MEDITERRANEAN PROJECT

First year of activities

Task 1. Common Set of Rules
Activity 1.1 Starting Regulatory Framework

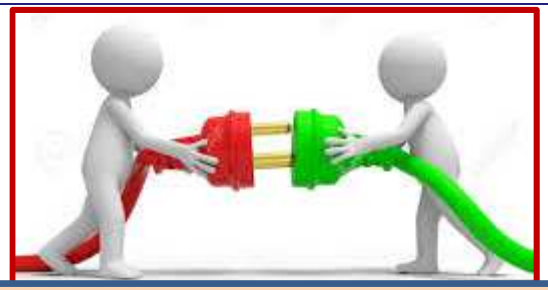
Barcelona, 7-8 March 2016

supported by the EU

Med-TSO
MEDITERRANEAN TRANSMISSION SYSTEM OPERATORS

hosted by the UfM

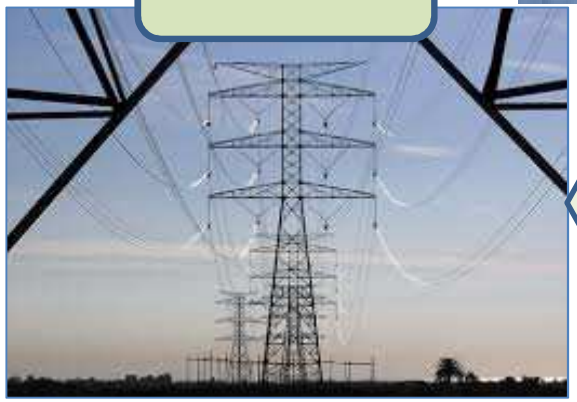
Interconnecting power systems: The goal and the conditions



The Goal: Capturing the Benefits of Interconnections
Technical, Economic, Environmental

And Very Important:
Learning from the Itinerary!

The Grid



The Conditions

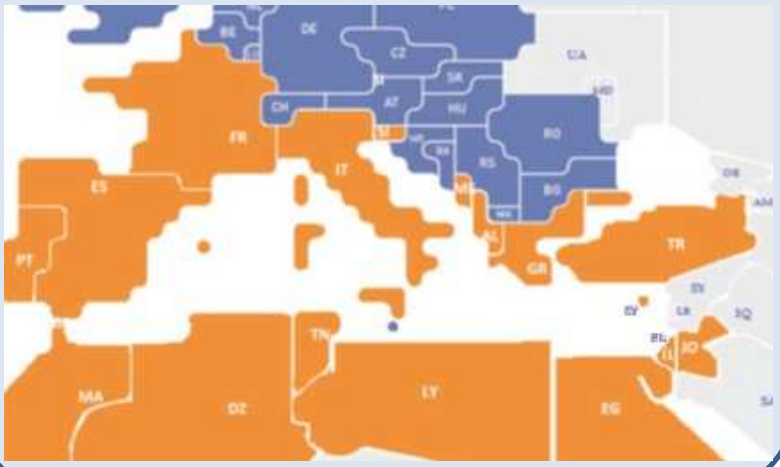
The Rules

Task 1. Objective and Approach

Develop a ***minimal and common set of basic rules*** for the future Mediterranean interconnected power systems in the following fields:

- Connection of relevant users to the transmission grid.
- Operation of interconnected systems.
- System market mechanisms

MAXIMIZING INTERNAL PARTICIPATION OF TSOs MEMBERS



COOPERATION WITH RELEVANT INSTITUTIONS

MedReg
Mediterranean Energy Regulators

entsoe
Reliable Sustainable Connected

Task 1. Activities and Deliverables

Where are we?

A 1.1 Compilation of relevant regulatory framework in Mediterranean systems and countries (agreements, contracts, codes, regulations).

- **D 1.1** Starting Regulatory Framework (SRF)

Where do we want to go? And which way?

A 1.2 Elaboration of Common Target Regulatory Framework (CTRF) and Roadmap for adoption and compliance

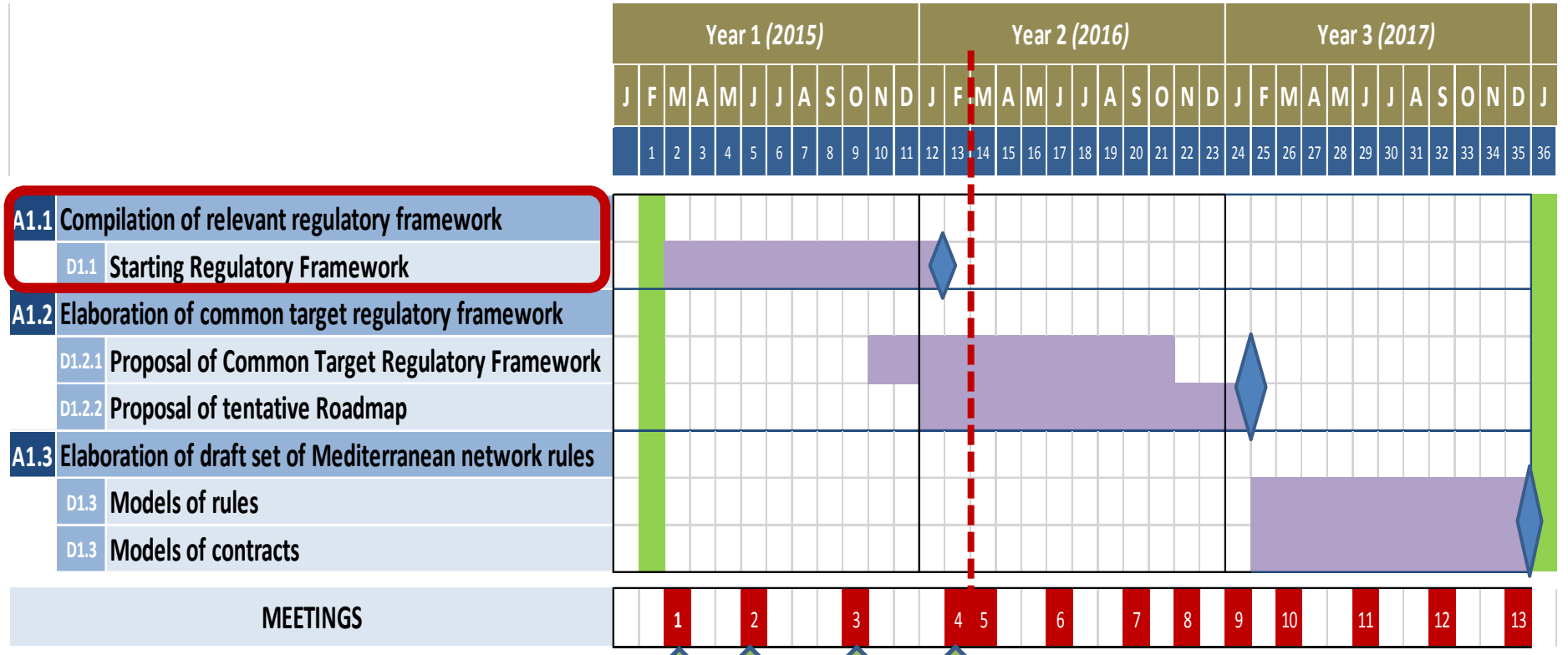
- **D 1.2.1** Proposal of Common Target Regulatory Framework
- **D 1.2.2** Proposal of Tentative Roadmap.

How to function in the common destination?

A 1.3 Elaboration of draft set of Mediterranean network rules.

- **D 1.3** Models of rules and contracts

Task 1. Timetable and participation



1st Meeting. 3rd March 2015 (Madrid)

2nd Meeting. 11th June 2015 (Madrid)

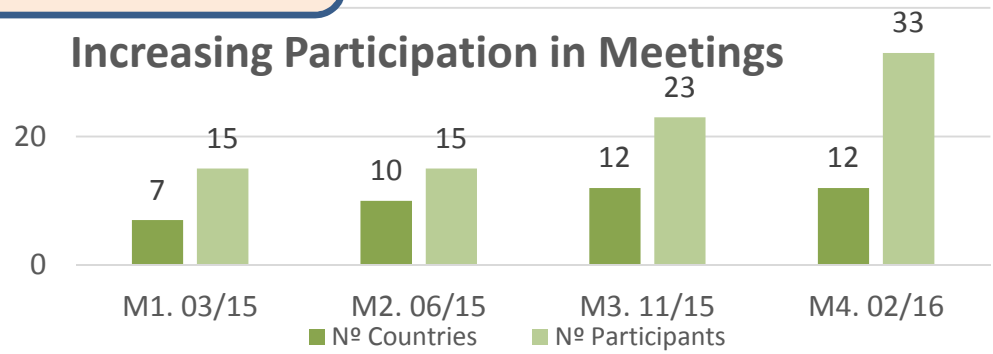
3rd Meeting + Int. WS TC2-TC3. 3rd – 4th Nov 2015 (Rome)

4th Meeting + Int. WS TC2-TC3. 9th – 10th Feb 2016 (Rome)

Task 1. Working Methodology and Structure

Participative elaboration of survey questionnaires oriented to collect current reality

Harmonization calls for optimizing direct participation of TSOs in meetings and workshops



Dedicated task forces maximizing TSOs involvement

Coordination
REE

Area 0: General regulatory issues
REE

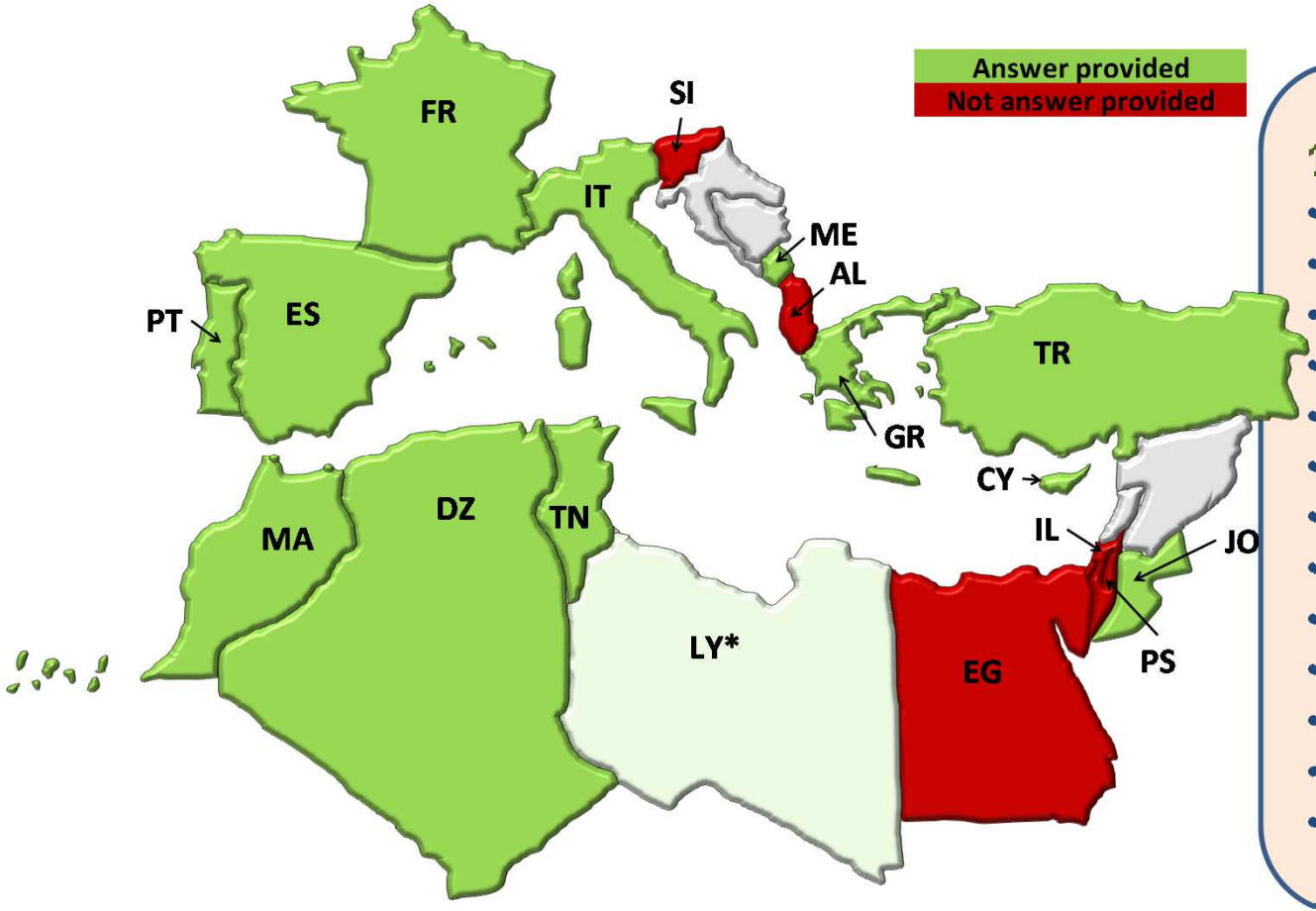
Area 1: Connection
TEIAS (leader)
IPTO
REN
REE

Area 2: Operation
SONELGAZ-OS (leader)
NEPCO
ONEE
IPTO
REE

Area 3: System Markets
TERNA (leader)
STEG
RTE
GECOL

Task 1. Resulting Participation

Cooperative approach among MedTSO members has enabled collection and assessment of Regulatory Framework in national systems through a set of survey questionnaires that includes potential issues to have a common or harmonized regulation



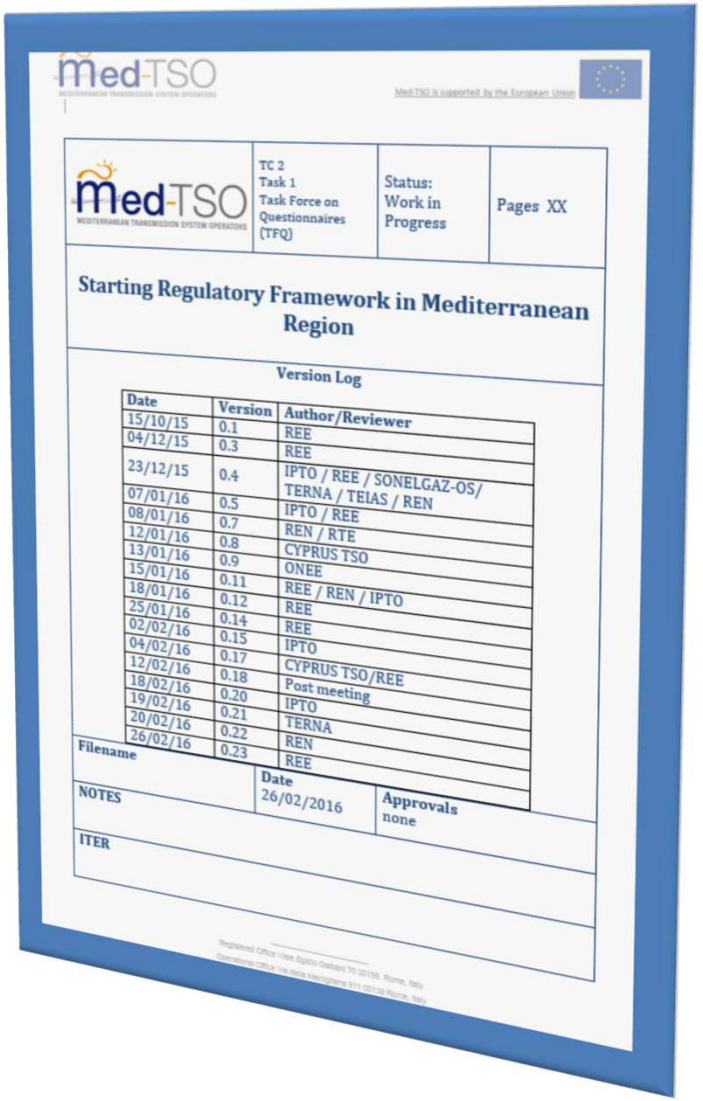
13 power systems:

- NEPCO (JO)
- TEIAS (TR)
- CYPRUS TSO (CY)
- IPTO (GR)
- CGES (ME)
- TERNA (IT)
- RTE (FR)
- REN (PT)
- ONEE (MA)
- SONELGAZ/OS (DZ)
- STEG (TN)
- REE (ES)
- GECOL (LY) [*partial]

Task 1. Deliverable on Starting Regulatory Framework

DELIVERABLE INDEX

1. ***Executive Summary***
2. ***Scope of the document and background***
3. ***Mediterranean region***
4. ***Methodology***
5. ***Current situation:***
   - ***General regulatory issues***
   - ***Connection to the grid***
   - ***Operation of the interconnected systems***
   - ***System markets***
6. ***Initial considerations on rules implementation***
7. ***Conclusions***
8. ***Next steps***



med-TSO

Med-TSO is supported by the European Union

med-TSO MEDITERRANEAN TRANSMISSION SYSTEM OPERATORS	TC 2 Task 1 Task Force on Questionnaires (TFQ)	Status: Work in Progress	Pages XX

Starting Regulatory Framework in Mediterranean Region

Version Log

Date	Version	Author/Reviewer
15/10/15	0.1	REE
04/12/15	0.3	REE
23/12/15	0.4	IPTO / REE / SONELGAZ-OS/ TERNA / TEIAS / REN
07/01/16	0.5	IPTO / REE
08/01/16	0.7	REN / RTE
12/01/16	0.8	CYPRUS TSO
13/01/16	0.9	ONEE
15/01/16	0.11	REE / REN / IPTO
18/01/16	0.12	REE
25/01/16	0.14	REE
02/02/16	0.15	IPTO
04/02/16	0.17	CYPRUS TSO/REE
12/02/16	0.18	Post meeting
18/02/16	0.20	IPTO
19/02/16	0.21	TERNA
20/02/16	0.22	REN
26/02/16	0.23	REE

Filename	Date	Approvals
NOTES	26/02/2016	none
ITER		

Task 1. Relevant references

EUROPEAN NETWORK CODES / GUIDELINES

GRID CONNECTION	➢ NC REQUIREMENTS FOR GENERATORS (RfG) ➢ DEMAND CONNECTION CODE (DCC) ➢ HIGH VOLTAGE DIRECT CURRENT
SYSTEM OPERATION	➢ CAP. ALLOCATION & CONGESTION MANAGEMENT(CACM) ➢ FORWARD CAPACITY ALLOCATION (FCA) ➢ BALANCING (EB)
MARKET	➢ SYSTEM OPERATION (OS) = (OPS+LFCR+OPS) ✓ Operational Planning & Scheduling (OPS) ✓ Load Frequency Control & Reserves (LFCR) ✓ Operational Planning and Scheduling (OPS) ➢ EMERGENCY AND RESTORATION (ER)

- IESOE
- COMELEC — اللجنة المغاربية للكهرباء / Comité Maghrébin de l'Electricité
- EIJLLPST Project
- Maghreb internal market Project (Algiers declaration)
- Paving the Way (PtW)

Task 1. General regulatory issues

Distribution of competences is similar in MedTSO countries while the applicability of regulation is more heterogeneous (unbundling is not foreseen in JO, MA and TN)

1. *Distribution of competences*

		DZ	CY	FR	GR	IT	JO	ME	MA	PT	ES	TN	TR	TOTAL
A. Responsible body for the development and/or approval of technical rules	Ministry responsible for Energy			A		A				A	A	A		-
	National Regulatory Authority or Agency (NRA)	A	A	O	A	A	A	A		O	O		A	-
	TSO	D	D	D	D	D	D	D	A	D	D	D	D	-
	Other											O		-
B. Responsible authority for the settlement of disputes among stakeholders? (eg. Conflict of access to the network, …)	Ministry responsible for Energy								X			X		2
	National Regulatory Authority or Agency (NRA)	X (**)	X	X	X	X	X	X		X	X (***)		X	10
	TSO	X (*)												1
	Other													0

EXAMPLE

(*) At technical phase; (**) If no agreement is reached at technical phase;
(***) Or regional authority, depending on voltage level.

A	Approval
D	Development
O	Opinion/ Consultation

2

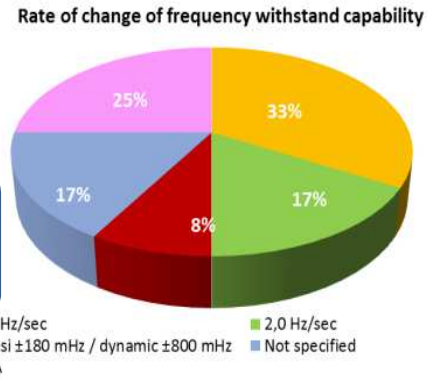
2. *Applicability of regulation*

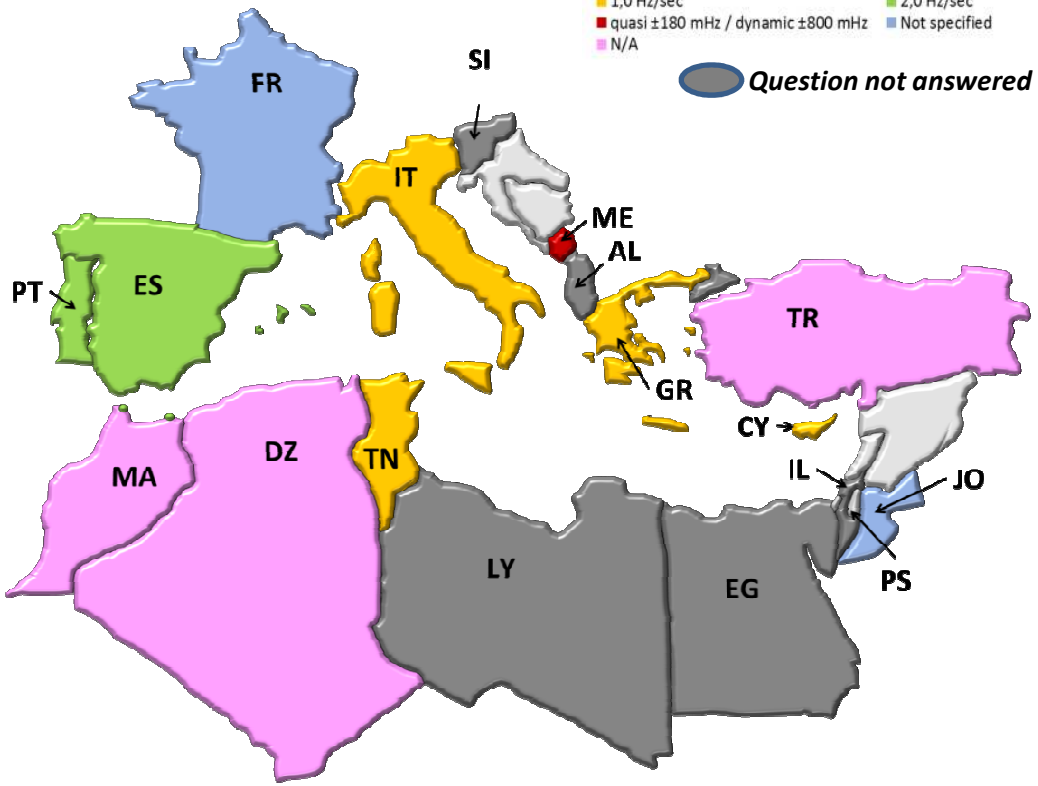
3. *Actors involved in the development of international interconnections*

Task 1. Connection Area

1. *Connection procedure*
2. *Frequency requirements*
3. *Voltage requirements*
4. *Reactive power requirements*
5. *Short circuit requirements*
6. *Protection schemes*
7. *Control schemes*
8. *Power quality*
9. *Demand disconnection schemes*
10. *System restoration*
11. *Demand side response services*
12. *HVDC requirements*
13. *Compliance schemes*

EXAMPLE: Rate of change of frequency withstand capability





Task 1. Operation Area

1. *System states*
2. *Technical requirements*
3. *Information exchange*
4. *Contingency analysis*
5. *Dynamic stability*
6. *Management of international exchange programs*
7. *HVDC*
8. *Outage coordination*
9. *Load frequency control*
10. *Reserve management*
11. *Defense plan*
12. *Restoration plan*
13. *Training*
14. *Dispatch priority*

EXAMPLE: Voltage ranges in normal conditions (unlimited time of operation)

NORMAL CONDITIONS					
400 kV	**Min**	**Max**	**220 kV**	**Min**	**Max**
DZ	380	420	**DZ**	204,6	235,4
CY	*	*	**CY**	198	242
FR	380	420	**FR**	200	245
GR	380	420	**GR**	**	**
IT	375	415	**IT**	209	231
JO	380	420	**JO**	**	**
ME	Not answered		**ME**	Not answered	
MA	380	435	**MA**	210	245
PT	380	420	**PT**	209	245
ES	390	420	**ES**	205	245
TR	340	420	**TR**	**	**
TN	380	420	**TN**	204,6	235,4

Task 1. System Markets Area

1. *Legal issues*
2. *Capacity calculation*
3. *Capacity allocation*
4. *Dispatching and balancing*
5. *Settlement and metering*

Legal Issues

- Two market models (market based, no market) (security requirements ↔ commercial/efficiency requirements).
- In open market, two allocation models (coordinated allocation, hybrid allocation).

Rules and Methodology for Capacity Calculation:
Security criteria (N-1) fully applied.

Rules and methodologies for capacity allocation:
homogeneity on the general rules but heterogeneity on its application also in the same market model (ex. Method of reallocation of PTR).

Dispatching and balancing issues: managed by neighbouring TSOs.

Balancing settlement (imbalances and unintentional deviations): total homogeneity in the allocation of the competences (TSOs) but heterogeneity on its application also in the same market model (ex. Different Products, time horizons and management at the borders).

Metering issues: total homogeneity in the allocation of the competences (TSOs).

Task 1. Summary of Harmonization level

	HIGH	MEDIUM	LOW
CONNECTION	Control reqs. DSR services	Connection procedure Frequency reqs. Voltage reqs. Short circuit reqs. Power quality Restoration capabilities Compliance	Reactive power reqs.
OPERATION	System states Technical reqs. Outage coordination Dispatch priority	Information Exchange Contingency Analysis Dynamic stability Studies Management exchange programs System defense and restoration Training and certification	Load frequency control Reserves management HVDC operation
SYSTEM MARKETS		Monitoring and settlement	Legal issues Capacity calculation Capacity allocation Dispatching and balancing

Task 1. Next steps

Start of sub-task 1.2 with prioritization of issues to be commonly regulated from questionnaires and decision on rules format to be implemented

Internal regulation: Agreements or contracts adopted between TSOs or between TSOs and other stakeholders.
External regulation: Regulations approved by competent authorities at national or regional level (either Grid Codes, which may be proposed by TSOs , or higher regulation).

Issues to be Regulated	Internal TSO-Stakeholders TSO-TSO		External National ⇨ Regional	
	Agreements	Contracts	Grid codes	Regulation (National/Regional)
Technical issues (connection & operation)				
System Market issues				

Decision on which type/format of rule should be proposed for every issue

Task 1. Next steps

An advance on the rules implementation format is included in the Deliverable 1.1 with the partial information on this Task 1 already collected.

- In general, international regulation only applies nowadays in European countries (European Network Codes and Guidelines or ENTSO-E policies).
- Connection issues are commonly regulated through national regulation (mainly external). In some cases (initial stages of the connection procedure or control requirements between TSO and non-transmission facilities) only national regulation applies (not included in Network Codes/Guidelines or ENTSO-E policies).
- Operation issues are regulated depending on the exact aspect, but in many areas both internal and external regulation is needed.
- System markets issues rule format includes in many cases agreement between TSOs (internal regulation) although national and regional (supranational) is relevant and increasing.

This publication has been produced with the assistance of the European Union. The contents of this publication are the sole responsibility of Med-TSO and can in no way be taken to reflect the views of the European Union.