of  
reports for detailed analysis  
of scenarios and projects  
assessment results**



**Powerful database & web  
platform for statistical data and  
future exchange of operational  
data**

# THANK YOU!