

Mediterranean TSOs take a real step towards market integration

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By Sonja van Renssen



Cyprus does not have electricity interconnections

Mediterranean TSOs are finally taking concrete steps to create a regionally integrated electricity market. They are proposing 14 interconnector projects connecting some countries that have never been linked before. There is still a long way to go to make a Mediterranean energy union a reality, but lessons have been learned from failures of the past, writes Sonja van Renssen.

In the past three years, Mediterranean TSOs have moved from “endless reflections and debates” to “concrete deliverables” on interconnections, grid balancing and integrating renewables. So reads the preface by Moncef Harrabi, President of the Association of Mediterranean Transmission System Operators (Med-TSO), to

the final report of the so-called Mediterranean Project. This report was presented at a [conference](#) in Brussel on 10 April to mark the end of the three-year Project.

Med-TSO was established back in April 2012 in Rome, as a technical platform to facilitate the integration of the Mediterranean power systems – and foster security and socio-economic development in the region. It brings together the TSOs of 18 Mediterranean countries and feeds the more political Union for the Mediterranean (UfM) and its regional Electricity Market Platform.

In 2015, Med-TSO received a European Commission grant of €2.4 million to cover three-quarters of the cost of a new project, the “Mediterranean Project”. Three years later, the results are apparently substantial enough that the Commission is set to extend its financing by another €1.1 million for two more years at the end of April.

A Master Plan

It is no secret that despite a wealth of potential sun and wind power – and energy efficiency – the Middle East and North Africa are still [struggling](#) to put in place a systemic energy transition. From the EU’s perspective, energy is a development priority. To back this up, a new external investment plan intends to provide an EU guarantee to clean energy investors in third countries. In the longer term, the EU sees opportunities to diversify energy sources and routes. The lesson from [Desertec](#) ten years ago is that any opportunities must develop bottom-up.

The European Parliament has taken up the cause too, with 17 MEPs signing up to a [manifesto](#) to promote cooperation in the “Euromed” region in May 2017.

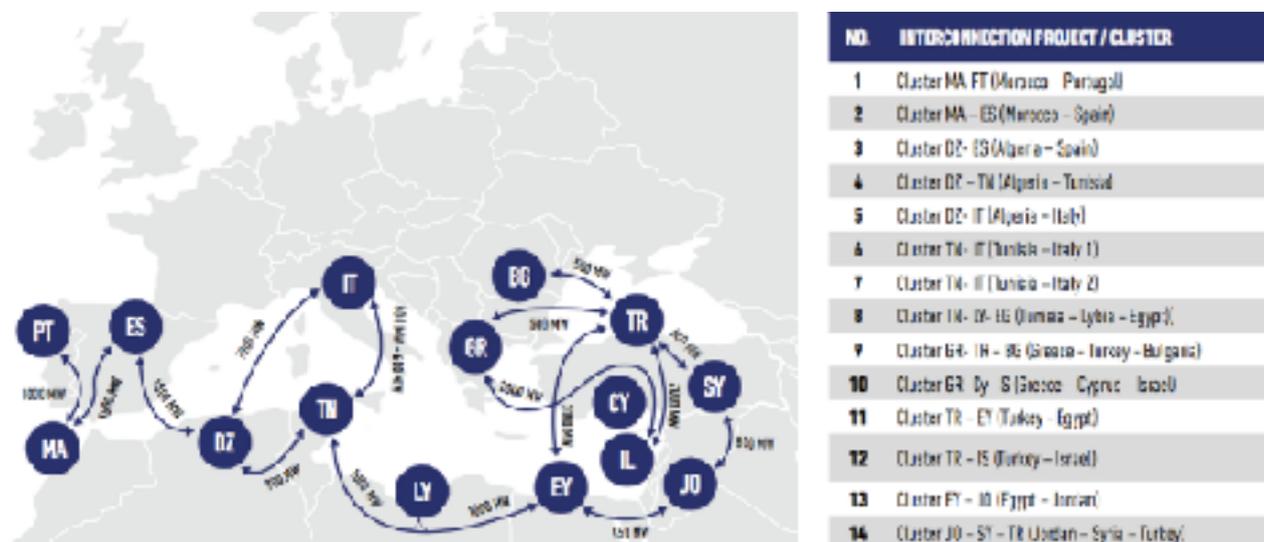
The Mediterranean Project’s first achievement has been to demonstrate that TSOs in “one of the most complicated regions in the world” can work together. Remember Medgrid? That project, dating back to the Desertec era, aimed to establish a high-voltage

network around the Mediterranean – until it was derailed by geopolitical developments such as the war in Syria.

True, the Mediterranean Project is founded on technical issues, but it has delivered a Master Plan that is “the first example of a coordinated development plan of electricity infrastructures in the region”. The fact that it has been developed by the companies in charge of managing these infrastructures – the TSOs – makes it realistic.

The TSOs have agreed a roadmap to implement a common framework of technical rules and procedures to manage and operate the grid (effectively a regional grid code). They have explored the potential for international electricity exchanges, created a database for the Mediterranean power system, and devoted time and money to knowledge sharing. They have assessed the costs and benefits of new interconnections in terms of security of supply and renewables integration.

The details



Very concretely, the Mediterranean Master Plan prioritises **14 interconnector projects**, nine of them based on high-voltage direct current (HVDC) technology, grounded in several different energy scenarios out to 2030. Five of the interconnectors link countries that have never been linked before. One of them ends the electricity

isolation of Cyprus. In figures, it's almost 18GW of new interconnection capacity requiring about €16 billion of additional investments (but with limited reinforcement needs). Med-TSO applied a cost-benefit methodology derived from that developed at European level by ENTSO-E, the association of European TSOs, to the projects.

All 14 projects show benefits “in terms of both economics and adequacy”. The projects are grouped into three corridors (Western – projects 1-3; Central – projects 4-8; and Eastern – projects 9-14), which is itself an “important outcome” of the Master Plan, the final report notes.

Med-TSO has also developed the basis for a **Mediterranean Grid Code**. A “systematic investigation on the state of regulation in the TSOs” identified 66 specific topics and 24 areas to prioritise for harmonisation (out of an initial 135 and 34 that *could* be harmonised). They fall into four categories: legal and regulatory, grid connections for users, operations, and markets. A roadmap splits the priorities down further into short, medium and long-term. Most of the harmonisation potential is in operations.

An assessment of the potential for **regional cross-border exchanges** revealed substantial differences between the northern and southern shores of the Mediterranean. In the South, interconnections are still primarily used to improve security of supply, although there is “room for market”. In the North, European countries are “advancing towards a real internal energy market”.

Other differences include that in the South, most TSOs do not apply capacity allocation considerations and most of the electrical data is not published. In contrast, technical operations are fairly well aligned (e.g. application of the N-1 criterion for security of supply). From the perspective of integrating renewables, sharing system services is possible, although bilateral agreements prevail over market rules.

A new **database for the Mediterranean power system (DBMED)** is now available. This is a web-based tool that stores, country by country, historical data on adequacy and related parameters such as generation and demand, plus full information on grid system components. The database has been designed to provide network data, market data, and historical and statistical data for adequacy studies.

Finally, **knowledge sharing** has been a central focus of the Project, with three workshops already held and more planned for the next phase. These will in part address HVDC technology, which is expected to be the most used for crossing the Mediterranean.

With the new two-year grant from the Commission, Med-TSO aims to continue what it started, with regular updates and improvements to the Mediterranean Master Plan, and more harmonisation of technical rules and regulations. It may implement a “zonal approach” that promotes faster harmonisation where possible. The association also plans to beef up its ability to provide adequacy reports and market studies. It wants to start cooperation in operations, by setting up a common web-based platform for TSOs to gather information about cross-border interconnections. It also plans to draft regular reports on market operation in normal and critical conditions. Finally, it plans to launch an “intensive” exchange of know-how between Med-TSO members and with stakeholders in the region.

The challenges for cross-border cooperation at a system level are not insubstantial, yet they are critical as a foundation for market integration. So much for electricity. What about gas? Electricity and gas are increasingly talked about as partners in the energy transition. There is a UfM Gas Platform. And there is an awful lot of excitement around gas discoveries in Israel, Cyprus, Egypt etc. With a gas bonanza on the cards, a Med-TSO for gas, anyone?

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