

# **Deliverable 2.1.1**

## **Guidelines for Coordinated Planning:**

### ***c) Procedures for the Mediterranean Master Plan***



**EC DEVCO - GRANT CONTRACT: ENPI/2014/347-006**

**“Mediterranean Project”**

**Task 2 “Planning and development of the Euro-Mediterranean  
Electricity Reference Grid ”**



Med-TSO is supported by the European Union.

This publication was produced with the financial support of the European Union. Its contents are the sole responsibility of Med-TSO and do not necessarily reflect the views of the European Union.



**Table of contents:**

Overview .....	3
Scope .....	3
Procedure to define the Mediterranean Master Plan .....	4
1.1 Collection of National Development Plans (NDPs)	4
1.2 Drivers analysis	5
1.3 Investments selection and classification	5
1.4 Update of investments list	6
1.5 Market studies	6
1.5.1 Data collection for market database.....	6
1.5.2 Sharing of market scenarios.....	7
1.5.3 Market simulations .....	7
1.5.4 Validation of market results.....	7
1.6 Network studies	7
1.6.1 Data collection for network database.....	8
1.6.2 Network simulations .....	8
1.6.3 Validation of network analysis results .....	8
1.7 Cost Benefit Analysis	9
1.8 Drafting the Mediterranean Master Plan	9
1.9 Approval of Mediterranean Master Plan	9
1.10 Publication of Mediterranean Master Plan	10
Annex – Planning table (Calendar).....	10



## Procedure for the Mediterranean Master Plan

---

### Overview

Adopting a procedure among Med-TSO countries for the preparation of a Grid Development Plan represents a basic condition towards a coordinated and integrated development of transmission grid within the Mediterranean area. To this goal, this section is aimed at offering a shared and common procedure for the definition of the future *Mediterranean Master Plan (MMP)*, which will represent the reference tool for a joint network planning in the Euro- Mediterranean basin.

With reference to the Med-TSO current organization, the main entities (in the following *units*) involved in the definition of the Mediterranean Master Plan are:

- Technical Committee 1 (TC1) *Planning* of Med-TSO
- Working Team (WT) could be Regional Group (RG) West and East or one or more ad hoc teams charged by TC1 for specific tasks
- Economic Studies and Scenarios Working Group (ESS WG)
- Task Force Database
- Secretariat (SEG)
- External experts (Ext), resources to whom Med-TSO has assigned a specific task by contract

TSO Members are represented in TC1 in all phases before approval.

Further evolution of the Med-TSO Association can redistribute the tasks assigned to the aforementioned units. For specific tasks external experts could be involved in the process at least for the first edition of the MMP.

It is assumed that each TSO member will make available the information asked in the following of this section. These informations are included in the summary of the NDPs in English (in exceptional cases), based on the same definition and comparable criteria.

### Scope

The MMP will be elaborated in a project-oriented environment, with the aim of finalizing periodically - every two years - a ten-years master plan in coordination with the TYNDP directly with ENTSOE or through the European TSOs of Med-TSO.

According to the internal rules framework in force and the AoA of Med-TSO MMP is not legally binding but based on unanimous consensus.

The approach proposed here - to mitigate inherent uncertainty (e.g. feedback from stakeholders, outputs of scenarios, resources, MEDREG /ACER/EC/NRs interaction...) - is to follow a procedure conceived in a number of manageable stages, with definite timings and formal approval by the relevant entities at each step involved before closing a stage and launching a new one.



In the following section, a step-by-step planning procedure is described, providing guidelines for:

- structure and organization of tasks
- scheduling of the activities
- sharing and approval processes

### Procedure to define the Mediterranean Master Plan

This section highlights, sequentially, the activities to be performed as well as the subjects responsible for each task towards the definition of the MMP.

The procedure identifies:

**Stage:** i.e. the sequence number of the activity

**Object:** i.e. the output at the end of the segment of activity

**Responsibility:** the responsibility to implement the segment of activity or to approve the results, notwithstanding that data and result responsibility which remains within the TSO members

**Implementation:** carrying out an activity according to given agreed rules

**Timing:** i.e. the expected time to complete the activity

#### 1.1 Collection of National Development Plans (NDPs)

Stage #	Object	Responsibility	Implementation	Timing
1	Data Collection	TC1	WT	8-10 weeks

The task requires the collection of NDPs of each Member. TC1 is responsible of the design of the whole process of Data Collection (structure of the questionnaire, procedure etc). TC1 may assign the activity of Data Collection to the RGs or other WT within TC1, who shall contact the Members and collect all the information required according to the procedure and in the format proposed by TC1. WT are entitled to suggest the most efficient preprocess of the information by TSOs. An executive summary in English should be provided to the TC1, reporting at least the following information:

- Reference scenario for the NDP
- Demand forecasts
  - Yearly energy demand
  - Yearly power peak
- Generation forecasts
  - Outlook for thermal generation



- Outlook for RES generation
- Outlook for fuel mix
- Existing interconnections
- Main projects planned
  - Relevant internal projects
  - Development of interconnection capacity
- Main drivers of the NDP
- Main goal expected by the implementation of the NDP

## 1.2 Drivers analysis

Stage #	Object	Responsibility	Implementation	Timing
2	Data Analysis	TC1	WT	8-12 weeks

According to information included in the NDPs collected, an analysis of the drivers considered by each TSO to plan relevant grid reinforcements at national level will be performed within TC1. Furthermore, a comparison of the expected goals will be carried out at this stage, in order to get a clear picture of the transmission system needs within Mediterranean.

## 1.3 Investments selection and classification

Stage #	Object	Responsibility	Implementation	Timing
3	Investment preliminary analysis for selection and classification	TC1	TC1	8 weeks

The main aim at this stage will be to identify a common set of relevant Euro- Mediterranean projects. Each project could be either a single item or a cluster of items (lines, substations, transformers) which contribute to the same main electric benefit/benefits.

In addition, the selected projects should be classified:

- according to the main benefits that are expected to provide (improved security of supply, improving social economic welfare, RES integration, losses reduction, etc.).
- According to their maturity (under study, decided, agreed with neighbors, etc.)

The main drivers to be considered in the projects selection should be:



- To ensure a safe operation of the Euro-Mediterranean interconnected system;
- To provide a high level of security of supply for all the Countries;
- To contribute to a sustainable development of each Country;
- To facilitate grid access and the development of market schemes;
- To facilitate competition in order to improve the efficiency of the system;
- To promote the harmonization in the operation procedures among countries.

The main goal at this stage would be the identification of a common set of projects of Euro-Mediterranean relevance. In addition, the selected projects should be classified according to the main benefit they are expected to provide (improved security of supply, improving social economic welfare, RES integration, losses reduction).

TC1 is in charge of this task. The investment may be shared at Regional level or among Blocks of Countries (limited set of Countries). TC1 should submit a final proposal including all the investments selected at RG/Block level.

#### **1.4 Update of investments list**

Stage #	Object	Responsibility	Implementation	Timing
4	Investment list for market studies	TC1	TC1	4-6 weeks

TC1 is in charge of discussing and submit to internal approval the list of investments to be included in the MMP. The list of investments will be the base of the MMP characterized by their state of maturity.

An agreed subset of selected investment projects will be proposed to be included in Market Studies and network studies.

#### **1.5 Market studies**

Market studies are used to assess the contribution of projects to the security of supply and calculate the dispatch of generation units and load all along the year on an hourly basis, using a simplified model of the physical grid.

##### **1.5.1 Data collection for market database**

Stage #	Object	Responsibility	Implementation	Timing
5.1	Data collection	ESS WG	ESS WG	8-12 weeks



At this stage, each member of ESS WG is requested to provide data to update the market database.

More in details, among the most important information to be provided are:

- demand and generation forecasts to be considered at MMP time horizon;
- other relevant externalities to be considered (policies and targets, environmental aspects).

### 1.5.2 Sharing of market scenarios

Stage #	Object	Responsibility	Implementation	Timing
5.2	Data validation	ESS WG	ESS WG	4 weeks

The scope of this step is to agree the reference case for market assessment of projects. More than one scenario are likely to be built with the aim of capturing uncertainties and the related interactions affecting the evolution of the power system in the studied region at a fixed time horizon. Once the set of scenarios is agreed, the Market studies will be performed by the ESS WG.

### 1.5.3 Market simulations

Stage #	Object	Responsibility	Implementation	Timing
5.3	Calculations	ESS WG	ESS WG	8-12 weeks

The ESS WG will be in charge of performing market analysis on Regional/Med-TSO perimeter.

### 1.5.4 Validation of market results

Stage #	Object	Responsibility	Action	Timing
5.4	Validation	TC1	TC1	4-6 weeks

TC1 may ask the WT to organize meetings dedicated to the detailed presentation of the results of the market studies to the members. Finally, the results of the market studies will be shared, discussed and validated among the members of TC1.

## 1.6 Network studies

Network models contain the full detail of the physical grid characteristics and are used to calculate the actual load flows in the network, under given generation/load conditions. Network studies are in particular necessary to compute the GTCs (Grid Transmission Capacity).

If the Network Studies results remarkably affect the Market studies conclusions, thus further market analyses should be conducted



### 1.6.1 Data collection for network database

Stage #	Object	Responsibility	Implementation	Timing
6.1	Data collection	TC1	WT	8-12 weeks

At this stage WT will be requested to provide data to update the network database.

More in details, among the most important information to be provided are:

- EU/national models
- other grid parameters necessary (to be defined)
- demand, generation, power exchange forecasts to be considered at MMP time horizon
- relevant demand and generation profiles (daily, monthly, yearly)

These data are likely to be managed by external experts as well, which could be involved in the framework of Database Task Force (see also Database procedures).

### 1.6.2 Network simulations

Stage #	Object	Responsibility	Implementation	Timing
6.2	Network analysis	TC1	WT (Med-TSO/Ext)	8-12 weeks

Network calculations will be performed on network analysis on Regional or Block perimeter. The calculation will be performed by Med-TSO resources, supported by members of TC1 and RGs. Only in case of lack of such resources or time constraints, will TC1 be allowed to engage external qualified resources to perform this task.

The object shall include: feasibility studies, prioritization of internal grid reinforcements and standard cost evaluation.

### 1.6.3 Validation of network analysis results

Stage #	Object	Responsibility	Implementation	Timing
6.3	Validation	TC1	TC1	4-6 weeks

The results of network studies will be shared discussed and validated among the members of the TC1. TC1 may ask WTs to organize dedicated workshops to present and disseminate the results of the network studies to the members.



### 1.7 Cost Benefit Analysis

Stage #	Object	Responsibility	Implementation	Timing
7	Calculation	TC 1	TC3/ESS	8-12 weeks

The investments will be assessed according to the Cost Benefit Analysis (CBA) defined for MED-TSO projects (it would be recommended to keep ENTSO-E as reference, adapting such methodology to the specific context represented by the MED-TSO area). Input for CBA will be partly provided by market and network studies.

This task will be performed jointly by TC3 and ESS. Based on costs provided by TC1 and benefits deriving from market studies .

### 1.8 Drafting the Mediterranean Master Plan

Stage #	Object	Responsibility	Implementation	Timing
8	Drafting/Editing	TC1	TC1/ WT (Med-TSO/Ext)	8-12 weeks

This task consists in the drafting and editing of the final Mediterranean Master Plan document.

Among the others, the final document should include:

- the description of drivers considered for projects selection
- the project investments list and description
- the description of scenarios considered
- the description of methodology applied for CBA
- the results of CBA assessment

TC1 may assign this activity to external resources in case of lack of internal ones..

A detailed procedure will be defined at a later stage.

### 1.9 Approval of Mediterranean Master Plan

Stage #	Object	Responsibility	Implementation	Timing
9	MMP approval	GA	EB \Secretariat (TC1)	6-8 weeks



The final document will be submitted by the EB, supported by the Secretariat and TC 1, for approval to the:

- General Assembly

### **1.10 Publication of Mediterranean Master Plan**

The approved document will be sent by Med-TSO to the relevant stakeholders, among others:

- Associate TSOs
- European Commission
- MEDREG /ACER/ National Regulators
- Other relevant stakeholders

The MMP will be also published on the Med-TSO website.

### **Annex – Planning table (Calendar)**

Stage #	Calendar (deadlines)	Object	Timing
1	Y-2 FEB	Data Collection	8-10 weeks
2	Y-2 APR	Data Analysis	8-12 weeks
3	Y-2 LUG	Investment preliminary analysis for selection and classification	8 weeks
4	Y-2 AGO	Investment list for market studies	4-6 weeks
5.1	Y-2 OTT	Data collection	8-12 weeks
5.2	Y-2 NOV	Validation	4 weeks
5.3	Y-1 GEN	Calculations	8-12 weeks
5.4	Y-1 FEB	Validation	4-6weeks
6.1	Y-1APR	Data collection	8-12 weeks
6.2	Y-1GIU	Calculations	8-12 weeks
6.3	Y-1 LUG	Validation	4-6 weeks
7	Y-1 SET	Calculation	8-12 weeks
8	Y-1 OTT	Drafting/Editing	8-12 weeks
9	Y-1 DIC	MMP approval	6-8 weeks
10	Y-1DIC	Publication	

Y = year of publication

## **DISCLAIMER**

*This document contains information, data, references and images prepared by the Members of the Technical Committees “Planning”, “Regulations and Institutions”; “International Electricity Exchanges” and Working Group “Economic Studies and Scenarios”, for and on behalf of the Med-TSO association. Whilst the information contained in this document and the ones recalled and issued by Med-TSO have been presented with all due care, the Med-TSO Members do not warrant or represent that the information is free from errors or omission.*

*The information are made available on the understanding that the Med-TSO Members and their employees and consultants shall have no liability (including liability by reason of negligence) to the users for any loss, damage, cost or expense incurred or arising by reason of any person using or relying on the information and whether caused by reason of any error, negligent act, omission or misrepresentation in the information or otherwise.*

*Whilst the information is considered to be true and correct at the date of publication, changes in circumstances after the time of publication may impact on the accuracy of the information. The information may change without notice and the Med-TSOs Members are not in any way liable for the accuracy of any information printed and stored or in any way interpreted and used by a user.*

*The information of this document and the ones recalled and issued by Med-TSO include information derived from various third parties. Med-TSOs Members take no responsibility for the accuracy, currency, reliability and correctness of any information included in the information provided by third parties nor for the accuracy, currency, reliability and correctness of links or references to information sources (including Internet Sites).*