Med-TSO
MEDITERRANEAN TRANSMISSION SYSTEM OPERATORS

Deliverable 1.2.2

Proposal of a Common Tentative Road Map (CTRM) for adoption and compliance with the proposed Common Target Regulatory Framework

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

"Mediterranean Project"

Task 1 "Common Set of Rules for a Mediterranean Power System and Transmission Grid Code"

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Index

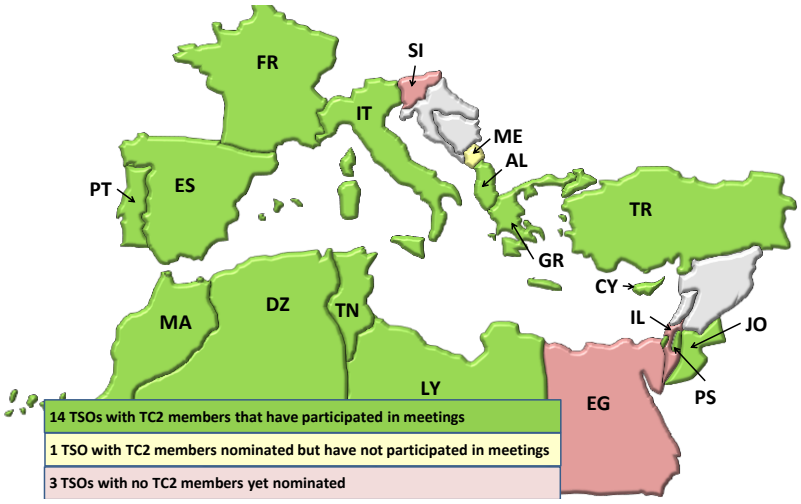
Table of figures

0 Executive summary

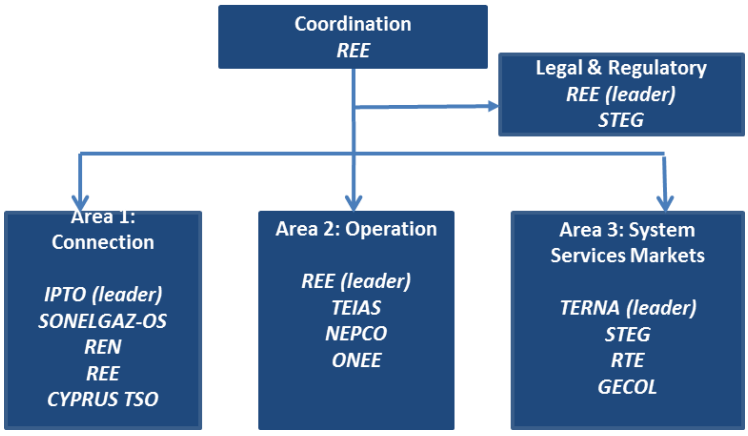
The present report constitutes the final deliverable (1.2.2) of subtask 1.2 including the Proposal of Common Target Regulatory Framework and Tentative Road Map for adoption and compliance within the so called Mediterranean Project (MP), an ongoing three-year project (February 2015 – January 2018) performed by Med-TSO and supported by the European Commission.

Med-TSO Technical Committee 2 (TC2) on Regulation and Institutions has elaborated this proposal thus finalizing 2 of the 3 stages of the work within the MP associated to draw the starting regulatory framework ("where are we") in the different national power systems around the Mediterranean region, and then jointly identify, prioritize and select the potential issues to be regulatory harmonized, and propose a tentative roadmap ("which way we want to go") estimating implementation and entry into force periods.

TC2 work has been based in a cooperative approach among the TSO, having achieved a good participation with 15 out of 18 TSOs members of the association having been involved in this work.



In order to maximize the involvement and contribution of all TSOs, dedicated task forces have been used in the work of TC2 associated to the main thematic **areas**, as it may be seen next.



A further classification within the 4 areas has included the identification of 34 aspects, which are chapters encompassing a set of concrete technical issues (135 in total) to be potentially harmonized. The Proposal of Common Target Regulatory Framework that has already been presented in the previous deliverable 1.2.1 (summarized in chapter 3) is composed of a selection 24 aspects with 66 issues from (in purple in the next Figure).

REGULATORY FRAMEWORK : 34 Aspects ⇨ 135 Issues		
1 Regulatory Aspect (11 Issues). REE &STEG		
13 Connection Aspects (41 Issues)	14 Operation Aspects (57 Issues)	6 System Services Markets Aspects divided in(26 Issues)
• *Connection procedure (REE) 2* • *Frequency requirements (IPTO) 3* • *Voltage requirements (REN) 2* • *Reactive power requirements (Cyprus) 1* • Short circuit requirements (IPTO) • *Protection requirements (Cyprus) 1* • *Control requirements (Sonelgaz OS) 4* • Power quality (REN) • *Demand disconnection schemes (IPTO) 1* • System restoration capabilities (IPTO) • Demand side response services (IPTO) • *HVDC requirements (IPTO) 1* • Compliance and monitoring (SonelgazOS)	• *System states (REE) 1* • *Technical requirements (REE) 5* • *Information exchange (REE) 3* • *Contingency analysis (REE) 5* • Dynamic stability (TEIAS) • *Management of international exchange programs (TEIAS) 1* • HVDC technologies (TEIAS) • *Outage coordination (ONEE) 1* • *Load frequency control (ONEE) 5* • *Reserve management (ONEE) 1* • *Defence plan (TEIAS) 5* • *Restoration plan (TEIAS) 1* • *Training (NEPCO) 2* • Dispatch priority (NEPCO)	• *Legal issues (TERNA) 5* • *Capacity calculation (STEG) 3* • *Capacity allocation (STEG) 5* • *Dispatching and balancing (RTE) 1* • Settlement and metering (GECOL) • *Transparency (REE) 2*

Selection

24 Aspects ⇨ 66 issues		
Legal and Regulatory: 3 Issues		
Connection 8 Aspects ⇨ 15 issues	Operation 11 Aspects ⇨ 32 issues	System Services Markets 4 Aspects ⇨ 16 issues

This selection has also considered a proposed format for each of the issues differentiating between:

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

After selection of thematic regulatory scope and estimated format, the Road Map elaboration has been based in a survey oriented to capture the TSOs views on which temporal prioritization should be applied for the regulatory harmonization of the selected technical issues (those 66 already considered as prioritary and included in the proposal).

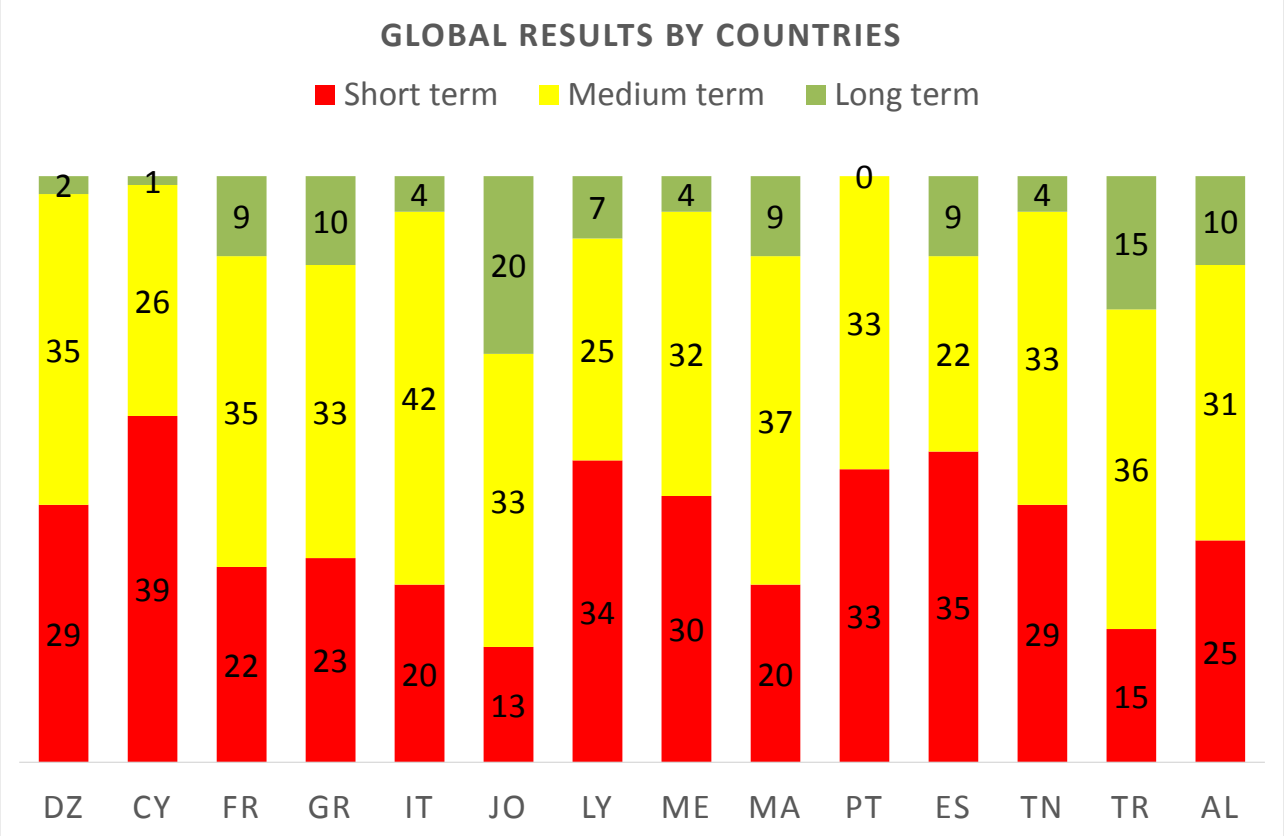
The survey results have been object of group discussion in order to estimate tentative time-horizons for regulatory harmonisation

- Short-term: 2018-2020.
- Medium-term: 2021-2025.
- Long-term: >2025.

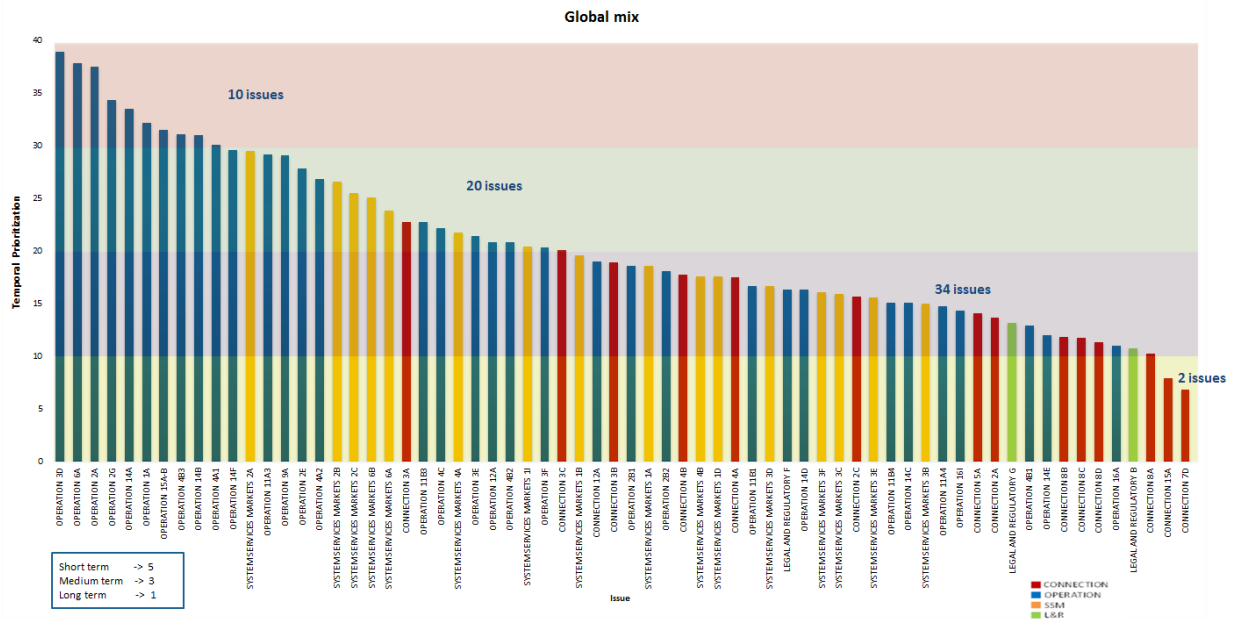
Besides, depending on the rule format for every issue (external, internal) an estimation of the practical implementation phases has been incorporated in order to schedule:

- period for regulatory practical implementation phase
- period for entry into force (practical enforcement which has been estimated)

The analysis presented in Chapter 4 shows that a majority of issues are proposed to be implemented in the short-term, while a minority of issues are located in the long-term horizon. Next picture shows the distribution of horizons proposed by the different TSOs.



The final proposal of road map presented in Chapter 5 has been elaborated considering both dimensions previously used: the degree of importance for an issue to be harmonized (deliverable 1.2.1) and the temporal prioritization as explained above. As a result, next Figure graphically represents the combined prioritisation for the 66 Selected Issues (coloured according to area, as segregated in priority ranges). We may see how Operation issues generally result in the highest priority.

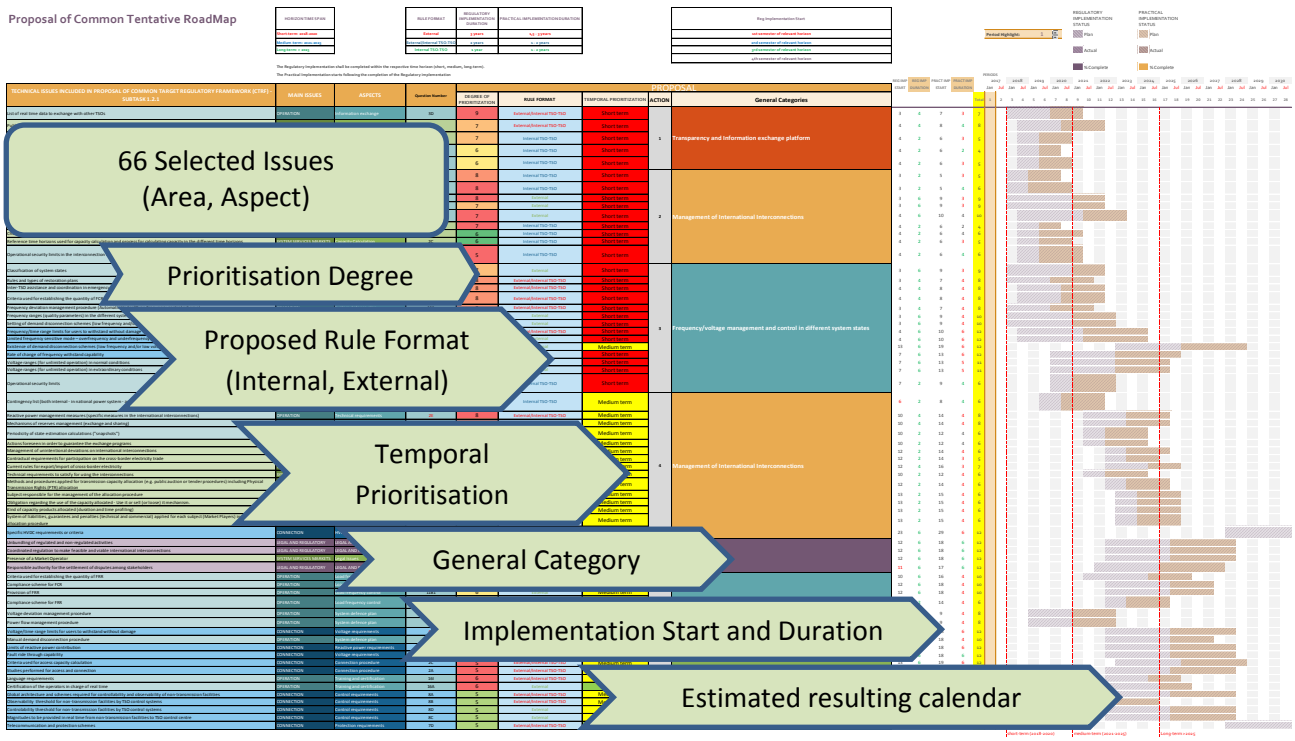


This final roadmap also includes a proposal for the implementation phase in which the procedures to be followed and measures to be applied by TSOs (and the national regulator or relevant authority) within each system for the actual compliance with the regulation imposed during the regulatory implementation phase should be performed.

For this aim, a duration for the two phases has been defined as a general consideration. In addition all technical issues have been grouped into 6 general categories based on their correlation during the implementation phase, as follows:

- Transparency and information exchange platform.
- Management of international interconnections.
- Criteria for connection.
- Frequency/voltage management and control in different system states.
- Legal and regulatory.
- Training and certification.

As a result of the work, the concrete proposal of Common Target Regulatory Framework and Tentative Road Map is specified in detail for the 66 selected Issues, characterising priority and rule format, as well as specific estimated calendars for implementation and entry into force of the proposed rules.



Based on the results of these 2 subtasks Med-TSO TC2 next activity (subtask 1.3 within Mediterranean Project) will be the elaboration of models of rules and contracts TSO-TSO and TSO-user to implement this proposal from a pan-Mediterranean perspective.

Besides, further work is also envisaged in order to complement the Mediterranean harmonisation (scope considered in the Mediterranean Project) with potential sub-regional harmonisation. As an advance, Chapter 6 shows a preliminary analysis with a potential sub-regional grouping based on the convergence of regulatory priorities for temporal estimation of implementation by the TSOs and also with the global proposal.

1 Introduction

Security and socio – economic development in the Mediterranean strongly depends on energy and on the possibility to develop an integrated regional energy market.

Energy infrastructures are key for achieving this goal, especially regarding the development of a reliable, secure and sustainable transmission network, capable of interconnecting the power systems and allowing the exchange of electricity and integration of new generation sources.

Based on multilateral cooperation as a strategic approach to regional development for facilitating the integration of the Mediterranean Power Systems, Med-TSO has received a three-year grant from the European Commission (Directorate-General for Neighborhood and Enlargement Negotiations - DG NEAR) to carry out the so called "Mediterranean Project" (February 2015 – January 2018).

The Project aims at the progressive harmonization and strengthening of the electricity markets in the Mediterranean region, following a bottom-up approach and with a direct involvement of Med-TSO Members, through the following activity lines:

a) Rules

Developing and sharing a common set of basic rules, in cooperation with the association of the Mediterranean Regulators for energy (MedReg), for the interoperability of the Mediterranean power systems, facilitating electricity exchanges, development of infrastructures and institutional cooperation.

b) Infrastructure

Preparing and sharing guidelines for Network Planning and implementing a Euro-Mediterranean Electricity Reference Grid for studies and coordinated development of interconnections.

c) International Electricity Exchanges

Promoting the development of a Mediterranean Electricity System, focusing on methodologies, procedures and mechanisms for sharing resources through cross border exchanges, based on power systems complementarities and the optimized use of generation and transmission infrastructures.

d) Knowledge Sharing

Establishing a forum among the relevant professionals working in the fields related to the scope of the project (a sort of "Med-TSO Academy"), supporting also Med-TSO members and other relevant organizations through the organization of specific and oriented knowledge activities.

e) Med-TSO Database

Creation of a Mediterranean database for managing all the information shared in the frame of the project, dealing with network characteristics, energy scenarios and market data.

In line with the abovementioned guidelines regarding the "rules" or assessment of regulatory frameworks, Med-TSO members have conducted a preliminary assessment of the current regulatory situation in the various Med-TSO members´ countries. This was the object of a preliminary deliverable, entitled "***Starting Regulatory Framework (Technical Rules) in the Mediterranean Region***" which was approved by the Med-TSO General Assembly on the 25th of May 2016.

This first deliverable aimed at presenting an overview and overall analysis of the power sector regulatory framework in the Med-TSO countries, with a particular focus on those rules related to TSOs responsibilities and functions, which are associated to the following fields:

- Connection of users (generation, distribution and consumption units) to the grid.
- Operation of the interconnected systems.
- Markets; particularly those associated to the system services management.

Having established the starting point in terms of the rules put in place, Med-TSO has made a proposal of what this common regulatory framework should be, based on the opinions of the members gathered via a specific survey made for that particular purpose. Med-TSO members have, in fact, distinguished in the various issues studied those with a high level of importance, a medium level of importance and a low level of importance. Afterwards, Med-TSO has recommended for every single technical issue a specific type rule to be adopted by all members and has issued a concrete proposal for harmonization of each technical issue. This has been the result of a second deliverable, entitled ***"Proposal of Common Target Regulatory Framework (CTRF) in the Mediterranean region".***

The next step needed is to prescribe the roadmap that guarantees that Med-TSO countries can actually start carrying out the necessary actions in order to move towards a common regulatory framework. Med-TSO countries are aware of the regulatory differences between them, as they have been pointed out in the first deliverable concerning the starting regulatory framework. The roadmap will consequently take into account these differences by ensuring that all members are capable of engaging in the necessary changes required, In order to implement this procedure, three stages are considered in the roadmap: "short term", "medium term" and "long term".

This report comes up with a roadmap which enables Med-TSO countries to achieve a common regulatory framework. The present document constitutes the Deliverable 1.2.2, as a result of Subtask 1.2 within Task 1 of the Mediterranean Project (Rules), which is structured as follows:

Activity 1.1- Compilation of relevant regulatory framework

- ✓ Deliverable 1.1 Starting Regulatory Framework (SRF).

Activity 1.2- Elaboration of common target regulatory framework.

- ✓ Deliverable 1.2.1 Proposal of Common Target Regulatory Framework (CTRF).
- ✓ Deliverable 1.2.2 Proposal of Common Tentative Road Map (CTRM).

Activity 1.3- Elaboration of draft set of Mediterranean network rules.

- ✓ Deliverable 1.3 Models of rules and contracts.

The objective of previous reports on "Starting Regulatory Framework" document and "Common Target Regulatory Framework" along with this new document is framed by a more general purpose of advancing towards harmonisation of rules for the coordinated operation and development of interconnected systems in the Mediterranean region in those aspects more related with the TSOs activities. Therefore, the present document, entitled "Proposal of Common Tentative Road Map" (CTRM) is a stepping stone towards the development of a common set of basic rules in the Med-TSO region. This Task is being developed by Med-TSO Technical Committee 2 on Regulation and Institutions (TC2) with the support and contribution of its members.

2 Background and Methodology

The proposal of a tentative roadmap for achieving a common regulatory framework takes into consideration the ability of Med-TSO members to perform the necessary actions to align their respective regulatory framework with the specific set of rules that make up the common target regulatory framework as presented in Deliverable 1.2.1. The concrete proposals for each of the technical issues are included in the proposal are presented summarized in chapter 3.

Common Tentative Road Map (CTRM) Survey

The reference for elaborating a harmonized proposal for a Common Road Map has been a particular Survey has been carried out among TSO members in order to get the different estimation about all features concerning implementation.

Assuming that the duration of a task implementation is proportional to its degree of difficulty a distinction between three time stages has been made and each Med-TSO member has chosen the most appropriate in order to carry out the necessary changes. These timelines have been integrated in a survey sent to Med-TSO members in order for them to define the right implementation deadline for each technical issue considered. Med-TSO members have delivered their answers based on their appreciation of their own ability to move towards the common regulatory framework. The results and main considerations of this survey are presented in chapter 4.

Based on the analysis of the answers received, Med-TSO has identified for each time horizon the set of rules that the members should adopt by selecting, in a first step, the stage that gets the highest number of choices.

By addressing the list of technical issues considered and assigning the recommended time horizon, we will end up with a roadmap, presented in Chapter 5 that identifies the set of issues that should be harmonized in the short term (as defined in the CTRM Survey), the ones that should be harmonized in the medium term and, finally, the ones that should be harmonized in the longer term.

Having said that, it is worth mentioning that the resulting roadmap intends to provide an initial timeline for the adoption and implementation of the common regulatory framework based on a broad appreciation of Med-TSO members´ ability to undertake the necessary actions in order to end up with a harmonized set of rules. As a matter of fact, the practical application of the harmonized rules will be implemented on a later stage. In this roadmap Med-TSO makes a proposal on the expected horizon for the regulatory implementation and also on the entry into force of each specific technical issue.

Regulatory Implementation process

Med- TSO members have performed an extensive work of identifying the regulatory aspects which are considered as most relevant in order to achieve a reasonable approximation of the respective regulatory frameworks which is of great importance in a continuously developing and expanding integrated regional market.

As a first step towards the approximation of the common regulatory framework implementation horizon (as a stepping stone toward further harmonization in the longer term) Med-TSO members, along with their respective national regulators (Ministry/Independent National Regulatory Authorities), and, where

applicable, with relevant stakeholders from across the electricity sector will have to devote considerable efforts to the development of the (proposals of) necessary regulatory provisions as identified in the report.

The drafting and approval of such regulatory provisions will require a great deal of transparency and implication of all potential affected parties, either by way of public consultations processes or by the creation of ad-hoc sectoral working groups in order to exchange views with stakeholders (third interested parties and market players).

As a second step, once the regulatory provisions have been approved, and entered into force, there will be a necessary implementation period (2-5 years) following which all affected parties across the Med-TSO countries will ensure compliance to those provisions and the corresponding implementation provisions.

This represents an important challenge for the Euro-Mediterranean electricity sector. Each regulatory provision might require a series of steps to be taken before they can be considered as fully implemented. This might include national implementing decisions (by individual countries), regional agreements (between neighboring countries and/or more countries in the region), and, eventually, new Med-TSO common methodologies.

The importance of stakeholder engagement in the implementation process

In order to ensure a smooth, successful and efficient implementation process, the implementation of the regulatory provisions must be undertaken in a coordinated way. This involves the sharing of views and information by all interested parties. Stakeholders should be encouraged to provide their views and feedback.

TSOs will have the ultimate responsibility to implement a vast number of tasks at national and regional level. However an additional risk factor of implementation failure may occur in the cases where TSOs do not have control on other independent authorities/stakeholders in specific countries that may not be willing to follow the coordinated way of implementation process.

Early Implementation Projects

Provided the extensive work required to elaborate, agree on and implement regulatory provisions in the Med-TSO countries area, TSOs may decide to begin the early implementation of a number of “pilot projects” (subject to the previous agreement with their respective national regulatory authorities) before the new and agreed regulatory framework will become enforceable (between 3-5 years once implemented). This would c

Next steps

Next steps towards Mediterranean regulatory harmonization are presented in chapter 6, within the Mediterranean Project (but not only in it).

3 Common Target Regulatory Framework

This chapter provides an overview of the proposal of Common Target regulatory Framework that has been elaborated in Deliverable 1.2.1 including general results and conclusions that can be extracted from the study performed within Med-TSO. From the total of 135 issues that were included in the survey as potential issues a total of 66 topics have been selected to be included in the proposal considering their relevance and prioritization level, a percentage which represents approximately half of the initial issues concerned.

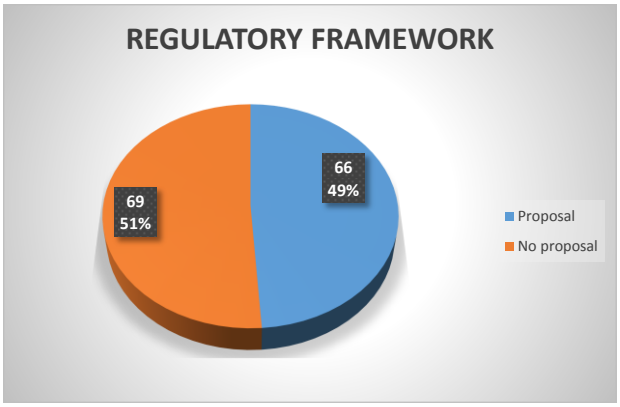


Figure 1 – Percentage of issues included in the proposal

As it was mentioned in Deliverable 1.2.1 the survey has been divided in four main areas: **legal and regulatory issues**, **connection to the grid**, **operation of the interconnected system** and **system service markets**. A first analysis shows that most of the proposed issues are related to the operation area (specifically 32 issues which represent the 48% of the total) while the other areas have a lower representation (15 issues were selected from the connection area which represents the 23% of the total; 16 from the system service markets which represents the 24% of the total and only 3 from the legal and regulatory area which represent 5% of the total). It must be highlighted that Med-TSO considers necessary to hold further coordination actions in the future with MedReg as most of the issues included in this block should have the focus on the regulators.

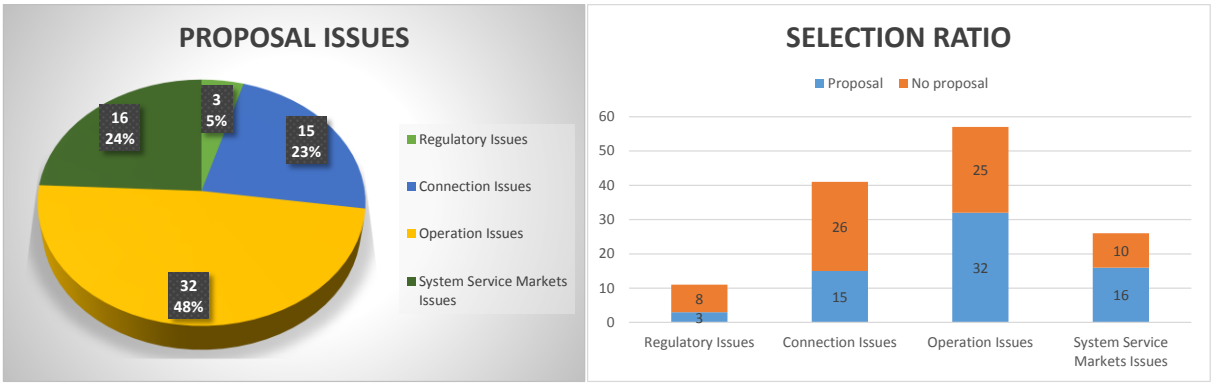


Figure 2 – Percentage of issues included in the proposal per technical area

In the following subchapters an overview of each area is performed individually; while the detailed proposal is included in Annex III.

3.1 Legal and regulatory issues

From a total of 11 issues that were originally included in the survey only 3 have been selected as relevant. This represents 27% of the total from this area. More specifically, based on the results of the survey the following 3 issues are prioritized for future harmonization:

- Need of having a coordinated regulation for international interconnections.
- Need of unbundling between regulated and non-regulated activities
- Need of a responsible authority (independent body) with transparent and neutral dispute settlement procedures between stakeholders.

3.2 Connection to the grid

From a total of 41 issues that were originally included in the survey 14 have been selected as relevant. The numbers of those that have been considered for the proposal represents the 34% of the total from this area. The majority of the issues selected focus on the connection procedure; frequency and voltage ranges and control requirements. The main conclusions can be summarized as follows:

- Harmonization of the connection procedure is proposed, to include the implementation of load flow studies for access and connection and the N-1 security criterion for access capacity calculation, following internal agreements between TSOs.
- High level of harmonization is required in general towards frequency, voltage and reactive power behaviour, at least at synchronous area level. The main driver behind this is the large penetration of renewables connected in the transmission system, both existing and anticipated in the near future, the impact of which in neighbouring systems can be significant, depending on their scale and the level of the Power Systems interconnection.
- For frequency and voltage behaviour in particular, although specific requirement were provided by most TSOs, creating a common base for the Med-TSO area, this is not considered sufficient for the current and future challenges for the operation of the transmission networks. Consequently, it is proposed that the target regulatory framework in the Med-TSO area should be in line with the Grid Code of ENTSO-E for the following frequency and voltage requirement: time/frequency and time/voltage range limits, rate of change of frequency withstand capability, overfrequency and underfrequency schemes and fault-ride-through capability.
- Concerning protection and control, harmonization of redundancy requirements for telecommunication and protection schemes is proposed, following internal agreements between TSOs and users, whereas observability and controllability of non-transmission facilities from the TSO control room should also be harmonized, with respect to their size and in compliance with the Grid Code of ENTSO-E.
- Harmonization of low frequency disconnection schemes is also proposed, following agreements between neighbouring TSOs in the same synchronous area.
- Concerning HVDC requirements, due to the anticipated increase of the number and the size of the HVDC links and in view of the harmonization process of HVDC requirements in ENTSO-E countries, the harmonization of HVDC requirements/criteria in Med-TSO region should also be foreseen, in particular where such interconnections may have a significant impact in the planning and operation of the grids.

3.3 Operation of the interconnected system

From a total of 57 issues that were originally included in the survey 31 have been selected as relevant. The numbers of those that have been considered for the proposal represents the 54% of the total. The majority of the issues focus on technical requirements, information exchange, contingency analysis, load frequency control and system defence plan. The main conclusions can be summarized as follows:

- Harmonization of the system state classification is proposed including concrete and specific characteristics for each power system state regarding violation of operational security limits, frequency criteria, level of reserves, and activation of measures from the restoration plan.
- Concerning technical requirements, a minimum level of harmonization is proposed in the following fields: voltage ranges in normal and extraordinary conditions, reactive power management measures and system protection coordination criteria. Anyway, more exigent requirements could be established at national level.
- For information exchange issues harmonization is proposed for the minimum list of data to be exchanged between TSOs in the different time horizons; including more detailed data from the observability area.
- Regarding the contingency analysis, the minimum type of contingencies to be considered in both the internal and external list (between neighbouring TSOs) is proposed to be harmonized, as well as the treatment of operational security limits and the minimum list of joint remedial actions to be activated in a coordinated manner between neighbouring TSOs.
- Harmonization of the international exchanges management is considered of high priority.
- Harmonization of outage coordination procedures is considered of high priority, especially if it affects interconnection capacity between neighbouring TSOs.
- Concerning load frequency control, the compliance schemes and the criteria to establish the quantity of the different types of reserves (FRR, FCR and RR) are proposed to be harmonized, together with the reserves management exchange procedures.
- Coordination of the different mechanisms and procedures for the system defence plan is considered of high priority, more specifically, frequency deviation, voltage deviation, power flow, manual demand disconnection or inter-TSO assistance and coordination in emergency state. Restoration plans are also considered of extreme importance to be harmonized.
- Regarding training and certification (qualification), only two aspects are proposed to be included in the harmonization proposal: need of certification for real time operators and language requirements.

3.4 System service markets

From a total of 26 issues that were originally included in the survey 18 have been selected as relevant. The number of those that have been considered for the proposal represents the 69% of the total. The main ideas of the proposal, based on the conclusions of the survey, can be summarized as follows:

- Necessity of harmonization of the contractual requirements for participation on the cross-border electricity trade enabling in all Med-TSO countries other parties (market participants) apart of TSOs to import and export electricity through international interconnections.
- Progressive degree of harmonization from “no market” to “market” based model:
    - From bilateral internal agreements (customized scheme applicable for example between country A and B or between country B and C) to multilateral internal agreements between all TSOs (some general rules for all countries as the auction rules valid in ENTSO-E area):

        - Scheme of technical and financial guarantees;
        - Exchange programs (scheduling and management of international exchange programs);
    - Identification of the duties of the Market Operator that in a preliminary model can be allocated under TSO's competences and successively allocated under an independent subject;
    - Harmonization of the basic technical requirements for participation on the cross-border trading activities:

- Harmonization of the capacity calculation procedure is proposed, to include the implementation of N-1 security criterion for the calculation of the NTC. Such calculation should be done jointly by the neighbouring TSOs, following internal agreements between TSOs, using the same reference time horizons.
- Regarding capacity allocation an external rule should include the procedure for allocating transmission capacity in all interconnections through a public auction and the type of capacity products to be allocated (duration and time profiling), while the internal agreements between TSOs should include specific details for each border.
- The party responsible for the management of the allocation procedure should be the TSO, but in a further stage, for regional coordination issues, a supranational body (managed also by the different TSOs) should be in charge,
- A multilateral procedure is foreseen in order to guarantee the exchange programs; as well as the treatment of the unintentional deviations.
- A minimum level of transparency is proposed to be reached by all the TSOs both about general information from the electricity markets and specific information from the management of the international interconnections.

4 Results about temporal prioritization (Road Map)

The individual survey was originally sent to all the countries participating on this project. There was an involvement of 100% of the countries (TSOs), i.e. the 14 countries (TSOs) participating on TC2 activities answered the survey: Albania, Portugal, Spain, Morocco, Algeria, Tunisia, France, Italy, Montenegro, Greece, Libya, Turkey, Cyprus and Jordan, as shown in the next map (3).

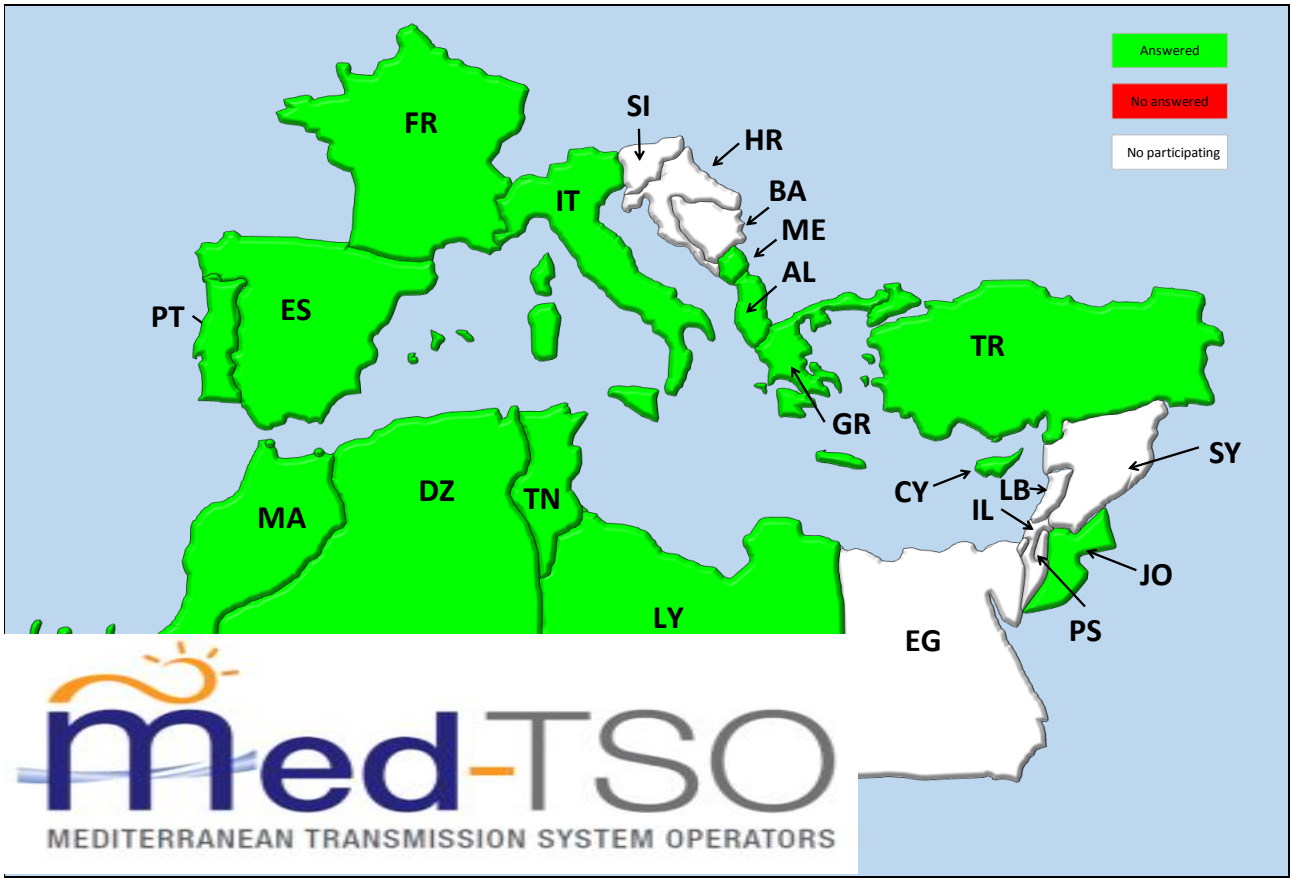


Figure 3 Participating countries (TSOs)

In the survey each TSO had to answer to the following question: "According to your view, include the temporal prioritization for the harmonization of each technical issue already considered as prioritary (in importance) and included in the proposal of CTRF (Deliverable 1.2.1), by selecting from one of the 3 following time horizons the one you understand more applicable (in which the technical issue should be harmonized):

- Short-term: 2018-2020;
- Medium-term: 2021-2025;
- Long-term: > 2025

As stated in chapter 2 the time horizon selected refers to the expected time for the regulatory implementation. Time duration of the practical implementation (that will be after the regulatory implementation) has been decided in a later stage based on the global proposal as will be shown in chapter 5.

The majority of the answers from the participating countries were received within two weeks as can be confirmed in the following timeline (figure 4):

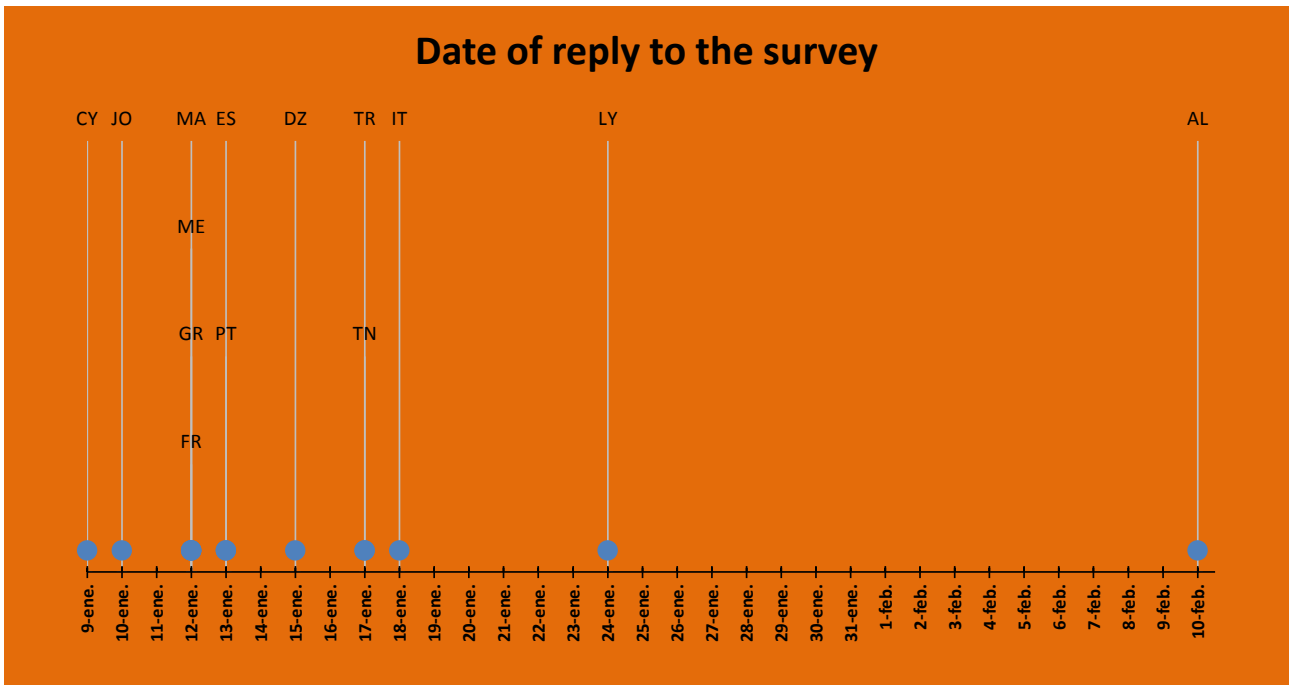


Figure 4 Date of reply timeline

In this chapter, an individual analysis of the answers of each country is included. Additionally the analysis performed will also focus on the final proposal obtained from the individual responses and some general conclusion will be extracted.

In Annex I the tables with the answers from all the participating countries are shown. These tables are divided into four different blocks: connection, operation, system services market and legal and regulatory. These tables show both the degree of prioritization (in terms of importance as in Deliverable 1.2.1) and the temporal prioritization. The final proposal can also be found at the right part of the figure.

For more detail in Annex II the original individual surveys received from each country are also included.

The next five bar charts (Figure 5, Figure 6, Figure 7, Figure 8 and Figure 9) show the number of short, medium and long-term answers chosen by each country. By analysing this useful information, we can determine which country is more likely to take measures in a short period of time and therefore is more interested on the quick development of the implementation process. The results will be analysed firstly in a separate way for each one of the 4 areas and finally as a whole. The idea is not only to determine the expectations of each country but especially which aspects or issues are considered as more urgent to work on them.

Regarding the connection area (Figure 5), the countries (TSOs) that include the lower number of issue in the short-term horizon are Cyprus, France, Italy Morocco, Tunisia and Turkey. On the other hand the countries that include more issues in the short term are: Algeria and Portugal. In fact, Portugal have not considered a long-term horizon for any of the proposed issues, while on the other hand Montenegro has not considered any issue in the short-term horizon. In general terms, it can be concluded that the majority of the answers for the connection area, nearly 90%, have been classified as short term or medium term. Therefore, it can be stated that the group of issues belonging to the connection area could have a relevant role in the short-medium horizon.

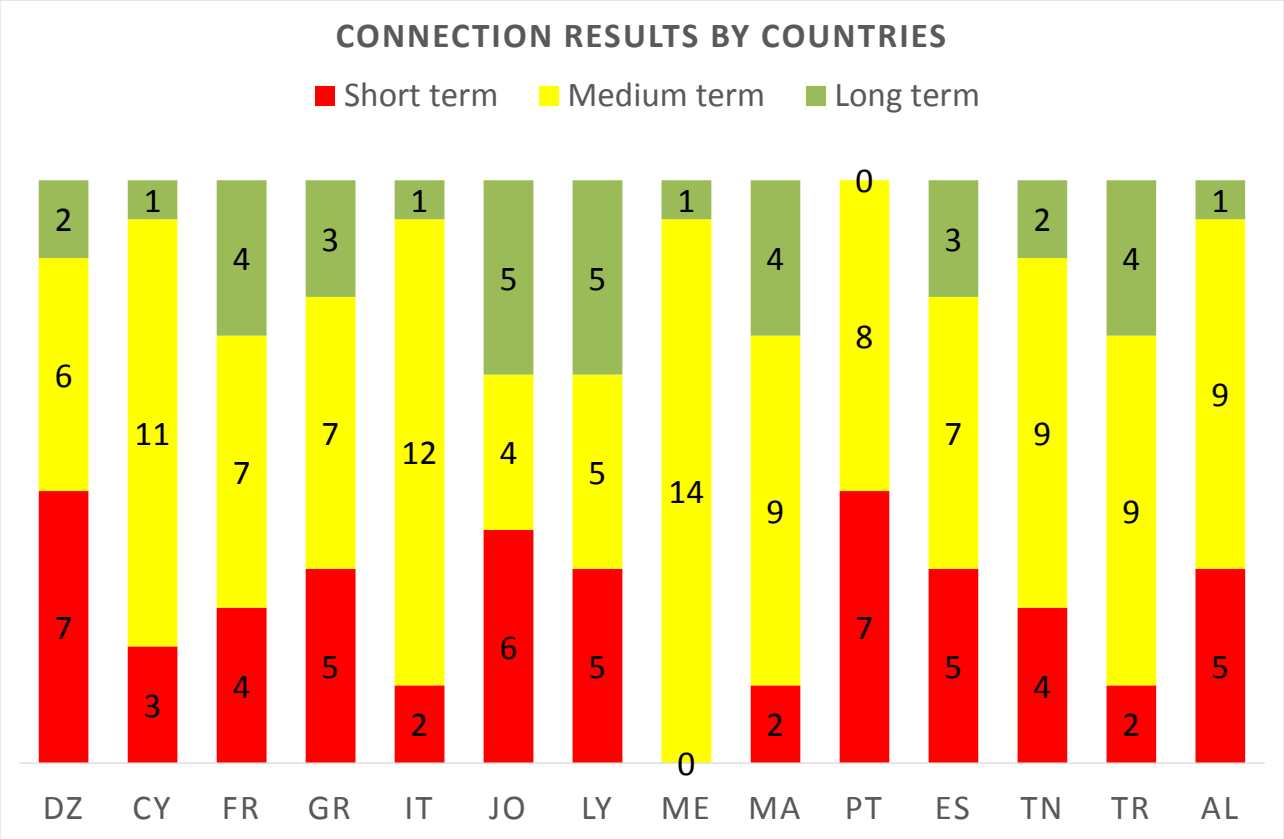


Figure 5 Connection results by countries (TSOs)

The results for the operation area (Figure 6) show that this block is clearly the one which has more issues included primarily in the short term and secondarily in the medium term horizons. The countries which include the lower number of issues in the short-term horizon are Jordan and Turkey. On the other hand, Algeria, Cyprus, Libya and Portugal did not consider any aspect in the long-term horizon. As a consequence, this block includes the majority of aspects that should have an important role in the first stages of the implementation process in the proposed harmonized regulation.

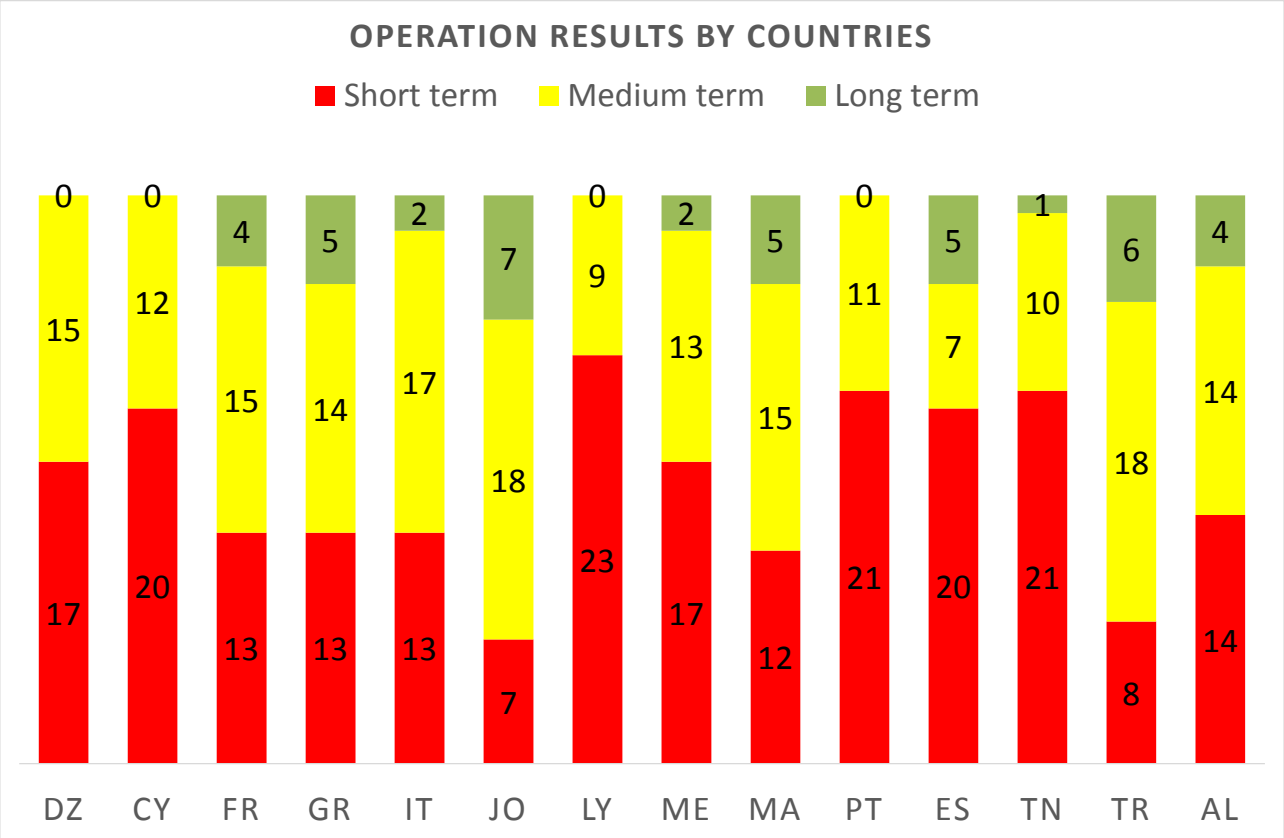


Figure 6 Operation results by countries (TSOs)

Regarding the system services markets area (Figure 7), it can be said that this block is also quite relevant to the short/medium horizon in the majority of the participating countries (TSOs). Only Jordan, Lybia, Turkey and Albania have considered some of the issues in a more long term perspective, while Cyprus, Montenegro and Spain include most of the issues in the short term horizon.

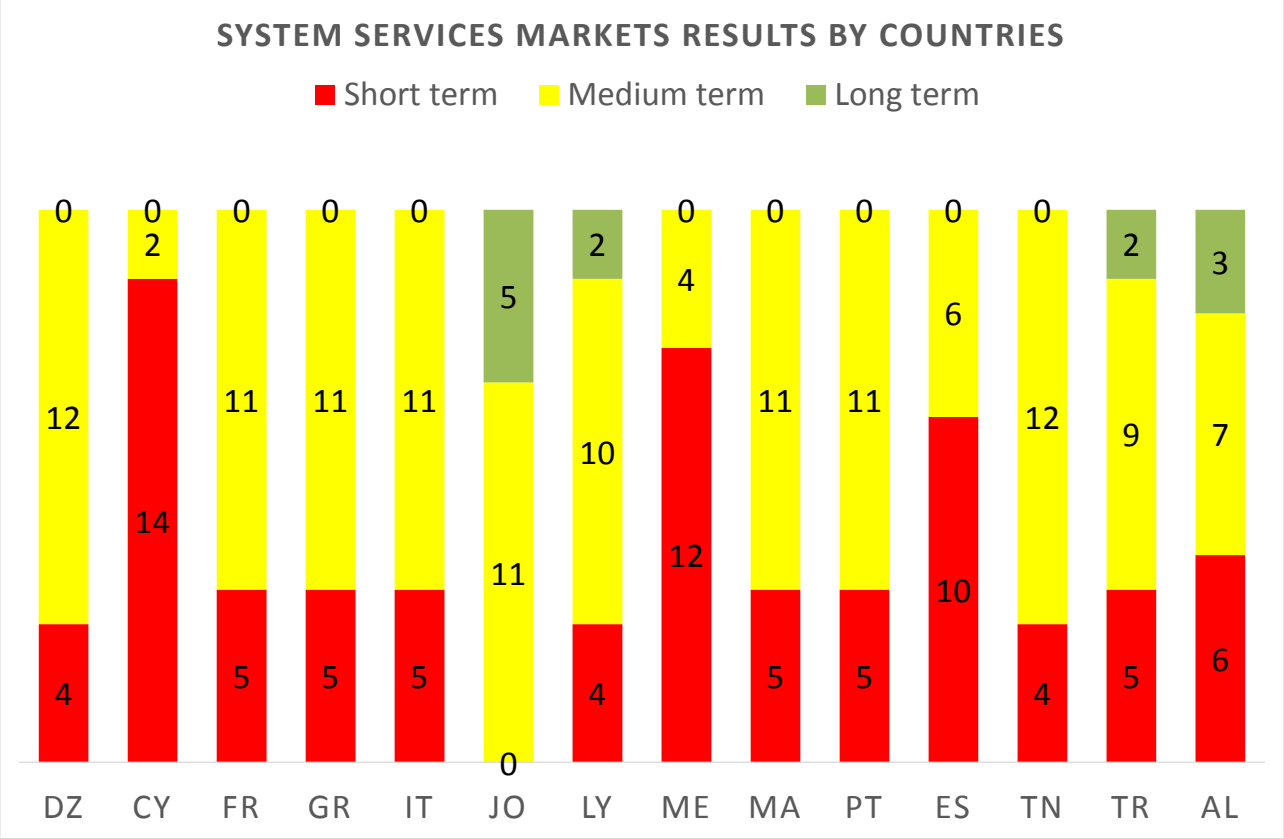


Figure 7 System services markets results by countries (TSOs)

Regarding the legal and regulatory area (Figure 8), it can be concluded that this block is the one that has the widest variety of choices. There are some countries such as Portugal that consider all the issues as relevant to be implemented in the medium term horizon, while other countries such as Jordan and Turkey consider that actions should not be implemented until 2025, thus including them in the long term horizon. Countries such as Algeria, Cyprus, Libya and Morocco and Portugal have not considered the long-term horizon.

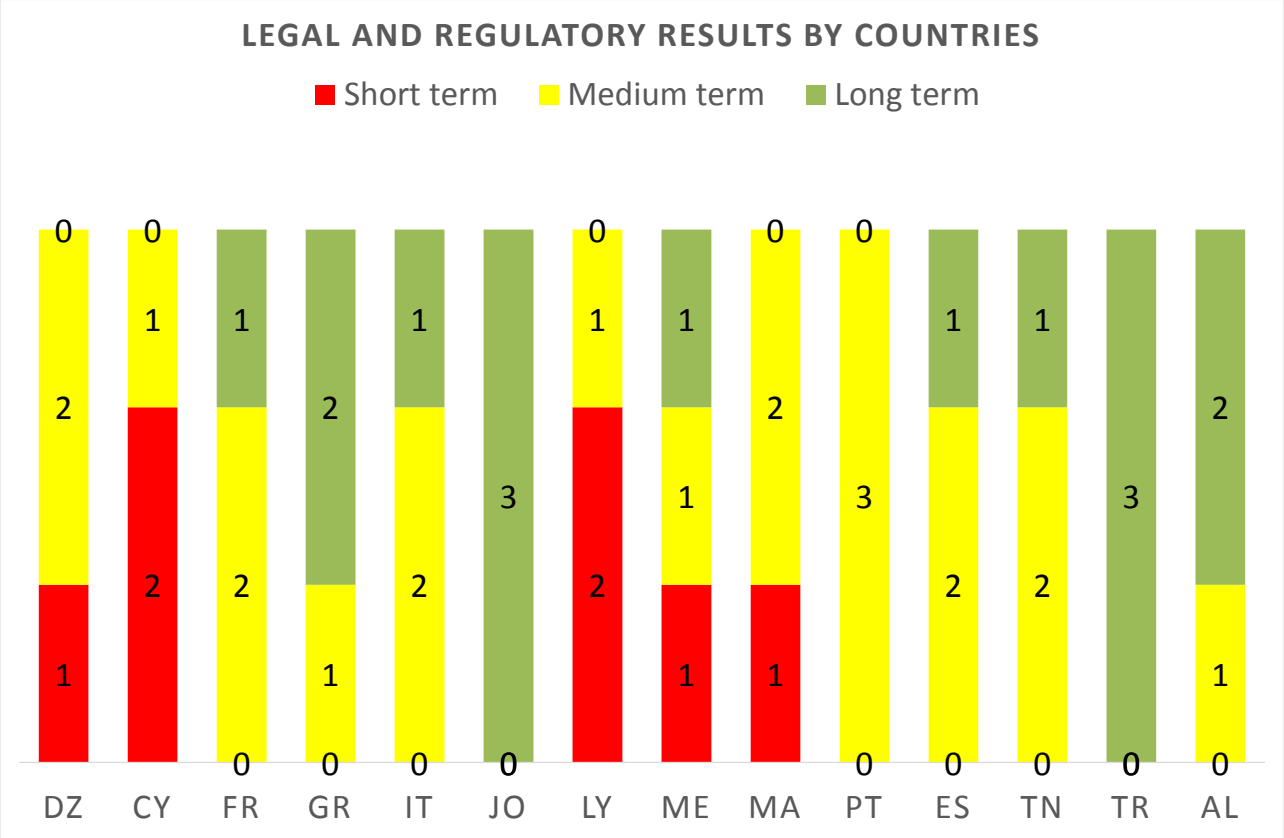


Figure 8 Legal and regulatory results by countries (TSOs)

Finally, the global results are presented in the bar chart below with (Figure 9). As can easily be checked most of the answers were included in the short term or medium term horizons. This fact could show a high level of temporal prioritization considered by most countries.

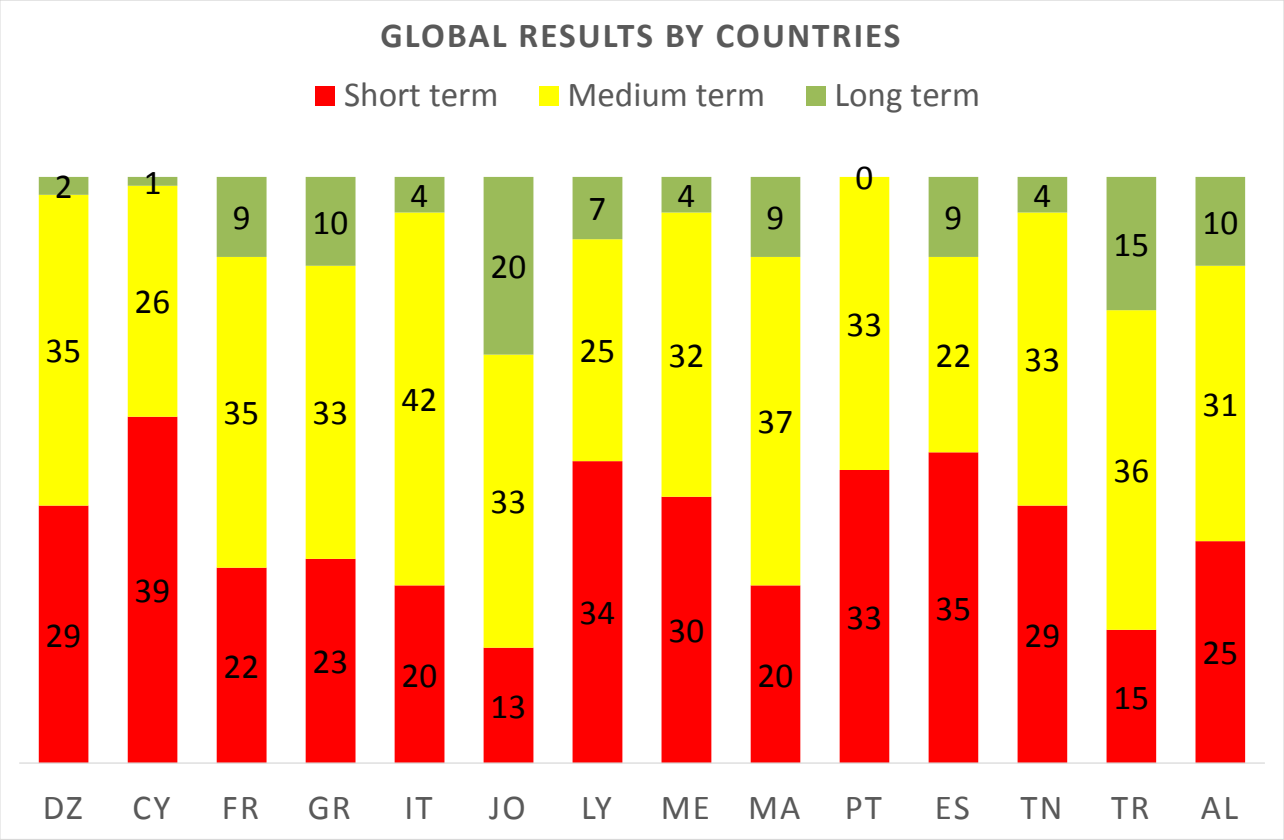


Figure 9 Global results by countries (TSOs)

The following figures (Figure 10, Figure 11, Figure 12 and Figure 13) show all the answers for the four areas provided by the different countries (TSOs):

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	COUNTRIES													
				DZ	CY	FR	GR	IT	JO	LY	ME	MA	PT	ES	TN	TR	AL
				TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION
CONNECTION	Connection procedure	2A	Studies performed for access and connection	Medium term	Short Term	Long Term	Medium Term	Medium Term	Short Term	Short Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term
		2C	Criteria used for access capacity calculation	Medium term	Short Term	Long Term	Medium term	Medium Term	Short Term	Short Term	Medium Term	Medium Term	Short Term	Medium Term	Medium Term	Medium Term	Short Term
	Frequency requirements	3A	Frequency/time range limits for users to withstand without damage	Short Term	Medium Term	Short Term	Short Term	Medium Term	Medium Term	Short Term	Medium Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term
		3B	Rate of change of frequency withstand capability	Short Term	Medium Term	Short Term	Short Term	Medium Term	Short Term	Short Term	Medium Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term
		3C	Limited frequency sensitive mode – overfrequency and underfrequency schemes	Short Term	Medium Term	Short Term	Short Term	Short Term	Short Term	Medium Term	Long Term	Medium Term	Medium Term	Short Term	Short Term	Medium Term	Short Term
	Voltage requirements	4A	Voltage/time range limits for users to withstand without damage	Short Term	Medium Term	Long Term	Short term	Medium Term	Short Term	Short Term	Medium Term	Medium Term	Short term	Short Term	Medium Term	Medium Term	Medium Term
		4B	Fault ride through capability	Short Term	Medium Term	Medium Term	Short term	Medium Term	Short Term	Medium Term	Medium Term	Medium Term	Short Term	Short Term	Medium Term	Medium Term	Medium Term
	Reactive power requirements	5A	Limits of reactive power contribution	Short Term	Long Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term
	Protection requirements	7D	Telecommunication and protection schemes	Long term	Medium Term	Long Term	Long Term	Long Term	Medium Term	Medium Term	Medium Term	Long Term	Medium Term	Long Term	Long Term	Long Term	Long Term
	Control requirements	8A	Global architecture and schemes required for controllability and observability of non-transmission facilities	Medium Term	Medium Term	Medium Term	Long term	Medium Term	Long Term	Long Term	Medium Term	Medium Term	Short term	Long Term	Medium Term	Medium Term	Medium Term
		8B	Observability threshold for non-transmission facilities by TSO control systems	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Long Term	Long Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Long Term	Medium Term
		8D	Controlability threshold for non-transmission facilities by TSO control systems	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Long Term	Long Term	Medium Term	Long Term	Medium Term	Medium Term	Medium Term	Long Term	Medium Term
		8C	Magnitudes to be provided in real time from non-transmission facilities to TSO control centre	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Long Term	Long Term	Medium Term	Long Term	Medium Term	Medium Term	Medium Term	Long Term	Medium Term
	Demand disconnection schemes	12A	Existence of demand disconnection schemes (low frequency and/or low voltage)	Short Term	Medium Term	Short Term	Medium term	Short Term	Medium Term	Medium Term	Medium Term	Medium Term	Short Term	Medium Term	Short Term	Medium Term	Short Term
	HVDC requirements	15A	Specific HVDC requirements or criteria	Long Term	Short Term	Medium Term	Long term	Medium Term	Long Term	Long Term	Medium Term	Long Term	Medium Term	Long Term	Long Term	Medium Term	Medium Term

Figure 10 Individual answers for the connection area

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	COUNTRIES													
				DZ	CY	FR	GR	IT	JO	LY	ME	MA	PT	ES	TN	TR	AL
				TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION
LEGAL AND REGULATORY		B	Responsible authority for the settlement of disputes among stakeholders	Short Term	Medium Term	Long Term	Long Term	Long Term	Long Term	Short Term	Short Term	Short Term	Medium Term	Long Term	Long Term	Long Term	Long Term
		F	Unbundling of regulated and non-regulated activities	Medium term	Short Term	Medium Term	Medium Term	Medium Term	Long Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Long Term	Medium Term
		G	Coordinated regulation to make feasible and viable international interconnections	Medium term	Short Term	Medium Term	Long Term	Medium Term	Long Term	Short Term	Long Term	Medium Term	Medium Term	Medium Term	Medium Term	Long Term	Long Term

Figure 11 Individual answers for the legal and regulatory area

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	COUNTRIES													
				DZ	CY	FR	GR	IT	JO	LY	ME	MA	PT	ES	TN	TR	AL
				TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION
OPERATION	System states	1A	Classification of system states	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term
	Technical requirements	2A	Frequency ranges (quality parameters) in the different system states	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Medium Term	Short Term
		2B1	Voltage ranges (for unlimited operation) in normal conditions	Medium term	Short Term	Long Term	Medium Term	Long Term	Short Term	Short Term	Short Term	Long Term	Short Term	Short Term	Medium Term	Medium Term	Medium Term
		2B2	Voltage ranges (for unlimited operation) in extraordinary conditions	Medium term	Short Term	Long Term	Medium Term	Long Term	Short Term	Short Term	Short Term	Long Term	Short Term	Short Term	Medium Term	Medium Term	Medium Term
		2E	Reactive power management measures (specific measures in the international interconnections)	Medium term	Short Term	Medium Term	Medium Term	Medium Term	Medium Term	Short Term	Short Term	Long Term	Short Term	Short Term	Short Term	Medium Term	Medium Term
		2G	System protection coordination criteria in international interconnections	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Medium Term	Short Term
	Information exchange	3D	List of real time data to exchange with other TSOs	Short term	Short Term	Short Term	Short Term	Short Term	Medium Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term
		3E	List of sheduled data to exchange with other TSOs	Short Term	Short Term	Short Term	Medium Term	Short Term	Long Term	Medium Term	Medium Term	Short Term	Short Term	Short Term	Short Term	Short Term	Medium Term
		3F	List of structural data to exchange with other TSOs	Short Term	Short Term	Short Term	Medium Term	Short Term	Long Term	Medium Term	Medium Term	Short Term	Short Term	Short Term	Medium Term	Short Term	Medium Term
	Contingency analysis	4A1	Type of contingencies considered	Short Term	Short Term	Short Term	Medium term	Short Term	Medium Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term
		4A2	Contingency list (both internal - in national power system - and external - in neighbouring power systems -)	Short Term	Short Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Short Term	Medium Term	Short Term	Medium Term	Short Term	Medium Term	Medium Term
		4B1	Operational security limits	Short Term	Short Term	Long Term	Medium term	Medium Term	Short Term	Short Term	Medium Term	Long Term	Short Term	Short Term	Short Term	Long Term	Long Term
		4B2	Operational security limits in the interconnection lines	Short Term	Short Term	Short Term	Short Term	Medium Term	Medium Term	Medium Term	Medium Term	Short Term	Short Term	Short Term	Short Term	Medium Term	Short Term
		4B3	List of joint remedial actions agreed between TSOs after a contingency	Short Term	Short Term	Medium Term	Short Term	Medium Term	Medium Term	Medium Term	Short Term	Medium Term	Short Term	Short Term	Short Term	Medium Term	Short Term
		4C	Periodicity of state estimation calculations ("snapshots")	Short Term	Short Term	Medium Term	Medium Term	Short Term	Medium Term	Medium Term	Short Term	Medium Term	Medium term	Long Term	Short Term	Medium Term	Medium Term
	Management of int. exchanges	6A	Management of international exchange programs between TSOs	Short Term	Short Term	Short Term	Short Term	Short Term	Medium Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term
	Outage coordination	9A	Criteria and procedure for outage coordination (if affects NTC)	Short term	Medium Term	Short Term	Short Term	Short Term	Medium Term	Short Term	Medium Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term
	Load frequency control	11A3	Criteria used for establishing the quantity of FCR	Medium Term	Medium Term	Short Term	Short Term	Short Term	Long Term	Short Term	Medium Term	Medium Term	Short Term	Short Term	Short Term	Medium Term	Short Term
		11A4	Compliance scheme for FCR	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Long Term	Short Term	Long Term	Medium Term	Medium term	Long Term	Medium Term	Medium Term	Medium Term
		11B1	Provision of FRR	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Long Term	Short Term	Medium Term	Medium Term	Medium term	Medium Term	Short Term	Medium Term	Medium Term
		11B3	Criteria used for establishing the quantity of FRR	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Long Term	Short Term	Short Term	Medium Term	Medium term	Medium Term	Short Term	Medium Term	Medium Term
		11B4	Compliance scheme for FRR	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Long Term	Short Term	Long Term	Medium Term	Medium term	Long Term	Medium Term	Medium Term	Medium Term
	Reserves management	12A	Mechanisms of reserves management (exchange and sharing)	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Short Term	Medium Term	Medium term	Long Term	Medium Term	Long Term	Medium Term
	System defence plan	14A	Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)	Short Term	Medium Term	Short Term	Short Term	Short Term	Medium Term	Short Term	Medium Term	Short Term	Short Term	Short Term	Short Term	Medium Term	Short Term
		14B	Setting of demand disconnection schemes (low frequency and/or low voltage)	Short Term	Medium Term	Short Term	Short Term	Short Term	Medium Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Medium Term	Short Term
		14C	Voltage deviation management procedure	Medium term	Medium Term	Medium Term	Long term	Medium Term	Medium Term	Short Term	Medium Term	Medium Term	Medium term	Medium Term	Medium Term	Long Term	Medium Term
		14D	Power flow management procedure	Medium term	Medium Term	Medium Term	Long term	Medium Term	Medium Term	Short Term	Medium Term	Medium Term	Medium term	Medium Term	Medium Term	Medium Term	Medium Term
		14E	Manual demand disconnection procedure	Medium term	Short Term	Medium Term	Long Term	Medium Term	Medium Term	Short Term	Medium Term	Medium Term	Medium term	Medium Term	Medium Term	Long Term	Long Term
		14F	Inter-TSO assistance and coordination in emergency state	Short Term	Medium Term	Medium Term	Short Term	Medium Term	Medium Term	Short Term	Short Term	Medium Term	Short Term	Short Term	Short Term	Medium Term	Short Term
	Restoration plan	15A-B	Rules and types of restoration plans	Medium Term	Short Term	Medium Term	Short Term	Medium Term	Medium Term	Short Term	Short Term	Medium Term	Short Term	Short Term	Short Term	Short Term	Short Term
	Training and certification	16A	Certification of the operators in charge of real time	Medium term	Short Term	Long Term	Long Term	Medium Term	Medium Term	Medium Term	Medium Term	Long Term	Medium term	Long Term	Long Term	Long Term	Long Term
		16I	Language requirements	Medium Term	Short Term	Medium Term	Long Term	Medium Term	Short Term	Medium Term	Medium Term	Medium Term	Medium term	Medium Term	Medium Term	Long Term	Long Term

Figure 12 Individual answers for the operation area

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	COUNTRIES													
				DZ	CY	FR	GR	IT	JO	LY	ME	MA	PT	ES	TN	TR	AL
				TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION	TEMPORAL PRIORITIZATION
SYSTEM SERVICES MARKETS	Legal Issues	1A	Contractual requirements for participation on the cross-border electricity trade	Medium Term	Short Term	Medium Term	Medium Term	Medium Term	Medium Term	Short Term	Medium Term	Medium Term	Medium Term	Short Term	Medium Term	Medium Term	Medium Term
		1B	Current rules for export/import of cross-border electricity	Medium term	Short Term	Medium Term	Medium Term	Medium Term	Medium Term	Short Term	Medium Term	Medium Term	Medium Term	Short Term	Medium Term	Medium Term	Medium Term
		1D	Presence of a Market Operator	Medium Term	Short Term	Medium Term	Medium term	Medium Term	Medium Term	Medium Term	Short Term	Medium Term	Medium Term	Medium Term	Medium Term	Long Term	Short Term
		1I	Technical requirements to satisfy for using the interconnections	Medium Term	Short Term	Medium Term	Medium Term	Short Term	Medium Term	Short Term	Short Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term
	Capacity Calculation	2A	Security criteria used for calculating the Net Transfer Capacity (NTC)	Short term	Short Term	Short Term	Short Term	Short Term	Medium Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term
		2B	Characteristic process for finalization of Net Transfert Capacity (jointly or separatly from other TSO's?)	Medium Term	Short Term	Short Term	Short Term	Medium Term	Medium Term	Medium Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term
		2C	Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons	Short term	Medium Term	Short Term	Short Term	Short Term	Medium Term	Medium Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term
	Capacity Allocation	3D	Methods and procedures applied for transmission capacity allocation (e.g. public auction or tender procedures) including Physical Transmission Rights (PTR) allocation	Medium Term	Short Term	Medium Term	Medium Term	Medium Term	Long term	Medium Term	Short Term	Medium Term	Medium Term	Short Term	Medium Term	Medium Term	Medium Term
		3B	Obligation regarding the use of the capacity allocated - Use it or sell (or loose) it mechanism.	Medium Term	Short Term	Medium Term	Medium Term	Medium Term	Long term	Medium Term	Short Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term
		3C	Kind of capacity products allocated (duration and time profiling)	Medium Term	Short Term	Medium Term	Medium Term	Medium Term	Long term	Medium Term	Short Term	Medium Term	Medium Term	Short Term	Medium Term	Medium Term	Medium Term
		3E	System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure	Medium Term	Short Term	Medium Term	Medium term	Medium Term	Long term	Medium Term	Short Term	Medium Term	Medium Term	Medium Term	Medium Term	Long Term	Long Term
		3F	Subject responsible for the management of the allocation procedure	Medium Term	Medium Term	Medium Term	Medium term	Medium Term	Long term	Medium Term	Short Term	Medium Term	Medium Term	Short Term	Medium Term	Medium Term	Long Term
	Dispatching & Balancing	4A	Actions foreseen in order to guarantee the exchange programs	Short Term	Short Term	Medium Term	Medium Term	Medium Term	Medium Term	Long Term	Short Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term
		4B	Management of unintentional deviations on international interconnections	Short Term	Short Term	Medium Term	Medium term	Medium Term	Medium Term	Medium Term	Short Term	Medium Term	Medium Term	Medium Term	Medium Term	Medium Term	Long Term
	Transparency	6A	Public information on the Electricity Markets data	Medium Term	Short Term	Short Term	Short Term	Short Term	Medium term	Long Term	Medium Term	Short Term	Short Term	Short Term	Short Term	Short Term	Short Term
		6B	Public information on internatioanl interconnections data	Medium Term	Short Term	Short Term	Short Term	Short Term	Medium term	Medium Term	Medium Term	Short Term	Short Term	Short Term	Medium Term	Short Term	Short Term

Figure 13 Individual answers for the system service markets area

The global results and the final proposal for each of the technical issues are presented below.

Regarding connection area (Figure 14), the majority of issues have a medium term temporal prioritization, with the exception of issues related to frequency requirements, which are proposed to be included in the Road Map proposal with a short-term priority. Only “Telecommunication and protection schemes” and “Specific HVDC requirements or criteria” have a long-term prioritization.

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	GLOBAL RESULTS			PROPOSAL		
				Short term	Medium term	Long term	DEGREE OF PRIORITIZATION	RULE FORMAT	TEMPORAL PRIORITIZATION
CONNECTION	Connection procedure	2A	Studies performed for access and connection	3	10	1	5	External/Internal TSO-TSO	Medium term
		2C	Criteria used for access capacity calculation	5	8	1	5	External/Internal TSO-TSO	Medium term
	Frequency requirements	3A	Frequency/time range limits for users to withstand without damage	10	4	0	6	External/Internal TSO-TSO	Short term
		3B	Rate of change of frequency withstand capability	11	3	0	5	External	Short term
		3C	Limited frequency sensitive mode – overfrequency and underfrequency schemes	8	5	1	6	External	Short term
	Voltage requirements	4A	Voltage/time range limits for users to withstand without damage	6	7	1	6	External	Medium term
		4B	Fault ride through capability	5	9	0	6	External/Internal TSO-TSO	Medium term
	Reactive power requirements	5A	Limits of reactive power contribution	1	12	1	6	External	Medium term
	Protection requirements	7D	Telecommunication and protection schemes	0	5	9	5	External/Internal TSO-TSO	Long term
	Control requirements	8A	Global architecture and schemes required for controllability and observability of non-transmission facilities	1	9	4	5	External/Internal TSO-TSO	Medium term
		8B	Observability threshold for non-transmission facilities by TSO control systems	0	11	3	5	External/Internal TSO-TSO	Medium term
		8D	Controlability threshold for non-transmission facilities by TSO control systems	0	10	4	5	External	Medium term
		8C	Magnitudes to be provided in real time from non-transmission facilities to TSO control centre	0	10	4	5	External	Medium term
	Demand disconnection schemes	12A	Existence of demand disconnection schemes (low frequency and/or low voltage)	6	8	0	6	External	Medium term
	HVDC requirements	15A	Specific HVDC requirements or criteria	1	6	7	5	External/Internal TSO-TSO	Long term

Figure 14 Connection global results

Regarding the operation issues (Figure 15), the majority of the technical issues are included in the Road Map to be implemented in the short-term horizon. Few issues related to load frequency control and system defence plan are considered in the medium-term horizon. Only training and certification issues are considered in the long-term horizon.

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	GLOBAL RESULTS			PROPOSAL		
				Short term	Medium term	Long term	DEGREE OF PRIORITIZATION	RULE FORMAT	TEMPORAL PRIORITIZATION
OPERATION	System states	1A	Classification of system states	14	0	0	7	External	Short term
	Technical requirements	2A	Frequency ranges (quality parameters) in the different system states	13	1	0	8	External	Short term
		2B1	Voltage ranges (for unlimited operation) in normal conditions	6	5	3	6	External	Short term
		2B2	Voltage ranges (for unlimited operation) in extraordinary conditions	6	5	3	6	External	Short term
		2E	Reactive power management measures (specific measures in the international interconnections)	6	7	1	8	External/Internal TSO-TSO	Medium term
		2G	System protection coordination criteria in international interconnections	13	1	0	8	Internal TSO-TSO	Short term
	Information exchange	3D	List of real time data to exchange with other TSOs	13	1	0	9	External/Internal TSO-TSO	Short term
		3E	List of sheduled data to exchange with other TSOs	9	4	1	6	Internal TSO-TSO	Short term
		3F	List of structural data to exchange with other TSOs	8	5	1	6	Internal TSO-TSO	Short term
	Contingency analysis	4A1	Type of contingencies considered	12	2	0	7	External	Short term
		4A2	Contingency list (both internal - in national power system - and external - in neighbouring power systems -)	5	9	0	8	Internal TSO-TSO	Medium term
		4B1	Operational security limits	7	3	4	4	Internal TSO-TSO	Short term
		4B2	Operational security limits in the interconnection lines	9	5	0	5	Internal TSO-TSO	Short term
		4B3	List of joint remedial actions agreed between TSOs after a contingency	8	6	0	8	External	Short term
		4C	Periodicity of state estimation calculations ("snapshots")	5	8	1	7	Internal TSO-TSO	Medium term
	Management of int. exchanges	6A	Management of international exchange programs between TSOs	13	1	0	8	Internal TSO-TSO	Short term
	Outage coordination	9A	Criteria and procedure for outage coordination (if affects NTC)	11	3	0	7	External	Short term
	Load frequency control	11A3	Criteria used for establishing the quantity of FCR	8	5	1	8	External/Internal TSO-TSO	Short term
		11A4	Compliance scheme for FCR	1	10	3	6	External	Medium term
		11B1	Provision of FRR	2	11	1	6	External	Medium term
		11B3	Criteria used for establishing the quantity of FRR	3	10	1	7	External	Medium term
		11B4	Compliance scheme for FRR	1	10	3	6	Internal TSO-TSO	Medium term
	Reserves management	12A	Mechanisms of reserves management (exchange and sharing)	1	11	2	8	External/Internal TSO-TSO	Medium term
	System defence plan	14A	Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)	10	4	0	8	External/Internal TSO-TSO	Short term
		14B	Setting of demand disconnection schemes (low frequency and/or low voltage)	11	3	0	7	External	Short term
		14C	Voltage deviation management procedure	1	11	2	6	External/Internal TSO-TSO	Medium term
		14D	Power flow management procedure	1	12	1	6	External/Internal TSO-TSO	Medium term
		14E	Manual demand disconnection procedure	2	9	3	5	External	Medium term
		14F	Inter-TSO assistance and coordination in emergency state	8	6	0	8	External/Internal TSO-TSO	Short term
	Restoration plan	15A-B	Rules and types of restoration plans	9	5	0	8	External/Internal TSO-TSO	Short term
	Training and certification	16A	Certification of the operators in charge of real time	1	6	7	6	External	Long term
		16I	Language requirements	2	9	3	6	External/Internal TSO-TSO	Medium term

Figure 15 Operation global results

Regarding the system services markets area (Figure 16), the aspects related with capacity calculation and transparency are proposed to be included in the Road Map for implementation in the short-term horizon. The rest of the aspects are included with a medium-term temporal prioritization.

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	GLOBAL RESULTS			PROPOSAL		
				Short term	Medium term	Long term	DEGREE OF PRIORITIZATION	RULE FORMAT	TEMPORAL PRIORITIZATION
SYSTEM SERVICES MARKETS	Legal Issues	1A	Contractual requirements for participation on the cross-border electricity trade	3	11	0	6	Internal TSO-TSO	Medium term
		1B	Current rules for export/import of cross-border electricity	3	11	0	6	External/Internal TSO-TSO	Medium term
		1D	Presence of a Market Operator	3	10	1	6	External	Medium term
		1I	Technical requirements to satisfy for using the interconnections	4	10	0	6	Internal TSO-TSO	Medium term
	Capacity Calculation	2A	Security criteria used for calculating the Net Transfer Capacity (NTC)	13	1	0	7	Internal TSO-TSO	Short term
		2B	Characteristic process for finalization of Net Transfert Capacity (jointly or separatly from other TSO's?)	10	4	0	6	Internal TSO-TSO	Short term
		2C	Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons	11	3	0	6	Internal TSO-TSO	Short term
	Capacity Allocation	3D	Methods and procedures applied for transmission capacity allocation (e.g. public auction or tender procedures) including Physical Transmission Rights (PTR) allocation	3	10	1	6	Internal TSO-TSO	Medium term
		3B	Obligation regarding the use of the capacity allocated - Use it or sell (or loose) it mechanism.	2	11	1	6	Internal TSO-TSO	Medium term
		3C	Kind of capacity products allocated (duration and time profiling)	3	10	1	6	Internal TSO-TSO	Medium term
		3E	System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure	2	9	3	5	Internal TSO-TSO	Medium term
		3F	Subject responsible for the management of the allocation procedure	2	10	2	6	Internal TSO-TSO	Medium term
	Dispatching & Balancing	4A	Actions foreseen in order to guarantee the exchange programs	3	10	1	7	Internal TSO-TSO	Medium term
		4B	Management of unintentional deviations on international interconnections	3	10	1	6	Internal TSO-TSO	Medium term
	Transparency	6A	Public information on the Electricity Markets data	10	3	1	7	External/Internal TSO-TSO	Short term
		6B	Public information on internatioanl interconnections data	9	5	0	7	Internal TSO-TSO	Short term

Figure 16 System services markets global results

Finally regarding the legal and regulatory area (Figure 17) all of the issues are proposed to be implemented in the medium term with the exception of the establishment of an authority responsible for the settlement of disputes, which is proposed to be moved in the long-term horizon.

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	GLOBAL RESULTS			PROPOSAL		
				Short term	Medium term	Long term	DEGREE OF PRIORITIZATION	RULE FORMAT	TEMPORAL PRIORITIZATION
LEGAL AND REGULATORY		B	Responsible authority for the settlement of disputes among stakeholders	4	2	8	5	External	Long term
		F	Unbundling of regulated and non-regulated activities	1	11	2	7	External	Medium term
		G	Coordinated regulation to make feasible and viable international interconnections	2	7	5	7	External	Medium term

Figure 17 Legal and regulatory global results

Based on the global results presented above, further analysis has been performed, aiming to better reflect the opinion of the TSOs expressed in the Survey, in two directions:

1. All the issues have been ordered by level of degree of prioritization so that the most relevant issues are highlighted (for example 50th percentage of all the issues). The result is reflected in the histogram below

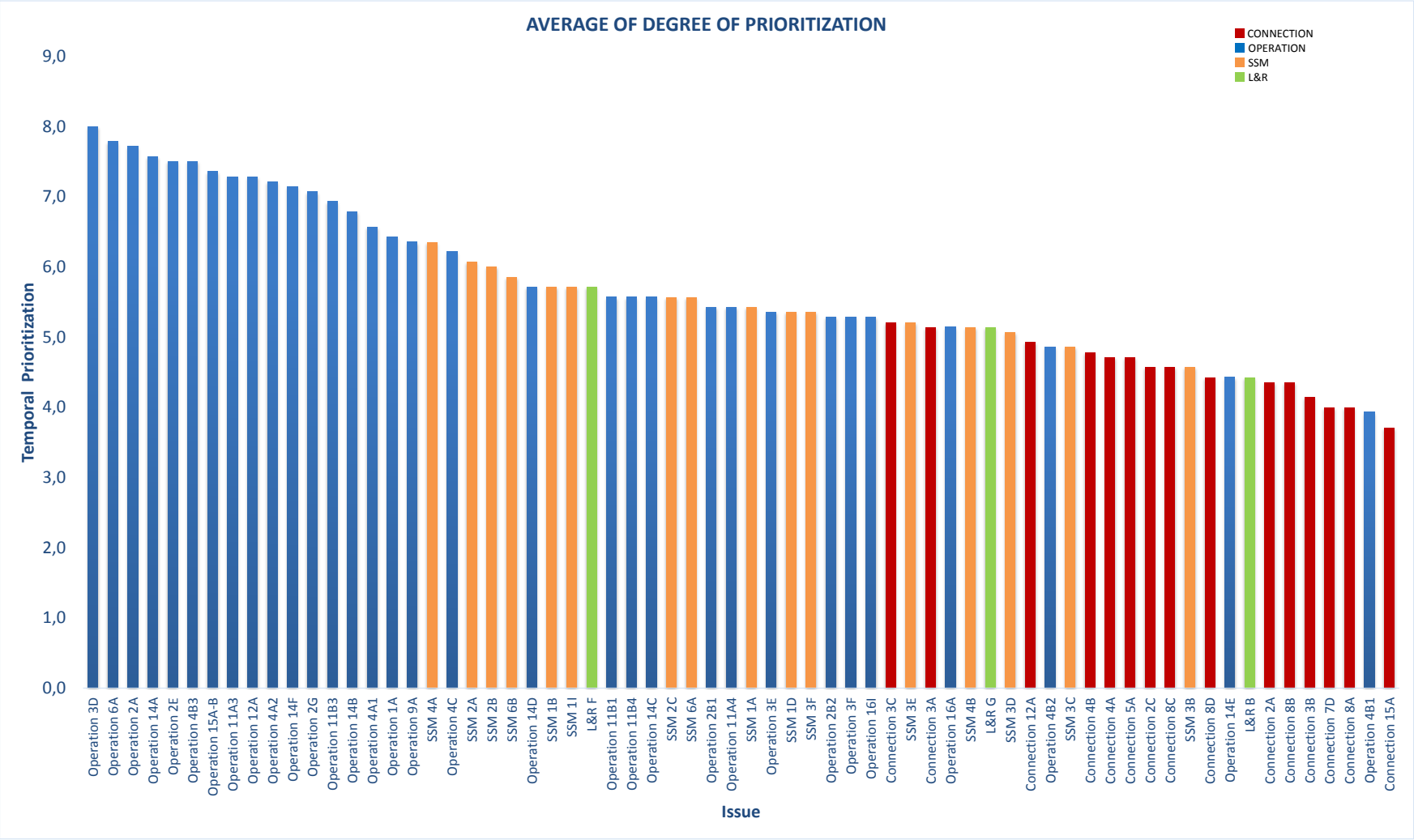


Figure 18 Classification by level of degree of prioritization

2. The same analysis has been conducted considering the temporal prioritization. Since the possible answers to this survey were short, medium or long term; a conversion of each period to an integer has been adopted as follows: Short-term -> 5; Medium-term -> 3; Long-term -> 1

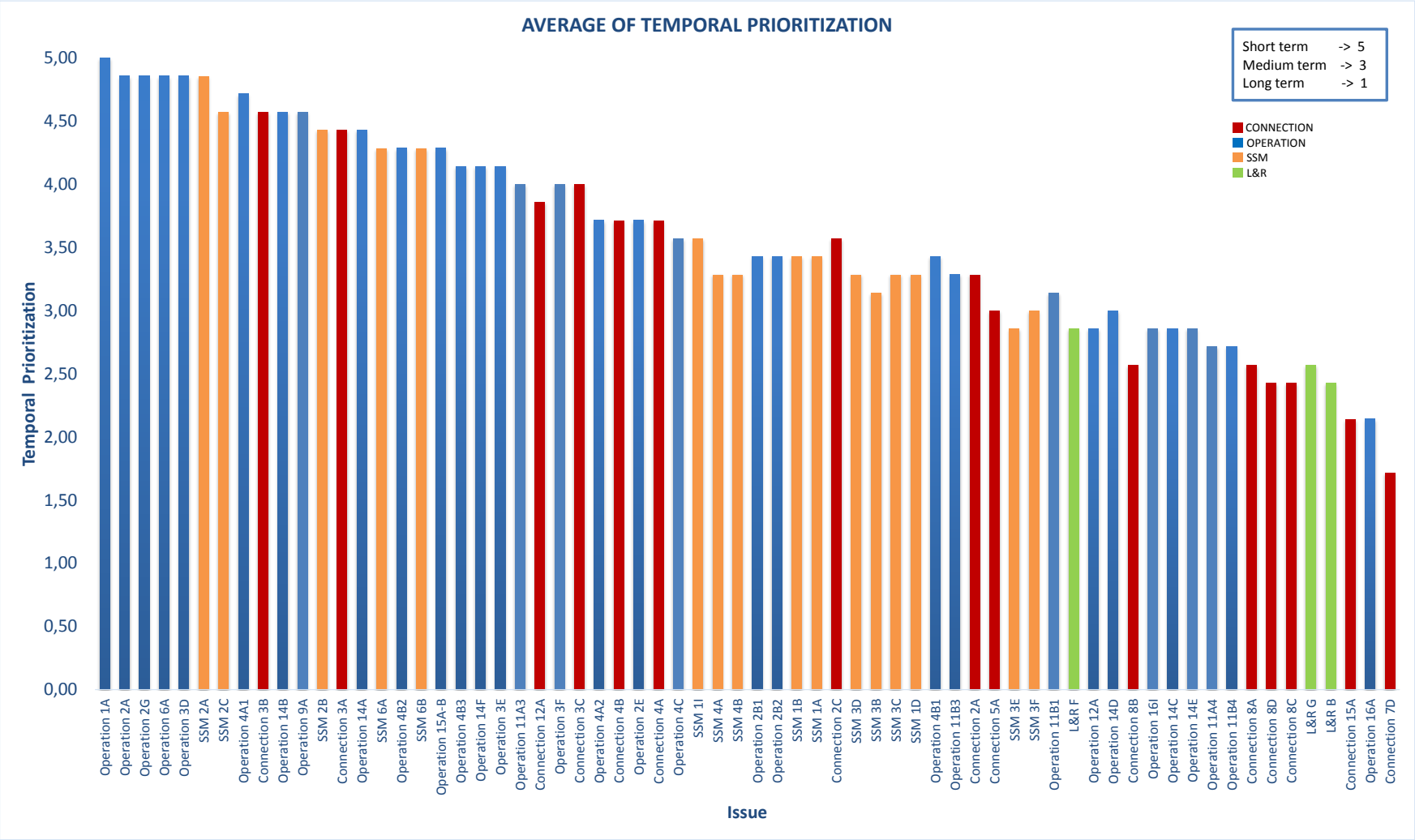


Figure 19 Classification by level of temporal prioritization

Merging both dimensions the results are shown in the following figure, as the main result that provides the necessary criteria based on which the Proposal of Common Tentative Road Map is presented as follows in chapter 5.

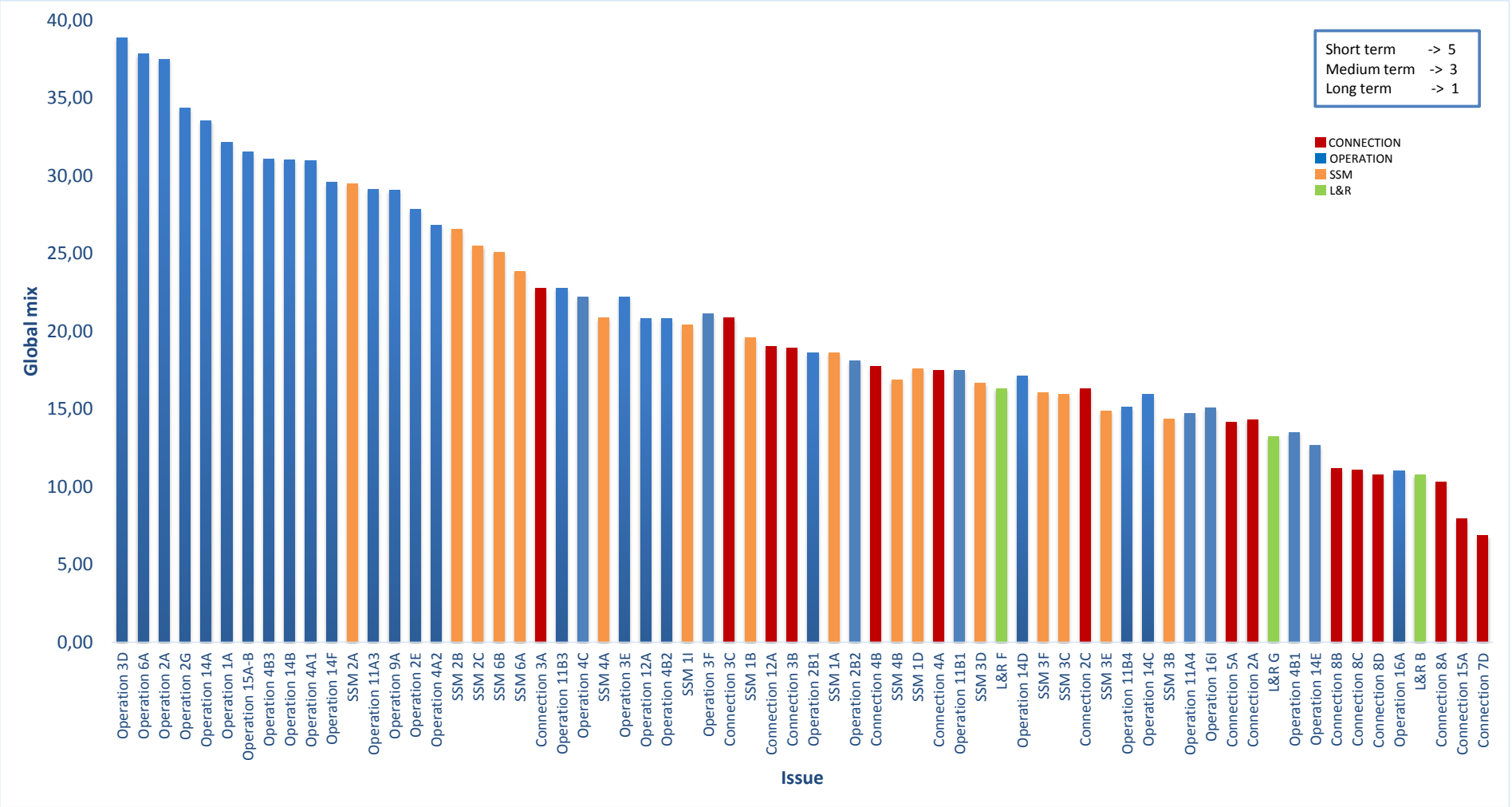


Figure 20 Classification by merging both prioritization dimensions

Finally a national comparison between the responses of every country is shown in the following figure.

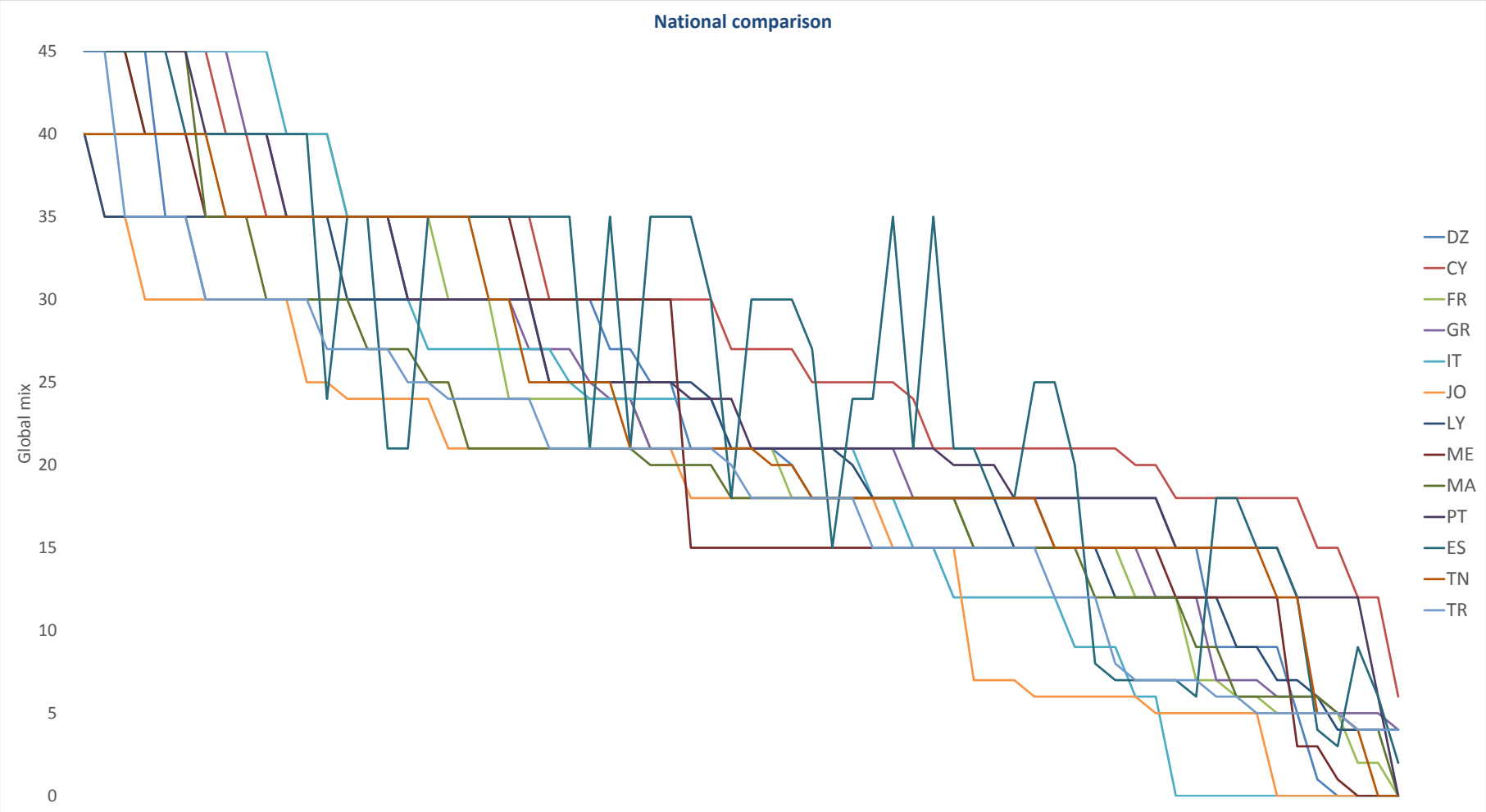


Figure 21 National comparison

5 Proposal of Common Tentative Road Map

Based on the individual results of both surveys on prioritization for the Common Target Regulatory Framework presented in chapter 3 and on the temporal prioritization presented in chapter 4, a concrete proposal on a common tentative road map for adoption and compliance is presented for the different technical issues already considered as prioritary and included in the common target regulatory framework.

5.1 Methodology

The scheduling of the various technical issues within the proposed road map is based on a number of criteria, aiming to translate and possibly quantify (in terms of importance and time) the opinion of the TSOs as reflected in the results of the Survey. Those criteria are the following:

- **Time horizons**
  According to the methodology described in chapter 2, the road map is divided in three time horizons, as specified in the following table:

TIME HORIZONS	TIME SPAN	TIME PERIOD
Short-term	3 years	2018-2020
Medium-term	5 years	2021-2025
Long-term	Undefined	2025 - …

  For the purpose of the analysis, due to the rather low number of issues prioritised in the long term horizon, medium and long-term horizons were considered as merged.

  Based on the results of the Survey on the temporal prioritization, for each technical issue the regulatory implementation phase (as described below) of the harmonization process is considered to be completed within the time span of the relevant time horizon, whereas the actual implementation phase is possible to be extended outside the relevant time horizon. This is considered rather realistic, based on previous experience, taking into account the fact that actual compliance with the regulatory framework is often a particularly time consuming process, requiring general consensus and coordination of all involved parties, while for certain technical issues it may additionally require to overcome existing system limitations, which can be very challenging.

- **Implementation Phases**

  Based on previous experience particularly within ENTSO-E, the harmonisation process can be divided in two implementation phases:

  - **Regulatory implementation phase**, which includes all the procedures to be followed for the elaboration, approval by responsible authority and entry into force of the relevant regulation to be implemented for one or more categories of issues.
  - **Actual implementation phase**, which includes all the procedures to be followed and measures to be applied by each TSO (and/or relevant authority) within each system for the actual compliance with the regulation imposed during the regulatory implementation phase.

Based on the results of the Survey on the suitable rule format for the common target regulatory framework, the duration of the two implementation phases was defined, as described in the table below:

RULE FORMAT	REGULATORY IMPLEMENTATION DURATION	PRACTICAL IMPLEMENTATION DURATION
External	3 years	1.5 - 3 years
External/Internal TSO-TSO	2 years	1 - 2 years
Internal TSO-TSO	1 year	1 - 2 years

- **Prioritization zones**

Based on the combined analysis of the results of the Survey (Global mix), it is possible to distinguish 4 Prioritization Zones, reflecting globally the level of degree of prioritisation and the temporal prioritisation for each issue, presented in the following figure:

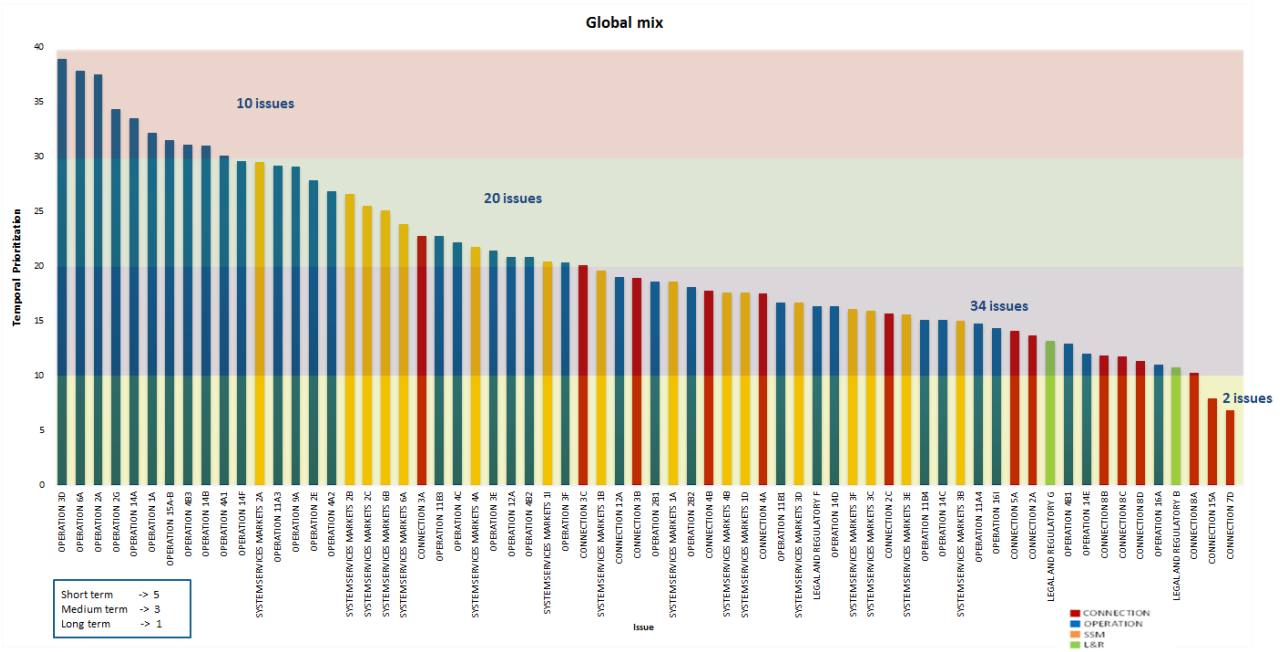


Figure 22 Prioritization zone

From the 66 technical issues:

- 10 are ranked to the 1st Prioritisation Zone, all related to the Operation Area
- 20 are ranked to the 2nd Prioritisation Zone, 55% related to the Operation Area, 35% related to the System Services Markets Area and 10% related to the Connection Area
- 34 are ranked to the 3rd Prioritisation Zone, 32% related to the Connection Area, 32% related to the Operation Area, 26% related to the System Services Markets Area and 9% related to the Legal and Regulatory Area
- 2 are ranked to the 4th Prioritisation Zone, both related to the Connection Area

Above categorisation is possible to provide an additional criterion based on which the beginning of the regulatory implementation for each issue is decided, with the aim of a more effective scheduling of the harmonisation process, as described in the table below:

Prioritization Zone	Beginning of Regulatory Implementation
1	1st semester of relevant horizon
2	2nd semester of relevant horizon
3	3rd semester of relevant horizon
4	4th semester of relevant horizon

- **General Categories**

  Based on their correlation to each other, their level of degree of prioritisation and their temporal prioritisation, the technical issues can be grouped in the following Categories of aspects:

  - ***Transparency and Information exchange platform***

    In the short-term horizon this category includes issues only from the operation and SSM areas, in particular all data (real-time, structural and scheduled) and public information to be exchanged between the TSOs. In general, for this category both regulatory and practical implementation of the harmonization process are expected to be rather short, particularly in cases of TSOs interconnected, where this exchange of information is already coordinated based on inter TSO agreements.

    In the medium and long-term horizons this category includes issues only from the connection area, such as global architecture and schemes, controllability and observability threshold and magnitudes of non-transmission facilities to be provided to TSO control centres, as well as telecommunication and protection schemes. In general, for this category regulatory implementation should be rather short, since these issues are already mature for harmonisation within the Mediterranean area, but certain technical issues and limitations can be challenging during implementation phase. It should be noted that, based on the results of the Survey, the issue of observability of non-transmission facilities is proposed to be moved to the short term horizon, since its harmonisation is considered of major and urgent importance.

  - ***Management of International Interconnections***

    In the short-term horizon this category includes issues only from the operation and SSM areas focussing on the management of international interconnections, in particular, international exchange programs, protection coordination criteria, type of contingencies to be considered and joint remedial actions following contingencies and operational security limits. Furthermore, issues with reference to the NTC are considered, such as, security criteria, processes and different time horizons used for NTC calculation, as well as criteria and procedure for outage coordination if it affects NTC. In general, the duration of both regulatory and practical implementation for the issues of this category vary, depending on the proposed rule format, nevertheless it is important to underline that harmonisation is concluded within the short-term horizon.

In the medium-term horizon this category includes mostly issues from the SSM, focussing mainly on dispatching & balancing aspects (such as actions for guaranteeing exchange programs, management of unintentional deviations), legal aspects (such as rules for exchange of cross-border electricity, contractual requirements for participation on cross-border electricity trade and technical requirements for using the interconnections) and also some issues related to capacity allocation (such as kinds of capacity products, methods and procedures applied for capacity allocation and responsible for the management of the procedure, mechanisms for the use of the allocated capacity, system of liabilities, guarantees and penalties). There are also few issues from the operation area, such as contingency list and periodicity of state estimation calculations, measures and mechanisms of reactive power and reserves management with focus on the international interconnections. In this category the harmonisation of specific HVDC requirements or criteria is included, prioritised for the medium term horizon, taking into consideration also the harmonization process in ENTSO-E countries.

- ***Frequency/voltage management and control in different system states***

In the short-term horizon this category includes issues only from the operation and connection areas. In particular, operation area issues focus on system states and coordination of relevant actions and procedures, such as rules and types of restoration plans, inter-TSO assistance and coordination, frequency ranges and deviation management procedure and setting of demand disconnection schemes. Connection area issues are related to certain frequency requirements which are considered of major and urgent importance for harmonisation, such as frequency/time range limits for users to withstand without damage, overfrequency and underfrequency schemes and rate of change of frequency withstand capability.

In the medium term horizon this category mainly includes issues from the operation area and few from the connection area. In particular, operation area issues focus on aspects related to load frequency control, as well as on the procedures for demand disconnection and for management of power flow and voltage deviation. Connection area issues are related to demand disconnection schemes and voltage/time range limits for users to withstand without damage.

- ***Criteria for connection***

This category includes issues only from the connection area with temporal prioritisation in the medium term horizon, such as criteria for access capacity calculation, studies for access and connection, limits of reactive power contribution and fault ride through capability. For those issues, regulatory implementation should be coordinated taking into consideration also the harmonization process in ENTSO-E countries. Practical implementation is expected to be rather short, since based on the results of the Survey, these connection issues are rather mature for harmonisation within the Mediterranean area, particularly in cases of TSOs already interconnected, who already implement common procedures based on inter TSO agreements.

- ***Legal and Regulatory***

  This category includes issues from the legal and regulatory area with temporal prioritisation in the medium term horizon, such as unbundling of activities (regulated and non-regulated), coordinated regulation for feasible and viable international interconnections, as well as presence of a Market Operator and responsible authority for settlement of disputes. Based on the existing experience of harmonisation within ENTO-E, for this category of issues both regulatory and practical implementation are expected to be time consuming, mainly due to the current lack of regulatory framework in certain Mediterranean countries. It is proposed that for all issues at least the regulatory implementation should start within the medium term horizon.

- ***Training and Certification***

  This category includes only 2 issues from the operation area with temporal prioritisation in the medium term horizon, namely language requirements and certification of the operators in charge of real time operation, which are considered already mature for harmonisation within the Mediterranean area, thus both regulatory and practical implementation phases should be rather short.

Based on the criteria presented above the proposed Common Tentative Road Map is presented as follows:

Med-TSO is supported by the European Union

Proposal of Common Tentative RoadMap

HORIZON TIME SPAN
Short-term: 2018-2020
Medium-term: 2021-2025
Long-term: > 2025

RULE FORMAT	REGULATORY IMPLEMENTATION DURATION	PRACTICAL IMPLEMENTATION DURATION
External	3 years	1,5 - 3 years
External/Internal TSO-TSO	2 years	1 - 2 years
Internal TSO-TSO	1 year	1 - 2 years

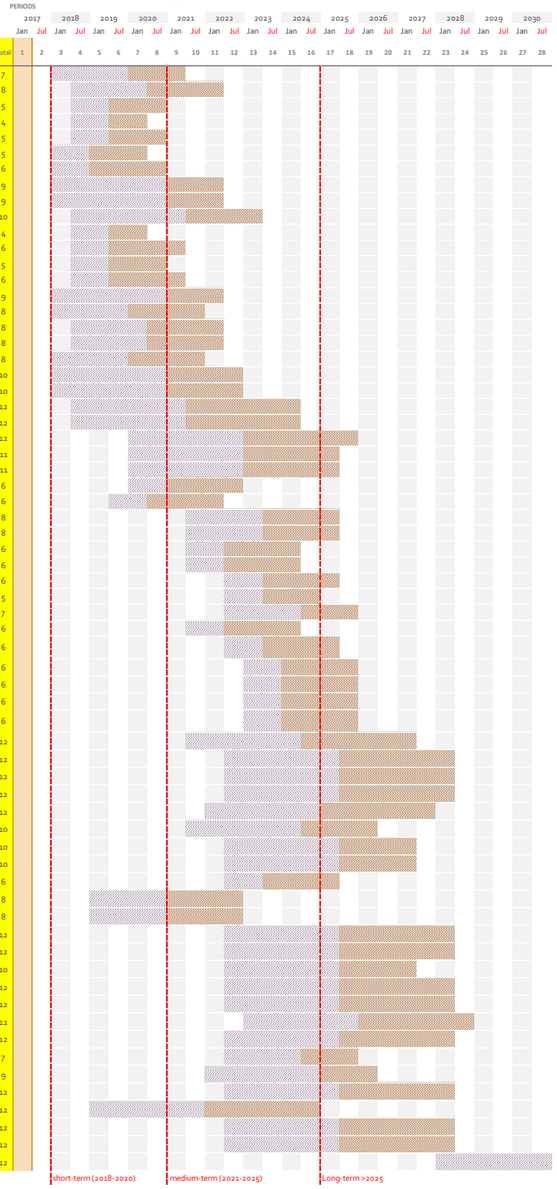
Prioritization Zone	Reg Implementation Start
1	1st semester of relevant horizon
2	2nd semester of relevant horizon
3	3rd semester of relevant horizon
4	4th semester of relevant horizon

The Regulatory Implementation shall be completed within the respective time horizon (short, medium, long-term).
The Practical Implementation starts following the completion of the Regulatory implementation

Period Highlight: 1

REGULATORY IMPLEMENTATION STATUS: Plan, Actual, % Complete
PRACTICAL IMPLEMENTATION STATUS: Plan, Actual, % Complete

TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	MAIN ISSUES	ASPECTS	Question Number	PROPOSAL					REG IMP START	REG IMP DURATION	PRACT IMP START	PRACT IMP DURATION	Total
				DEGREE OF PRIORITIZATION	RULE FORMAT	TEMPORAL PRIORITIZATION	Prioritization Zone	General Categories					
List of real time data to exchange with other TSOs	OPERATION	Information exchange	3D	9	External/Internal TSO-TSO	Short term	1	Transparency and Information exchange platform	3	4	7	3	7
Public information on the Electricity Markets data	SYSTEM SERVICES MARKETS	Transparency	6A	7	External/Internal TSO-TSO	Short term	2		4	4	8	4	8
Public information on international interconnections data	SYSTEM SERVICES MARKETS	Transparency	6B	7	Internal TSO-TSO	Short term	2		4	2	6	3	5
List of sheduled data to exchange with other TSOs	OPERATION	Information exchange	3E	6	Internal TSO-TSO	Short term	2		4	2	6	2	4
List of structural data to exchange with other TSOs	OPERATION	Information exchange	3F	6	Internal TSO-TSO	Short term	2		4	2	6	3	5
Management of international exchange programs between TSOs	OPERATION	Management of int. exchanges	6A	8	Internal TSO-TSO	Short term	1	Management of International Interconnections	3	2	5	3	5
System protection coordination criteria in international interconnections	OPERATION	Technical requirements	2G	8	Internal TSO-TSO	Short term	1		3	2	5	4	6
List of joint remedial actions agreed between TSOs after a contingency	OPERATION	Contingency analysis	4B3	8	External	Short term	1		3	6	9	3	9
Type of contingencies considered	OPERATION	Contingency analysis	4A1	7	External	Short term	1		3	6	9	3	9
Criteria and procedure for outage coordination (if affects NTC)	OPERATION	Outage coordination	9A	7	External	Short term	2		4	6	10	4	10
Security criteria used for calculating the Net Transfer Capacity (NTC)	SYSTEM SERVICES MARKETS	Capacity Calculation	2A	7	Internal TSO-TSO	Short term	2		4	2	6	2	4
Characteristic process for finalization of Net Transfert Capacity (jointly or separatly from other TSO's?)	SYSTEM SERVICES MARKETS	Capacity Calculation	2B	6	Internal TSO-TSO	Short term	2		4	2	6	4	6
Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons	SYSTEM SERVICES MARKETS	Capacity Calculation	2C	6	Internal TSO-TSO	Short term	2		4	2	6	3	5
Operational security limits in the interconnection lines	OPERATION	Contingency analysis	4B2	5	Internal TSO-TSO	Short term	2		4	2	6	4	6
Classification of system states	OPERATION	System states	1A	7	External	Short term	1	Frequency/voltage management and control in different system states	3	6	9	3	9
Rules and types of restoration plans	OPERATION	Restoration plan	15A-B	8	External/Internal TSO-TSO	Short term	1		3	4	7	4	8
Inter-TSO assistance and coordination in emergency state	OPERATION	System defence plan	14F	8	External/Internal TSO-TSO	Short term	2		4	4	8	4	8
Criteria used for establishing the quantity of FCR	OPERATION	Load frequency control	11A3	8	External/Internal TSO-TSO	Short term	2		4	4	8	4	8
Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)	OPERATION	System defence plan	14A	8	External/Internal TSO-TSO	Short term	1		3	4	7	4	8
Frequency ranges (quality parameters) in the different system states	OPERATION	Technical requirements	2A	8	External	Short term	1		3	6	9	4	10
Setting of demand disconnection schemes (low frequency and/or low voltage)	OPERATION	System defence plan	14B	7	External	Short term	1		3	6	9	4	10
Frequency/time range limits for users to withstand without damage	CONNECTION	Frequency requirements	3A	6	External/Internal TSO-TSO	Short term	2		4	6	10	6	12
Limited frequency sensitive mode – overfrequency and underfrequency schemes	CONNECTION	Frequency requirements	3C	6	External	Short term	2		4	6	10	6	12
Rate of change of frequency withstand capability	CONNECTION	Frequency requirements	3B	5	External	Short term	4		7	6	13	6	12
Voltage ranges (for unlimited operation) in normal conditions	OPERATION	Technical requirements	2B1	6	External	Short term	4		7	6	13	5	11
Voltage ranges (for unlimited operation) in extraordinary conditions	OPERATION	Technical requirements	2B2	6	External	Short term	4		7	6	13	5	11
Operational security limits	OPERATION	Contingency analysis	4B1	4	Internal TSO-TSO	Short term	4		7	2	9	4	6
Contingency list (both internal - in national power system - and external - in neighbouring power systems -)	OPERATION	Contingency analysis	4A2	8	Internal TSO-TSO	Medium term	2	Management of International Interconnections	6	2	8	4	6
Reactive power management measures (specific measures in the international interconnections)	OPERATION	Technical requirements	2E	8	External/Internal TSO-TSO	Medium term	2		10	4	14	4	8
Mechanisms of reserves management (exchange and sharing)	OPERATION	Reserves management	12A	8	External/Internal TSO-TSO	Medium term	2		10	4	14	4	8
Periodicity of state estimation calculations ("snapshots")	OPERATION	Contingency analysis	4C	7	Internal TSO-TSO	Medium term	2		10	2	12	4	6
Actions foreseen in order to guarantee the exchange programs	SYSTEM SERVICES MARKETS	Dispatching & Balancing	4A	7	Internal TSO-TSO	Medium term	2		10	2	12	4	6
Management of unintentional deviations on international interconnections	SYSTEM SERVICES MARKETS	Dispatching & Balancing	4B	6	Internal TSO-TSO	Medium term	3		12	2	14	4	6
Contractual requirements for participation on the cross-border electricity trade	SYSTEM SERVICES MARKETS	Legal Issues	1A	6	Internal TSO-TSO	Medium term	3		12	2	14	3	5
Current rules for export/import of cross-border electricity	SYSTEM SERVICES MARKETS	Legal Issues	1B	6	External/Internal TSO-TSO	Medium term	3		12	4	16	3	7
Technical requirements to satisfy for using the interconnections	SYSTEM SERVICES MARKETS	Legal Issues	1I	6	Internal TSO-TSO	Medium term	2		10	2	12	4	6
Methods and procedures applied for transmission capacity allocation (e.g. public auction or tender procedures) including Physical Transmission Rights (PTR) allocation	SYSTEM SERVICES MARKETS	Capacity Allocation	3D	6	Internal TSO-TSO	Medium term	3		12	2	14	4	6
Subject responsible for the management of the allocation procedure	SYSTEM SERVICES MARKETS	Capacity Allocation	3F	6	Internal TSO-TSO	Medium term	4		13	2	15	4	6
Obligation regarding the use of the capacity allocated - Use it or sell (or loose) it mechanism.	SYSTEM SERVICES MARKETS	Capacity Allocation	3B	6	Internal TSO-TSO	Medium term	4		13	2	15	4	6
Kind of capacity products allocated (duration and time profiling)	SYSTEM SERVICES MARKETS	Capacity Allocation	3C	6	Internal TSO-TSO	Medium term	4		13	2	15	4	6
System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure	SYSTEM SERVICES MARKETS	Capacity Allocation	3E	5	Internal TSO-TSO	Medium term	4		13	2	15	4	6
Specific HVDC requirements or criteria	CONNECTION	HVDC requirements	15A	5	External/Internal TSO-TSO	Long term	4		10	6	16	6	12
Unbundling of regulated and non-regulated activities	LEGAL AND REGULATORY	LEGAL AND REGULATORY	F	7	External	Medium term	3	Legal and Regulatory	12	6	18	6	12
Coordinated regulation to make feasible and viable international interconnections	LEGAL AND REGULATORY	LEGAL AND REGULATORY	G	7	External	Medium term	3		12	6	18	6	12
Presence of a Market Operator	SYSTEM SERVICES MARKETS	Legal Issues	1D	6	External	Medium term	3		12	6	18	6	12
Responsible authority for the settlement of disputes among stakeholders	LEGAL AND REGULATORY	LEGAL AND REGULATORY	B	5	External	Long term	4		11	6	17	6	12
Criteria used for establishing the quantity of FRR	OPERATION	Load frequency control	11B3	7	External	Medium term	2	Frequency/voltage management and control in different system states	10	6	16	4	10
Compliance scheme for FCR	OPERATION	Load frequency control	11A4	6	External	Medium term	3		12	6	18	4	10
Provision of FRR	OPERATION	Load frequency control	11B1	6	External	Medium term	3		12	6	18	4	10
Compliance scheme for FRR	OPERATION	Load frequency control	11B4	6	Internal TSO-TSO	Medium term	3		12	2	14	4	6
Voltage deviation management procedure	OPERATION	System defence plan	14C	6	External/Internal TSO-TSO	Medium term	3		5	4	9	4	8
Power flow management procedure	OPERATION	System defence plan	14D	6	External/Internal TSO-TSO	Medium term	3		5	4	9	4	8
Voltage/time range limits for users to withstand without damage	CONNECTION	Voltage requirements	4A	6	External	Medium term	3		12	6	18	6	12
Existence of demand disconnection schemes (low frequency and/or low voltage)	CONNECTION	Demand disconnection schemes	12A	6	External	Medium term	3		12	6	18	6	12
Manual demand disconnection procedure	OPERATION	System defence plan	14E	5	External	Medium term	3		12	6	18	4	10
Limits of reactive power contribution	CONNECTION	Reactive power requirements	5A	6	External	Medium term	3	Criteria for connection	12	6	18	6	12
Fault ride through capability	CONNECTION	Voltage requirements	4B	6	External/Internal TSO-TSO	Medium term	3		12	6	18	6	12
Criteria used for access capacity calculation	CONNECTION	Connection procedure	2C	5	External/Internal TSO-TSO	Medium term	4		13	6	19	6	12
Studies performed for access and connection	CONNECTION	Connection procedure	2A	5	External/Internal TSO-TSO	Medium term	3		12	6	18	6	12
Language requirements	OPERATION	Training and certification	16I	6	External/Internal TSO-TSO	Medium term	3	Training and Certification	12	4	16	3	7
Certification of the operators in charge of real time operation	OPERATION	Training and certification	16A	6	External	Long term	3		11	6	17	3	9
Global architecture and schemes required for controllability and observability of non-transmission facilities	CONNECTION	Control requirements	8A	5	External/Internal TSO-TSO	Medium term	3	Transparency and Information exchange platform	12	6	18	6	12
Observability threshold for non-transmission facilities by TSO control systems	CONNECTION	Control requirements	8B	5	External/Internal TSO-TSO	Medium term	3		5	6	11	6	12
Controlability threshold for non-transmission facilities by TSO control systems	CONNECTION	Control requirements	8D	5	External	Medium term	3		12	6	18	6	12
Magnitudes to be provided in real time from non-transmission facilities to TSO control centre	CONNECTION	Control requirements	8C	5	External	Medium term	3		12	6	18	6	12
Telecommunication and protection schemes	CONNECTION	Protection requirements	7D	5	External/Internal TSO-TSO	Long term	4		23	6	29	6	12



6 Advancement in regional grouping and next steps

6.1 Advancement in regional grouping

In order to facilitate the process of the proposal roadmap for the global harmonization, a matrix of correspondences for the same answers between the Med-TSO countries was generated for the temporal aspect; this matrix gives the number of correspondences of the same answers with the Med-TSO countries as well as with the overall average.

	DZ	CY	FR	GR	IT	JO	LY	ME	MA	PT	ES	TN	TR	AL	GL
DZ	66	29	45	43	46	23	29	34	45	48	41	51	31	41	49
CY	29	66	27	22	30	20	26	39	29	35	31	29	26	28	33
FR	45	27	66	45	55	23	28	25	**55**	49	43	49	41	49	55
GR	43	22	45	66	41	24	32	27	43	45	45	48	41	52	52
IT	46	30	55	41	66	24	29	34	50	45	39	47	38	43	51
JO	23	20	23	24	24	66	29	23	24	24	25	20	25	21	25
LY	29	26	28	32	29	29	66	27	33	36	33	34	25	27	34
ME	34	39	25	27	34	23	27	66	28	33	34	35	24	32	33
MA	45	29	55	43	50	24	33	28	66	46	42	47	46	43	54
PT	48	35	49	45	45	24	36	33	46	66	48	50	34	45	54
ES	41	31	43	45	39	25	33	34	42	48	66	46	31	39	53
TN	51	29	49	48	47	20	34	35	47	50	46	66	36	49	56
TR	31	26	41	41	38	25	25	24	46	34	31	36	66	44	42
AL	41	28	49	52	43	21	27	32	43	45	39	49	44	66	51
GL	49	33	55	52	51	25	34	33	54	54	53	**56**	42	51	66

Figure 23 Matrix of correspondences for the same answers between the Med-TSO countries

As an example Algeria has 46 answers in common with Italy for the temporal aspect and 50 answers in common with the global average of the Med-TSO countries

The analysis of correspondences of the same answers is based on two parts, one compared to the global average and the other compared to the different Med-TSO countries and especially compared to the neighboring countries.

1- Analysis in relation to the overall average

The analysis with respect to the overall average yields that there are two groups which can present practically the same conditions as shown in the following graph:

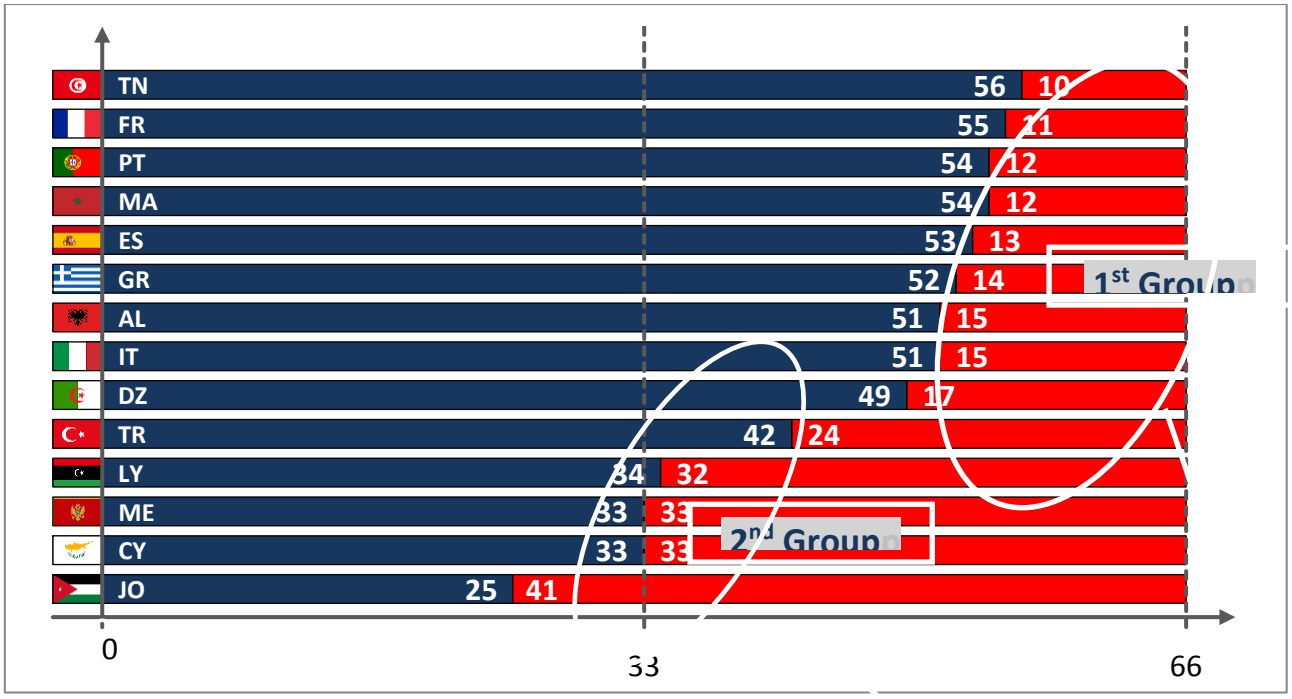


Figure 24 Number of answers in common with the overall average Med-TSO countries

The first group is constituted by the Med-TSO countries having a number of the same answers high compared to the overall average answers. This group is constituted by the following countries in the decreasing order:

1- Tunisia with (56/66) answers in common with the overall average
2- France with (55/66) answers in common with the overall average
3- Morocco and Portugal with (57/66) answers in common with the overall average
4- Spain with (53/66) answers in common with the overall average
5- Greece with (52/66) answers in common with the overall average
6- Italy and Albania with (51/66) answers in common with the overall a
7- Algeria with (49/66) answers in common with the overall average

The variability between the answers of these countries in this group is of the order of 7 answers (56 answers for the highest and 49 answers at least in this group).

The second group is constituted by the Med-TSO countries with number of the same answers median (33) with the average of the overall answers. This group is constituted by the following countries in the decreasing order:

1- Libya with (34/66) answers in common with the overall average
2- Cyprus and Montenegro with (33/66) answers in common with the overall average

The variability between the answers of these countries in this group is very low (34 highest answers and 33 least answers in this group).

Turkey has a moderate answers between the first group and the second group with (42/66) answers in common with the overall average.

Jordan presents the lowest number of answers in common with the overall average (25/66).

2- Analysis in relation to the different Med-TSO countries and the neighboring countries.

The following graph gives an overall view of the answers of the different countries of Med-TSO and especially the neighboring countries.

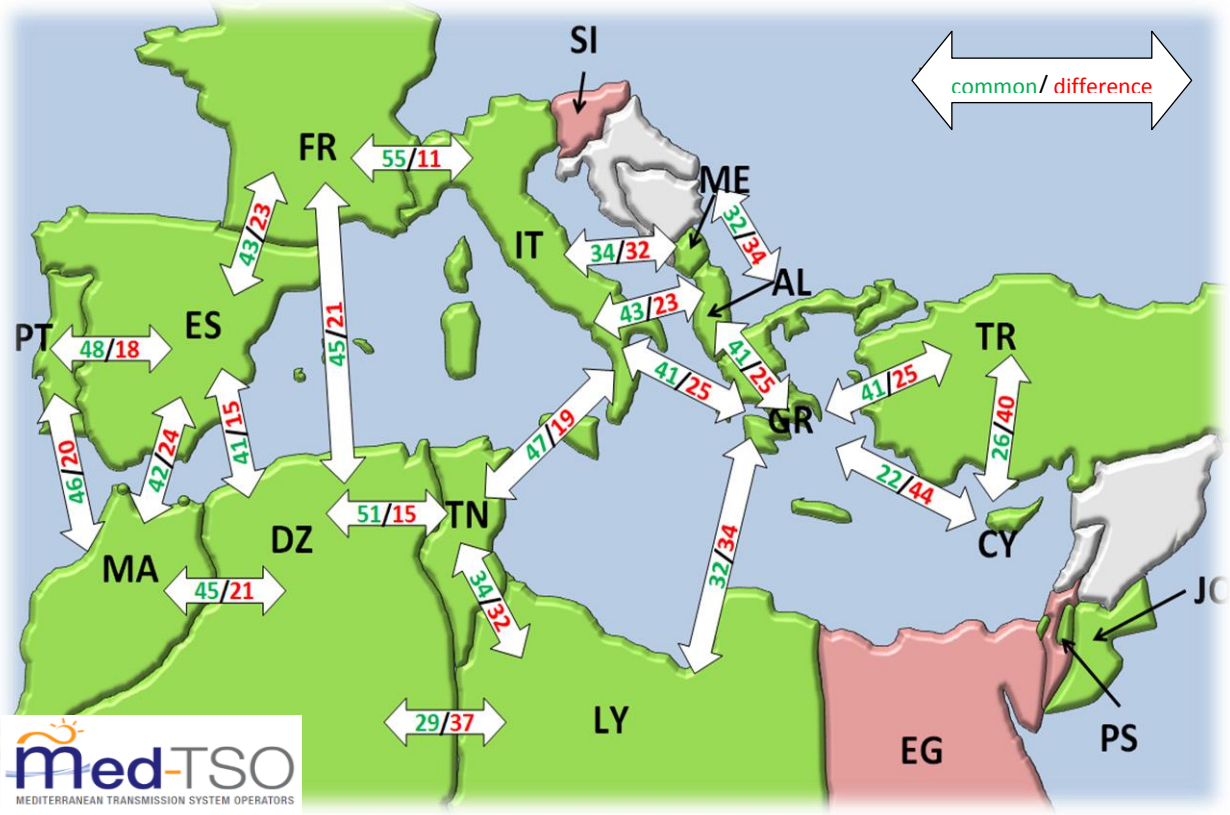


Figure 25 Overall view of the answers of the different countries of Med-TSO

As an example Italy has 47 answers in common with Tunisia, 34 with Montenegro, 41 with Greece and 43 with Albania.

From the analysis of the above graph it is possible to conclude the following:

- The group constituted by the Mediterranean West countries may practically share the same conditions for the temporal aspect, the minimum number for the same answers between neighboring countries is (41/66) answers “Spain with Algeria” and the maximum is (55/66) answers “France with Italy” This group is constituted by the following Med-TSO countries: Tunisia, Algeria, Morocco, Spain, Portugal, France and Italy

- The group constituted by the Mediterranean East countries present enormous divergences in their answers for the temporal aspect. Anyway, not considering Cyprus and Montenegro, this group become practically homogeneous: Greece with Albania have 43/66 answers in common, Greece with Turkey have 41/66 answers in common and Albania with Turkey have 44/66 answers in common. Cyprus has an specific situation due to the fact that is an isolated system not interconnected nowadays with other power systems; while Montenegro presents differences not only with this group of countries but with all the countries around the Mediterranean region.

However, Italy share 41/66 common answers with Greece and 43/66 common answers with Albania, which can ensure the facility to convergence for the temporal aspect answers between Mediterranean East countries and Mediterranean West countries, in accordance with to the following graph:

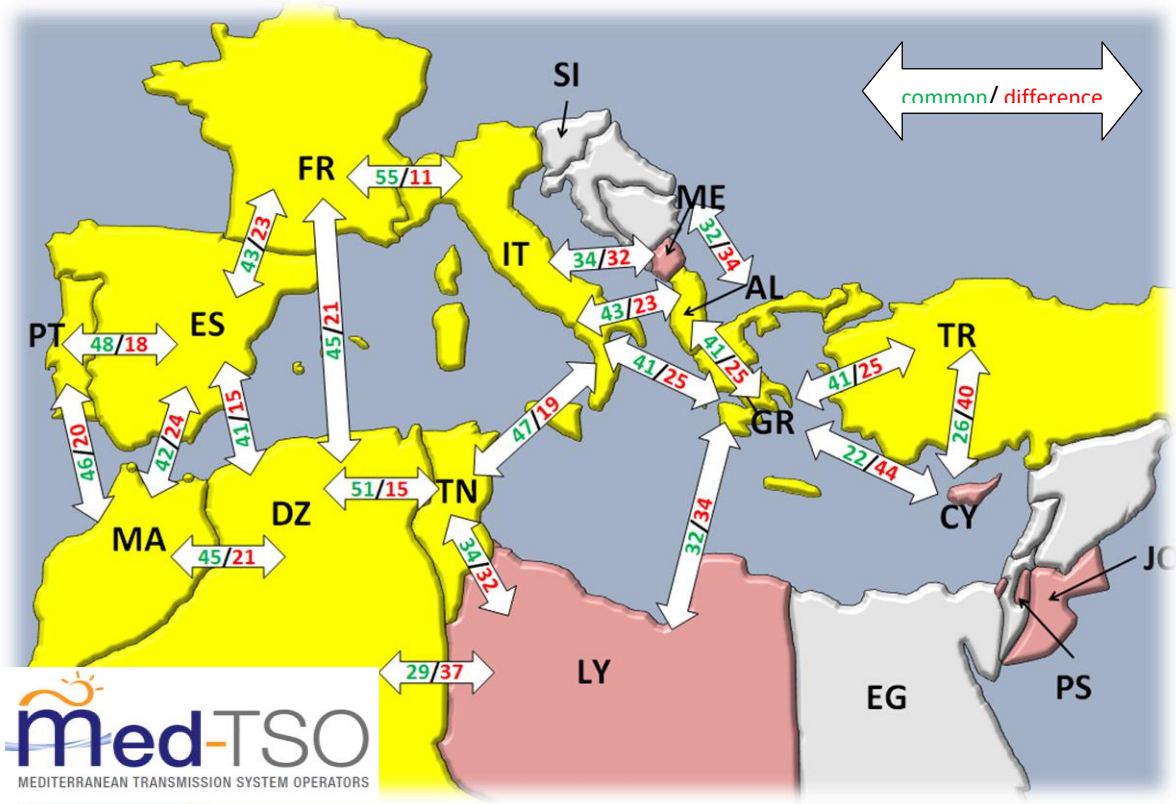


Figure 26 Overall view of the answers of the different countries of Med-TSO

LEGAL AND REGULATORY (3 ISSUES)

1- Analysis in relation to the overall average

	DZ	CY	FR	GR	IT	JO	LY	ME	MA	PT	ES	TN	TR	AL	GL
DZ	3	0	2	1	2	0	2	2	3	2	2	2	0	1	2
CY	0	3	0	0	0	0	1	0	0	1	0	0	0	0	0
FR	2	0	3	2	3	1	1	1	**2**	2	3	3	1	2	3
GR	1	0	2	3	2	2	1	2	1	1	2	2	2	3	2
IT	2	0	3	2	3	1	1	1	2	2	3	3	1	2	3
JO	0	0	1	2	1	3	0	1	0	0	1	1	3	2	1
LY	2	1	1	1	1	0	3	2	2	1	1	1	0	1	1
ME	2	0	1	2	1	1	2	3	2	1	1	1	1	2	1
MA	3	0	2	1	2	0	2	2	3	2	2	2	0	1	2
PT	2	1	2	1	2	0	1	1	2	3	2	2	0	1	2
ES	2	0	3	2	3	1	1	1	2	2	3	3	1	2	3
TN	2	0	3	2	3	1	1	1	2	2	3	3	1	2	3
TR	0	0	1	2	1	3	0	1	0	0	1	1	3	2	1
AL	1	0	2	3	2	2	1	2	1	1	2	2	2	3	2
GL	2	0	3	2	3	1	1	1	2	2	3	**3**	1	2	3

Figure 27 Matrix of correspondences for the same answers between the Med-TSO countries

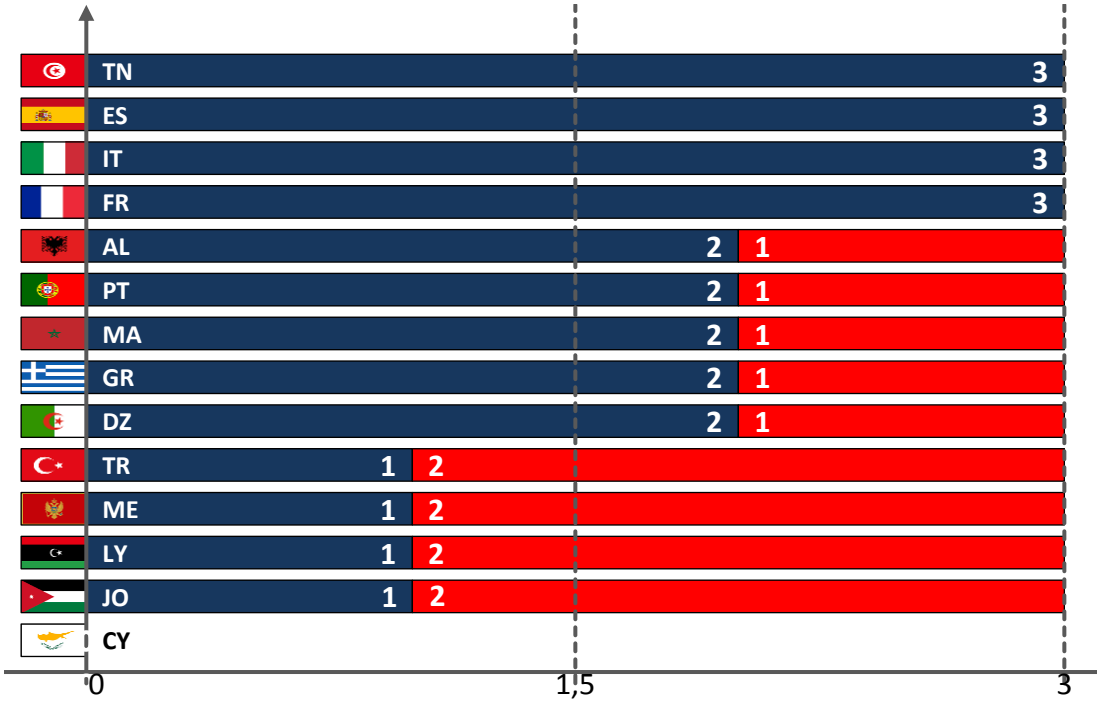


Figure 28 Number of answers in common with the overall average Med-TSO countries

2- Analysis in relation to the different Med-TSO countries and the neighboring countries.

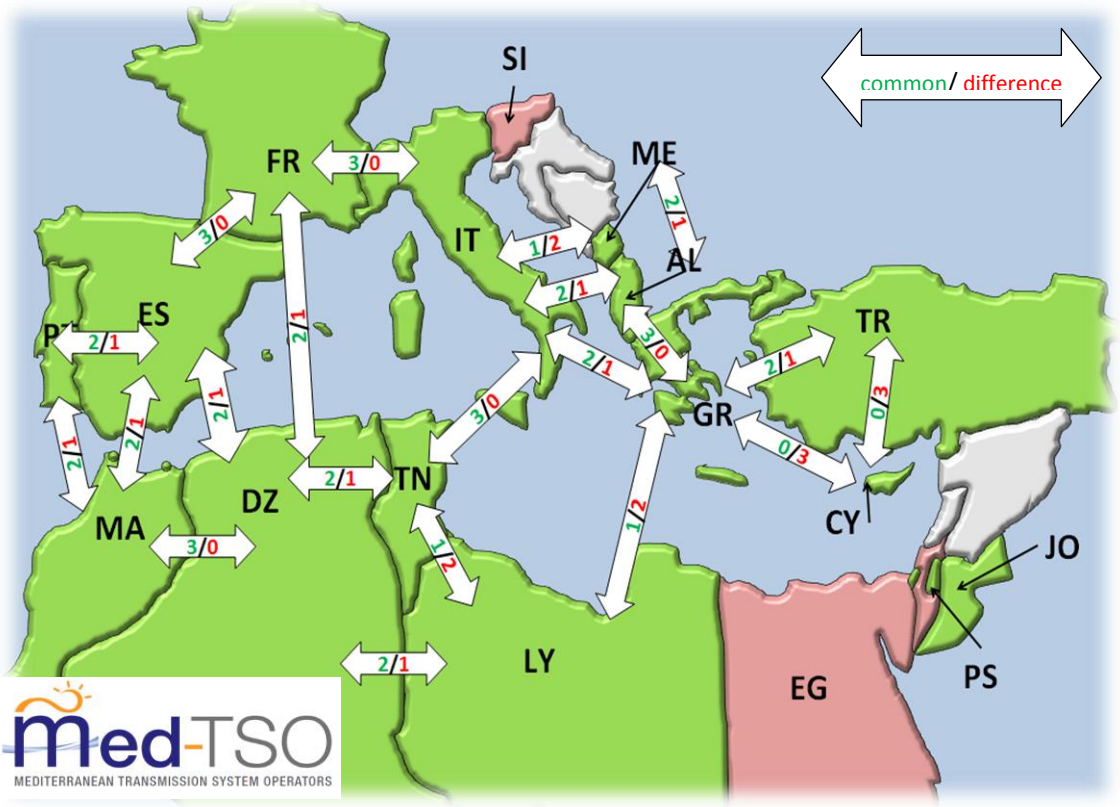


Figure 29 Overall view of the answers of the different countries of Med-TSO

CONNECTION (15 ISSUES)

1- Analysis in relation to the overall average

	DZ	CY	FR	GR	IT	JO	LY	ME	MA	PT	ES	TN	TR	AL	GL
DZ	15	4	9	12	9	5	4	6	8	9	12	12	6	10	11
CY	4	15	5	4	8	5	6	10	6	6	4	6	5	7	7
FR	9	5	15	8	10	3	4	7	**7**	8	8	11	7	12	10
GR	12	4	8	15	8	8	7	7	9	9	15	11	7	9	12
IT	9	8	10	8	15	3	2	12	8	7	8	12	8	12	11
JO	5	5	3	8	3	15	12	4	6	6	8	4	6	4	5
LY	4	6	4	7	2	12	15	4	9	7	7	5	9	5	6
ME	6	10	7	7	12	4	4	15	8	7	7	9	8	9	10
MA	8	6	7	9	8	6	9	8	15	6	9	11	13	9	12
PT	9	6	8	9	7	6	7	7	6	15	9	8	6	10	7
ES	12	4	8	15	8	8	7	7	9	9	15	11	7	9	12
TN	12	6	11	11	12	4	5	9	11	8	11	15	9	13	14
TR	6	5	7	7	8	6	9	8	13	6	7	9	15	9	10
AL	10	7	12	9	12	4	5	9	9	10	9	13	9	15	12
GL	11	7	10	12	11	5	6	10	12	7	12	**14**	10	12	15

Figure 30 Matrix of correspondences for the same answers between the Med-TSO countries

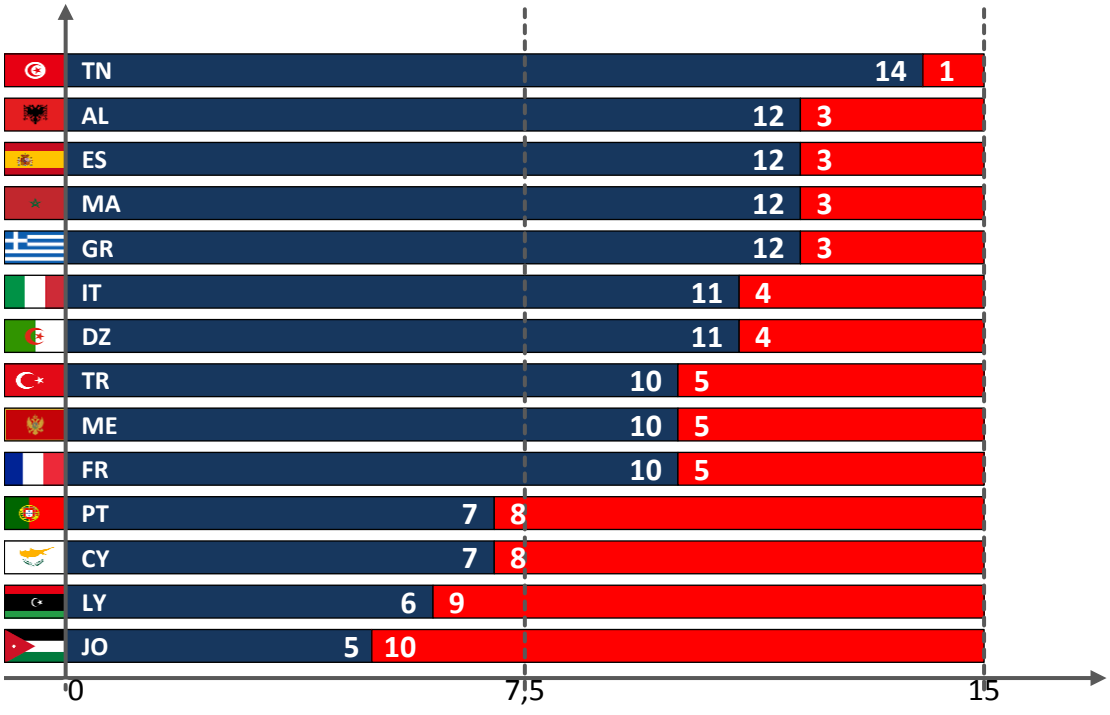


Figure 31 Number of answers in common with the overall average Med-TSO countries

2- Analysis in relation to the different Med-TSO countries and the neighboring countries.

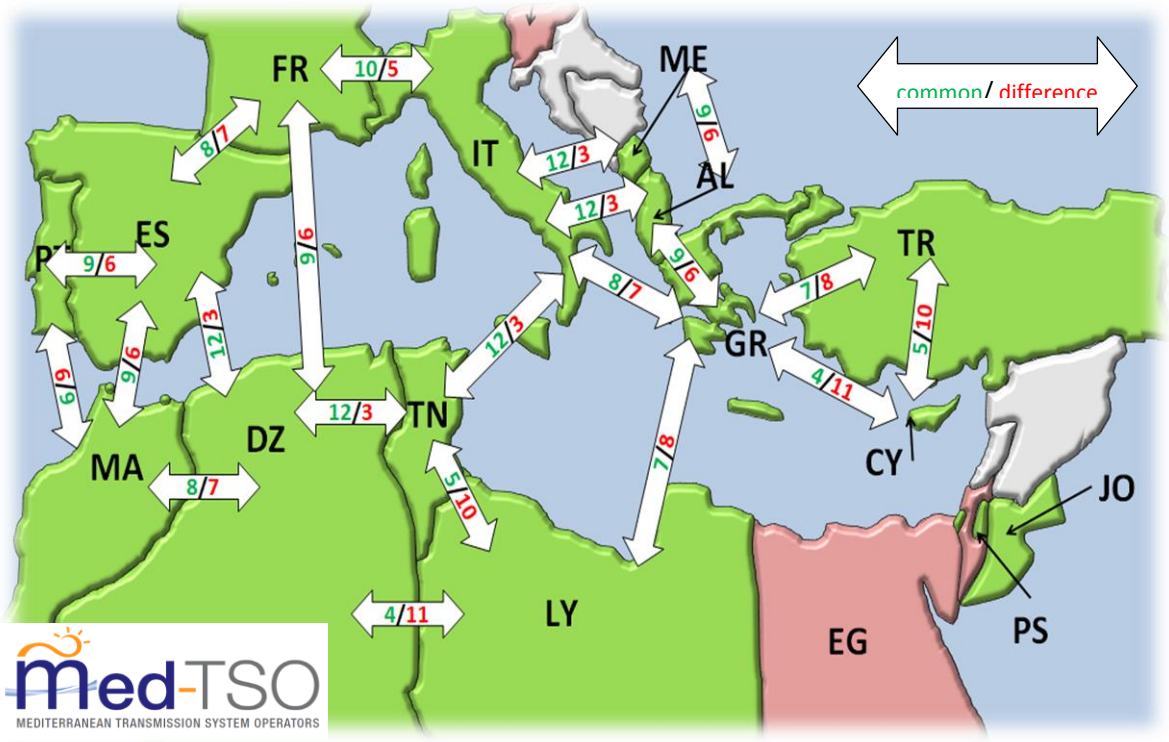


Figure 32 Overall view of the answers of the different countries of Med-TSO

OPERATION (32 ISSUES)

1- Analysis in relation to the overall average

	DZ	CY	FR	GR	IT	JO	LY	ME	MA	PT	ES	TN	TR	AL	GL
DZ	32	21	23	19	24	11	14	18	23	26	21	25	16	22	25
CY	21	32	17	13	17	14	13	19	18	23	19	19	16	16	21
FR	23	17	32	19	28	13	15	12	**30**	23	21	20	19	23	26
GR	19	13	19	32	17	8	16	13	17	19	17	20	18	28	22
IT	24	17	28	17	32	14	16	16	26	22	19	19	17	19	23
JO	11	14	13	8	14	32	12	14	12	12	12	8	10	9	13
LY	14	13	15	16	16	12	32	18	14	20	18	19	10	17	19
ME	18	19	12	13	16	14	18	32	13	20	20	19	10	15	17
MA	23	18	30	17	26	12	14	13	32	22	20	19	19	21	24
PT	26	23	23	19	22	12	20	20	22	32	26	25	14	22	29
ES	21	19	21	17	19	12	18	20	20	26	32	22	14	20	27
TN	25	19	20	20	19	8	19	19	19	25	22	32	13	23	24
TR	16	16	19	18	17	10	10	10	19	14	14	13	32	20	17
AL	22	16	23	28	19	9	17	15	21	22	20	23	20	32	25
GL	25	21	26	22	23	13	19	17	24	29	27	**24**	17	25	32

Figure 33 Matrix of correspondences for the same answers between the Med-TSO countries

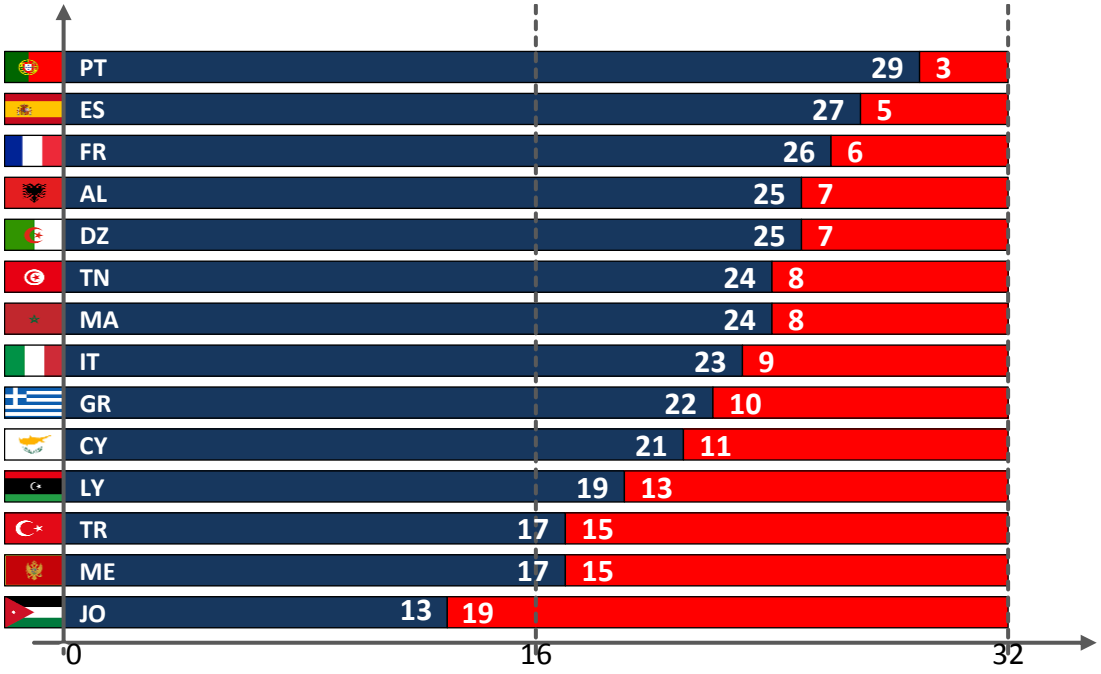


Figure 34 Number of answers in common with the overall average Med-TSO countries

2- **Analysis in relation to the different Med-TSO countries and the neighboring countries.**

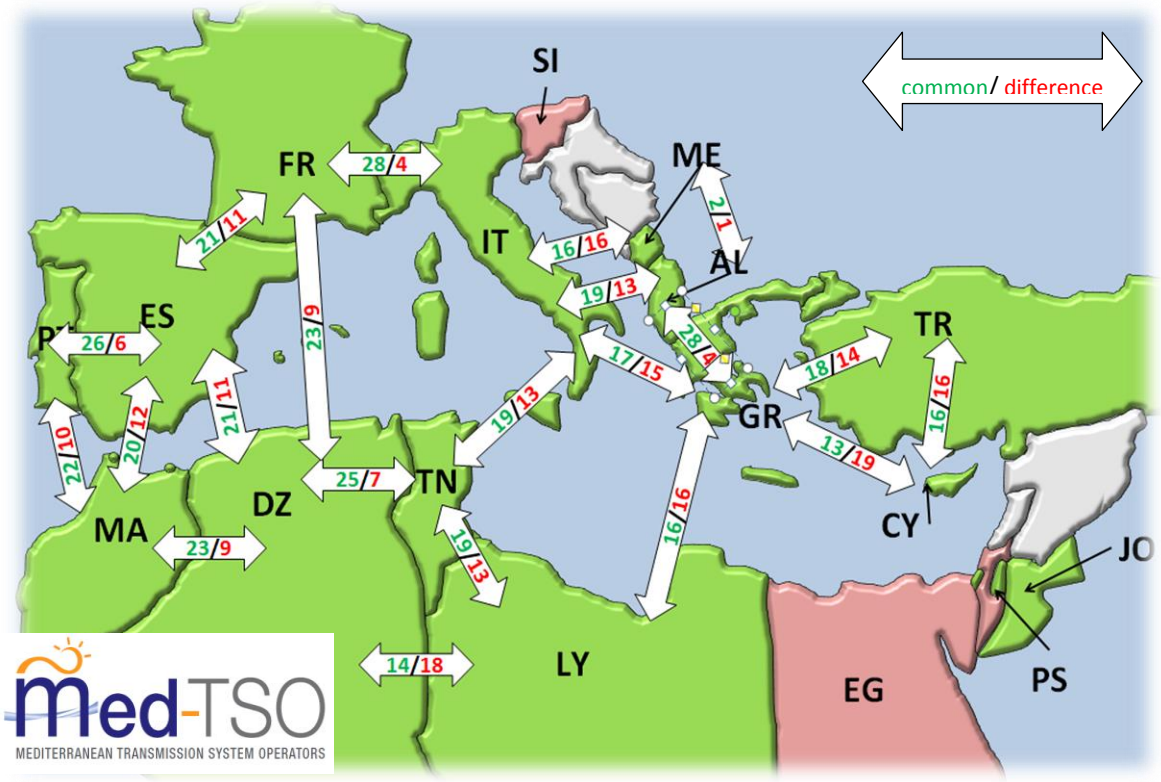


Figure 35 Overall view of the answers of the different countries of Med-TSO

SYSTEM SERVICES MARKETS (16 ISSUES)

1- Analysis in relation to the overall average

	DZ	CY	FR	GR	IT	JO	LY	ME	MA	PT	ES	TN	TR	AL	GL
DZ	16	4	11	11	11	7	9	8	11	11	6	12	9	8	11
CY	4	16	5	5	5	1	6	10	5	5	8	4	5	5	5
FR	11	5	16	16	14	6	8	5	**16**	16	11	15	14	12	16
GR	11	5	16	16	14	6	8	5	16	16	11	15	14	12	16
IT	11	5	14	14	16	6	10	5	14	14	9	13	12	10	14
JO	7	1	6	6	6	16	5	4	6	6	4	7	6	6	6
LY	9	6	8	8	10	5	16	3	8	8	7	9	6	4	8
ME	8	10	5	5	5	4	3	16	5	5	6	6	5	6	5
MA	11	5	16	16	14	6	8	5	16	16	11	15	14	12	16
PT	11	5	16	16	14	6	8	5	16	16	11	15	14	12	16
ES	6	8	11	11	9	4	7	6	11	11	16	10	9	8	11
TN	12	4	15	15	13	7	9	6	15	15	10	16	13	11	15
TR	9	5	14	14	12	6	6	5	14	14	9	13	16	13	14
AL	8	5	12	12	10	6	4	6	12	12	8	11	13	16	12
GL	11	5	16	16	14	6	8	5	16	16	11	**15**	14	12	16

Figure 36 Matrix of correspondences for the same answers between the Med-TSO countries

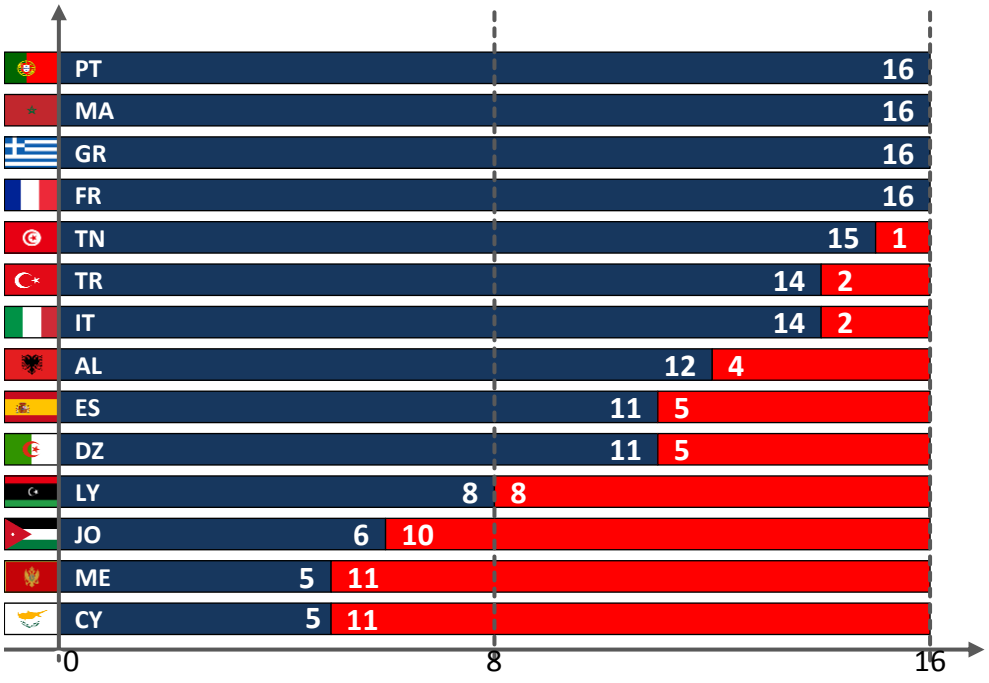


Figure 37 Number of answers in common with the overall average Med-TSO countries

2- **Analysis in relation to the different Med-TSO countries and the neighboring countries.**

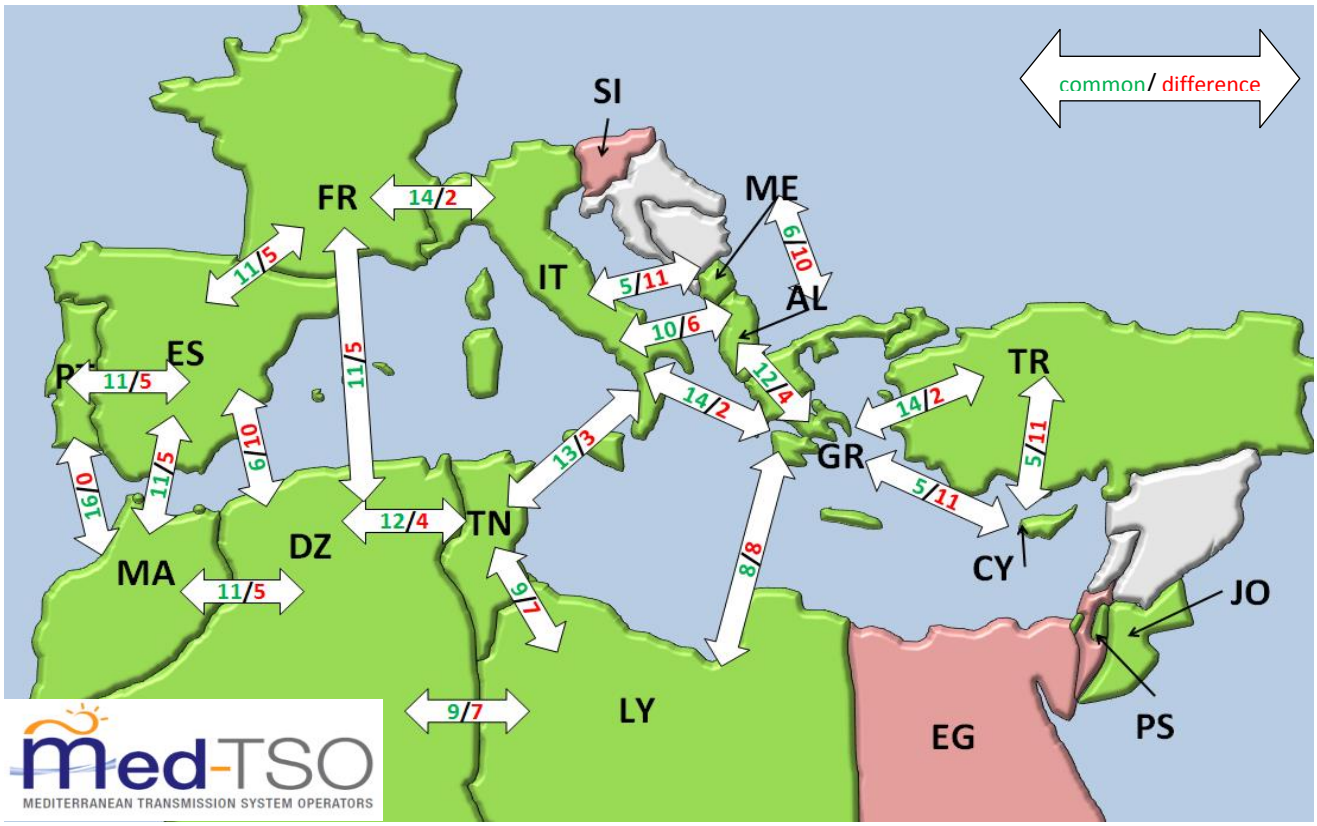


Figure 38 Overall view of the answers of the different countries of Med-TSO

6.2 Next steps

Med-TSO Technical Committee 2 on Regulation and Institutions has already elaborated a proposal for a Common Regulatory Framework together with a proposal of a Road Map for adoption and compliance. These activities have been performed from a global point of view considering that the harmonization process will be homogenous in the global Mediterranean region.

The next step of this activity will be to elaborate these two proposals from a zonal perspective, considering the different situations in each country and the level of advance of each national power systems. Anyhow these activities are not strictly included within the Mediterranean Project activities.

In addition the subtask 1.3 within Mediterranean Project has as main objective the elaboration of a draft set of Mediterranean Network rules (both procedures and contracts) to regulate TSO-TSO and also TSO-user relations implementing the proposals identified in subtask 1.2. This activity could be carried in both dimensions: global pan Mediterranean approach and zonal sub regional approach.

Annex I. Global presentation of TSOs answers to the CTRM Survey

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	COUNTRIES																														GLOBAL RESULTS			PROPOSAL		
				DZ		CY		FR		GR		IT		JO		LY		ME		MA		PT		ES		TN		TR		AL									
				DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	Short term	Medium term	Long term	DEGREE OF PRIORITIZATION	RULE FORMAT	TEMPORAL PRIORITIZATION
CONNECTION	Connection procedure	2A	Studies performed for access and connection	6	Medium term	6	Short Term	2	Long Term	4	Medium Term	3	Medium Term	6	Short Term	5	Short Term	5	Medium Term	6	Medium Term	4	Medium Term	2	Long Term	7	Medium Term	5	Medium Term		Medium Term	3	9	2	5	External/Internal TSO-TSO	Medium term
		2C	Criteria used for access capacity calculation	3	Medium term	7	Short Term	5	Long Term	7	Medium term	3	Medium Term	6	Short Term	4	Short Term	5	Medium Term	6	Medium Term	4	Short Term	4	Long Term	5	Medium Term	5	Medium Term		Short Term	5	7	2	5	External/Internal TSO-TSO	Medium term
	Frequency requirements	3A	Frequency/time range limits for users to withstand without damage	6	Short Term	6	Medium Term	6	Short Term	8	Short Term		Medium Term	6	Medium Term	5	Short Term	5	Medium Term	4	Short Term	6	Short Term	8	Short Term	6	Short Term	6	Short Term		Short Term	10	4	0	6	External/Internal TSO-TSO	Short term
		3B	Rate of change of frequency withstand capability	5	Short Term	6	Medium Term		Short Term	6	Short Term		Medium Term	5	Short Term	5	Short Term	5	Medium Term	4	Short Term	6	Short Term	7	Short Term	5	Short Term	4	Short Term		Short Term	11	3	0	5	External	Short term
		3C	Limited frequency sensitive mode – overfrequency and underfrequency schemes	6	Short Term	7	Medium Term	8	Short Term	6	Short Term		Short Term	6	Short Term	4	Medium Term	3	Long Term	6	Medium Term	6	Medium Term	7	Medium Term	7	Short Term	7	Medium Term		Short Term	7	6	1	6	External	Short term
	Voltage requirements	4A	Voltage/time range limits for users to withstand without damage	6	Short Term	6	Medium Term	5	Long Term	6	Short term		Medium Term	6	Short Term	6	Short Term	4	Medium Term	4	Medium Term	5	Short term	6	Short Term	7	Medium Term	5	Medium Term		Medium Term	6	7	1	6	External	Medium term
		4B	Fault ride through capability	5	Short Term	6	Medium Term	5	Medium Term	6	Short term		Medium Term	6	Short Term	4	Medium Term	5	Medium Term	6	Medium Term	7	Short Term	7	Short Term	5	Medium Term	5	Medium Term		Medium Term	5	9	0	6	External/Internal TSO-TSO	Medium term
	Reactive power requirements	5A	Limits of reactive power contribution	6	Short Term	6	Long Term	4	Medium Term	6	Medium Term		Medium Term	6	Medium Term	6	Medium Term	5	Medium Term	4	Medium Term	7	Medium Term	6	Medium Term	5	Medium Term	5	Medium Term		Medium Term	1	12	1	6	External	Medium term
	Protection requirements	7D	Telecommunication and protection schemes	5	Long term	4	Medium Term	5	Long Term	4	Long Term		Long Term	6	Medium Term	5	Medium Term	4	Medium Term	6	Long Term	4	Medium Term	3	Long Term	5	Long Term	5	Long Term		Long Term	0	5	9	5	External/Internal TSO-TSO	Long term
	Control requirements	8A	Global architecture and schemes required for controllability and observability of non-transmission facilities	6	Medium Term	6	Medium Term	5	Medium Term	5	Long term		Medium Term	5	Long Term	4	Long Term	4	Medium Term	2	Medium Term	7	Short term	4	Long Term	4	Medium Term	4	Medium Term		Medium Term	1	9	4	5	External/Internal TSO-TSO	Medium term
		8B	Observability threshold for non-transmission facilities by TSO control systems	5	Medium Term	5	Medium Term	5	Medium Term	5	Medium Term		Medium Term	5	Long Term	6	Long Term	5	Medium Term	4	Medium Term	4	Medium Term	7	Short Term	5	Medium Term	5	Long Term		Medium Term	1	10	3	5	External/Internal TSO-TSO	Medium term
		8D	Controlability threshold for non-transmission facilities by TSO control systems	5	Medium Term	4	Medium Term	6	Medium Term	5	Medium Term		Medium Term	6	Long Term	4	Long Term	5	Medium Term	5	Long Term	5	Medium Term	6	Short Term	6	Medium Term	5	Long Term		Medium Term	1	9	4	5	External	Medium term
		8C	Magnitudes to be provided in real time from non-transmission facilities to TSO control centre	6	Medium Term	6	Medium Term	4	Medium Term	6	Medium Term		Medium Term	6	Long Term	4	Long Term	5	Medium Term	6	Long Term	4	Medium Term	7	Short Term	6	Medium Term	4	Long Term		Medium Term	1	9	4	5	External	Medium term
	Demand disconnection schemes	12A	Existence of demand disconnection schemes (low frequency and/or low voltage)	6	Short Term	7	Medium Term	8	Short Term	7	Medium term		Short Term	6	Medium Term	6	Medium Term		Medium Term	6	Medium Term	5	Short Term	7	Short Term	6	Short Term	5	Medium Term		Short Term	6	8	0	6	External	Medium term
	HVDC requirements	15A	Specific HVDC requirements or criteria	1	Long Term	4	Short Term	7	Medium Term	6	Long term	4	Medium Term	5	Long Term	4	Long Term	4	Medium Term		Long Term	7	Medium Term	6	Long Term		Long Term	4	Medium Term		Medium Term	1	6	7	5	External/Internal TSO-TSO	Long term

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	COUNTRIES																														GLOBAL RESULTS			PROPOSAL		
				DZ		CY		FR		GR		IT		JO		LY		ME		MA		PT		ES		TN		TR		AL									
				DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	Short term	Medium term	Long term	DEGREE OF PRIORITIZATION	RULE FORMAT	TEMPORAL PRIORITIZATION
SYSTEM SERVICES MARKETS	Legal Issues	1A	Contractual requirements for participation on the cross-border electricity trade	3	Medium Term	6	Short Term	7	Medium Term	5	Medium Term	8	Medium Term	7	Medium Term	6	Short Term	5	Medium Term	5	Medium Term	5	Medium Term	7	Short Term	5	Medium Term	7	Medium Term		Medium Term	3	11	0	6	Internal TSO-TSO	Medium term
		1B	Current rules for export/import of cross-border electricity	6	Medium term	6	Short Term	8	Medium Term	5	Medium Term	8	Medium Term	6	Medium Term	7	Short Term	4	Medium Term	5	Medium Term	6	Medium Term	7	Short Term	6	Medium Term	6	Medium Term		Medium Term	3	11	0	6	External/Internal TSO-TSO	Medium term
		1D	Presence of a Market Operator	3	Medium Term	6	Short Term	6	Medium Term	6	Medium term	9	Medium Term	5	Medium Term	5	Medium Term	6	Short Term	5	Medium Term	5	Medium Term	7	Medium Term	6	Medium Term	6	Long Term		Short Term	3	10	1	6	External	Medium term
		1I	Technical requirements to satisfy for using the interconnections	6	Medium Term	6	Short Term	6	Medium Term	6	Medium Term	5	Short Term	6	Medium Term	7	Short Term	7	Short Term	6	Medium Term	6	Medium Term	7	Medium Term	5	Medium Term	7	Medium Term		Medium Term	4	10	0	6	Internal TSO-TSO	Medium term
	Capacity Calculation	2A	Security criteria used for calculating the Net Transfer Capacity (NTC)	6	Short term	7	Short Term	8	Short Term	6	Short Term	9	Short Term	7	Medium Term	7	Short Term	6	Short Term	6	Short Term	6	Short Term	6	Short Term	5	Short Term	6	Short Term		Short Term	13	1	0	7	Internal TSO-TSO	Short term
		2B	Characteristic process for finalization of Net Transfert Capacity (jointly or separatly from other TSO's?)	7	Medium Term	7	Short Term	8	Short Term	6	Short Term	8	Medium Term	7	Medium Term	7	Medium Term	7	Short Term	5	Short Term	5	Short Term	6	Short Term	5	Short Term	6	Short Term		Short Term	10	4	0	6	Internal TSO-TSO	Short term
		2C	Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons	6	Short term	6	Medium Term	7	Short Term	5	Short Term	8	Short Term	6	Medium Term	6	Medium Term	6	Short Term	6	Short Term	6	Short Term	6	Short Term	5	Short Term	5	Short Term		Short Term	11	3	0	6	Internal TSO-TSO	Short term
	Capacity Allocation	3D	Methods and procedures applied for transmission capacity allocation (e.g. public auction or tender procedures) including Physical Transmission Rights (PTR) allocation	0	Medium Term	7	Short Term	8	Medium Term	7	Medium Term	5	Medium Term		Long term	5	Medium Term	7	Short Term	5	Medium Term	7	Medium Term	7	Short Term	6	Medium Term	7	Medium Term		Medium Term	3	10	1	6	Internal TSO-TSO	Medium term
		3B	Obligation regarding the use of the capacity allocated - Use it or sell (or loose) it mechanism.	0	Medium Term	7	Short Term	7	Medium Term	7	Medium Term	7	Medium Term		Long term	6	Medium Term	6	Short Term	6	Medium Term		Medium Term	7	Short Term	6	Medium Term	5	Medium Term		Medium Term	3	10	1	6	Internal TSO-TSO	Medium term
		3C	Kind of capacity products allocated (duration and time profiling)	0	Medium Term	7	Short Term	7	Medium Term	7	Medium Term	4	Medium Term		Long term	7	Medium Term	7	Short Term	3	Medium Term	7	Medium Term	7	Short Term	6	Medium Term	6	Medium Term		Medium Term	3	10	1	6	Internal TSO-TSO	Medium term
		3E	System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure	0	Medium Term	7	Short Term	5	Medium Term	7	Medium term	8	Medium Term		Long term	7	Medium Term	7	Short Term	5	Medium Term	7	Medium Term	7	Short Term	6	Medium Term	7	Long Term		Long Term	3	8	3	5	Internal TSO-TSO	Medium term
		3F	Subject responsible for the management of the allocation procedure	3	Medium Term	7	Medium Term	6	Medium Term	7	Medium term	8	Medium Term		Long term	6	Medium Term	7	Short Term	5	Medium Term	6	Medium Term	7	Short Term	7	Medium Term	6	Medium Term		Long Term	2	10	2	6	Internal TSO-TSO	Medium term
	Dispatching & Balancing	4A	Actions foreseen in order to guarantee the exchange programs	7	Short Term	7	Short Term	6	Medium Term	7	Medium Term	7	Medium Term	6	Medium Term	7	Long Term	7	Short Term	6	Medium Term	7	Medium Term	8	Short Term	7	Medium Term	7	Medium Term		Medium Term	4	9	1	7	Internal TSO-TSO	Medium term
		4B	Management of unintentional deviations on international interconnections	6	Short Term	4	Short Term	5	Medium Term	4	Medium term	4	Medium Term	7	Medium Term	6	Medium Term	6	Short Term	6	Medium Term	6	Medium Term	5	Short Term	6	Medium Term	7	Medium Term		Long Term	4	9	1	6	Internal TSO-TSO	Medium term
	Transparency	6A	Public information on the Electricity Markets data	7	Medium Term	7	Short Term	8	Short Term	7	Short Term	7	Short Term		Medium term	7	Long Term	5	Medium Term	6	Short Term	6	Short Term	7	Short Term	5	Short Term	6	Short Term		Short Term	10	3	1	7	External/Internal TSO-TSO	Short term
		6B	Public information on internatioanl interconnections data	7	Medium Term	7	Short Term	8	Short Term	7	Short Term	7	Short Term		Medium term	7	Medium Term	5	Medium Term	7	Short Term	6	Short Term	7	Short Term	7	Medium Term	7	Short Term		Short Term	9	5	0	7	Internal TSO-TSO	Short term

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	COUNTRIES																														GLOBAL RESULTS			PROPOSAL		
				DZ		CY		FR		GR		IT		JO		LY		ME		MA		PT		ES		TN		TR		AL									
				DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	Short term	Medium term	Long term	DEGREE OF PRIORITIZATION	RULE FORMAT	TEMPORAL PRIORITIZATION
LEGAL AND REGULATORY		B	Responsible authority for the settlement of disputes among stakeholders	6	Short Term	5	Medium Term	5	Long Term	5	Long Term	9	Long Term	5	Long Term	5	Short Term	6	Short Term	4	Short Term	2	Medium Term	2	Long Term	4	Long Term	4	Long Term		Long Term	4	2	8	5	External	Long term
		F	Unbundling of regulated and non-regulated activities	7	Medium term	9	Short Term	7	Medium Term	9	Medium Term	4	Medium Term	6	Long Term	4	Medium Term		Medium Term	6	Medium Term	8	Medium Term	9	Medium Term	4	Medium Term	7	Long Term		Medium Term	1	11	2	7	External	Medium term
		G	Coordinated regulation to make feasible and viable international interconnections	7	Medium term	7	Short Term	7	Medium Term	6	Long Term	8	Medium Term	7	Long Term	5	Short Term		Long Term	6	Medium Term	6	Medium Term	6	Medium Term		Medium Term	7	Long Term		Long Term	2	7	5	7	External	Medium term

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	COUNTRIES																														GLOBAL RESULTS			PROPOSAL		
				DZ		CY		FR		GR		IT		JO		LY		ME		MA		PT		ES		TN		TR		AL									
				DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	DEGREE OF PRIORITIZATION	TEMPORAL PRIORITIZATION	Short term	Medium term	Long term	DEGREE OF PRIORITIZATION	RULE FORMAT	TEMPORAL PRIORITIZATION
OPERATION	System states	1A	Classification of system states	7	Short Term	7	Short Term	8	Short Term	7	Short Term	7	Short Term	7	Short Term	6	Short Term	8	Short Term	6	Short Term	9	Short Term	7	Short Term	8	Short Term	7	Short Term	5	Short Term		Short Term	14	0	0	7	External	Short term
	Technical requirements	2A	Frequency ranges (quality parameters) in the different system states	6	Short Term	9	Short Term	7	Short Term	9	Short Term	9	Short Term	8	Short Term	7	Short Term	9	Short Term	9	Short Term	9	Short Term	9	Short Term	8	Short Term	9	Medium Term		Short Term	13	1	0	8	External	Short term
		2B1	Voltage ranges (for unlimited operation) in normal conditions	6	Medium term	6	Short Term	7	Long Term	6	Medium Term	6	Long Term	6	Short Term	5	Short Term	6	Short Term	6	Long Term	5	Short Term	7	Short Term	5	Medium Term	5	Medium Term		Medium Term	6	5	3	6	External	Short term
		2B2	Voltage ranges (for unlimited operation) in extraordinary conditions	6	Medium term	5	Short Term	7	Long Term	4	Medium Term	6	Long Term	6	Short Term	5	Short Term	6	Short Term	6	Long Term	5	Short Term	7	Short Term	6	Medium Term	5	Medium Term		Medium Term	6	5	3	6	External	Short term
		2E	Reactive power management measures (specific measures in the international interconnections)	9	Medium term	9	Short Term	6	Medium Term	9	Medium Term	9	Medium Term	8	Medium Term	7	Short Term	7	Short Term	9	Long Term	9	Short Term	7	Short Term	7	Short Term	9	Medium Term		Medium Term	6	7	1	8	External/Internal TSO-TSO	Medium term
		2G	System protection coordination criteria in international interconnections	6	Short Term	8	Short Term	8	Short Term	8	Short Term	9	Short Term	7	Short Term	7	Short Term	7	Short Term	9	Short Term	7	Short Term	7	Short Term	8	Short Term	8	Medium Term		Short Term	13	1	0	8	Internal TSO-TSO	Short term
	Information exchange	3D	List of real time data to exchange with other TSOs	9	Short term	9	Short Term	8	Short Term	9	Short Term	9	Short Term	8	Medium Term	8	Short Term	9	Short Term	9	Short Term	9	Short Term	9	Short Term	7	Short Term	9	Short Term		Short Term	13	1	0	9	External/Internal TSO-TSO	Short term
		3E	List of sheduled data to exchange with other TSOs	6	Short Term	6	Short Term	6	Short Term	6	Medium Term	8	Short Term	6	Long Term	4	Medium Term	5	Medium Term	5	Short Term	5	Short Term	5	Medium Term	7	Short Term	6	Short Term		Medium Term	8	5	1	6	Internal TSO-TSO	Short term
		3F	List of structural data to exchange with other TSOs	6	Short Term	6	Short Term	6	Short Term	6	Medium Term	8	Short Term	6	Long Term	4	Medium Term	5	Medium Term	6	Short Term	5	Short Term	5	Medium Term	5	Medium Term	6	Short Term		Medium Term	7	6	1	6	Internal TSO-TSO	Short term
	Contingency analysis	4A1	Type of contingencies considered	6	Short Term	7	Short Term	7	Short Term	7	Medium term	9	Short Term	7	Medium Term	7	Short Term	7	Short Term	7	Short Term	7	Short Term	7	Medium Term	7	Short Term	7	Short Term		Short Term	11	3	0	7	External	Short term
		4A2	Contingency list (both internal - in national power system - and external - in neighbouring power systems -)	9	Short Term	8	Short Term	8	Medium Term	8	Medium Term	7	Medium Term	8	Medium Term	8	Medium Term	7	Short Term	7	Medium Term	8	Short Term	8	Medium Term	7	Short Term	8	Medium Term		Medium Term	5	9	0	8	Internal TSO-TSO	Medium term
		4B1	Operational security limits	4	Short Term	5	Short Term	2	Long Term	5	Medium term	6	Medium Term	5	Short Term	3	Short Term	5	Medium Term	4	Long Term	4	Short Term	4	Medium Term	4	Short Term	4	Long Term		Long Term	6	4	4	4	Internal TSO-TSO	Short term
		4B2	Operational security limits in the interconnection lines	6	Short Term	5	Short Term	7	Short Term	7	Short Term	6	Medium Term	5	Medium Term	3	Medium Term	5	Medium Term	4	Short Term	4	Short Term	8	Short Term	4	Short Term	4	Medium Term		Short Term	9	5	0	5	Internal TSO-TSO	Short term
		4B3	List of joint remedial actions agreed between TSOs after a contingency	9	Short Term	9	Short Term	8	Medium Term	9	Short Term	7	Medium Term	7	Medium Term	7	Medium Term	8	Short Term	9	Medium Term	8	Short Term	8	Short Term	8	Short Term	8	Medium Term		Short Term	8	6	0	8	External	Short term
		4C	Periodicity of state estimation calculations ("snapshots")	6	Short Term	7	Short Term	6	Medium Term	7	Medium Term	6	Short Term	7	Medium Term	6	Medium Term	7	Short Term	7	Medium Term	7	Medium term	7	Long Term	7	Short Term	7	Medium Term		Medium Term	5	8	1	7	Internal TSO-TSO	Medium term
	Management of int. exchanges	6A	Management of international exchange programs between TSOs	6	Short Term	9	Short Term	9	Short Term	9	Short Term	9	Short Term	7	Medium Term	7	Short Term	9	Short Term	9	Short Term	9	Short Term	9	Short Term	8	Short Term	9	Short Term		Short Term	13	1	0	8	Internal TSO-TSO	Short term
	Outage coordination	9A	Criteria and procedure for outage coordination (if affects NTC)	6	Short term	7	Medium Term	7	Short Term	7	Short Term	9	Short Term	6	Medium Term	5	Short Term	5	Medium Term	9	Short Term	6	Short Term	8	Short Term	7	Short Term	7	Short Term		Short Term	11	3	0	7	External	Short term
	Load frequency control	11A3	Criteria used for establishing the quantity of FCR	6	Medium Term	9	Medium Term	8	Short Term	9	Short Term	9	Short Term	7	Long Term	7	Short Term	5	Medium Term	7	Medium Term	9	Short Term	9	Short Term	8	Short Term	9	Medium Term		Short Term	8	5	1	8	External/Internal TSO-TSO	Short term
		11A4	Compliance scheme for FCR	6	Medium Term	7	Medium Term	8	Medium Term	7	Medium Term	4	Medium Term	5	Long Term	6	Short Term	1	Long Term	7	Medium Term	7	Medium term	7	Long Term	5	Medium Term	6	Medium Term		Medium Term	1	10	3	6	External	Medium term
		11B1	Provision of FRR	6	Medium Term	7	Medium Term	5	Medium Term	7	Medium Term	7	Medium Term	5	Long Term	6	Short Term	5	Medium Term	7	Medium Term	7	Medium term	3	Long Term	7	Short Term	6	Medium Term		Medium Term	2	10	2	6	External	Medium term
		11B3	Criteria used for establishing the quantity of FRR	6	Medium Term	8	Medium Term	8	Medium Term	8	Medium Term	7	Medium Term	7	Long Term	7	Short Term	7	Short Term	7	Medium Term	8	Medium term	8	Medium Term	8	Short Term	8	Medium Term		Medium Term	3	10	1	7	External	Medium term
		11B4	Compliance scheme for FRR	6	Medium Term	7	Medium Term	5	Medium Term	7	Medium Term	4	Medium Term	6	Long Term	6	Short Term	3	Long Term	7	Medium Term	7	Medium term	7	Long Term	6	Medium Term	7	Medium Term		Medium Term	1	10	3	6	Internal TSO-TSO	Medium term
	Reserves management	12A	Mechanisms of reserves management (exchange and sharing)	6	Medium Term	9	Medium Term	8	Medium Term	9	Medium Term	9	Medium Term	8	Medium Term	7	Medium Term	8	Short Term	7	Medium Term	8	Medium term	8	Long Term	7	Medium Term	8	Long Term		Medium Term	1	11	2	8	External/Internal TSO-TSO	Medium term
	System defence plan	14A	Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)	9	Short Term	9	Medium Term	9	Short Term	9	Short Term	9	Short Term	8	Medium Term	7	Short Term	5	Medium Term	7	Short Term	9	Short Term	9	Short Term	7	Short Term	9	Medium Term		Short Term	10	4	0	8	External/Internal TSO-TSO	Short term
		14B	Setting of demand disconnection schemes (low frequency and/or low voltage)	6	Short Term	7	Medium Term	9	Short Term	7	Short Term	9	Short Term	7	Medium Term	6	Short Term	7	Short Term	9	Short Term	7	Short Term	7	Short Term	7	Short Term	7	Medium Term		Short Term	11	3	0	7	External	Short term
		14C	Voltage deviation management procedure	6	Medium term	7	Medium Term	4	Medium Term	6	Long term	5	Medium Term	7	Medium Term	6	Short Term	5	Medium Term	7	Medium Term	6	Medium term	6	Long Term	7	Medium Term	6	Long Term		Medium Term	1	10	3	6	External/Internal TSO-TSO	Medium term
		14D	Power flow management procedure	6	Medium term	7	Medium Term	5	Medium Term	7	Long term	8	Medium Term	6	Medium Term	6	Short Term	5	Medium Term	6	Medium Term	6	Medium term	6	Long Term	6	Medium Term	6	Medium Term		Medium Term	1	11	2	6	External/Internal TSO-TSO	Medium term
		14E	Manual demand disconnection procedure	6	Medium term	6	Short Term	2	Medium Term	5	Long Term	7	Medium Term	5	Medium Term	3	Short Term	4	Medium Term	4	Medium Term	5	Medium term	5	Long Term	5	Medium Term	5	Long Term		Long Term	2	8	4	5	External	Medium term
		14F	Inter-TSO assistance and coordination in emergency state	6	Short Term	9	Medium Term	7	Medium Term	9	Short Term	9	Medium Term	7	Medium Term	6	Short Term	7	Short Term	9	Medium Term	8	Short Term	8	Short Term	7	Short Term	8	Medium Term		Short Term	8	6	0	8	External/Internal TSO-TSO	Short term
	Restoration plan	15A-B	Rules and types of restoration plans	9	Medium Term	9	Short Term	6	Medium Term	9	Short Term	9	Medium Term	7	Medium Term	7	Short Term	7	Short Term	9	Medium Term	8	Short Term	8	Short Term	8	Short Term	7	Short Term		Short Term	9	5	0	8	External/Internal TSO-TSO	Short term
	Training and certification	16A	Certification of the operators in charge of real time	6	Medium term	5	Short Term	6	Long Term	7	Long Term	9	Medium Term	5	Medium Term	3	Medium Term	5	Medium Term	4	Long Term	5	Medium term	7	Long Term	5	Long Term	5	Long Term		Long Term	1	6	7	6	External	Long term
		16I	Language requirements	6	Medium Term	5	Short Term	6	Medium Term	7	Long Term	9	Medium Term	6	Short Term	4	Medium Term	5	Medium Term	4	Medium Term	5	Medium term	5	Long Term	5	Medium Term	7	Long Term		Long Term	2	8	4	6	External/Internal TSO-TSO	Medium term

Annex II. National presentation of TSOs answers to the CTRM Survey

Cyprus (CY)

	CY				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
CONNECTION	Connection procedure	2A	Studies performed for access and connection	6	Short Term
		2C	Criteria used for access capacity calculation	7	Short Term
	Frequency requirements	3A	Frequency/time range limits for users to withstand without damage	6	Medium Term
		3B	Rate of change of frequency withstand capability	6	Medium Term
		3C	Limited frequency sensitive mode – overfrequency and underfrequency schemes	7	Medium Term
	Voltage requirements	4A	Voltage/time range limits for users to withstand without damage	6	Medium Term
		4B	Fault ride through capability	6	Medium Term
	Reactive power requirements	5A	Limits of reactive power contribution	6	Long Term
	Protection requirements	7D	Telecommunication and protection schemes	4	Medium Term
	Control requirements	8A	Global architecture and schemes required for controllability and observability of non-transmission facilities	6	Medium Term
		8B	Observability threshold for non-transmission facilities by TSO control systems	5	Medium Term
		8D	Controlability threshold for non-transmission facilities by TSO control systems	4	Medium Term
		8C	Magnitudes to be provided in real time from non-transmission facilities to TSO control centre	6	Medium Term
	Demand disconnection schemes	12A	Existence of demand disconnection schemes (low frequency and/or low voltage)	7	Medium Term
	HVDC requirements	15A	Specific HVDC requirements or criteria	4	Short Term

	CY				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 12.1)	Select TEMPORAL PRIORITIZATION
OPERATION	System states	1A	Classification of system states	7	Short Term
	Technical requirements	2A	Frequency ranges (quality parameters) in the different system states	9	Short Term
		2B1	Voltage ranges (for unlimited operation) in normal conditions	6	Short Term
		2B2	Voltage ranges (for unlimited operation) in extraordinary conditions	5	Short Term
		2E	Reactive power management measures (specific measures in the international interconnections)	9	Short Term
		2G	System protection coordination criteria in international interconnections	8	Short Term
	Information exchange	3D	List of real time data to exchange with other TSOs	9	Short Term
		3E	List of sheduled data to exchange with other TSOs	6	Short Term
		3F	List of structural data to exchange with other TSOs	6	Short Term
	Contingency analysis	4A1	Type of contingencies considered	7	Short Term
		4A2	Contingency list (both internal - in national power system - and external - in neighbouring power systems -)	8	Short Term
		4B1	Operational security limits	5	Short Term
		4B2	Operational security limits in the interconnection lines	5	Short Term
		4B3	List of joint remedial actions agreed between TSOs after a contingency	9	Short Term
		4C	Periodicity of state estimation calculations ("snapshots")	7	Short Term
	Management of int. exchanges	6A	Management of international exchange programs between TSOs	9	Short Term
	Outage coordination	9A	Criteria and procedure for outage coordination (if affects NTC)	7	Medium Term
	Load frequency control	11A3	Criteria used for establishing the quantity of FCR	9	Medium Term
		11A4	Compliance scheme for FCR	7	Medium Term
		11B1	Provision of FRR	7	Medium Term
		11B3	Criteria used for establishing the quantity of FRR	8	Medium Term
		11B4	Compliance scheme for FRR	7	Medium Term
	Reserves management	12A	Mechanisms of reserves management (exchange and sharing)	9	Medium Term
	System defence plan	14A	Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)	9	Medium Term
		14B	Setting of demand disconnection schemes (low frequency and/or low voltage)	7	Medium Term
		14C	Voltage deviation management procedure	7	Medium Term
		14D	Power flow management procedure	7	Medium Term
		14E	Manual demand disconnection procedure	6	Short Term
		14F	Inter-TSO assistance and coordination in emergency state	9	Medium Term
	Restoration plan	15A-B	Rules and types of restoration plans	9	Short Term
	Training and certification	16A	Certification of the operators in charge of real time	5	Short Term
		16I	Language requirements	5	Short Term

CY

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
SYSTEM SERVICES MARKETS	Legal Issues	1A	Contractual requirements for participation on the cross-border electricity trade	6	Short Term
		1B	Current rules for export/import of cross-border electricity	6	Short Term
		1D	Presence of a Market Operator	6	Short Term
		1I	Technical requirements to satisfy for using the interconnections	6	Short Term
	Capacity Calculation	2A	Security criteria used for calculating the Net Transfer Capacity (NTC)	7	Short Term
		2B	Characteristic process for finalization of Net Transfert Capacity (jointly or separatly from other TSO's?)	7	Short Term
		2C	Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons	6	Medium Term
	Capacity Allocation	3D	Methods and procedures applied for transmission capacity allocation (e.g. public auction or tender procedures) including Physical Transmission Rights (PTR) allocation	7	Short Term
		3B	Obligation regarding the use of the capacity allocated - Use it or sell (or loose) it mechanism.	7	Short Term
		3C	Kind of capacity products allocated (duration and time profiling)	7	Short Term
		3E	System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure	7	Short Term
		3F	Subject responsible for the management of the allocation procedure	7	Medium Term
	Dispatching & Balancing	4A	Actions foreseen in order to guarantee the exchange programs	7	Short Term
		4B	Management of unintentional deviations on international interconnections	4	Short Term
	Transparency	6A	Public information on the Electricity Markets data	7	Short Term
		6B	Public information on internatioanl interconnections data	7	Short Term

CY

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
LEGAL AND REGULATORY		B	Responsible authority for the settlement of disputes among stakeholders	5	Medium Term
		F	Unbundling of regulated and non-regulated activities	9	Short Term
		G	Coordinated regulation to make feasible and viable international interconnections	7	Short Term

Algeria (DZ)

	DZ				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
CONNECTION	Connection procedure	2A	Studies performed for access and connection	6	Medium term
		2C	Criteria used for access capacity calculation	3	Medium term
	Frequency requirements	3A	Frequency/time range limits for users to withstand without damage	6	Short Term
		3B	Rate of change of frequency withstand capability	5	Short Term
		3C	Limited frequency sensitive mode – overfrequency and underfrequency schemes	6	Short Term
	Voltage requirements	4A	Voltage/time range limits for users to withstand without damage	6	Short Term
		4B	Fault ride through capability	5	Short Term
	Reactive power requirements	5A	Limits of reactive power contribution	6	Short Term
	Protection requirements	7D	Telecommunication and protection schemes	5	Long term
	Control requirements	8A	Global architecture and schemes required for controllability and observability of non-transmission facilities	6	Medium Term
		8B	Observability threshold for non-transmission facilities by TSO control systems	5	Medium Term
		8D	Controlability threshold for non-transmission facilities by TSO control systems	5	Medium Term
		8C	Magnitudes to be provided in real time from non-transmission facilities to TSO control centre	6	Medium Term
	Demand disconnection schemes	12A	Existence of demand disconnection schemes (low frequency and/or low voltage)	6	Short Term
	HVDC requirements	15A	Specific HVDC requirements or criteria	1	Long Term

DZ

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 12.1)	Select TEMPORAL PRIORITIZATION
OPERATION	System states	1A	Classification of system states	7	Short Term
	Technical requirements	2A	Frequency ranges (quality parameters) in the different system states	6	Short Term
		2B1	Voltage ranges (for unlimited operation) in normal conditions	6	Medium term
		2B2	Voltage ranges (for unlimited operation) in extraordinary conditions	6	Medium term
		2E	Reactive power management measures (specific measures in the international interconnections)	9	Medium term
		2G	System protection coordination criteria in international interconnections	6	Short Term
	Information exchange	3D	List of real time data to exchange with other TSOs	9	Short term
		3E	List of sheduled data to exchange with other TSOs	6	Short Term
		3F	List of structural data to exchange with other TSOs	6	Short Term
	Contingency analysis	4A1	Type of contingencies considered	6	Short Term
		4A2	Contingency list (both internal - in national power system - and external - in neighbouring power systems -)	9	Short Term
		4B1	Operational security limits	4	Short Term
		4B2	Operational security limits in the interconnection lines	6	Short Term
		4B3	List of joint remedial actions agreed between TSOs after a contingency	9	Short Term
		4C	Periodicity of state estimation calculations ("snapshots")	6	Short Term
	Management of int. exchanges	6A	Management of international exchange programs between TSOs	6	Short Term
	Outage coordination	9A	Criteria and procedure for outage coordination (if affects NTC)	6	Short term
	Load frequency control	11A3	Criteria used for establishing the quantity of FCR	9	Medium Term
		11A4	Compliance scheme for FCR	9	Medium Term
		11B1	Provision of FRR	9	Medium Term
		11B3	Criteria used for establishing the quantity of FRR	9	Medium Term
		11B4	Compliance scheme for FRR	9	Medium Term
	Reserves management	12A	Mechanisms of reserves management (exchange and sharing)	9	Medium Term
	System defence plan	14A	Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)	9	Short Term
		14B	Setting of demand disconnection schemes (low frequency and/or low voltage)	6	Short Term
		14C	Voltage deviation management procedure	6	Medium term
		14D	Power flow management procedure	6	Medium term
		14E	Manual demand disconnection procedure	6	Medium term
		14F	Inter-TSO assistance and coordination in emergency state	6	Short Term
	Restoration plan	15A-B	Rules and types of restoration plans	9	Medium Term
	Training and certification	16A	Certification of the operators in charge of real time	6	Medium term
		16I	Language requirements	6	Medium Term

	DZ				
	ASPECTS	**Question Number**	**TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1**	**DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)**	**Select TEMPORAL PRIORITIZATION**
SYSTEM SERVICES MARKETS	Legal Issues	1A	Contractual requirements for participation on the cross-border electricity trade	6	Medium Term
		1B	Current rules for export/import of cross-border electricity	6	Medium term
		1D	Presence of a Market Operator	6	Medium Term
		1I	Technical requirements to satisfy for using the interconnections	6	Medium Term
	Capacity Calculation	2A	Security criteria used for calculating the Net Transfer Capacity (NTC)	6	Short term
		2B	Characteristic process for finalization of Net Transfert Capacity (jointly or separatly from other TSO's?)	7	Medium Term
		2C	Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons	6	Short term
	Capacity Allocation	3D	Methods and procedures applied for transmission capacity allocation (e.g. public auction or tender procedures) including Physical Transmission Rights (PTR) allocation	9	Medium Term
		3B	Obligation regarding the use of the capacity allocated - Use it or sell (or loose) it mechanism.	9	Medium Term
		3C	Kind of capacity products allocated (duration and time profiling)	9	Medium Term
		3E	System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure	9	Medium Term
		3F	Subject responsible for the management of the allocation procedure	9	Medium Term
	Dispatching & Balancing	4A	Actions foreseen in order to guarantee the exchange programs	7	Short Term
		4B	Management of unintentional deviations on international interconnections	6	Short Term
	Transparency	6A	Public information on the Electricity Markets data	8	Medium Term
		6B	Public information on internatioanl interconnections data	8	Medium Term

	DZ				
	ASPECTS	**Question Number**	**TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1**	**DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)**	**Select TEMPORAL PRIORITIZATION**
LEGAL AND REGULATORY		B	Responsible authority for the settlement of disputes among stakeholders	6	Short Term
		F	Unbundling of regulated and non-regulated activities	7	Medium term
		G	Coordinated regulation to make feasible and viable international interconnections	7	Medium term

Spain (ES)

	ES				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
CONNECTION	Connection procedure	2A	Studies performed for access and connection	2	Medium Term
		2C	Criteria used for access capacity calculation	4	Medium Term
	Frequency requirements	3A	Frequency/time range limits for users to withstand without damage	8	Short Term
		3B	Rate of change of frequency withstand capability	7	Short Term
		3C	Limited frequency sensitive mode – overfrequency and underfrequency schemes	7	Short Term
	Voltage requirements	4A	Voltage/time range limits for users to withstand without damage	6	Short Term
		4B	Fault ride through capability	7	Short Term
	Reactive power requirements	5A	Limits of reactive power contribution	6	Medium Term
	Protection requirements	7D	Telecommunication and protection schemes	3	Long Term
	Control requirements	8A	Global architecture and schemes required for controllability and observability of non-transmission facilities	4	Long Term
		8B	Observability threshold for non-transmission facilities by TSO control systems	7	Medium Term
		8D	Controlability threshold for non-transmission facilities by TSO control systems	6	Medium Term
		8C	Magnitudes to be provided in real time from non-transmission facilities to TSO control centre	7	Medium Term
	Demand disconnection schemes	12A	Existence of demand disconnection schemes (low frequency and/or low voltage)	7	Medium Term
	HVDC requirements	15A	Specific HVDC requirements or criteria	6	Long Term

	ES				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
OPERATION	System states	1A	Classification of system states	8	Short Term
	Technical requirements	2A	Frequency ranges (quality parameters) in the different system states	9	Short Term
		2B1	Voltage ranges (for unlimited operation) in normal conditions	7	Short Term
		2B2	Voltage ranges (for unlimited operation) in extraordinary conditions	7	Short Term
		2E	Reactive power management measures (specific measures in the international interconnections)	7	Short Term
		2G	System protection coordination criteria in international interconnections	7	Short Term
	Information exchange	3D	List of real time data to exchange with other TSOs	9	Short Term
		3E	List of sheduled data to exchange with other TSOs	5	Short Term
		3F	List of structural data to exchange with other TSOs	5	Short Term
	Contingency analysis	4A1	Type of contingencies considered	7	Short Term
		4A2	Contingency list (both internal - in national power system - and external - in neighbouring power systems -)	8	Medium Term
		4B1	Operational security limits	4	Short Term
		4B2	Operational security limits in the interconnection lines	8	Short Term
		4B3	List of joint remedial actions agreed between TSOs after a contingency	8	Short Term
		4C	Periodicity of state estimation calculations ("snapshots")	7	Long Term
	Management of int. exchanges	6A	Management of international exchange programs between TSOs	9	Short Term
	Outage coordination	9A	Criteria and procedure for outage coordination (if affects NTC)	8	Short Term
	Load frequency control	11A3	Criteria used for establishing the quantity of FCR	9	Short Term
		11A4	Compliance scheme for FCR	7	Long Term
		11B1	Provision of FRR	3	Medium Term
		11B3	Criteria used for establishing the quantity of FRR	8	Medium Term
		11B4	Compliance scheme for FRR	7	Long Term
	Reserves management	12A	Mechanisms of reserves management (exchange and sharing)	8	Long Term
	System defence plan	14A	Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)	9	Short Term
		14B	Setting of demand disconnection schemes (low frequency and/or low voltage)	7	Short Term
		14C	Voltage deviation management procedure	6	Medium Term
		14D	Power flow management procedure	6	Medium Term
		14E	Manual demand disconnection procedure	5	Medium Term
		14F	Inter-TSO assistance and coordination in emergency state	8	Short Term
	Restoration plan	15A-B	Rules and types of restoration plans	8	Short Term
	Training and certification	16A	Certification of the operators in charge of real time	7	Long Term
		16I	Language requirements	5	Medium Term

	ES				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
SYSTEM SERVICES MARKETS	Legal Issues	1A	Contractual requirements for participation on the cross-border electricity trade	7	Short Term
		1B	Current rules for export/import of cross-border electricity	7	Short Term
		1D	Presence of a Market Operator	7	Medium Term
		1I	Technical requirements to satisfy for using the interconnections	7	Medium Term
	Capacity Calculation	2A	Security criteria used for calculating the Net Transfer Capacity (NTC)	6	Short Term
		2B	Characteristic process for finalization of Net Transfert Capacity (jointly or separatly from other TSO's?)	6	Short Term
		2C	Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons	6	Short Term
	Capacity Allocation	3D	Methods and procedures applied for transmission capacity allocation (e.g. public auction or tender procedures) including Physical Transmission Rights (PTR) allocation	7	Short Term
		3B	Obligation regarding the use of the capacity allocated - Use it or sell (or loose) it mechanism.	7	Medium Term
		3C	Kind of capacity products allocated (duration and time profiling)	7	Short Term
		3E	System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure	7	Medium Term
		3F	Subject responsible for the management of the allocation procedure	7	Short Term
	Dispatching & Balancing	4A	Actions foreseen in order to guarantee the exchange programs	8	Medium Term
		4B	Management of unintentional deviations on international interconnections	5	Medium Term
	Transparency	6A	Public information on the Electricity Markets data	7	Short Term
		6B	Public information on internatioanl interconnections data	7	Short Term

	ES				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
LEGAL AND REGULATORY		B	Responsible authority for the settlement of disputes among stakeholders	2	Long Term
		F	Unbundling of regulated and non-regulated activities	9	Medium Term
		G	Coordinated regulation to make feasible and viable international interconnections	6	Medium Term

France (FR)

	FR				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
CONNECTION	Connection procedure	2A	Studies performed for access and connection	2	Long Term
		2C	Criteria used for access capacity calculation	5	Long Term
	Frequency requirements	3A	Frequency/time range limits for users to withstand without damage	6	Short Term
		3B	Rate of change of frequency withstand capability		Short Term
		3C	Limited frequency sensitive mode – overfrequency and underfrequency schemes	8	Short Term
	Voltage requirements	4A	Voltage/time range limits for users to withstand without damage	5	Long Term
		4B	Fault ride through capability	5	Medium Term
	Reactive power requirements	5A	Limits of reactive power contribution	4	Medium Term
	Protection requirements	7D	Telecommunication and protection schemes	5	Long Term
	Control requirements	8A	Global architecture and schemes required for controllability and observability of non-transmission facilities	5	Medium Term
		8B	Observability threshold for non-transmission facilities by TSO control systems	5	Medium Term
		8D	Controlability threshold for non-transmission facilities by TSO control systems	6	Medium Term
		8C	Magnitudes to be provided in real time from non-transmission facilities to TSO control centre	4	Medium Term
	Demand disconnection schemes	12A	Existence of demand disconnection schemes (low frequency and/or low voltage)	8	Short Term
	HVDC requirements	15A	Specific HVDC requirements or criteria	7	Medium Term

FR

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
OPERATION	System states	1A	Classification of system states	8	Short Term
	Technical requirements	2A	Frequency ranges (quality parameters) in the different system states	7	Short Term
		2B1	Voltage ranges (for unlimited operation) in normal conditions	7	Long Term
		2B2	Voltage ranges (for unlimited operation) in extraordinary conditions	7	Long Term
		2E	Reactive power management measures (specific measures in the international interconnections)	6	Medium Term
		2G	System protection coordination criteria in international interconnections	8	Short Term
	Information exchange	3D	List of real time data to exchange with other TSOs	8	Short Term
		3E	List of sheduled data to exchange with other TSOs	6	Short Term
		3F	List of structural data to exchange with other TSOs	6	Short Term
	Contingency analysis	4A1	Type of contingencies considered	7	Short Term
		4A2	Contingency list (both internal - in national power system - and external - in neighbouring power systems -)	8	Medium Term
		4B1	Operational security limits	2	Long Term
		4B2	Operational security limits in the interconnection lines	7	Short Term
		4B3	List of joint remedial actions agreed between TSOs after a contingency	8	Medium Term
		4C	Periodicity of state estimation calculations ("snapshots")	6	Medium Term
	Management of int. exchanges	6A	Management of international exchange programs between TSOs	9	Short Term
	Outage coordination	9A	Criteria and procedure for outage coordination (if affects NTC)	7	Short Term
	Load frequency control	11A3	Criteria used for establishing the quantity of FCR	8	Short Term
		11A4	Compliance scheme for FCR	8	Medium Term
		11B1	Provision of FRR	5	Medium Term
		11B3	Criteria used for establishing the quantity of FRR	8	Medium Term
		11B4	Compliance scheme for FRR	5	Medium Term
	Reserves management	12A	Mechanisms of reserves management (exchange and sharing)	8	Medium Term
	System defence plan	14A	Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)	9	Short Term
		14B	Setting of demand disconnection schemes (low frequency and/or low voltage)	9	Short Term
		14C	Voltage deviation management procedure	4	Medium Term
		14D	Power flow management procedure	5	Medium Term
		14E	Manual demand disconnection procedure	2	Medium Term
		14F	Inter-TSO assistance and coordination in emergency state	7	Medium Term
	Restoration plan	15A-B	Rules and types of restoration plans	6	Medium Term
	Training and certification	16A	Certification of the operators in charge of real time	6	Long Term
		16I	Language requirements	6	Medium Term

FR

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
SYSTEM SERVICES MARKETS	Legal Issues	1A	Contractual requirements for participation on the cross-border electricity trade	7	Medium Term
		1B	Current rules for export/import of cross-border electricity	8	Medium Term
		1D	Presence of a Market Operator	6	Medium Term
		1I	Technical requirements to satisfy for using the interconnections	6	Medium Term
	Capacity Calculation	2A	Security criteria used for calculating the Net Transfer Capacity (NTC)	8	Short Term
		2B	Characteristic process for finalization of Net Transfert Capacity (jointly or separatly from other TSO's?)	8	Short Term
		2C	Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons	7	Short Term
	Capacity Allocation	3D	Methods and procedures applied for transmission capacity allocation (e.g. public auction or tender procedures) including Physical Transmission Rights (PTR) allocation	8	Medium Term
		3B	Obligation regarding the use of the capacity allocated - Use it or sell (or loose) it mechanism.	7	Medium Term
		3C	Kind of capacity products allocated (duration and time profiling)	7	Medium Term
		3E	System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure	5	Medium Term
		3F	Subject responsible for the management of the allocation procedure	6	Medium Term
	Dispatching & Balancing	4A	Actions foreseen in order to guarantee the exchange programs	6	Medium Term
		4B	Management of unintentional deviations on international interconnections	5	Medium Term
	Transparency	6A	Public information on the Electricity Markets data	8	Short Term
		6B	Public information on internatioanl interconnections data	8	Short Term

FR

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
LEGAL AND REGULATORY		B	Responsible authority for the settlement of disputes among stakeholders	5	Long Term
		F	Unbundling of regulated and non-regulated activities	7	Medium Term
		G	Coordinated regulation to make feasible and viable international interconnections	7	Medium Term

Greece (GR)

	GR				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
CONNECTION	Connection procedure	2A	Studies performed for access and connection	4	Medium Term
		2C	Criteria used for access capacity calculation	7	Medium term
	Frequency requirements	3A	Frequency/time range limits for users to withstand without damage	8	Short Term
		3B	Rate of change of frequency withstand capability	6	Short Term
		3C	Limited frequency sensitive mode – overfrequency and underfrequency schemes	6	Short Term
	Voltage requirements	4A	Voltage/time range limits for users to withstand without damage	6	Short term
		4B	Fault ride through capability	6	Short term
	Reactive power requirements	5A	Limits of reactive power contribution	6	Medium Term
	Protection requirements	7D	Telecommunication and protection schemes	4	Long Term
	Control requirements	8A	Global architecture and schemes required for controllability and observability of non-transmission facilities	5	Long term
		8B	Observability threshold for non-transmission facilities by TSO control systems	5	Medium Term
		8D	Controlability threshold for non-transmission facilities by TSO control systems	5	Medium Term
		8C	Magnitudes to be provided in real time from non-transmission facilities to TSO control centre	6	Medium Term
	Demand disconnection schemes	12A	Existence of demand disconnection schemes (low frequency and/or low voltage)	7	Medium term
	HVDC requirements	15A	Specific HVDC requirements or criteria	6	Long term

GR

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
OPERATION	System states	1A	Classification of system states	7	Short Term
	Technical requirements	2A	Frequency ranges (quality parameters) in the different system states	9	Short Term
		2B1	Voltage ranges (for unlimited operation) in normal conditions	6	Medium Term
		2B2	Voltage ranges (for unlimited operation) in extraordinary conditions	4	Medium Term
		2E	Reactive power management measures (specific measures in the international interconnections)	9	Medium Term
		2G	System protection coordination criteria in international interconnections	8	Short Term
	Information exchange	3D	List of real time data to exchange with other TSOs	9	Short Term
		3E	List of sheduled data to exchange with other TSOs	6	Medium Term
		3F	List of structural data to exchange with other TSOs	6	Medium Term
	Contingency analysis	4A1	Type of contingencies considered	7	Medium term
		4A2	Contingency list (both internal - in national power system - and external - in neighbouring power systems -)	8	Medium Term
		4B1	Operational security limits	5	Medium term
		4B2	Operational security limits in the interconnection lines	7	Short Term
		4B3	List of joint remedial actions agreed between TSOs after a contingency	9	Short Term
		4C	Periodicity of state estimation calculations ("snapshots")	7	Medium Term
	Management of int. exchanges	6A	Management of international exchange programs between TSOs	9	Short Term
	Outage coordination	9A	Criteria and procedure for outage coordination (if affects NTC)	7	Short Term
	Load frequency control	11A3	Criteria used for establishing the quantity of FCR	9	Short Term
		11A4	Compliance scheme for FCR	7	Medium Term
		11B1	Provision of FRR	7	Medium Term
		11B3	Criteria used for establishing the quantity of FRR	8	Medium Term
		11B4	Compliance scheme for FRR	7	Medium Term
	Reserves management	12A	Mechanisms of reserves management (exchange and sharing)	9	Medium Term
	System defence plan	14A	Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)	9	Short Term
		14B	Setting of demand disconnection schemes (low frequency and/or low voltage)	7	Short Term
		14C	Voltage deviation management procedure	6	Long term
		14D	Power flow management procedure	7	Long term
		14E	Manual demand disconnection procedure	5	Long Term
		14F	Inter-TSO assistance and coordination in emergency state	9	Short Term
	Restoration plan	15A-B	Rules and types of restoration plans	9	Short Term
	Training and certification	16A	Certification of the operators in charge of real time	7	Long Term
		16I	Language requirements	7	Long Term

	GR				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
SYSTEM SERVICES MARKETS	Legal Issues	1A	Contractual requirements for participation on the cross-border electricity trade	5	Medium Term
		1B	Current rules for export/import of cross-border electricity	5	Medium Term
		1D	Presence of a Market Operator	6	Medium term
		1I	Technical requirements to satisfy for using the interconnections	6	Medium Term
	Capacity Calculation	2A	Security criteria used for calculating the Net Transfer Capacity (NTC)	6	Short Term
		2B	Characteristic process for finalization of Net Transfert Capacity (jointly or separatly from other TSO's?)	6	Short Term
		2C	Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons	5	Short Term
	Capacity Allocation	3D	Methods and procedures applied for transmission capacity allocation (e.g. public auction or tender procedures) including Physical Transmission Rights (PTR) allocation	7	Medium Term
		3B	Obligation regarding the use of the capacity allocated - Use it or sell (or loose) it mechanism.	7	Medium Term
		3C	Kind of capacity products allocated (duration and time profiling)	7	Medium Term
		3E	System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure	7	Medium term
		3F	Subject responsible for the management of the allocation procedure	7	Medium term
	Dispatching & Balancing	4A	Actions foreseen in order to guarantee the exchange programs	7	Medium Term
		4B	Management of unintentional deviations on international interconnections	4	Medium term
	Transparency	6A	Public information on the Electricity Markets data	7	Short Term
		6B	Public information on internatioanl interconnections data	7	Short Term

	GR				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
LEGAL AND REGULATORY		B	Responsible authority for the settlement of disputes among stakeholders	5	Long Term
		F	Unbundling of regulated and non-regulated activities	9	Medium Term
		G	Coordinated regulation to make feasible and viable international interconnections	6	Long Term

Italy (IT)

	IT				
	ASPECTS	**Question Number**	**TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1**	**DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)**	**Select TEMPORAL PRIORITIZATION**
CONNECTION	Connection procedure	2A	Studies performed for access and connection	3	Medium Term
		2C	Criteria used for access capacity calculation	3	Medium Term
	Frequency requirements	3A	Frequency/time range limits for users to withstand without damage		Medium Term
		3B	Rate of change of frequency withstand capability		Medium Term
		3C	Limited frequency sensitive mode – overfrequency and underfrequency schemes		Short Term
	Voltage requirements	4A	Voltage/time range limits for users to withstand without damage		Medium Term
		4B	Fault ride through capability		Medium Term
	Reactive power requirements	5A	Limits of reactive power contribution		Medium Term
	Protection requirements	7D	Telecommunication and protection schemes		Long Term
	Control requirements	8A	Global architecture and schemes required for controllability and observability of non-transmission facilities		Medium Term
		8B	Observability threshold for non-transmission facilities by TSO control systems		Medium Term
		8D	Controlability threshold for non-transmission facilities by TSO control systems		Medium Term
		8C	Magnitudes to be provided in real time from non-transmission facilities to TSO control centre		Medium Term
	Demand disconnection schemes	12A	Existence of demand disconnection schemes (low frequency and/or low voltage)		Short Term
	HVDC requirements	15A	Specific HVDC requirements or criteria	4	Medium Term

	IT				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
OPERATION	System states	1A	Classification of system states	7	Short Term
	Technical requirements	2A	Frequency ranges (quality parameters) in the different system states	9	Short Term
		2B1	Voltage ranges (for unlimited operation) in normal conditions	6	Long Term
		2B2	Voltage ranges (for unlimited operation) in extraordinary conditions	6	Long Term
		2E	Reactive power management measures (specific measures in the international interconnections)	9	Medium Term
		2G	System protection coordination criteria in international interconnections	9	Short Term
	Information exchange	3D	List of real time data to exchange with other TSOs	9	Short Term
		3E	List of sheduled data to exchange with other TSOs	8	Short Term
		3F	List of structural data to exchange with other TSOs	8	Short Term
	Contingency analysis	4A1	Type of contingencies considered	9	Short Term
		4A2	Contingency list (both internal - in national power system - and external - in neighbouring power systems -)	7	Medium Term
		4B1	Operational security limits	6	Medium Term
		4B2	Operational security limits in the interconnection lines	6	Medium Term
		4B3	List of joint remedial actions agreed between TSOs after a contingency	7	Medium Term
		4C	Periodicity of state estimation calculations ("snapshots")	6	Short Term
	Management of int. exchanges	6A	Management of international exchange programs between TSOs	9	Short Term
	Outage coordination	9A	Criteria and procedure for outage coordination (if affects NTC)	9	Short Term
	Load frequency control	11A3	Criteria used for establishing the quantity of FCR	9	Short Term
		11A4	Compliance scheme for FCR	4	Medium Term
		11B1	Provision of FRR	7	Medium Term
		11B3	Criteria used for establishing the quantity of FRR	7	Medium Term
		11B4	Compliance scheme for FRR	4	Medium Term
	Reserves management	12A	Mechanisms of reserves management (exchange and sharing)	9	Medium Term
	System defence plan	14A	Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)	9	Short Term
		14B	Setting of demand disconnection schemes (low frequency and/or low voltage)	9	Short Term
		14C	Voltage deviation management procedure	5	Medium Term
		14D	Power flow management procedure	8	Medium Term
		14E	Manual demand disconnection procedure	7	Medium Term
		14F	Inter-TSO assistance and coordination in emergency state	9	Medium Term
	Restoration plan	15A-B	Rules and types of restoration plans	9	Medium Term
	Training and certification	16A	Certification of the operators in charge of real time	9	Medium Term
		16I	Language requirements	9	Medium Term

	IT				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
SYSTEM SERVICES MARKETS	Legal Issues	1A	Contractual requirements for participation on the cross-border electricity trade	8	Medium Term
		1B	Current rules for export/import of cross-border electricity	8	Medium Term
		1D	Presence of a Market Operator	9	Medium Term
		1I	Technical requirements to satisfy for using the interconnections	5	Short Term
	Capacity Calculation	2A	Security criteria used for calculating the Net Transfer Capacity (NTC)	9	Short Term
		2B	Characteristic process for finalization of Net Transfert Capacity (jointly or separatly from other TSO's?)	8	Medium Term
		2C	Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons	8	Short Term
	Capacity Allocation	3D	Methods and procedures applied for transmission capacity allocation (e.g. public auction or tender procedures) including Physical Transmission Rights (PTR) allocation	5	Medium Term
		3B	Obligation regarding the use of the capacity allocated - Use it or sell (or loose) it mechanism.	7	Medium Term
		3C	Kind of capacity products allocated (duration and time profiling)	4	Medium Term
		3E	System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure	8	Medium Term
		3F	Subject responsible for the management of the allocation procedure	8	Medium Term
	Dispatching & Balancing	4A	Actions foreseen in order to guarantee the exchange programs	7	Medium Term
		4B	Management of unintentional deviations on international interconnections	4	Medium Term
	Transparency	6A	Public information on the Electricity Markets data	7	Short Term
		6B	Public information on internatioanl interconnections data	7	Short Term

	IT				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
LEGAL AND REGULATORY		B	Responsible authority for the settlement of disputes among stakeholders	9	Long Term
		F	Unbundling of regulated and non-regulated activities	4	Medium Term
		G	Coordinated regulation to make feasible and viable international interconnections	8	Medium Term

Jordan (JO)

	JO				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
CONNECTION	Connection procedure	2A	Studies performed for access and connection	6	Short Term
		2C	Criteria used for access capacity calculation	6	Short Term
	Frequency requirements	3A	Frequency/time range limits for users to withstand without damage	6	Medium Term
		3B	Rate of change of frequency withstand capability	5	Short Term
		3C	Limited frequency sensitive mode – overfrequency and underfrequency schemes	6	Short Term
	Voltage requirements	4A	Voltage/time range limits for users to withstand without damage	6	Short Term
		4B	Fault ride through capability	6	Short Term
	Reactive power requirements	5A	Limits of reactive power contribution	6	Medium Term
	Protection requirements	7D	Telecommunication and protection schemes	6	Medium Term
	Control requirements	8A	Global architecture and schemes required for controllability and observability of non-transmission facilities	5	Long Term
		8B	Observability threshold for non-transmission facilities by TSO control systems	5	Long Term
		8D	Controlability threshold for non-transmission facilities by TSO control systems	6	Long Term
		8C	Magnitudes to be provided in real time from non-transmission facilities to TSO control centre	6	Long Term
	Demand disconnection schemes	12A	Existence of demand disconnection schemes (low frequency and/or low voltage)	6	Medium Term
	HVDC requirements	15A	Specific HVDC requirements or criteria	5	Long Term

JO

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
OPERATION	System states	1A	Classification of system states	7	Short Term
	Technical requirements	2A	Frequency ranges (quality parameters) in the different system states	8	Short Term
		2B1	Voltage ranges (for unlimited operation) in normal conditions	6	Short Term
		2B2	Voltage ranges (for unlimited operation) in extraordinary conditions	6	Short Term
		2E	Reactive power management measures (specific measures in the international interconnections)	8	Medium Term
		2G	System protection coordination criteria in international interconnections	7	Short Term
	Information exchange	3D	List of real time data to exchange with other TSOs	8	Medium Term
		3E	List of sheduled data to exchange with other TSOs	6	Long Term
		3F	List of structural data to exchange with other TSOs	6	Long Term
	Contingency analysis	4A1	Type of contingencies considered	7	Medium Term
		4A2	Contingency list (both internal - in national power system - and external - in neighbouring power systems -)	8	Medium Term
		4B1	Operational security limits	5	Short Term
		4B2	Operational security limits in the interconnection lines	5	Medium Term
		4B3	List of joint remedial actions agreed between TSOs after a contingency	7	Medium Term
		4C	Periodicity of state estimation calculations ("snapshots")	7	Medium Term
	Management of int. exchanges	6A	Management of international exchange programs between TSOs	7	Medium Term
	Outage coordination	9A	Criteria and procedure for outage coordination (if affects NTC)	6	Medium Term
	Load frequency control	11A3	Criteria used for establishing the quantity of FCR	7	Long Term
		11A4	Compliance scheme for FCR	5	Long Term
		11B1	Provision of FRR	5	Long Term
		11B3	Criteria used for establishing the quantity of FRR	7	Long Term
		11B4	Compliance scheme for FRR	6	Long Term
	Reserves management	12A	Mechanisms of reserves management (exchange and sharing)	8	Medium Term
	System defence plan	14A	Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)	8	Medium Term
		14B	Setting of demand disconnection schemes (low frequency and/or low voltage)	7	Medium Term
		14C	Voltage deviation management procedure	7	Medium Term
		14D	Power flow management procedure	6	Medium Term
		14E	Manual demand disconnection procedure	5	Medium Term
		14F	Inter-TSO assistance and coordination in emergency state	7	Medium Term
	Restoration plan	15A-B	Rules and types of restoration plans	7	Medium Term
	Training and certification	16A	Certification of the operators in charge of real time	5	Medium Term
		16I	Language requirements	6	Short Term

JO

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
SYSTEM SERVICES MARKETS	Legal Issues	1A	Contractual requirements for participation on the cross-border electricity trade	7	Medium Term
		1B	Current rules for export/import of cross-border electricity	6	Medium Term
		1D	Presence of a Market Operator	5	Medium Term
		1I	Technical requirements to satisfy for using the interconnections	6	Medium Term
	Capacity Calculation	2A	Security criteria used for calculating the Net Transfer Capacity (NTC)	7	Medium Term
		2B	Characteristic process for finalization of Net Transfert Capacity (jointly or separatly from other TSO's?)	7	Medium Term
		2C	Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons	6	Medium Term
	Capacity Allocation	3D	Methods and procedures applied for transmission capacity allocation (e.g. public auction or tender procedures) including Physical Transmission Rights (PTR) allocation		Long term
		3B	Obligation regarding the use of the capacity allocated - Use it or sell (or loose) it mechanism.		Long term
		3C	Kind of capacity products allocated (duration and time profiling)		Long term
		3E	System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure		Long term
		3F	Subject responsible for the management of the allocation procedure		Long term
	Dispatching & Balancing	4A	Actions foreseen in order to guarantee the exchange programs	6	Medium Term
		4B	Management of unintentional deviations on international interconnections	7	Medium Term
	Transparency	6A	Public information on the Electricity Markets data		Medium term
		6B	Public information on internatioanl interconnections data		Medium term

JO

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
LEGAL AND REGULATORY		B	Responsible authority for the settlement of disputes among stakeholders	5	Long Term
		F	Unbundling of regulated and non-regulated activities	6	Long Term
		G	Coordinated regulation to make feasible and viable international interconnections	7	Long Term

Libya (LY)

	LY				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
CONNECTION	Connection procedure	2A	Studies performed for access and connection	5	Short Term
		2C	Criteria used for access capacity calculation	4	Short Term
	Frequency requirements	3A	Frequency/time range limits for users to withstand without damage	5	Short Term
		3B	Rate of change of frequency withstand capability	5	Short Term
		3C	Limited frequency sensitive mode – overfrequency and underfrequency schemes	4	Medium Term
	Voltage requirements	4A	Voltage/time range limits for users to withstand without damage	6	Short Term
		4B	Fault ride through capability	4	Medium Term
	Reactive power requirements	5A	Limits of reactive power contribution	6	Medium Term
	Protection requirements	7D	Telecommunication and protection schemes	5	Medium Term
	Control requirements	8A	Global architecture and schemes required for controllability and observability of non-transmission facilities	4	Long Term
		8B	Observability threshold for non-transmission facilities by TSO control systems	6	Long Term
		8D	Controlability threshold for non-transmission facilities by TSO control systems	4	Long Term
		8C	Magnitudes to be provided in real time from non-transmission facilities to TSO control centre	4	Long Term
	Demand disconnection schemes	12A	Existence of demand disconnection schemes (low frequency and/or low voltage)	6	Medium Term
	HVDC requirements	15A	Specific HVDC requirements or criteria	4	Long Term

LY

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
OPERATION	System states	1A	Classification of system states	6	Short Term
	Technical requirements	2A	Frequency ranges (quality parameters) in the different system states	7	Short Term
		2B1	Voltage ranges (for unlimited operation) in normal conditions	5	Short Term
		2B2	Voltage ranges (for unlimited operation) in extraordinary conditions	5	Short Term
		2E	Reactive power management measures (specific measures in the international interconnections)	7	Short Term
		2G	System protection coordination criteria in international interconnections	7	Short Term
	Information exchange	3D	List of real time data to exchange with other TSOs	8	Short Term
		3E	List of sheduled data to exchange with other TSOs	4	Medium Term
		3F	List of structural data to exchange with other TSOs	4	Medium Term
	Contingency analysis	4A1	Type of contingencies considered	7	Short Term
		4A2	Contingency list (both internal - in national power system - and external - in neighbouring power systems -)	8	Medium Term
		4B1	Operational security limits	3	Short Term
		4B2	Operational security limits in the interconnection lines	3	Medium Term
		4B3	List of joint remedial actions agreed between TSOs after a contingency	7	Medium Term
		4C	Periodicity of state estimation calculations ("snapshots")	6	Medium Term
	Management of int. exchanges	6A	Management of international exchange programs between TSOs	7	Short Term
	Outage coordination	9A	Criteria and procedure for outage coordination (if affects NTC)	5	Short Term
	Load frequency control	11A3	Criteria used for establishing the quantity of FCR	7	Short Term
		11A4	Compliance scheme for FCR	6	Short Term
		11B1	Provision of FRR	6	Short Term
		11B3	Criteria used for establishing the quantity of FRR	7	Short Term
		11B4	Compliance scheme for FRR	6	Short Term
	Reserves management	12A	Mechanisms of reserves management (exchange and sharing)	7	Medium Term
	System defence plan	14A	Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)	7	Short Term
		14B	Setting of demand disconnection schemes (low frequency and/or low voltage)	6	Short Term
		14C	Voltage deviation management procedure	6	Short Term
		14D	Power flow management procedure	6	Short Term
		14E	Manual demand disconnection procedure	3	Short Term
		14F	Inter-TSO assistance and coordination in emergency state	6	Short Term
	Restoration plan	15A-B	Rules and types of restoration plans	7	Short Term
	Training and certification	16A	Certification of the operators in charge of real time	3	Medium Term
		16I	Language requirements	4	Medium Term

	LY				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
SYSTEM SERVICES MARKETS	Legal Issues	1A	Contractual requirements for participation on the cross-border electricity trade	6	Short Term
		1B	Current rules for export/import of cross-border electricity	7	Short Term
		1D	Presence of a Market Operator	5	Medium Term
		1I	Technical requirements to satisfy for using the interconnections	7	Short Term
	Capacity Calculation	2A	Security criteria used for calculating the Net Transfer Capacity (NTC)	7	Short Term
		2B	Characteristic process for finalization of Net Transfert Capacity (jointly or separatly from other TSO's?)	7	Medium Term
		2C	Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons	6	Medium Term
	Capacity Allocation	3D	Methods and procedures applied for transmission capacity allocation (e.g. public auction or tender procedures) including Physical Transmission Rights (PTR) allocation	5	Medium Term
		3B	Obligation regarding the use of the capacity allocated - Use it or sell (or loose) it mechanism.	6	Medium Term
		3C	Kind of capacity products allocated (duration and time profiling)	7	Medium Term
		3E	System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure	7	Medium Term
		3F	Subject responsible for the management of the allocation procedure	6	Medium Term
	Dispatching & Balancing	4A	Actions foreseen in order to guarantee the exchange programs	7	Long Term
		4B	Management of unintentional deviations on international interconnections	6	Medium Term
	Transparency	6A	Public information on the Electricity Markets data	7	Long Term
		6B	Public information on internatioanl interconnections data	7	Medium Term

	LY				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
LEGAL AND REGULATORY		B	Responsible authority for the settlement of disputes among stakeholders	5	Short Term
		F	Unbundling of regulated and non-regulated activities	4	Medium Term
		G	Coordinated regulation to make feasible and viable international interconnections	5	Short Term

Morocco (MA)

	MA				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
CONNECTION	Connection procedure	2A	Studies performed for access and connection	6	Medium Term
		2C	Criteria used for access capacity calculation	6	Medium Term
	Frequency requirements	3A	Frequency/time range limits for users to withstand without damage	4	Short Term
		3B	Rate of change of frequency withstand capability	4	Short Term
		3C	Limited frequency sensitive mode – overfrequency and underfrequency schemes	6	Medium Term
	Voltage requirements	4A	Voltage/time range limits for users to withstand without damage	4	Medium Term
		4B	Fault ride through capability	6	Medium Term
	Reactive power requirements	5A	Limits of reactive power contribution	4	Medium Term
	Protection requirements	7D	Telecommunication and protection schemes	6	Long Term
	Control requirements	8A	Global architecture and schemes required for controllability and observability of non-transmission facilities	2	Medium Term
		8B	Observability threshold for non-transmission facilities by TSO control systems	4	Medium Term
		8D	Controlability threshold for non-transmission facilities by TSO control systems	5	Long Term
		8C	Magnitudes to be provided in real time from non-transmission facilities to TSO control centre	6	Long Term
	Demand disconnection schemes	12A	Existence of demand disconnection schemes (low frequency and/or low voltage)	6	Medium Term
	HVDC requirements	15A	Specific HVDC requirements or criteria		Long Term

	MA				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.3)	Select TEMPORAL PRIORITIZATION
OPERATION	System states	1A	Classification of system states	6	Short Term
	Technical requirements	2A	Frequency ranges (quality parameters) in the different system states	9	Short Term
		2B1	Voltage ranges (for unlimited operation) in normal conditions	6	Long Term
		2B2	Voltage ranges (for unlimited operation) in extraordinary conditions	6	Long Term
		2E	Reactive power management measures (specific measures in the international interconnections)	9	Long Term
		2G	System protection coordination criteria in international interconnections	9	Short Term
	Information exchange	3D	List of real time data to exchange with other TSOs	9	Short Term
		3E	List of sheduled data to exchange with other TSOs	5	Short Term
		3F	List of structural data to exchange with other TSOs	6	Short Term
	Contingency analysis	4A1	Type of contingencies considered	7	Short Term
		4A2	Contingency list (both internal - in national power system - and external - in neighbouring power systems -)	7	Medium Term
		4B1	Operational security limits	4	Long Term
		4B2	Operational security limits in the interconnection lines	4	Short Term
		4B3	List of joint remedial actions agreed between TSOs after a contingency	9	Medium Term
		4C	Periodicity of state estimation calculations ("snapshots")	7	Medium Term
	Management of int. exchanges	6A	Management of international exchange programs between TSOs	9	Short Term
	Outage coordination	9A	Criteria and procedure for outage coordination (if affects NTC)	9	Short Term
	Load frequency control	11A3	Criteria used for establishing the quantity of FCR	7	Medium Term
		11A4	Compliance scheme for FCR	7	Medium Term
		11B1	Provision of FRR	7	Medium Term
		11B3	Criteria used for establishing the quantity of FRR	7	Medium Term
		11B4	Compliance scheme for FRR	7	Medium Term
	Reserves management	12A	Mechanisms of reserves management (exchange and sharing)	7	Medium Term
	System defence plan	14A	Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)	7	Short Term
		14B	Setting of demand disconnection schemes (low frequency and/or low voltage)	9	Short Term
		14C	Voltage deviation management procedure	7	Medium Term
		14D	Power flow management procedure	6	Medium Term
		14E	Manual demand disconnection procedure	4	Medium Term
		14F	Inter-TSO assistance and coordination in emergency state	9	Medium Term
	Restoration plan	15A-B	Rules and types of restoration plans	9	Medium Term
	Training and certification	16A	Certification of the operators in charge of real time	4	Long Term
		16I	Language requirements	4	Medium Term

	MA				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
SYSTEM SERVICES MARKETS	Legal Issues	1A	Contractual requirements for participation on the cross-border electricity trade	5	Medium Term
		1B	Current rules for export/import of cross-border electricity	5	Medium Term
		1D	Presence of a Market Operator	5	Medium Term
		1I	Technical requirements to satisfy for using the interconnections	6	Medium Term
	Capacity Calculation	2A	Security criteria used for calculating the Net Transfer Capacity (NTC)	6	Short Term
		2B	Characteristic process for finalization of Net Transfert Capacity (jointly or separatly from other TSO's?)	5	Short Term
		2C	Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons	6	Short Term
	Capacity Allocation	3D	Methods and procedures applied for transmission capacity allocation (e.g. public auction or tender procedures) including Physical Transmission Rights (PTR) allocation	5	Medium Term
		3B	Obligation regarding the use of the capacity allocated - Use it or sell (or loose) it mechanism.	6	Medium Term
		3C	Kind of capacity products allocated (duration and time profiling)	3	Medium Term
		3E	System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure	5	Medium Term
		3F	Subject responsible for the management of the allocation procedure	5	Medium Term
	Dispatching & Balancing	4A	Actions foreseen in order to guarantee the exchange programs	6	Medium Term
		4B	Management of unintentional deviations on international interconnections	6	Medium Term
	Transparency	6A	Public information on the Electricity Markets data	6	Short Term
		6B	Public information on internatioanl interconnections data	7	Short Term

	MA				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
LEGAL AND REGULATORY		B	Responsible authority for the settlement of disputes among stakeholders	4	Short Term
		F	Unbundling of regulated and non-regulated activities	6	Medium Term
		G	Coordinated regulation to make feasible and viable international interconnections	6	Medium Term

Montenegro (ME)

	ME				
	ASPECTS	**Question Number**	**TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1**	**DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)**	**Select TEMPORAL PRIORITIZATION**
CONNECTION	Connection procedure	2A	Studies performed for access and connection	5	Medium Term
		2C	Criteria used for access capacity calculation	5	Medium Term
	Frequency requirements	3A	Frequency/time range limits for users to withstand without damage	5	Medium Term
		3B	Rate of change of frequency withstand capability	5	Medium Term
		3C	Limited frequency sensitive mode – overfrequency and underfrequency schemes	3	Long Term
	Voltage requirements	4A	Voltage/time range limits for users to withstand without damage	4	Medium Term
		4B	Fault ride through capability	5	Medium Term
	Reactive power requirements	5A	Limits of reactive power contribution	5	Medium Term
	Protection requirements	7D	Telecommunication and protection schemes	4	Medium Term
	Control requirements	8A	Global architecture and schemes required for controllability and observability of non-transmission facilities	4	Medium Term
		8B	Observability threshold for non-transmission facilities by TSO control systems	5	Medium Term
		8D	Controlability threshold for non-transmission facilities by TSO control systems	5	Medium Term
		8C	Magnitudes to be provided in real time from non-transmission facilities to TSO control centre	5	Medium Term
	Demand disconnection schemes	12A	Existence of demand disconnection schemes (low frequency and/or low voltage)		Medium Term
	HVDC requirements	15A	Specific HVDC requirements or criteria	4	Medium Term

ME

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
OPERATION	System states	1A	Classification of system states	8	Short Term
	Technical requirements	2A	Frequency ranges (quality parameters) in the different system states	9	Short Term
		2B1	Voltage ranges (for unlimited operation) in normal conditions	6	Short Term
		2B2	Voltage ranges (for unlimited operation) in extraordinary conditions	6	Short Term
		2E	Reactive power management measures (specific measures in the international interconnections)	7	Short Term
		2G	System protection coordination criteria in international interconnections	7	Short Term
	Information exchange	3D	List of real time data to exchange with other TSOs	9	Short Term
		3E	List of sheduled data to exchange with other TSOs	5	Medium Term
		3F	List of structural data to exchange with other TSOs	5	Medium Term
	Contingency analysis	4A1	Type of contingencies considered	7	Short Term
		4A2	Contingency list (both internal - in national power system - and external - in neighbouring power systems -)	7	Short Term
		4B1	Operational security limits	5	Medium Term
		4B2	Operational security limits in the interconnection lines	5	Medium Term
		4B3	List of joint remedial actions agreed between TSOs after a contingency	8	Short Term
		4C	Periodicity of state estimation calculations ("snapshots")	7	Short Term
	Management of int. exchanges	6A	Management of international exchange programs between TSOs	9	Short Term
	Outage coordination	9A	Criteria and procedure for outage coordination (if affects NTC)	5	Medium Term
	Load frequency control	11A3	Criteria used for establishing the quantity of FCR	5	Medium Term
		11A4	Compliance scheme for FCR	1	Long Term
		11B1	Provision of FRR	5	Medium Term
		11B3	Criteria used for establishing the quantity of FRR	7	Short Term
		11B4	Compliance scheme for FRR	3	Long Term
	Reserves management	12A	Mechanisms of reserves management (exchange and sharing)	8	Short Term
	System defence plan	14A	Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)	5	Medium Term
		14B	Setting of demand disconnection schemes (low frequency and/or low voltage)	7	Short Term
		14C	Voltage deviation management procedure	5	Medium Term
		14D	Power flow management procedure	5	Medium Term
		14E	Manual demand disconnection procedure	4	Medium Term
		14F	Inter-TSO assistance and coordination in emergency state	7	Short Term
	Restoration plan	15A-B	Rules and types of restoration plans	7	Short Term
	Training and certification	16A	Certification of the operators in charge of real time	5	Medium Term
		16I	Language requirements	5	Medium Term

	ME				
	ASPECTS	**Question Number**	**TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1**	**DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)**	**Select TEMPORAL PRIORITIZATION**
SYSTEM SERVICES MARKETS	Legal Issues	1A	Contractual requirements for participation on the cross-border electricity trade	5	Medium Term
		1B	Current rules for export/import of cross-border electricity	4	Medium Term
		1D	Presence of a Market Operator	6	Short Term
		1I	Technical requirements to satisfy for using the interconnections	7	Short Term
	Capacity Calculation	2A	Security criteria used for calculating the Net Transfer Capacity (NTC)	6	Short Term
		2B	Characteristic process for finalization of Net Transfert Capacity (jointly or separatly from other TSO's?)	7	Short Term
		2C	Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons	6	Short Term
	Capacity Allocation	3D	Methods and procedures applied for transmission capacity allocation (e.g. public auction or tender procedures) including Physical Transmission Rights (PTR) allocation	7	Short Term
		3B	Obligation regarding the use of the capacity allocated - Use it or sell (or loose) it mechanism.	6	Short Term
		3C	Kind of capacity products allocated (duration and time profiling)	7	Short Term
		3E	System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure	7	Short Term
		3F	Subject responsible for the management of the allocation procedure	7	Short Term
	Dispatching & Balancing	4A	Actions foreseen in order to guarantee the exchange programs	7	Short Term
		4B	Management of unintentional deviations on international interconnections	6	Short Term
	Transparency	6A	Public information on the Electricity Markets data	5	Medium Term
		6B	Public information on internatioanl interconnections data	5	Medium Term

	ME				
	ASPECTS	**Question Number**	**TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1**	**DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)**	**Select TEMPORAL PRIORITIZATION**
LEGAL AND REGULATORY		B	Responsible authority for the settlement of disputes among stakeholders	6	Short Term
		F	Unbundling of regulated and non-regulated activities		Medium Term
		G	Coordinated regulation to make feasible and viable international interconnections		Long Term

Portugal (PT)

	PT				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
CONNECTION	Connection procedure	2A	Studies performed for access and connection	4	Medium Term
		2C	Criteria used for access capacity calculation	4	Short Term
	Frequency requirements	3A	Frequency/time range limits for users to withstand without damage	6	Short Term
		3B	Rate of change of frequency withstand capability	6	Short Term
		3C	Limited frequency sensitive mode – overfrequency and underfrequency schemes	6	Medium Term
	Voltage requirements	4A	Voltage/time range limits for users to withstand without damage	5	Short term
		4B	Fault ride through capability	7	Short Term
	Reactive power requirements	5A	Limits of reactive power contribution	7	Medium Term
	Protection requirements	7D	Telecommunication and protection schemes	4	Medium Term
	Control requirements	8A	Global architecture and schemes required for controllability and observability of non-transmission facilities	7	Short term
		8B	Observability threshold for non-transmission facilities by TSO control systems	4	Medium Term
		8D	Controlability threshold for non-transmission facilities by TSO control systems	5	Medium Term
		8C	Magnitudes to be provided in real time from non-transmission facilities to TSO control centre	4	Medium Term
	Demand disconnection schemes	12A	Existence of demand disconnection schemes (low frequency and/or low voltage)	5	Short Term
	HVDC requirements	15A	Specific HVDC requirements or criteria	7	Medium Term

	PT				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
OPERATION	System states	1A	Classification of system states	7	Short Term
	Technical requirements	2A	Frequency ranges (quality parameters) in the different system states	9	Short Term
		2B1	Voltage ranges (for unlimited operation) in normal conditions	5	Short Term
		2B2	Voltage ranges (for unlimited operation) in extraordinary conditions	5	Short Term
		2E	Reactive power management measures (specific measures in the international interconnections)	9	Short Term
		2G	System protection coordination criteria in international interconnections	7	Short Term
	Information exchange	3D	List of real time data to exchange with other TSOs	9	Short Term
		3E	List of sheduled data to exchange with other TSOs	5	Short Term
		3F	List of structural data to exchange with other TSOs	5	Short Term
	Contingency analysis	4A1	Type of contingencies considered	7	Short Term
		4A2	Contingency list (both internal - in national power system - and external - in neighbouring power systems -)	8	Short Term
		4B1	Operational security limits	4	Short Term
		4B2	Operational security limits in the interconnection lines	4	Short Term
		4B3	List of joint remedial actions agreed between TSOs after a contingency	8	Short Term
		4C	Periodicity of state estimation calculations ("snapshots")	7	Medium term
	Management of int. exchanges	6A	Management of international exchange programs between TSOs	9	Short Term
	Outage coordination	9A	Criteria and procedure for outage coordination (if affects NTC)	6	Short Term
	Load frequency control	11A3	Criteria used for establishing the quantity of FCR	9	Short Term
		11A4	Compliance scheme for FCR	7	Medium term
		11B1	Provision of FRR	7	Medium term
		11B3	Criteria used for establishing the quantity of FRR	8	Medium term
		11B4	Compliance scheme for FRR	7	Medium term
	Reserves management	12A	Mechanisms of reserves management (exchange and sharing)	8	Medium term
	System defence plan	14A	Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)	9	Short Term
		14B	Setting of demand disconnection schemes (low frequency and/or low voltage)	7	Short Term
		14C	Voltage deviation management procedure	6	Medium term
		14D	Power flow management procedure	6	Medium term
		14E	Manual demand disconnection procedure	5	Medium term
		14F	Inter-TSO assistance and coordination in emergency state	8	Short Term
	Restoration plan	15A-B	Rules and types of restoration plans	8	Short Term
	Training and certification	16A	Certification of the operators in charge of real time	5	Medium term
		16I	Language requirements	5	Medium term

	PT				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
SYSTEM SERVICES MARKETS	Legal Issues	1A	Contractual requirements for participation on the cross-border electricity trade	5	Medium Term
		1B	Current rules for export/import of cross-border electricity	6	Medium Term
		1D	Presence of a Market Operator	5	Medium Term
		1I	Technical requirements to satisfy for using the interconnections	6	Medium Term
	Capacity Calculation	2A	Security criteria used for calculating the Net Transfer Capacity (NTC)	6	Short Term
		2B	Characteristic process for finalization of Net Transfert Capacity (jointly or separatly from other TSO's?)	5	Short Term
		2C	Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons	6	Short Term
	Capacity Allocation	3D	Methods and procedures applied for transmission capacity allocation (e.g. public auction or tender procedures) including Physical Transmission Rights (PTR) allocation	7	Medium Term
		3B	Obligation regarding the use of the capacity allocated - Use it or sell (or loose) it mechanism.		Medium Term
		3C	Kind of capacity products allocated (duration and time profiling)	7	Medium Term
		3E	System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure	7	Medium Term
		3F	Subject responsible for the management of the allocation procedure	6	Medium Term
	Dispatching & Balancing	4A	Actions foreseen in order to guarantee the exchange programs	7	Medium Term
		4B	Management of unintentional deviations on international interconnections	6	Medium Term
	Transparency	6A	Public information on the Electricity Markets data	6	Short Term
		6B	Public information on internatioanl interconnections data	6	Short Term

	PT				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
LEGAL AND REGULATORY		B	Responsible authority for the settlement of disputes among stakeholders	2	Medium Term
		F	Unbundling of regulated and non-regulated activities	8	Medium Term
		G	Coordinated regulation to make feasible and viable international interconnections	6	Medium Term

Tunisia (TN)

	TN				
	ASPECTS	**Question Number**	**TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1**	**DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)**	**Select TEMPORAL PRIORITIZATION**
CONNECTION	Connection procedure	2A	Studies performed for access and connection	7	Medium Term
		2C	Criteria used for access capacity calculation	5	Medium Term
	Frequency requirements	3A	Frequency/time range limits for users to withstand without damage	6	Short Term
		3B	Rate of change of frequency withstand capability	5	Short Term
		3C	Limited frequency sensitive mode – overfrequency and underfrequency schemes	7	Short Term
	Voltage requirements	4A	Voltage/time range limits for users to withstand without damage	7	Medium Term
		4B	Fault ride through capability	5	Medium Term
	Reactive power requirements	5A	Limits of reactive power contribution	5	Medium Term
	Protection requirements	7D	Telecommunication and protection schemes	5	Long Term
	Control requirements	8A	Global architecture and schemes required for controllability and observability of non-transmission facilities	4	Medium Term
		8B	Observability threshold for non-transmission facilities by TSO control systems	5	Medium Term
		8D	Controlability threshold for non-transmission facilities by TSO control systems	6	Medium Term
		8C	Magnitudes to be provided in real time from non-transmission facilities to TSO control centre	6	Medium Term
	Demand disconnection schemes	12A	Existence of demand disconnection schemes (low frequency and/or low voltage)	6	Short Term
	HVDC requirements	15A	Specific HVDC requirements or criteria		Long Term

TN

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
OPERATION	System states	1A	Classification of system states	7	Short Term
	Technical requirements	2A	Frequency ranges (quality parameters) in the different system states	8	Short Term
		2B1	Voltage ranges (for unlimited operation) in normal conditions	5	Medium Term
		2B2	Voltage ranges (for unlimited operation) in extraordinary conditions	6	Medium Term
		2E	Reactive power management measures (specific measures in the international interconnections)	7	Short Term
		2G	System protection coordination criteria in international interconnections	8	Short Term
	Information exchange	3D	List of real time data to exchange with other TSOs	7	Short Term
		3E	List of sheduled data to exchange with other TSOs	7	Short Term
		3F	List of structural data to exchange with other TSOs	5	Medium Term
	Contingency analysis	4A1	Type of contingencies considered	7	Short Term
		4A2	Contingency list (both internal - in national power system - and external - in neighbouring power systems -)	7	Short Term
		4B1	Operational security limits	4	Short Term
		4B2	Operational security limits in the interconnection lines	4	Short Term
		4B3	List of joint remedial actions agreed between TSOs after a contingency	8	Short Term
		4C	Periodicity of state estimation calculations ("snapshots")	7	Short Term
	Management of int. exchanges	6A	Management of international exchange programs between TSOs	8	Short Term
	Outage coordination	9A	Criteria and procedure for outage coordination (if affects NTC)	7	Short Term
	Load frequency control	11A3	Criteria used for establishing the quantity of FCR	8	Short Term
		11A4	Compliance scheme for FCR	5	Medium Term
		11B1	Provision of FRR	7	Short Term
		11B3	Criteria used for establishing the quantity of FRR	8	Short Term
		11B4	Compliance scheme for FRR	6	Medium Term
	Reserves management	12A	Mechanisms of reserves management (exchange and sharing)	7	Medium Term
	System defence plan	14A	Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)	7	Short Term
		14B	Setting of demand disconnection schemes (low frequency and/or low voltage)	7	Short Term
		14C	Voltage deviation management procedure	7	Medium Term
		14D	Power flow management procedure	6	Medium Term
		14E	Manual demand disconnection procedure	5	Medium Term
		14F	Inter-TSO assistance and coordination in emergency state	7	Short Term
	Restoration plan	15A-B	Rules and types of restoration plans	8	Short Term
	Training and certification	16A	Certification of the operators in charge of real time	5	Long Term
		16I	Language requirements	5	Medium Term

TN

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
SYSTEM SERVICES MARKETS	Legal Issues	1A	Contractual requirements for participation on the cross-border electricity trade	5	Medium Term
		1B	Current rules for export/import of cross-border electricity	6	Medium Term
		1D	Presence of a Market Operator	6	Medium Term
		1I	Technical requirements to satisfy for using the interconnections	5	Medium Term
	Capacity Calculation	2A	Security criteria used for calculating the Net Transfer Capacity (NTC)	5	Short Term
		2B	Characteristic process for finalization of Net Transfert Capacity (jointly or separatly from other TSO's?)	5	Short Term
		2C	Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons	5	Short Term
	Capacity Allocation	3D	Methods and procedures applied for transmission capacity allocation (e.g. public auction or tender procedures) including Physical Transmission Rights (PTR) allocation	6	Medium Term
		3B	Obligation regarding the use of the capacity allocated - Use it or sell (or loose) it mechanism.	6	Medium Term
		3C	Kind of capacity products allocated (duration and time profiling)	6	Medium Term
		3E	System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure	6	Medium Term
		3F	Subject responsible for the management of the allocation procedure	7	Medium Term
	Dispatching & Balancing	4A	Actions foreseen in order to guarantee the exchange programs	7	Medium Term
		4B	Management of unintentional deviations on international interconnections	6	Medium Term
	Transparency	6A	Public information on the Electricity Markets data	5	Short Term
		6B	Public information on internatioanl interconnections data	7	Medium Term

TN

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
LEGAL AND REGULATORY		B	Responsible authority for the settlement of disputes among stakeholders	4	Long Term
		F	Unbundling of regulated and non-regulated activities	4	Medium Term
		G	Coordinated regulation to make feasible and viable international interconnections		Medium Term

Turkey (TR)

	TR				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
CONNECTION	Connection procedure	2A	Studies performed for access and connection	5	Medium Term
		2C	Criteria used for access capacity calculation	5	Medium Term
	Frequency requirements	3A	Frequency/time range limits for users to withstand without damage	6	Short Term
		3B	Rate of change of frequency withstand capability	4	Short Term
		3C	Limited frequency sensitive mode – overfrequency and underfrequency schemes	7	Medium Term
	Voltage requirements	4A	Voltage/time range limits for users to withstand without damage	5	Medium Term
		4B	Fault ride through capability	5	Medium Term
	Reactive power requirements	5A	Limits of reactive power contribution	5	Medium Term
	Protection requirements	7D	Telecommunication and protection schemes	5	Long Term
	Control requirements	8A	Global architecture and schemes required for controllability and observability of non-transmission facilities	4	Medium Term
		8B	Observability threshold for non-transmission facilities by TSO control systems	5	Long Term
		8D	Controlability threshold for non-transmission facilities by TSO control systems	5	Long Term
		8C	Magnitudes to be provided in real time from non-transmission facilities to TSO control centre	4	Long Term
	Demand disconnection schemes	12A	Existence of demand disconnection schemes (low frequency and/or low voltage)	5	Medium Term
	HVDC requirements	15A	Specific HVDC requirements or criteria	4	Medium Term

TR

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
OPERATION	System states	1A	Classification of system states	5	Short Term
	Technical requirements	2A	Frequency ranges (quality parameters) in the different system states	9	Medium Term
		2B1	Voltage ranges (for unlimited operation) in normal conditions	5	Medium Term
		2B2	Voltage ranges (for unlimited operation) in extraordinary conditions	5	Medium Term
		2E	Reactive power management measures (specific measures in the international interconnections)	9	Medium Term
		2G	System protection coordination criteria in international interconnections	8	Medium Term
	Information exchange	3D	List of real time data to exchange with other TSOs	9	Short Term
		3E	List of sheduled data to exchange with other TSOs	6	Short Term
		3F	List of structural data to exchange with other TSOs	6	Short Term
	Contingency analysis	4A1	Type of contingencies considered	7	Short Term
		4A2	Contingency list (both internal - in national power system - and external - in neighbouring power systems -)	8	Medium Term
		4B1	Operational security limits	4	Long Term
		4B2	Operational security limits in the interconnection lines	4	Medium Term
		4B3	List of joint remedial actions agreed between TSOs after a contingency	8	Medium Term
		4C	Periodicity of state estimation calculations ("snapshots")	7	Medium Term
	Management of int. exchanges	6A	Management of international exchange programs between TSOs	9	Short Term
	Outage coordination	9A	Criteria and procedure for outage coordination (if affects NTC)	7	Short Term
	Load frequency control	11A3	Criteria used for establishing the quantity of FCR	9	Medium Term
		11A4	Compliance scheme for FCR	6	Medium Term
		11B1	Provision of FRR	6	Medium Term
		11B3	Criteria used for establishing the quantity of FRR	8	Medium Term
		11B4	Compliance scheme for FRR	7	Medium Term
	Reserves management	12A	Mechanisms of reserves management (exchange and sharing)	8	Long Term
	System defence plan	14A	Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)	9	Medium Term
		14B	Setting of demand disconnection schemes (low frequency and/or low voltage)	7	Medium Term
		14C	Voltage deviation management procedure	6	Long Term
		14D	Power flow management procedure	6	Medium Term
		14E	Manual demand disconnection procedure	5	Long Term
		14F	Inter-TSO assistance and coordination in emergency state	8	Medium Term
	Restoration plan	15A-B	Rules and types of restoration plans	7	Short Term
	Training and certification	16A	Certification of the operators in charge of real time	5	Long Term
		16I	Language requirements	7	Long Term

TR

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
SYSTEM SERVICES MARKETS	Legal Issues	1A	Contractual requirements for participation on the cross-border electricity trade	7	Medium Term
		1B	Current rules for export/import of cross-border electricity	6	Medium Term
		1D	Presence of a Market Operator	6	Long Term
		1I	Technical requirements to satisfy for using the interconnections	7	Medium Term
	Capacity Calculation	2A	Security criteria used for calculating the Net Transfer Capacity (NTC)	6	Short Term
		2B	Characteristic process for finalization of Net Transfert Capacity (jointly or separatly from other TSO's?)	6	Short Term
		2C	Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons	5	Short Term
	Capacity Allocation	3D	Methods and procedures applied for transmission capacity allocation (e.g. public auction or tender procedures) including Physical Transmission Rights (PTR) allocation	7	Medium Term
		3B	Obligation regarding the use of the capacity allocated - Use it or sell (or loose) it mechanism.	5	Medium Term
		3C	Kind of capacity products allocated (duration and time profiling)	6	Medium Term
		3E	System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure	7	Long Term
		3F	Subject responsible for the management of the allocation procedure	6	Medium Term
	Dispatching & Balancing	4A	Actions foreseen in order to guarantee the exchange programs	7	Medium Term
		4B	Management of unintentional deviations on international interconnections	7	Medium Term
	Transparency	6A	Public information on the Electricity Markets data	6	Short Term
		6B	Public information on internatioanl interconnections data	7	Short Term

TR

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
LEGAL AND REGULATORY		B	Responsible authority for the settlement of disputes among stakeholders	4	Long Term
		F	Unbundling of regulated and non-regulated activities	7	Long Term
		G	Coordinated regulation to make feasible and viable international interconnections	7	Long Term

Albania (AL)

	AL				
	ASPECTS	**Question Number**	**TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1**	**DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)**	**Select TEMPORAL PRIORITIZATION**
CONNECTION	Connection procedure	2A	Studies performed for access and connection	4	Medium Term
		2C	Criteria used for access capacity calculation	7	Short Term
	Frequency requirements	3A	Frequency/time range limits for users to withstand without damage	8	Short Term
		3B	Rate of change of frequency withstand capability	6	Short Term
		3C	Limited frequency sensitive mode – overfrequency and underfrequency schemes	6	Short Term
	Voltage requirements	4A	Voltage/time range limits for users to withstand without damage	6	Medium Term
		4B	Fault ride through capability	6	Medium Term
	Reactive power requirements	5A	Limits of reactive power contribution	6	Medium Term
	Protection requirements	7D	Telecommunication and protection schemes	4	Long Term
	Control requirements	8A	Global architecture and schemes required for controllability and observability of non-transmission facilities	5	Medium Term
		8B	Observability threshold for non-transmission facilities by TSO control systems	5	Medium Term
		8D	Controlability threshold for non-transmission facilities by TSO control systems	5	Medium Term
		8C	Magnitudes to be provided in real time from non-transmission facilities to TSO control centre	6	Medium Term
	Demand disconnection schemes	12A	Existence of demand disconnection schemes (low frequency and/or low voltage)	7	Short Term
	HVDC requirements	15A	Specific HVDC requirements or criteria	6	Medium Term

AL

	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
OPERATION	System states	1A	Classification of system states	7	Short Term
	Technical requirements	2A	Frequency ranges (quality parameters) in the different system states	9	Short Term
		2B1	Voltage ranges (for unlimited operation) in normal conditions	6	Medium Term
		2B2	Voltage ranges (for unlimited operation) in extraordinary conditions	4	Medium Term
		2E	Reactive power management measures (specific measures in the international interconnections)	9	Medium Term
		2G	System protection coordination criteria in international interconnections	8	Short Term
	Information exchange	3D	List of real time data to exchange with other TSOs	9	Short Term
		3E	List of sheduled data to exchange with other TSOs	6	Medium Term
		3F	List of structural data to exchange with other TSOs	6	Medium Term
	Contingency analysis	4A1	Type of contingencies considered	7	Short Term
		4A2	Contingency list (both internal - in national power system - and external - in neighbouring power systems -)	8	Medium Term
		4B1	Operational security limits	5	Long Term
		4B2	Operational security limits in the interconnection lines	7	Short Term
		4B3	List of joint remedial actions agreed between TSOs after a contingency	9	Short Term
		4C	Periodicity of state estimation calculations ("snapshots")	7	Medium Term
	Management of int. exchanges	6A	Management of international exchange programs between TSOs	9	Short Term
	Outage coordination	9A	Criteria and procedure for outage coordination (if affects NTC)	7	Short Term
	Load frequency control	11A3	Criteria used for establishing the quantity of FCR	9	Short Term
		11A4	Compliance scheme for FCR	7	Medium Term
		11B1	Provision of FRR	7	Medium Term
		11B3	Criteria used for establishing the quantity of FRR	8	Medium Term
		11B4	Compliance scheme for FRR	7	Medium Term
	Reserves management	12A	Mechanisms of reserves management (exchange and sharing)	9	Medium Term
	System defence plan	14A	Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)	9	Short Term
		14B	Setting of demand disconnection schemes (low frequency and/or low voltage)	7	Short Term
		14C	Voltage deviation management procedure	6	Medium Term
		14D	Power flow management procedure	7	Medium Term
		14E	Manual demand disconnection procedure	5	Long Term
		14F	Inter-TSO assistance and coordination in emergency state	9	Short Term
	Restoration plan	15A-B	Rules and types of restoration plans	9	Short Term
	Training and certification	16A	Certification of the operators in charge of real time	7	Long Term
		16I	Language requirements	7	Long Term

	AL				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
SYSTEM SERVICES MARKETS	Legal Issues	1A	Contractual requirements for participation on the cross-border electricity trade	5	Medium Term
		1B	Current rules for export/import of cross-border electricity	5	Medium Term
		1D	Presence of a Market Operator	6	Short Term
		1I	Technical requirements to satisfy for using the interconnections	6	Medium Term
	Capacity Calculation	2A	Security criteria used for calculating the Net Transfer Capacity (NTC)	6	Short Term
		2B	Characteristic process for finalization of Net Transfert Capacity (jointly or separatly from other TSO's?)	6	Short Term
		2C	Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons	5	Short Term
	Capacity Allocation	3D	Methods and procedures applied for transmission capacity allocation (e.g. public auction or tender procedures) including Physical Transmission Rights (PTR) allocation	7	Medium Term
		3B	Obligation regarding the use of the capacity allocated - Use it or sell (or loose) it mechanism.	7	Medium Term
		3C	Kind of capacity products allocated (duration and time profiling)	7	Medium Term
		3E	System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure	7	Long Term
		3F	Subject responsible for the management of the allocation procedure	7	Long Term
	Dispatching & Balancing	4A	Actions foreseen in order to guarantee the exchange programs	7	Medium Term
		4B	Management of unintentional deviations on international interconnections	4	Long Term
	Transparency	6A	Public information on the Electricity Markets data	7	Short Term
		6B	Public information on internatioanl interconnections data	7	Short Term

	AL				
	ASPECTS	Question Number	TECHNICAL ISSUES INCLUDED IN PROPOSAL OF COMMON TARGET REGULATORY FRAMEWORK (CTRF) - SUBTASK 1.2.1	DEGREE OF PRIORITIZATION (Already answered in Subtask 1.2.1)	Select TEMPORAL PRIORITIZATION
LEGAL AND REGULATORY		B	Responsible authority for the settlement of disputes among stakeholders	5	Long Term
		F	Unbundling of regulated and non-regulated activities	9	Medium Term
		G	Coordinated regulation to make feasible and viable international interconnections	6	Long Term

Annex III. Combined priority-schedule presentation per country

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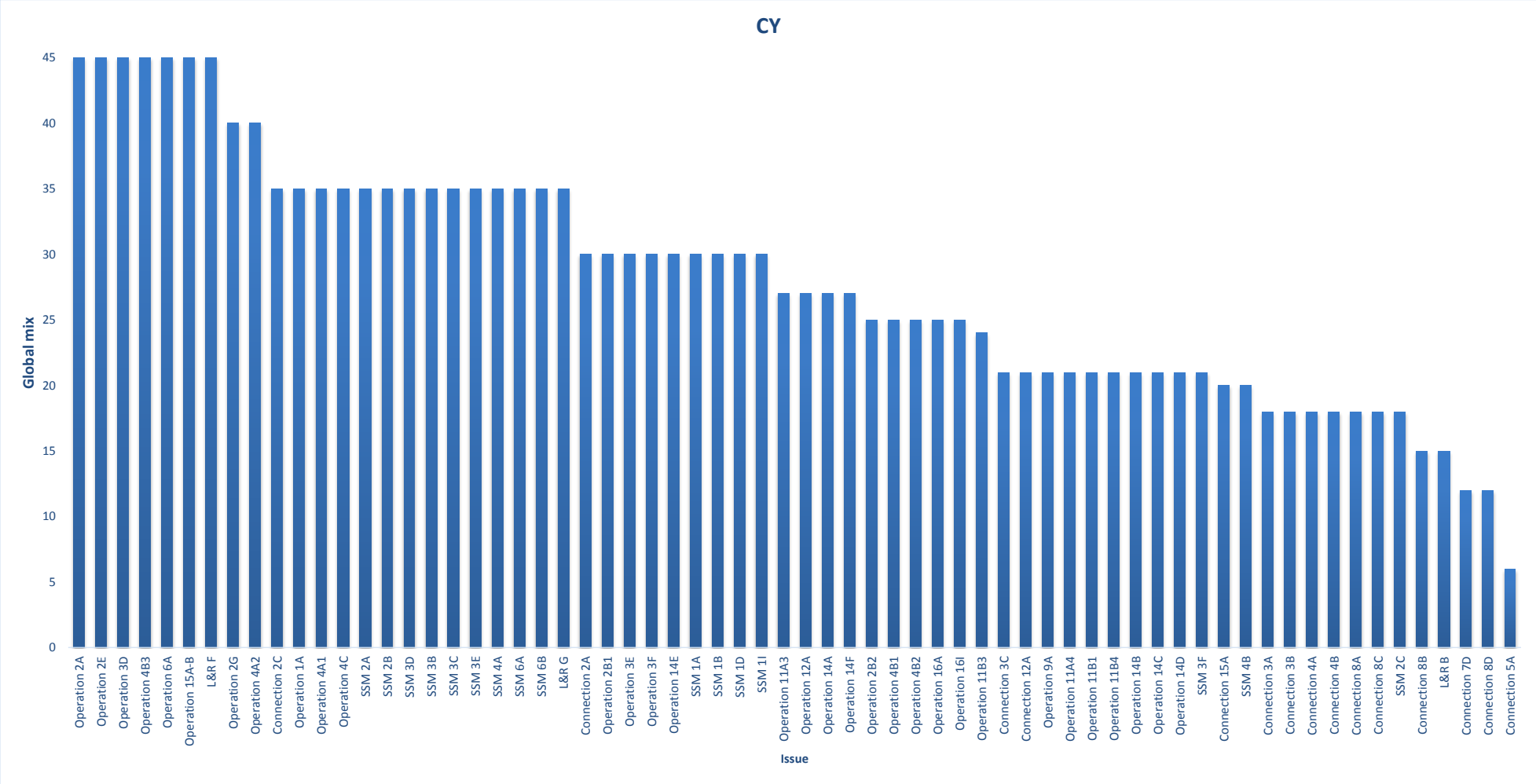
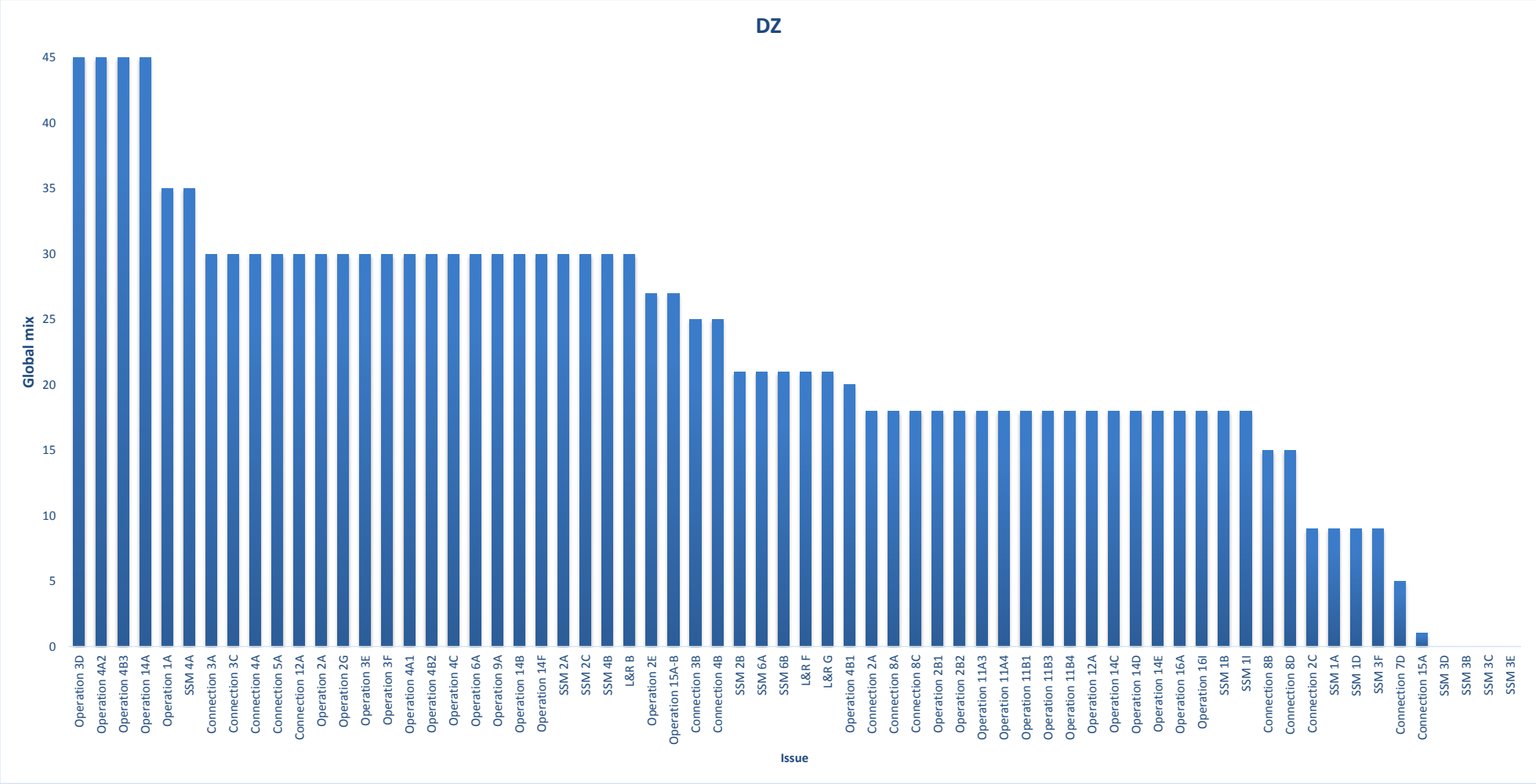


Algeria (DZ)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Operation 11A3
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Operation 11B3
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Operation 14E
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Connection 2C
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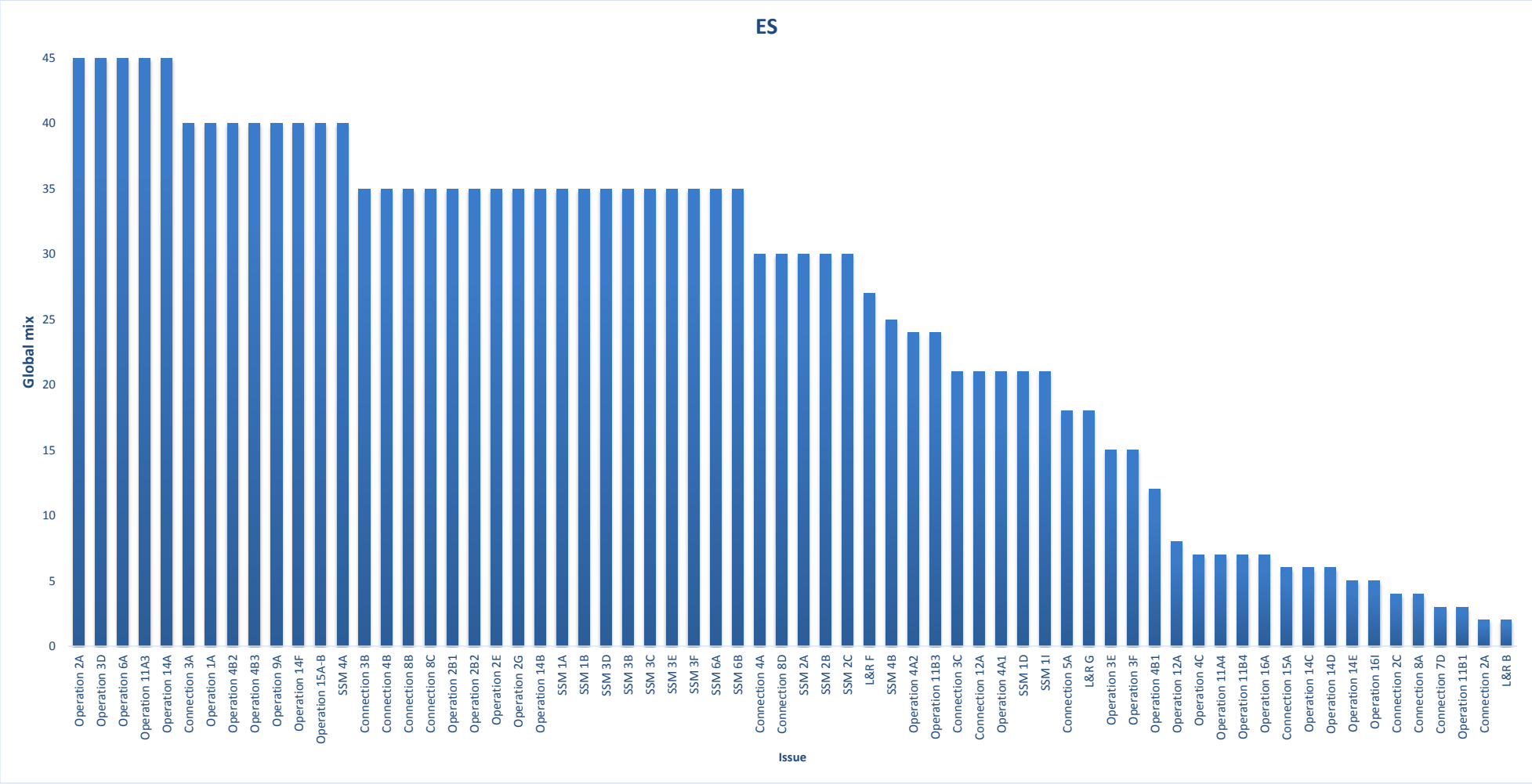
Issue

Spain (ES)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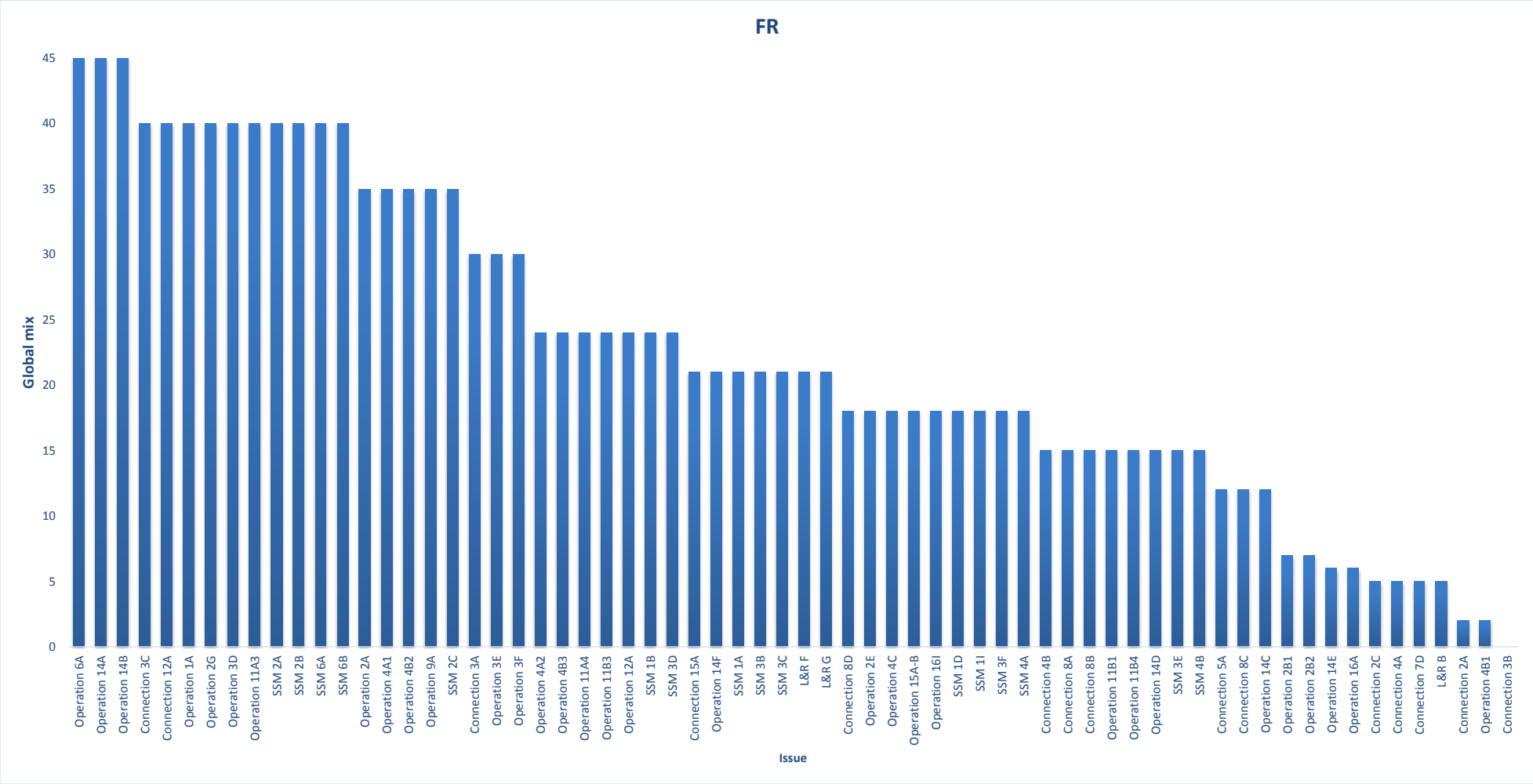
L&R B
Issue

France (FR)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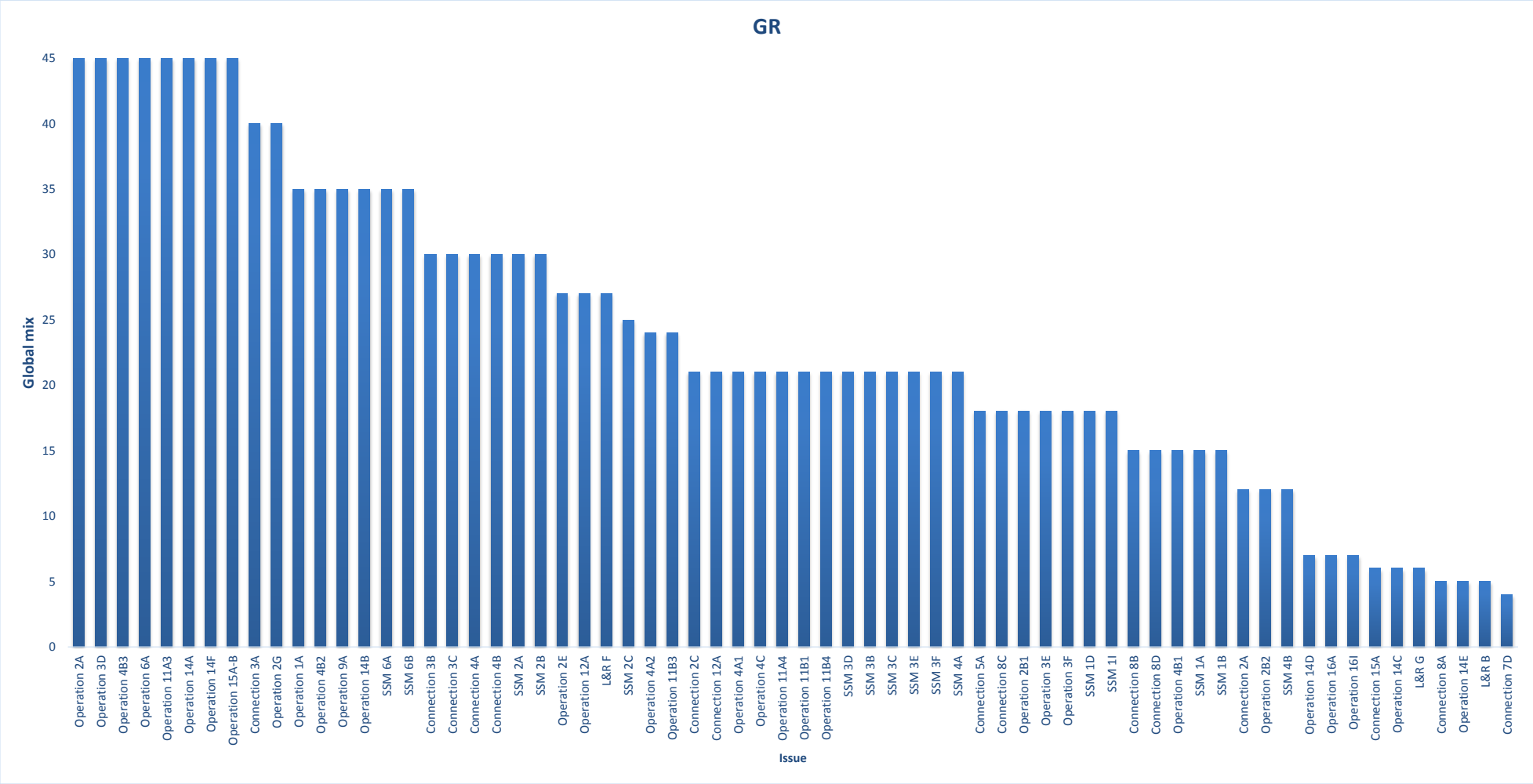
Issue

Greece (GR)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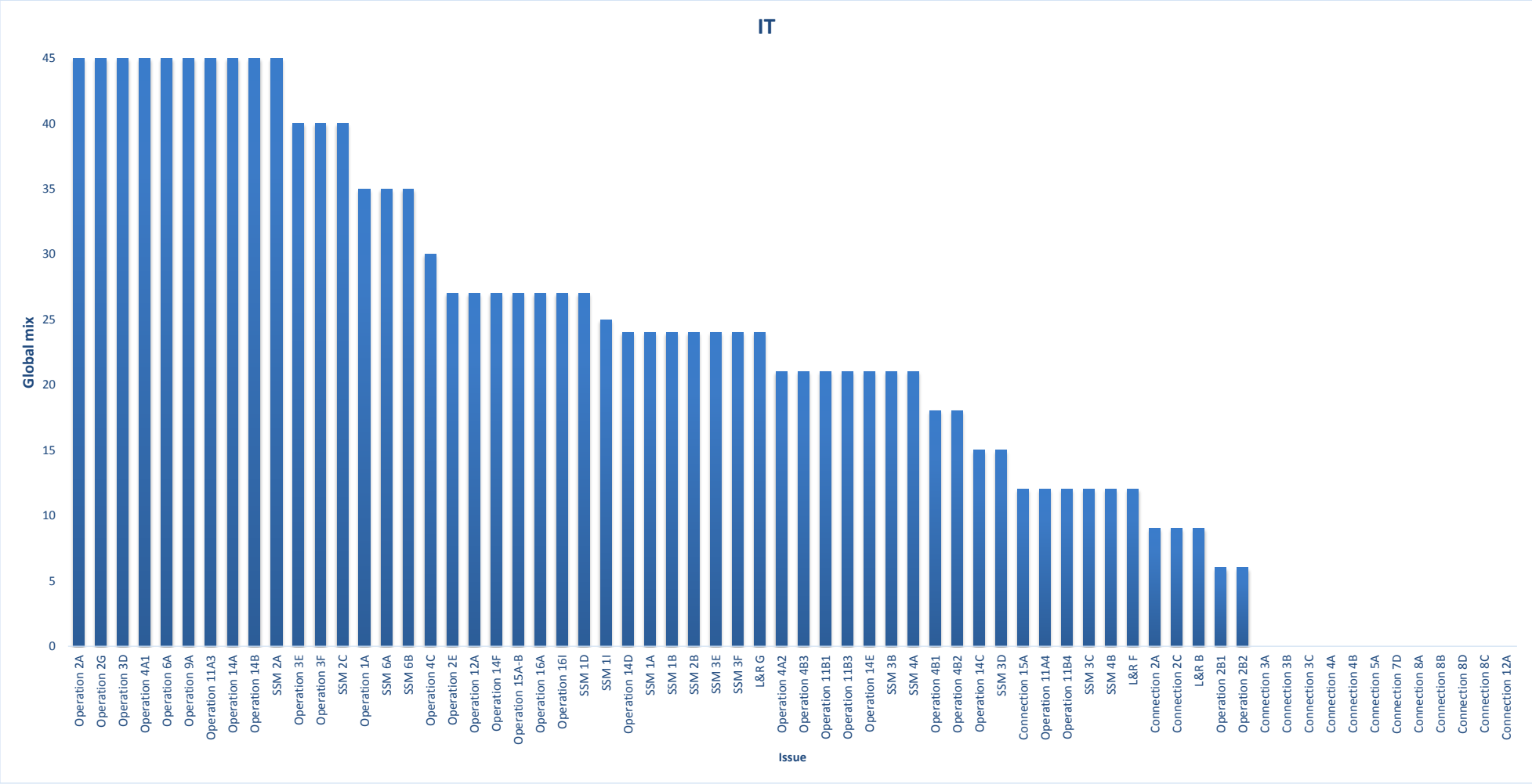
Issue

Italy (IT)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Issue

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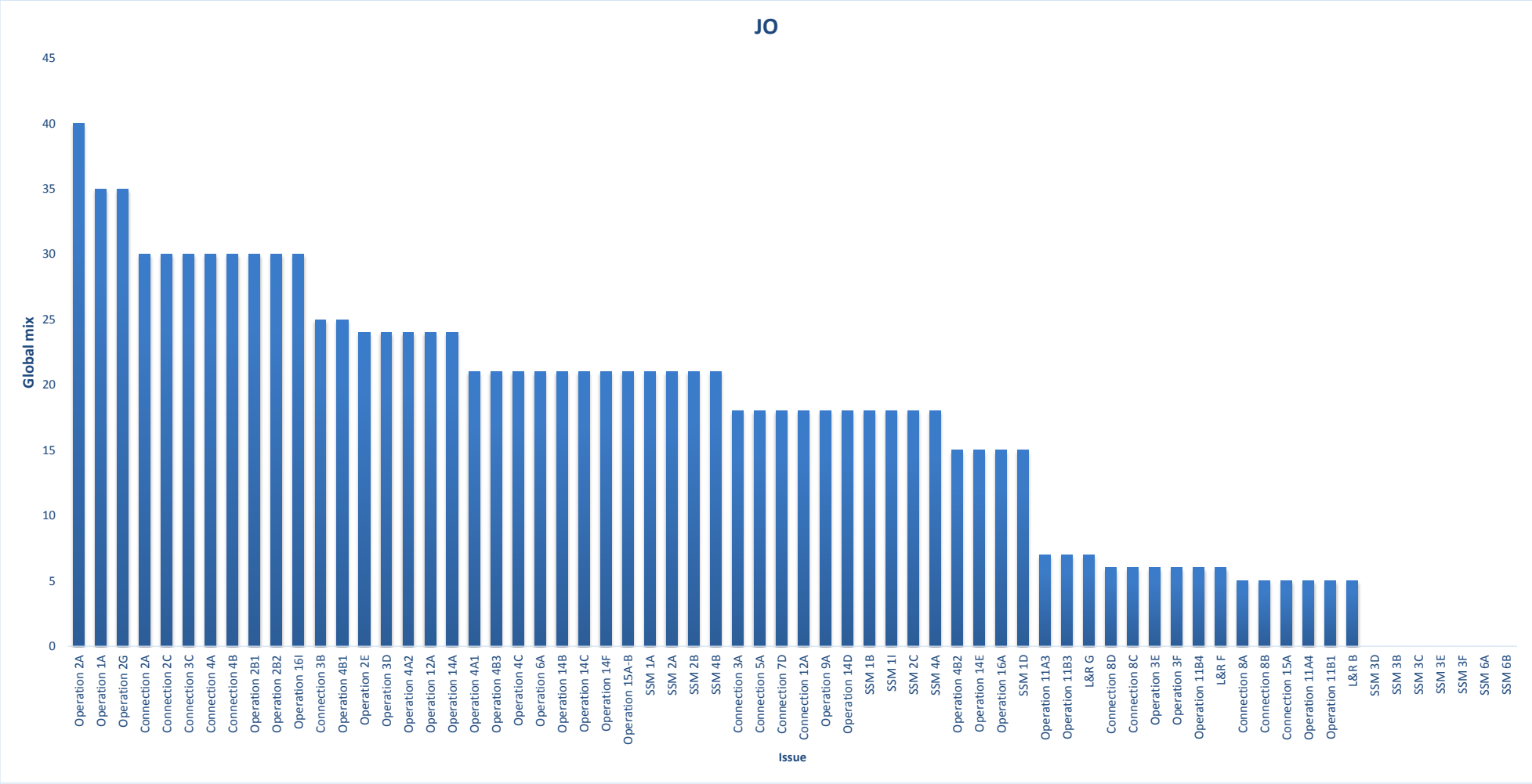
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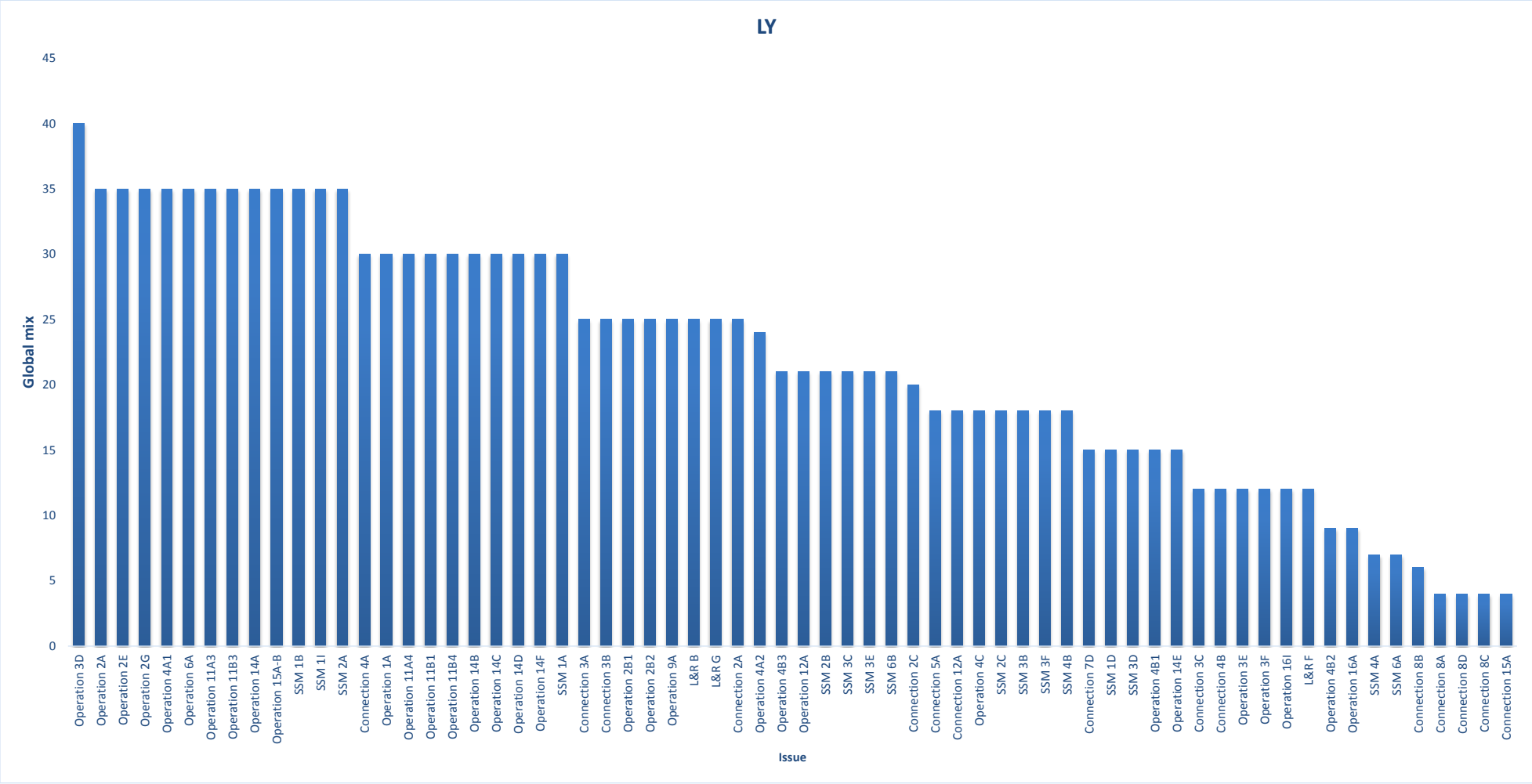
Issue

Libya (LY)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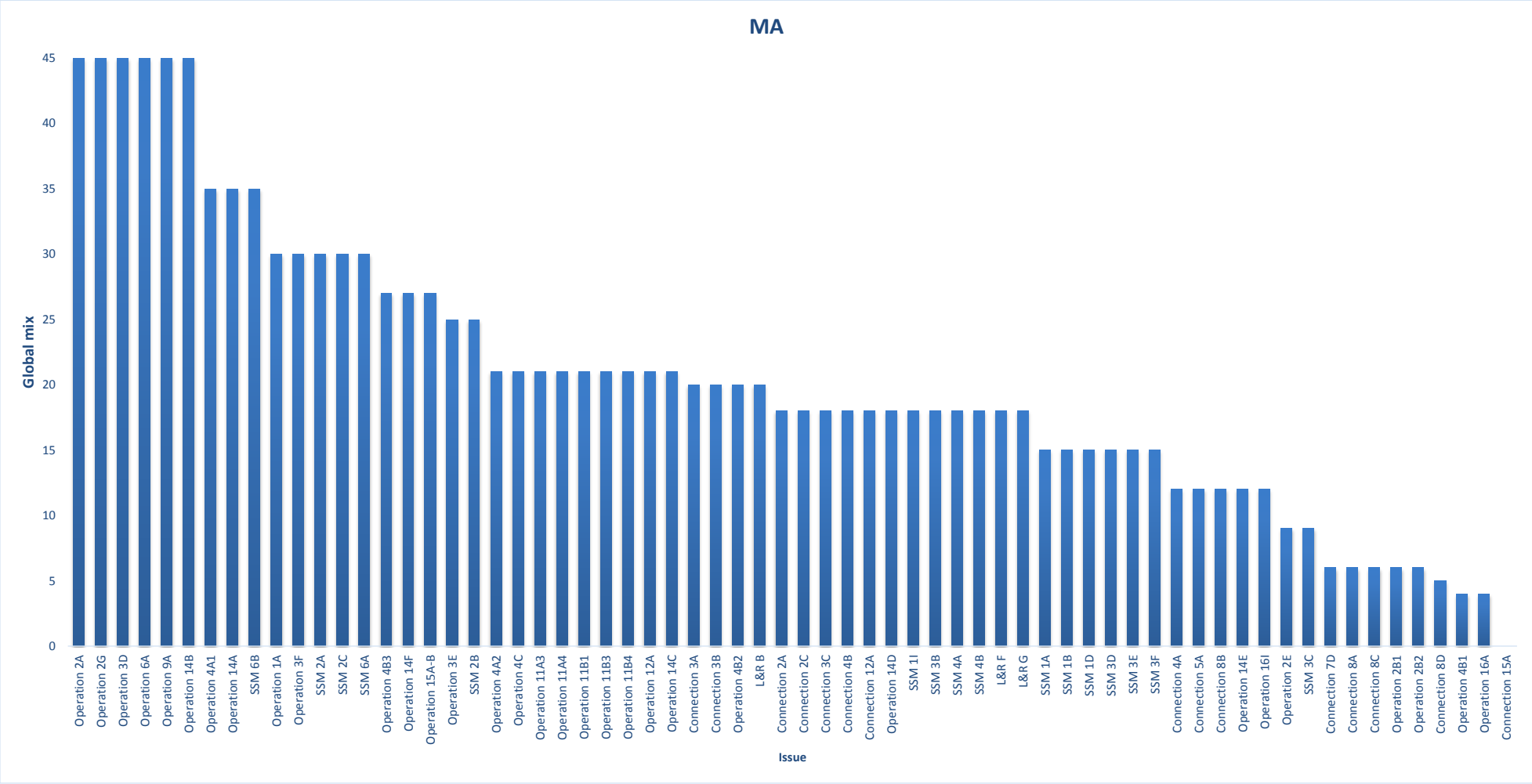
Issue

Morocco (MA)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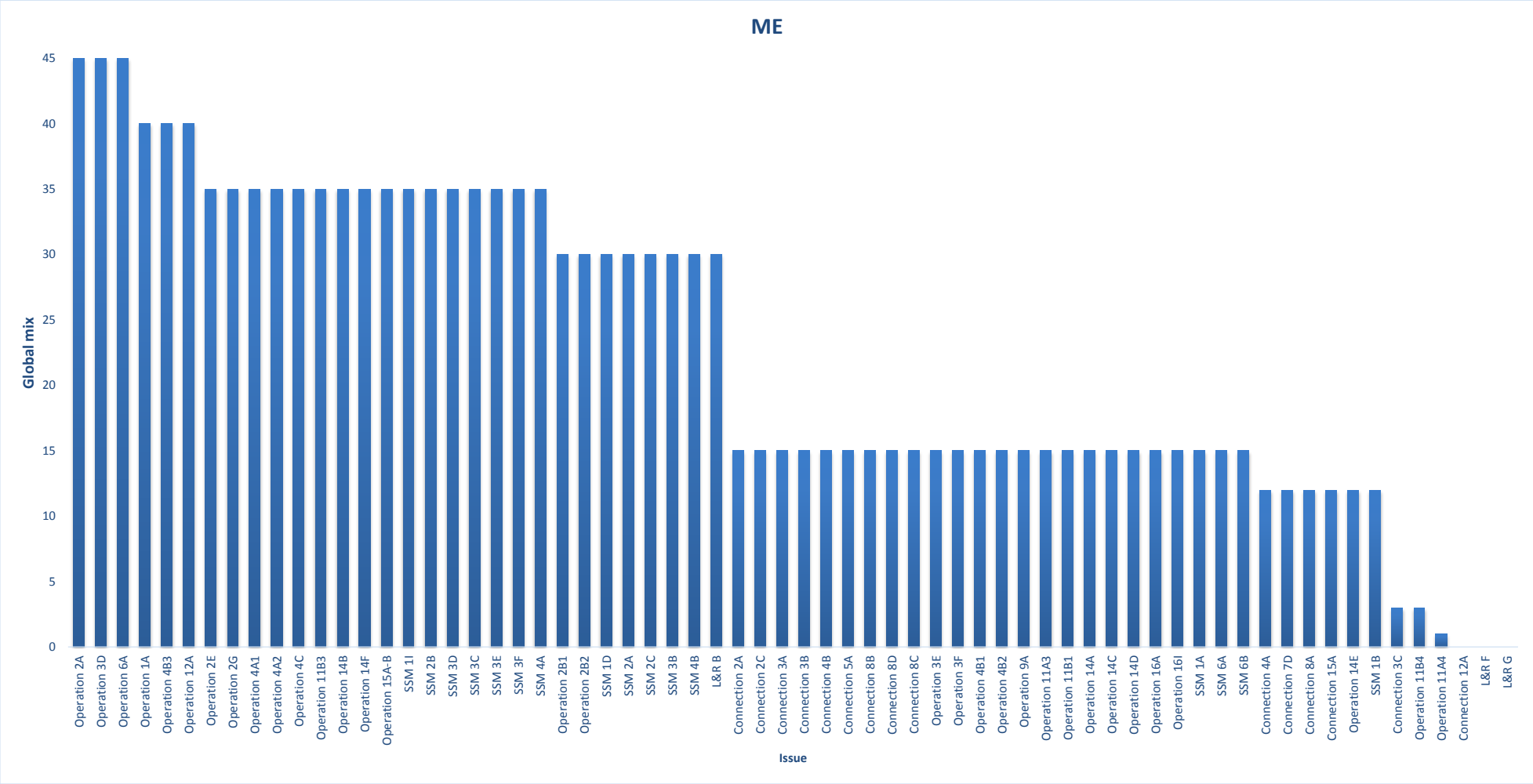
Issue

Montenegro (ME)



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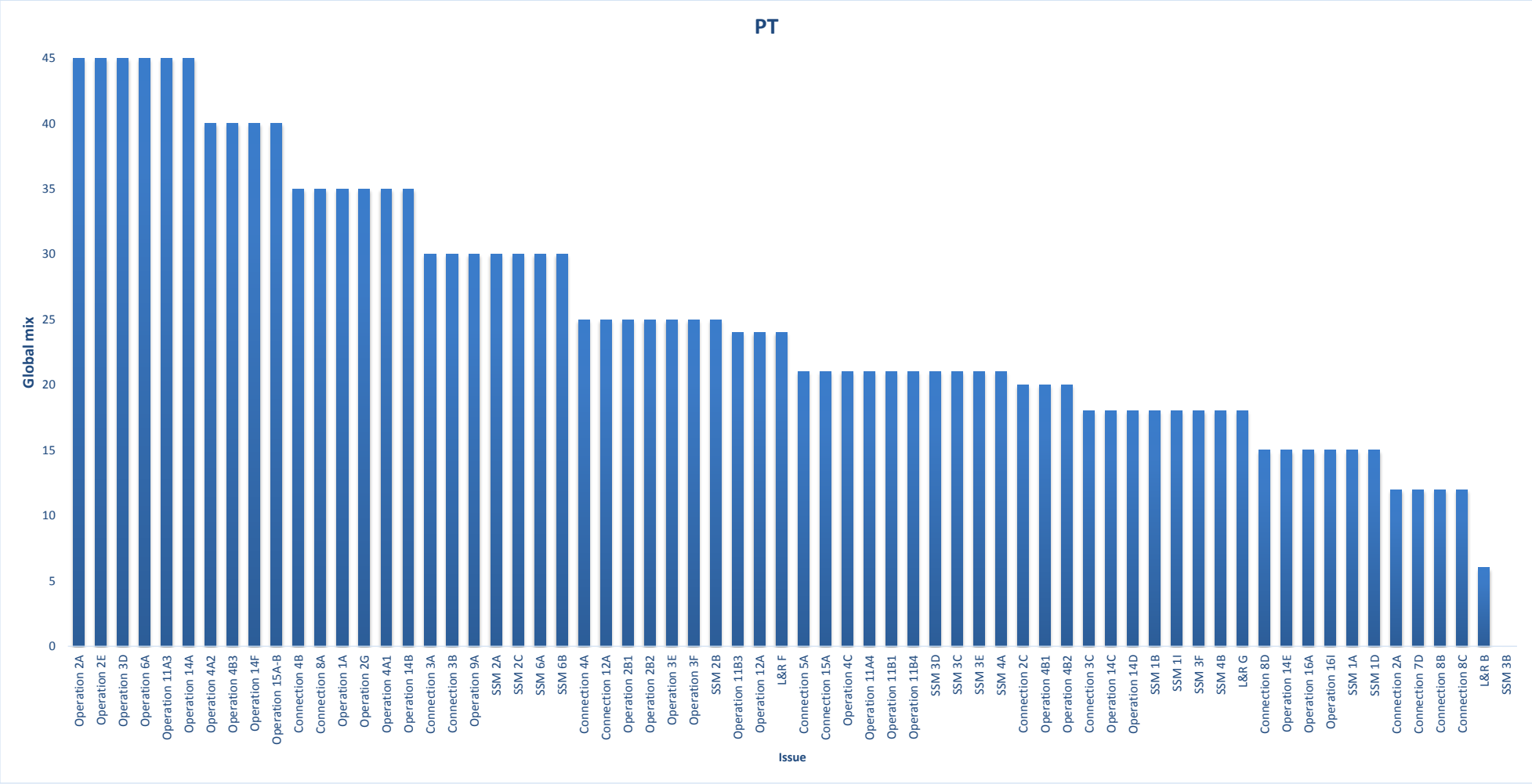
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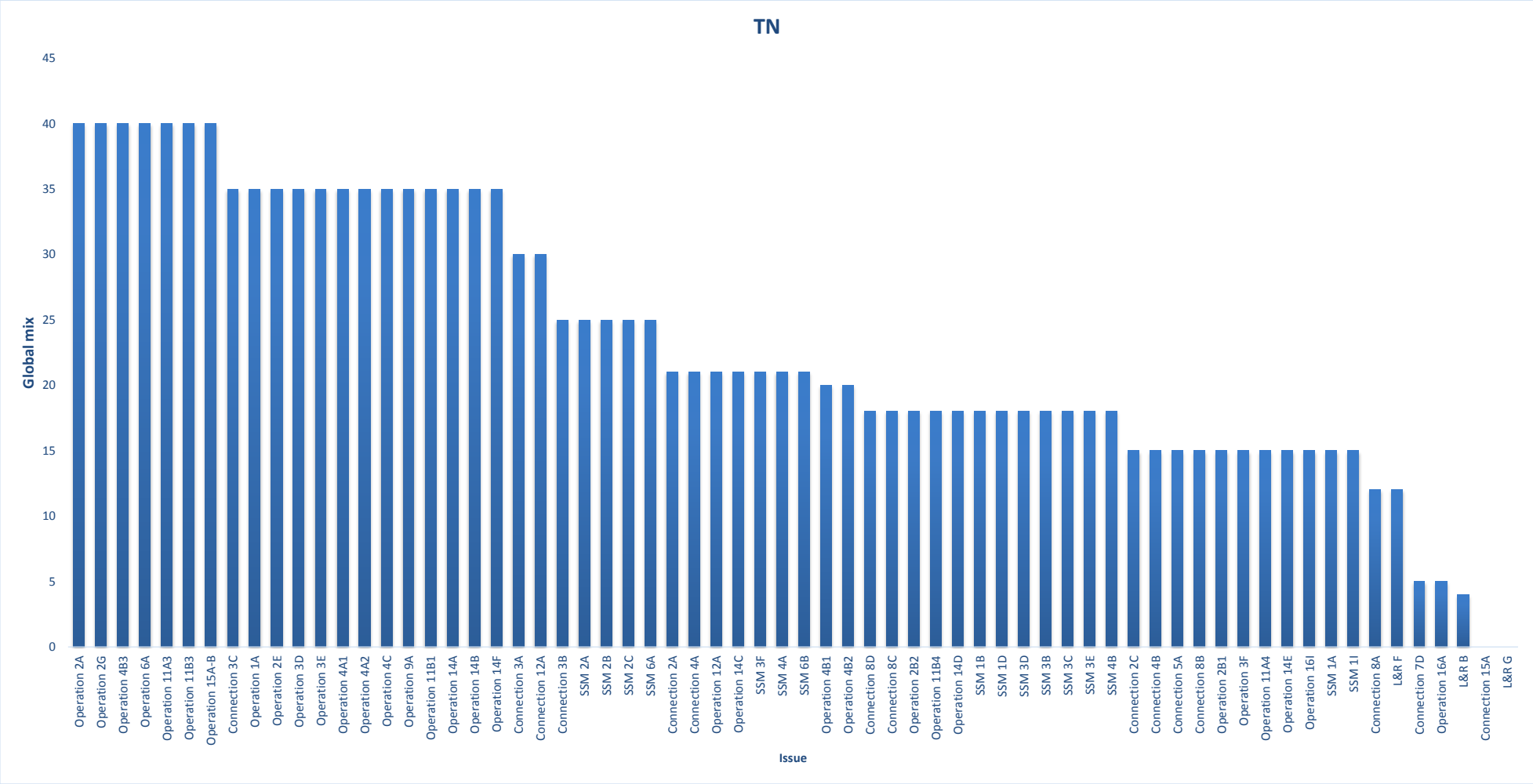
Issue

Tunisia (TN)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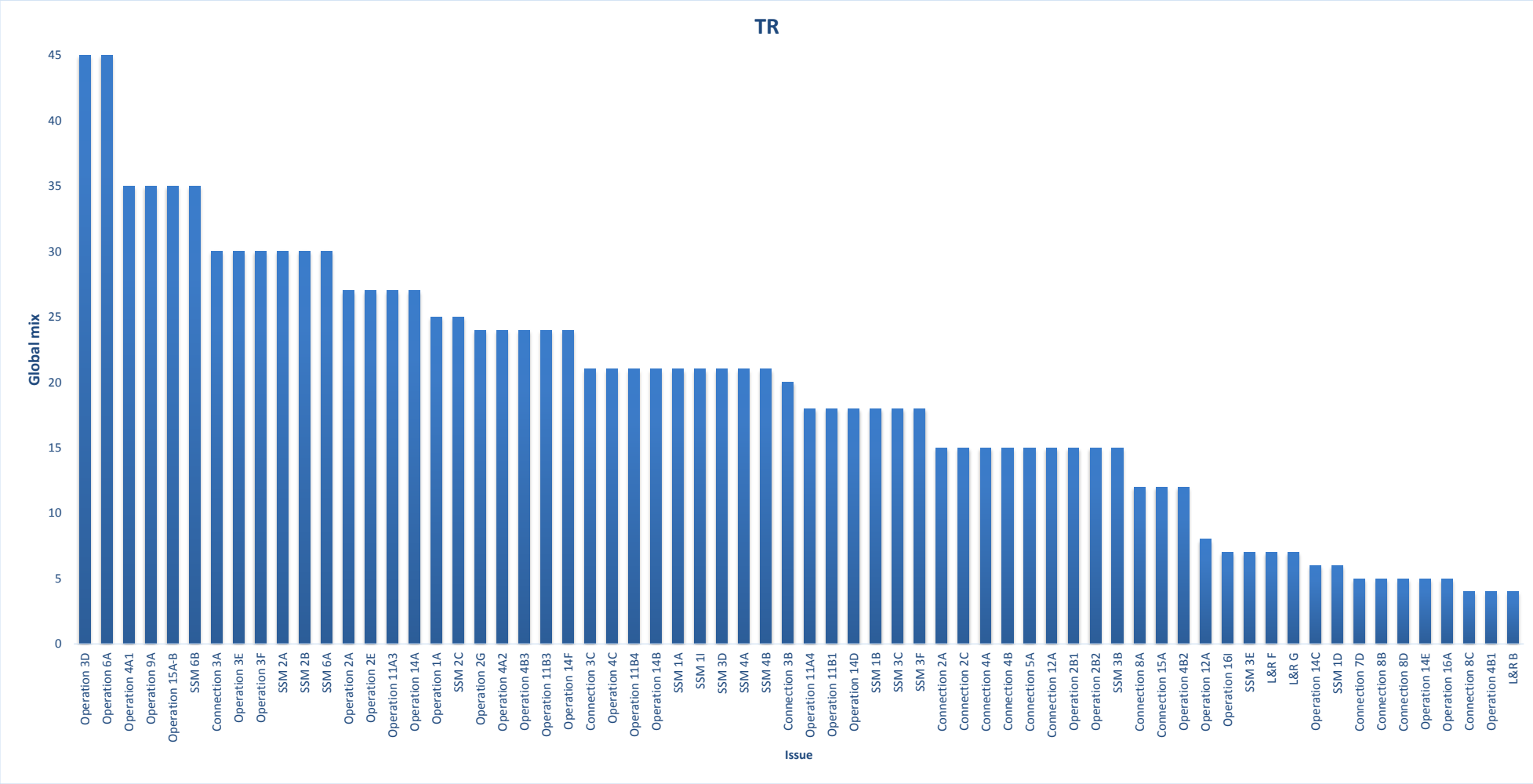
Turkey (TR)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Operation 4B1
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Issue

Albania (AL)

This figure is not available since Albania did not answer to the first survey.

Annex IV. Proposal on Common Target Regulatory Framework

Based on the results of the survey presented in chapter 3, in which the different aspects have been prioritized according to their degree of relevance for future harmonization (low/medium/high) and in which a suitable rule format for the common target regulatory framework has been proposed for each aspect, in this chapter the concrete proposal of those aspects with a higher global degree of prioritization (in general those aspects with a global degree of prioritization of 6) are presented.

Legal and regulatory issues

As a result of the analysis of the legal and regulatory issues considered of particular interest for most Med-TSO members, the overall conclusion is that only 2 of the analysed issues have been granted a high level of priority (score between 7 and 9) as regards their need for harmonization in the Mediterranean area. Anyway Med-TSO members have decided to include another issue (proposal 3) in the common proposal.

More particularly, the referred issues are the following:

- ✓ **PROPOSAL 1.- INTERNATIONAL INTERCONNECTIONS**

  In order to make feasible and viable an international interconnection, certain issues require a coordinated regulation - this should be done on a coordinated basis between the concerned countries TSOs and NRAs.

  In most Med-TSO countries the current rule format adopted is the external regulation[1]. As regards the desired situation for the future harmonized regulation most TC2 members consider that the best option is via external regulation (national or supranational - Grid Codes).

- ✓ **PROPOSAL 2.- UNBUNDLING OF REGULATED AND NON-REGULATED ACTIVITIES**

  Concerning the question on the need of unbundling of regulated (transmission/distribution) and non-regulated activities (generation/supply), most Med-TSO members agree on the need to harmonize. In line with this, it should be noted that in most countries these activities are already unbundled.

  In most Med-TSO countries external regulation is the rule format currently adopted for the unbundling of these activities. As regards the desired situation for the future harmonized regulation, most TSOs consider that the best option for the regulation of unbundling is via external regulation (national or supranational - Grid Codes).

- ✓ **PROPOSAL 3.- RESPONSIBLE AUTHORITY FOR THE SETTLEMENT OF DISPUTES AMONG STAKEHOLDERS**

  Dispute settlement procedures should be transparent and neutral. TSOs should not be both judge and jury to a dispute settlement. The "arbitrator", with the authority to settle the dispute, should be the relevant Ministry, the (independent) NRA or a third independent body.

These final “priority proposals” do not prejudge the need for an approximation of regulatory aspects (e.g. dispute settlement, allocation of competence for development/approval of technical rules, market opening to third parties). In line with this legal and regulatory analysis, Med-TSO considers necessary to hold further coordination actions in the future with MedReg.

[1] Grid Codes or other types of regulation approved by other entities rather than TSOs. It could be national or regional (if applies to more than one country).

Connection to the grid

As a result of the analysis of the connection issues considered of particular interest for most Med-TSO members, the overall conclusion is that 8 of the analysed issues should be included in the common proposal for future harmonisation. More specifically, the referred issues are the following:

- **Connection procedure**
  The aspects of the connection procedure that are prioritized by TSOs for future harmonization are the following:

  - ***Studies performed for Access and Connection***
    Harmonization of Studies for access and connection to the network are considered of high priority, with the aim to provide specifications, particularly in the case of renewables. Following internal agreements between neighbouring TSOs (by bilateral agreements or others), load flow studies should be performed for access and connection. In addition, depending on particular cases identified by the TSOs concerned, more specialised analysis can be performed (short circuit, transient stability studies) the output of which could be documented in TSO-User agreements (e.g. contracts).

  - ***Criteria used for access capacity calculation***
    Following internal agreements between neighbour TSOs (by bilateral agreements or others), the application of the N-1 criterion for access capacity calculation is considered of high priority, especially in cases where system security is highly dependent on interconnections (e.g. single interconnection link between systems of different sizes). Moreover, certain N-2 cases which could put in risk system security should also be examined, following bilateral agreements between TSOs (e.g. cases of contingencies in a 400kV double-circuit line on common tower close to the border, resulting in the loss of a large production unit).

- **Frequency requirements**
  Based on the results of the Survey, high level of harmonization is required in general towards frequency behaviour, with focus in the following aspects:

  - ***Frequency/time range limits for users to withstand without damage***
    Time/frequency ranges harmonization is considered an issue of high priority in case of synchronous interconnection between different power systems. Based on the results of the survey the following time/frequency ranges are common in all Med-TSO countries:
    [47.5 – 48.0 Hz] ≥ 3sec
    [48.0 – 48.5 Hz] ≥ 20sec
    [48.5 – 49.0 Hz] ≥ 30min
    [49.0 – 49.5 Hz] ≥ 60min
    [49.5 – 50.5 Hz] Unlimited
    [50.5 – 51.0 Hz] ≥ 60min
    [51.0- 51.5 Hz] ≥ 30min

    As an External Rule, time/frequency ranges should be harmonized at least at synchronous area level, considering the relevant requirements for generators included in the Grid Code of ENTSO-E, as presented below:

Synchronous area	Frequency range	Time period for operation
Continental Europe	47,5 Hz – 48,5 Hz	To be specified by each TSO, but not less than 30 minutes
	48,5 Hz – 49,0 Hz	To be specified by each TSO, but not less than the period for 47,5 Hz – 48,5 Hz
	49,0 Hz – 51,0 Hz	Unlimited
	51,0 Hz – 51,5 Hz	30 minutes

The table shows the minimum time-period during which a power-generating module has to be capable of operation on different frequencies, deviating from a nominal value, without disconnecting from the network

Figure 39 Frequency ranges proposal

- ***Rate of change of frequency withstand capability***
  The harmonization of the rate of change of frequency withstand capability is highly prioritised, in view of the expected high penetration of renewables. As an External Rule, based on the results of the survey, a rate of change of 1÷2 Hz/sec is proposed.

- ***Limited frequency sensitive mode***
  Based on the results of the Survey, a certain level of harmonization of the overfrequency and underfrequency schemes adopted by interconnected transmission systems should be introduced at least at synchronous area level. In systems where there is high penetration of renewables (both existing and anticipated in the future), this generation category should also be included. As an External Rule, the following issues are proposed for harmonization:
  - Frequency thresholds for the activation of the overfrequency and underfrequency schemes
  - Level of generation disconnection (as a percentage of system size)

- **Voltage requirements**

  Due to the large penetration of renewables connected in the transmission system (in particular wind and solar), both existing and anticipated in the future, the impact of which in the neighbouring countries can be significant depending on their scale, high level of harmonization is required in general towards voltage requirements, with focus in aspects related to network voltage stability, namely voltage/time range limits for users to withstand without damage and technologies that comply with fault-ride-through capability. A proposal of future harmonization of those requirements is presented in this section in order to define the main requests that the Med-TSO countries need to comply with for the different types of power generating modules installed in their transmission system.

  - ***Voltage/time range limits for users to withstand without damage***
    According to the results for the 12 countries which responded to the Survey, the voltage/time range limits which are common in all Med-TSO countries are the following:

    For U=300 to 400kV
    Voltage Range = 0.95 – 1.05 pu Time period unlimited

    For U=110 to 300kV
    Voltage Range = 0.90 – 1.118 pu Time period unlimited

    If only 50% of the answers received are considered, the voltage/time range limits common are:
    For U=300 to 400kV :

Voltage Range = 0.85 – 0.90 pu Time period ≥ 30min
Voltage Range = 0.90 – 0.95 pu Time period unlimited
Voltage Range = 0.95 – 1.05 pu Time period unlimited
Voltage Range = 1.05 – 1.10 pu Time period ≥ 20min

and For U=110 to 300kV:
Voltage Range = 0.85 – 0.90 pu Time period ≥ 30min
Voltage Range = 0.90 – 1.118 pu Time period = unlimited
Voltage Range = 1.118 – 1.15 pu Time period ≥ 20min

However, this common base is not enough for the current and future challenges at the operation of the transmission networks. Consequently, it is proposed, as an External Rule and in line with the ENTSO-E grid codes, that the power generating modules shall be capable of staying connected to the network and operating within the ranges of the network voltage at the connection point, expressed by the voltage at the connection point related to the reference 1pu voltage, and for the time periods specified below:

Synchronous area	Voltage range	Time period for operation
Med-TSO region (300kV to 400kV)	0.85 pu – 0.90 pu	60 minutes
	0.90 pu – 1.05 pu	Unlimited
	1.05 pu – 1.10 pu	To be specified by each TSO, but not less than 20 minutes and not more than 60 minutes

Figure 40 – Voltage ranges proposal (between 300 kV and 400 kV)

The table shows the minimum time periods during which a power-generating module must be capable of operating for voltages deviating from the reference 1 pu value at the connection point without disconnecting from the network where the voltage base for pu values is from 300 kV to 400 kV

Synchronous area	Voltage range	Time period for operation
Med-TSO region (110kV to 300kV)	0.85 pu – 0.90 pu	60 minutes
	0.90 pu – 1.118 pu	Unlimited
	1.118 pu – 1.15 pu	To be specified by each TSO, but not less than 20 minutes and not more than 60 minutes

Figure 41 – Voltage ranges proposal (between 110 kV and 300 kV)

The table shows the minimum time periods during which a power-generating module must be capable of operating for voltages deviating from the reference 1 pu value at the connection point without disconnecting from the network, where the voltage base for pu values is from 110 kV to 300 kV.

- ***Fault-ride-through[2] capability***

  The fault-ride through capability requirements for transmission grid users, which apply in the 12 countries that have responded to the survey, are illustrated in the following table, diagrams and maps. The responses received were heterogeneous. Although, some countries do not have specific

[2] Fault-ride-through - means the capability of electrical devices to be able to remain connected to the network and operate through periods of low voltage at the connection point caused by faults like short-circuits and others;

FRT profiles curves for all generation technologies, most of them have defined fault-ride-through (FRT) profile curves for different technologies, like wind, solar or Synchronous generation.

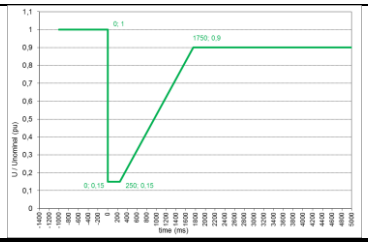
In view of the new NC RfG[3] that will be applied in the near future in the European countries, it is expected that new FRT profiles curves will be clearly defined briefly for all technologies. In the next diagrams, different FRT profile curves considered in the Med-TSO region for the wind technology are presented as an example:

FRT profile curves considered for the wind technology in Med-TSO region

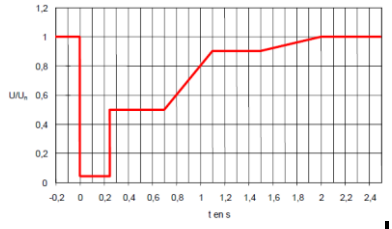
DZ

Not Required

CY



FR



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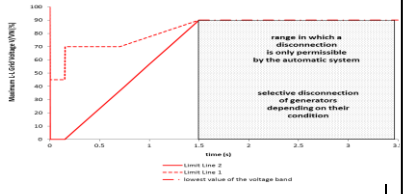
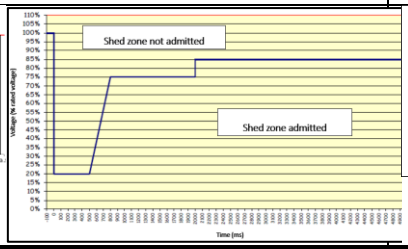
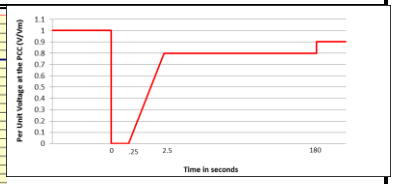


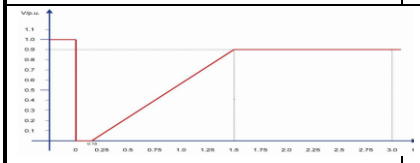
IT



JO

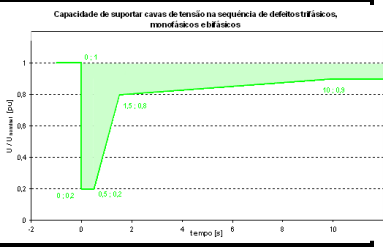


ME

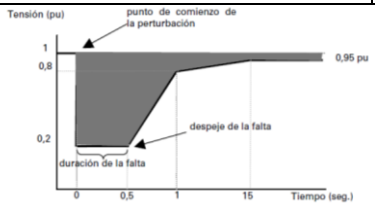


MA

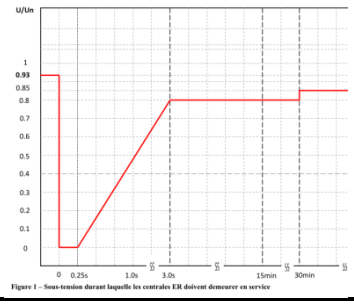
PT



ES



TN



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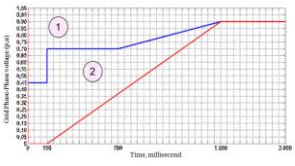

Figure 42 – FRT profile curves considered for the wind technology

However, this common base is not enough for the actual and future challenges at the operation of the transmission networks. Consequently, it is suggested, as an External Rule and in line with the ENTSO-E grid codes, that the Med-TSO countries need to define for the technologies PPM-Power

[3] NC RfG – network code on requirements for grid connection of generators

Park Module[4] and SPGM-Synchronous Power Generating Modules[5], the fault-ride-through profile which is the most appropriate for their network, considering the upper limits profile (red line) indicated in the next figures:

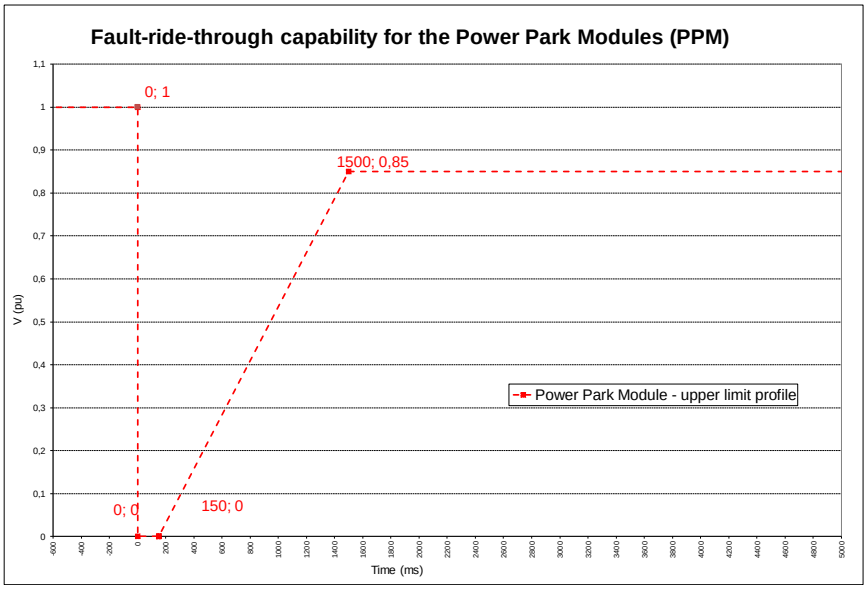

Figure 43- FRT capability proposal for PPMs

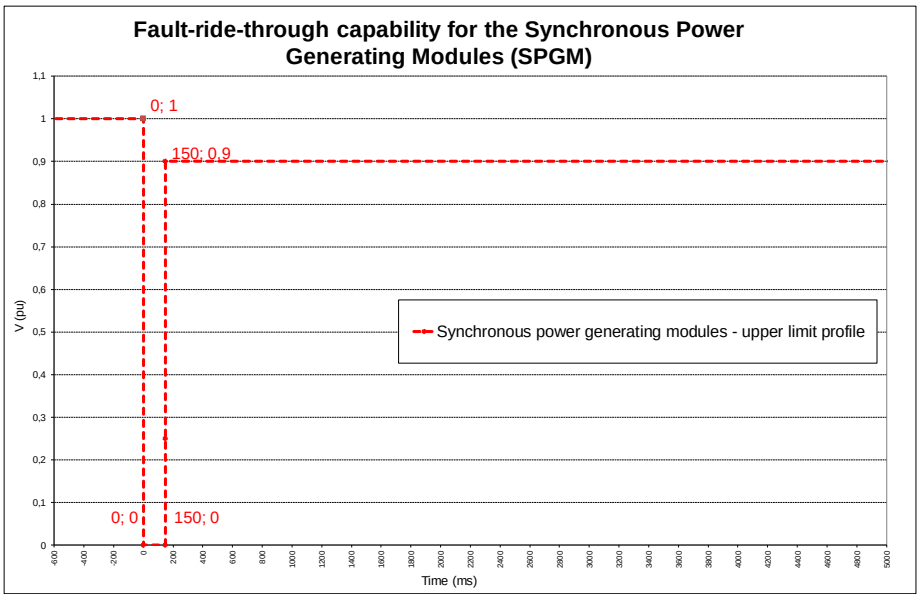

Figure 44 - FRT capability proposal for SPGMs

Moreover, the power generating modules shall be capable of remaining connected to the network and continuing to operate stably, when the actual course of the phase-to-phase voltages on the network voltage level at the connection point during a symmetrical fault remains above the limit of

[4] Power Park Module - means a unit or ensemble of units generating electricity, which is either non-synchronously connected to the network or connected through power electronics, and that also has a single connection point to a transmission system, distribution system including closed distribution system or HVDC system;

[5] Synchronous Power Generating Module - means an indivisible set of installations which can generate electrical energy such that the frequency of the generated voltage, the generator speed and the frequency of network voltage are in a constant ratio and thus in synchronism;

fault-ride-through profile specified by Med-TSO countries according to the limits in the figures, unless the protection scheme for internal electrical faults requires the disconnection of the power generating module from the network. The protection schemes and settings for internal electrical faults must not jeopardize fault-ride-through performance.

With regard to fault-ride-through capabilities in the case of asymmetric faults, they must be specified by each TSO, but it is strongly recommended that the profiles similar or equivalent to the profiles presented above to be considered.

- **Reactive power requirements**

Due to the large penetration of renewables connected in the transmission system, both existing and anticipated in the future, high level of harmonization is required in general towards reactive power requirements, especially related to the reactive power contribution for the different technologies.

As an External Rule, it is proposed that this contribution is set as an interval of adequate reactive requirement (the maximum range of Q /Pmax = between - % of P and + % of P), especially in situations where the possible impact of the generation can appear, like Power Plants near the neighbouring countries. However, there should be a difference in limits of reactive power contribution which is expected in SPGM and PPM. Requirements for transmission connected consumers (with and without generation) and also transmission connected distribution facilities should be included.

- **Protection requirements**

Based on the results of the Survey concerning protection requirements, it is proposed that redundancy requirements for telecommunication and protection schemes should be harmonized. More specifically:

- ***Telecommunication and protection schemes***

  As an External Rule it is proposed that a double protection scheme should be applied by all TSOs for non-transmission facilities connected to the transmission grid. In addition, the adoption of double telecommunication scheme should also be examined, following internal agreements between TSOs and users.

- **Control requirements**

Based on the results of the Survey, harmonization of the communication between Users and TSO Control Centres is proposed. This is mainly due, as mentioned above, to the large penetration of renewables, the impact of which in the neighbouring systems can be significant, depending on their scale. For the same reason, the need for observability and controllability of non-transmission facilities from the TSO control room should also be included for harmonization. More specifically, harmonization of the control requirements focuses in the following aspects:

- ***Observability and Controllability of non-transmission facilities***

  As an External Rule or following agreements between TSOs, the observability and controllability of non-transmission facilities should be harmonized, without explicitly specifying the global architecture of the communication schemes between Users and TSO Control Centres. Communication should comply with performance requirements (speed, reliability, etc.) and may be direct user-TSO or via intermediate Control Centre delegated by User. Non-transmission facilities should be observable and

controllable by TSO Control Centres, with respect to their size. Based on the results of the survey, concerning the observability and controllability magnitudes which are generally common in Med-TSO countries and in compliance with the new Grid Code of ENTSO-E, it is proposed that non-transmission facilities of a magnitude higher than 1MW should be observable and higher than 10MW (if it is possible higher than 5MW) should be controllable by TSO Control Centres. In any case, more exigent conditions could also be established at national level.

- ***Magnitudes to be provided in real time***
  As an External Rule at least the magnitudes of V, P, Q and the status (On/Off) should be provided from non-transmission facilities to TSO control systems.

- **Demand disconnection schemes**
  With the aim to ensure impartial, efficient and 'as expected' load disconnection among frequency control areas, harmonization of the demand disconnection schemes, particularly low frequency, is proposed.

  As an External Rule, low frequency disconnection schemes should be set as a requirement. Settings and details of the schemes should be agreed between neighbouring TSOs in the same synchronous area.

- **HVDC requirements**
  The large penetration of renewables in neighbouring countries and the increase of AC and/or DC interconnections will create new challenges in planning and operation of the grids. An HVDC link could have a significant impact not only on the two countries connected, but also on neighbouring systems, depending on their scale and on the capacity of the HVDC link. Harmonization of HVDC requirements/criteria can mitigate eventual problems in near future.
  In view of the harmonization process of HVDC requirements in ENTSO-E countries, harmonization of HVDC requirements/criteria in Med-TSO region should also be foreseen.

As an overview the connection aspects to be included in the proposal for a common target regulatory framework are presented in **Annex 1**, along with the tentative proposal of specific rule for each aspect.

Operation of the interconnected systems

- **Classification of system sates**

  System states should be classified in an external rule in a homogeneous way, with clear specific characteristics for each state (operational security limits, frequency criteria, reserves, contingency list, and activation of defence or restoration plan). In principle the states that should be considered are: Normal, Alert, Emergency, Blackout and Restoration.

  - Normal state. The following conditions should be fulfilled:
    - No violation of operational security limits, even after the occurrence of a contingency from the contingency list.
    - Steady state system frequency deviation is within the standard frequency range or not larger (in absolute value) than the maximum steady state frequency deviation without entering in alert state.
    - Active and reactive power reserves are sufficient to withstand contingencies from the contingency list without violating operational security limits.

    In general a system is in normal state if is within operational security limits in the N-situation and after the occurrence of any contingency, taking into account the effect of the available remedial Actions.

  - Alert state. No violation of operational security limits and at least one of the following conditions:
    - (i) At least 1 contingency from the contingency list leads to a violation of the operational security limits (even after activation of remedial actions);
    - (ii) Steady state system frequency deviation is not larger (in absolute value) than the maximum steady state frequency deviation and has continuously exceed 50% of the maximum steady state frequency deviation for period larger than the alert state trigger;
    - (iii) Reserve capacity is reduced more than 20% for more than 30 minutes with no possibility to compensate in real time operation.

    In general, a system is in alert state if is within operational security limits, but a contingency has been detected, for which in case of occurrence, the available remedial actions are not sufficient to keep the normal state.

  - Emergency state: At least one of the following conditions should be fulfilled:
    - (i) At least one violation of operational security limits;
    - (ii) Frequency does not meet criteria of normal or alert states;
    - (iii) One measure of the defence plan is activated;
    - (iv) Unavailability of TSO tools for more than 30 minutes.

    In general, a system is in emergency state if operational security limits are violated and at least one of the operational parameters is outside of the respective limits.

  - Blackout state. At least one of the following conditions should be fulfilled:
    - (i) Unexpected loss of more of 50% of the total national demand at a particular point in time;
    - (ii) Total absence of voltage for at least 3 minutes.

    At a national level a “Partial Blackout state” could also be defined, if the blackout affects only a part of the system (not fulfilling the previous requirements).

- Restoration state: When any measure of the restoration plan is activated, partially of fully.

- **Technical requirements**
  - **Frequency ranges (quality parameters) in the different system states**

The external rule should not only include the system state consideration in each frequency range (issue above) but also the frequency quality target parameters (nominal frequency, standard frequency range, maximum deviations both instantaneous and in steady state, maximum time out of range, time to restore frequency, etc.).

For those countries synchronously connected these quality target parameters are:

- Nominal frequency: 50 Hz.
- Standard frequency range: between 20 and 200 mHz, but in the future should be harmonized to at least 50 mHz.
- Maximum instantaneous frequency deviation: between 700 and 1500 mHz, but in the future should be harmonized to at least 800 mHz.
- Maximum steady state frequency deviation: between 200 and 500 mHz, but in the future should be harmonized to the lower value (200 mHz).
- Time to restore frequency: 10 to 20 minutes. In the future could be harmonized to the average value (15 minutes).

  - **Voltage ranges (for unlimited operation) in normal conditions.**

As an external rule the classification of voltage ranges in normal conditions should be considered. Different ranges could be considered depending on the voltage level. As a first step the following could be considered:

- Between 110 kV and 300 kV the voltage should stay between 0.9 pu and 1.118 pu.
- Between 300 kV and 400 kV the voltage should stay between 0.9 pu and 1.05 pu.

Anyway, more exigent conditions could also be established at national level.

  - **Voltage ranges (for unlimited operation) in extraordinary conditions.**

As an external rule the classification of voltage ranges in extraordinary conditions (unexpected conditions not studied in real time by the TSO) should be considered. More wide ranges could be established at a national level. Different ranges could be considered depending on the voltage level.

  - **Specific reactive power management measures**

A classification of the possible remedial actions to manage reactive power should be included in an external rule: switching of reactors and capacitors, on load tap changes transformers, instruction to distribution companies, set points to generation facilities, HVDC, etc. These remedial actions should be applied by a TSO when the voltage is outside the ranges defined for unlimited operation. In addition, specific management of reactive power flows in the international interconnections should be included in internal agreements between neighbouring TSOs to respect common operational security limits.

  - **System protection coordination criteria in the international interconnections**

In the internal agreements between neighbouring TSOs the criteria for system protection coordination in the interconnection lines should be included (agreement on the definition of the set points and coordination prior to implementation).

- **Information exchange**

  - **List of scheduled and structural data to exchange with other TSOs**

The list of structural and forecasted data to be exchanged between TSOs should be included in the internal agreements and possibly also in the external rule.

The list of structural data should include at least the following data from the observability area that should be agreed between neighbouring TSOs (in principle, at least border substations should be included in the observability area):

- Normal topology of substations.
- Technical data on transmission lines.
- Technical data on transformers, including phase-shifting transformers.
- Technical data on HVDC systems.
- Technical data on reactors, capacitors and other.
- Reactive power limits from generation facilities.
- Operational security limits.
- Protection set points of transmission lines included as external contingencies.

To coordinate operational security analysis TSOs from the same synchronous area should exchange at least the following:

- Topology of the transmission grid above 220 kV (including 220 kV).
- Model of the transmission grid below 220 kV which has a significant impact.
- Thermal limits of the transmission elements.
- Aggregated generation forecast in each node of the transmission grid.
- For dynamic stability studies additional data should be exchanged.

  - **List of real time data to exchange with other TSOs**

The list of real time data to be exchanged between TSOs of the same synchronous area should be included in the external rule. This list should include at least the following:

- Frequency
- Frequency restoration control error
- Active power exchange between control areas
- Aggregated generation
- System state
- Set point of the load frequency control

Also the list of real time data from the observability area to be exchanged between neighbouring TSOs should be included in both an external rule and in the internal agreements between TSOs. The observability area should be agreed between neighbouring TSOs. In principle, at least border substations should be included in the observability area. The list of information to be exchanged should include at least:

- Substation topology (including availability).
- Active and reactive power in line bay or transformer bay, including transmission and distribution
- Active and reactive power in generation bay

- Reactive power in reactor bay and capacitor bay
- Bus bar voltage
- Restrictions (if any) and outages.
- Positions of tap-changers transformers

- **Contingency analysis**

  - **Type of contingencies considered**

The external rule should include the type of contingencies to be considered on the basis of whether it is ordinary, exceptional or out-of-range, taking into account the probability of occurrence. In principle N-1 contingencies should always be considered and "partial" N-2 contingencies in specific situations that could be determined at national level.

  - **Contingency list (both internal - in national power system - and external - in neighbouring power systems -)**

The internal agreement between neighbouring TSOs should include the list of external contingencies that should be considered when performing the contingency analysis, together with the internal contingencies.

The external rule should also include that each TSO should inform neighbouring TSOs about the external contingencies and also about any topological change included in the external contingency list.

  - **Operational security limits**

The internal agreement between TSOs should include the operational security limits that are taken into consideration when performing the contingency analysis. These limits are, at least, the following:

- Voltage limits
- Short-circuit current limits
- Stability limits.
- Current limits in terms of thermal rating including the transitory admissible overloads

  - **Operational security limits in the interconnection lines**

The internal agreement between TSOs should include the exact operational security limits in the interconnection lines. In case of differences for the same interconnection line, the more restrictive limits should be considered.

  - **List of joint remedial actions agreed between TSOs after a contingency**

The external rule should include the different categories of remedial actions that TSOs could use in case of a contingency (either when need or not need to be managed in a coordinated way) and also the criteria that shall apply. The remedial actions could be the following:

- Topological actions
- Reschedule of maintenance through the duration of outages
- Voltage control and reactive power management
- Re-dispatch of generation
- Countertrading
- Modification of active power flows through HVDC links

- **Periodicity of state estimation calculations**

The need to use state estimations when performing operational security analysis close to real time should be included in the external rule while the periodicity of these calculations should be agreed between neighbouring TSOs and included in the internal agreements.

- **Management of international exchanges**

  - **Management of international exchange programs between TSOs**

One of the benefits of interconnected power systems is the possibility of having long term and short term energy exchanges between the power systems. Realization of the energy exchanges between the power systems requires the coordination of TSOs. This coordination could only be achieved according to pre-defined rules and procedures. Based on this requirement, harmonisation of management of international exchange programs is considered of high priority.

In this study it is considered that an internal agreement between the interconnected neighbouring TSOs should be realised. This agreement between the neighbouring TSOs should include the implementation of the scheduled exchange programming and management of international exchange programs between them. On the other hand, a general mechanism should be defined for the management of the international exchange programs. Data exchange formats, accuracy, period of data (15min, 30min, hourly, etc.) should be defined. Another issue of the interconnected power systems is the unintentional deviations which occur during the exchange of energy between neighbouring power systems. For this purpose, a compensation mechanism should also be considered for the unintentional deviations.

- **Outage coordination**

The external rule should include the need of coordination between neighbouring TSOs in case of an outage that could affect NTC. . In addition, internal agreements between TSOS should go a step further and include step by step procedures, which make clear and rational the way to deal with situations of outage affecting NTC.

Due to the importance of quick access to information about outages, all TSOs should abide by, under an external rule, the two following steps:

- Definition of assets (network elements and generation and consumption units) with cross border (XB) relevance.
- On a year ahead timeframe, outage planning agents of XB relevant generation and consumption shall provide their proposals for outages (Availability Plans) to the connecting TSO.

Based on mutual agreements, TSOs should:

- Perform individual assessment of XB relevant units (generation and consumption) outages, detecting possible incompatibilities (adequacy or network problems). If Outage Incompatibilities are detected, each TSO has to provide a solution, in coordination with the impacted Outage Planning Agents. In the event that no coordinated solution is reached, the lowest impact solution is proposed by the TSO. TSO informs the NRA of the not coordinated solution and of its technical and financial impacts for all parties. The conducted coordination processes are handled according

to and in line with the current existing practices (regulations, law, contracts) as they are installed in the different Member States.

- Plan based on Availability Plans provided by Outage Planning Agents the Availability Statuses of its Relevant Grid Elements. The outages on the Relevant Grid Elements should minimize their impact on the market and preserve operational security. When a TSO detects outage incompatibilities, it should initiate coordination with the impacted parties in order to reach a solution taking into account if the work of the outage is relevant for maintaining the Operational Security.
- Share among them their individually assessed "preliminary Year-Ahead Availability Plans" (units and grid elements).
- Define the perimeter of the electrical interdependent (in terms of mutual affection of outages) region (Outage Coordination Region) in which has sense to jointly coordinate outages.
- Jointly assess, within the same Outage Coordination Region, the preliminary Y-A Availability Plans. If Outage Incompatibilities arise when combining the Availability Plans of all the Relevant Assets within the Outage Coordination Regions, a solution is found for each Outage Incompatibility in coordination with all concerned TSOs, each TSO being responsible for coordinating with its connected concerned Outage Planning Agents.
- Publish a final Y-A Availability Plan
- Update Year-Ahead Availability Plan. After a change has been initiated, the impact on the overall Availability Plans is assessed and a coordination phase is set up between affected TSOs, which coordinate possible Outages Incompatibilities with their connected Outage Planning Agents as affected, according to the applicable legal framework.

- **Load frequency control**

Regarding load frequency control, an external rule should include the need of having an operational agreement for each synchronous area in which the load frequency control structure and process activation is defined.

As a result of the survey the following aspects have been particularly emphasized and are proposed to be also included in the external rule:

- FCR common technical requirements.
- Criteria used for establishing the quantity of FCR, both the total quantity and the national one.
- Compliance scheme for FCR.
- Provision of FRR: the external rule should include the criteria to be fulfilled by units to deliver FRR, while internal agreements between TSOS should define the set of power plants that could provide FRR.
- Criteria used for establishing the quantity of FRR, both the total quantity and the national one. In principle this criteria could be the loss of the biggest unit in operation.
- Compliance scheme for FRR

- **Reserve management**

Reserve management is a key issue when it comes to enhancing the performance of power systems. It should be from this perspective, possible to exchange the reserve whenever it is required and possible. TSOs should mutually agree on whether they can exchange the reserve. An external rule should include the type of reserves (FCR, FRR or RR) that could be exchanged differentiating between exchanges of reserves within the same synchronous area and between two different synchronous areas. In addition,

the internal agreement between TSOs should detail the requirements and the process to share each type of reserve.

- **System defence plan**

  System security is an important aspect for the operation of the power systems. For this purpose system defence plan, which introduces all the measures to be implemented to prevent the propagation of an incident in the system, has to be considered as an important aspect. System defence plan is not compromised of a single method and a tool but it is comprised of a set of various power system control mechanisms and procedures. Among such control mechanisms and procedures frequency deviation management procedure, demand disconnection schemes, voltage deviation management procedure power flow management procedure and inter-TSO assistance in emergency state are analysed in this study. Among those methods and procedures especially harmonisation of frequency deviation management procedure, demand disconnection schemes with respect to low frequency and/or low voltage and inter-TSO assistance and coordination in emergency state are considered of high priority.

  - **Frequency deviation management procedure (Automatic Under/Over-Frequency control scheme)**

  Frequency deviation management procedures should be included in an external rule. These systems, that shall be almost instantaneous, should be designed considering dynamic studies in different scenarios from the whole synchronous area. Additionally, under frequency schemes (based on load shedding) or over frequency schemes (generation disconnection) could also be designed.

  - **Setting of demand disconnection schemes (low frequency and/or low voltage)**

  An external rule could define the setting of disconnection schemes for low frequency and/or low voltage. In principle low frequency settings should be designed based on dynamic studies in different scenarios from the whole synchronous area. Low frequency settings could be included in the external rule while low voltage settings could be designed individually by each TSO.

  - **Voltage deviation management procedure**

  The external rule should adopt the management of voltage deviation and an internal agreement between the neighbouring TSOs should include operational voltage limits for the bordering substations.

  - **Power flow management procedure**

  An external rule should include the general criteria while the internal agreement between the neighbouring TSOs should include the procedure of the management of power flow and if there is a SPS system which also controls the power flow of the interconnection lines then settings of the SPS should be considered mutually.

  - **Manual demand disconnection procedure**

  An external rule should include that each TSO should design the manual demand disconnection procedure in coordination with the other TSOs of the same synchronous area.

  - **Inter-TSO assistance and coordination in emergency state**

  An external rule should include the general criteria while the internal agreement between the neighbouring TSOs should include the procedure for inter-TSO assistance and coordination in emergency state. A mechanism should also be defined for the compensation of the emergency exchange programs.

- **Restoration plan**

  - ***Rules and types of restoration plans***

Harmonisation of restoration plans is considered of high priority. It is considered that having a developed restoration plan will serve the TSOs in case of a partial or a total blackout to quickly achieve a stabilized and reliable power system. To achieve this purpose, it is considered that every TSO should prepare and adopt their restoration plans periodically.

Interconnected or not, every TSO's restoration plan should obviously include a bottom-up energization strategy by taking the generation units equipped with the "black start" capability. By using the generation units equipped with the "black start" capability the backbone of the high voltage grid should be restored in case of a blackout. On the other hand, interconnected TSOs also have the possibility to adopt top-down energization strategy in their restoration plans. As top-down energization strategy is based on usage of the international interconnections, coordination between the neighbouring interconnected TSOs is a necessity.

To achieve the coordination effectively and quickly between the neighbouring TSOs, where at least one of them is subject to system restoration, the rules and procedures must be predefined. For this purpose, the procedures for the decision of an emergency exchange between neighbouring TSOs under the system restoration could be defined in the internal agreement between neighbouring TSOs. In addition to the internal agreement between the neighbouring TSOs, general criteria should be included in the external rule.

- **Training and certification (qualification)**

  - ***Certification of operators in real time***

The external rule should include as a requirement that operators in charge of real time have a certification.

  - ***Language requirements***

Both the external rule and the internal agreements between TSOs should include a requirement regarding the language to be used between real-time operators from different TSOs. In principle the predefined language could be English, unless other common language exists between the neighbouring TSOs (French, Arabic...).

As an overview the operation aspects to be included in the proposal for a common target regulatory framework are presented in **Annex 1**, along with the tentative proposal of specific rule for each aspect.

System service market

- **Legal Issues**

  - ***Contractual requirements for participation on the cross-border electricity trade***

The harmonization of the Legal Issues is considered of high priority, with the purpose of integration of the electrical power systems involved, promoting the share of resources and electricity exchange under a specific regulation model.
These activities are developed with the aim to achieve in future a general context (target model) operating with the characteristics of an open electrical market model with the potential admission of new subjects both demand and offer side and for trading activities.
Under this main purpose it is necessary to clearly define the basic requirements for participation on the cross-border for the access to the procedures taking into account among other things:

- Registration requirements-database of market players;
- Possession for Market players of technical requirements as authorization to operate on a specific border e.g. in the form of contract with TSO (injection or withdrawal dispatching contract in Italy, injection for import or withdrawal for export);
- Allocation mechanism of the transmission capacity;
- Implementation of the scheduled exchange program and management of international exchange programs;
- Financial requirements in the form of guarantees "for entry", for monitoring the financial exposure (i.e. long-term and real time during the allocation procedure) and for "system compensation" for unbalances.

- ***Current rules for export/import of cross-border electricity***

This scheme of requirements could be translated into mutual (bilateral/multilateral) rules including the main principles above.
The form could be an internal agreement between the interconnected neighbouring TSOs. A concrete example is the Auction Rules valid in ENTSO-E Area.

A scheme like this should progressively include next steps for a model to be periodically updated:
- Oriented to involving third subjects (market players in addition to TSOs) in the cross-border activities;
- Oriented to improve the existing cross-border procedures.

Considering a future shared model oriented to the mentioned Auction Rules model, a registration procedure for operating on the borders or on a specific border that should be implemented with an external rule format should be envisaged.
Each market player should follow a process finalized to obtain an authorization to operate on an interconnection and therefore to accomplish prescriptions required by the TSO which manages the link. More in details, it could be necessary to provide:

- Company data of each market participant including the VAT code (or tax registration number), and the company register certificate (e.g. with address of the registered office);
- A reference contact person for the registration/eligibility procedure, allocation procedure and for settlement/administration issues;
- Typology of activities of interest: import/export or both and related borders;
- Evaluation of an amount that it is necessary to cover with a form of guarantee, eventually remodulate on the basis of the volumes exchanged on the links.

- Subscription of a financial guarantee (e.g. a sort of bid bond/performance bond) on the basis of the "capacity ranges" elaborated by TSOs per volume of exchange capacity. This can be remodulated on the basis of the volumes exchanged on the links.

- ***Presence of a Market Operator***

  Concerning a global system oriented to following evolutions, the presence of a Market Operator separated to TSO, is an example of a better identification and allocation of the responsibilities in terms of international exchange and system operation.
  Under the objective of the definition of rules harmonized in a shared regulatory framework, it is necessary to find quick-win solutions in order to get goals in a short term period.
  In a context composed by systems with a different reference model "market or no market based" model, it is possible to consider a progressive degree of harmonization regarding at least some technical aspects that allow an interaction (or interoperability) between interconnected systems. Some examples are the criteria for calculating the Net Transfer Capacity and the coordinated use of dispatching and balancing issues and resources.

- ***Categories of operators enabled***

  Independently of the reference system, it is necessary to separate the categories of operators enabled for import/export activities that are clearly based on the market model: monopoly-only TSO, open market-Market Players including producers, self-consumers, suppliers, traders.
  Also in case of systems linked to a different market model, it is possible to investigate some principles or schemes for a concrete operation of the interconnections. If the access to another system (from technical and commercial point of view) is considered as an opportunity, it could be considered as first interface between systems in order to find ad hoc solutions as a first step for integration of the systems.

- ***Technical requirements to satisfy for using the interconnections***

  It is evident that technical requirements with an impact on the exchange programs (from technical and commercial point of view) need to be shared.
  While operating an interconnection, in order to manage correctly the international exchange programs - including data exchange formats, accuracy, relevant period of data (15min, 30min, hourly, etc.) - a compensation mechanism for the management of the unintentional deviations should also be defined.

- **Capacity Calculation:**

  In general, the harmonisation of the Capacity Calculation is considered of medium-high priority for all TSOs. The target is the coordination and harmonisation of the Capacity Calculation methodology within the Capacity Calculation Region (CCR) and merging of Capacity Calculation Region when efficiency reasons justify doing so.

Coordinated capacity calculation means that when the capacity is calculated in the "coordinated" borders the interdependencies between them are considered to ensure that capacity calculation is reliable and that optimal capacity is made available to the market at regional level.

For the Capacity Calculation the following issues were considered of high priority for harmonisation:

- ***Security criteria used for calculating the Net Transfer Capacity (NTC)***

  The implementation of the N-1 as a security criterion is considered of high priority for harmonisation. Internal agreements between TSOs are considered as the most suitable desired rule format in the target regulatory framework.

- ***Characteristic process for finalization of Net Transfer Capacity (jointly or separately from other TSO's?)***

  The harmonisation of characteristic process for finalization of Net Transfer Capacity is considered of medium-high priority. The Net Transfer Capacities should be calculated jointly by the neighbouring TSOs. Internal agreements between TSOs are considered as the most suitable desired rule format in the target regulatory framework.

- ***Reference time horizons used for capacity calculation and process for calculating capacity in the different time horizons.***

  The harmonisation of the time horizons used for capacity calculation for all TSOs is considered of medium-high priority. In general, the time horizons used for capacity calculation is yearly, monthly and daily. Internal agreements between TSOs are considered as the most suitable desired rule format in the target regulatory framework.

- **Capacity Allocation**

  - ***Method and procedures applied for transmission capacity allocation (including the Physical Transmission Rights (PTR) allocation)***

    The harmonisation of the method and procedures applied in each system for transmission capacity allocation including the Physical Transmission Rights is considered of medium-high priority. The external rule should include the procedure for allocate transmission capacity. In principle this procedure should be a public auction (either PTR or FTR) with marginal price allocation. Management procedures for congestions in the interconnections should also be included in the external rule. In principle via market mechanisms (like market spread).

    In addition internal agreements between neighbouring TSOs are considered as the most suitable desired rule format to include more details about the allocation procedure in a specific border.

  - ***Obligation regarding the use of capacity allocated - Use it or sell (or loose) it mechanism.***

    The harmonisation of the obligation regarding the use of capacity allocated is considered of medium-high priority, due to the heterogeneity of the models market based in the Med-TSO country. Anyway the internal agreements between TSOs should include it there is or not an obligation and if the

obligation is to sell it or lose it. Anyway in some cases, if allocation is through FTR this issue is not applicable.

- ***Kind of capacity products allocated (duration and time profiling).***

  The harmonisation of the Kind of capacity products allocated (duration and time profiling) is considered of medium-high priority. The external rule should include main characteristics that capacity products to be allocated in all the region should have, while the internal agreements between TSOs are considered as the most suitable desired rule format to include details about the specific capacity products in each border.

  In principle yearly, monthly, daily and intraday horizons could be considered.

- ***System of liabilities, guarantees and penalties (technical and commercial) applied for each subject (Market Players) involved in the allocation procedure.***

  The harmonisation of the system of liabilities, guarantees and penalties applied for each market players is considered of medium priority. Currently, for the countries having model market, it is necessary to have a system of guarantees for the market players so it is proposed to include in the external rule the need of having a guarantee.

- ***Subject responsible for the management of the allocation procedure***

  The harmonisation of the subject responsible for the management of the allocation procedure is considered of medium-high priority. In general, TSOs are responsible for the management of the allocation procedure in countries without market and supranational entities (managed by TSOs) in countries with market. The proposal is that the external rule should include which subject should be responsible for the management of the allocation procedure, while internal agreements between TSOs should include the details of obligations and responsibilities. The subject responsible should be the affected TSOs in a first stage and a regional entity (managed also by the TSOs) in a further stage when the level and use of interconnections increases substantially.

- **Dispatching and balancing**

  - ***Actions foreseen* in order to guarantee the exchange programs.**
    A multilateral procedure should propose common settlement rules of all intended exchanges of energy within a Synchronous Area, considering:
    - Frequency Restoration Process with automatic activation; or
    - Operating the Imbalance Netting Process.
    - Frequency Restoration Process with manual activation;
    - Reserve Replacement Process;

  - ***Management of unintentional deviations on international interconnections***
    The proposals of common settlement rules of unintended exchanges of energy between TSOs shall ensure fair and equal distribution of costs and benefits between TSOs, taking into account the prices for activated Balancing Energy for Frequency Restoration Process or Reserve Replacement Process.

- **Transparency**
  - ***Public information on the Electricity Markets data***
  - ***Public information on international interconnections data***

    An external rule should include the information that TSOs (and other market players) should make be publically available for sake of transparency, both regarding the electricity markets in general and specific information about the international interconnections. Information could be divided in three different levels:
    - Minimum information required: information related with capacity and use of generation, consumption and transmission units, including the scheduled outages. In addition total demand and generation figures should also be publically available.
    - Regional information: at a regional level should be made public (in the same platform if possible):
      - Use of the interconnection (in terms of programs, real measures and also percentage of utilization).
      - Daily and intraday market prices.
      - Information about the international exchanges mechanism.
      - Economic information.
    - Additional information: on a long term stage other data could also be included such as countertrading programs used.

As an overview the system service market aspects to be included in the proposal for a common target regulatory framework are presented in Annex 1, along with the tentative proposal of specific rule for each aspect.

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