



*Energy Community Regulatory Board*

**ECRB EWG Benchmarking Report on  
compliance with  
Regulation (EC) No 1228/2003 and the  
Congestion Management Guidelines**

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## Executive Summary

International electricity trade as well as an increasing electricity demand create congestions on the connection lines between neighbouring TSOs. Regulation (EC) No 1288/2003 and the amended Congestion Management Guidelines describe the basic principles for market based congestion management schemes including also provisions concerning *Transparency, Use of Congestion Income, Implementation of a Secondary Market*.

Based on the findings from a questionnaire answered by the regional regulatory authorities of Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Serbia, UNMIK, Greece, Hungary, Slovenia and Italy in cooperation with their national TSO, the report provides an overview about the current state of play concerning the implementation of the Regulation (EC) No 1228/2003 and the amended Congestion Management Guidelines within the Contracting Parties of the Energy Community Treaty and their neighboring countries in the region.

### Findings:

#### *Implementation of Market Based Congestion Management Schemes*

Within the last years the TSOs in the region started to implement market based congestion management schemes according to the legal framework mentioned above. Most of the contracting parties in South East Europe introduced already a market based allocation scheme for at least one specific time horizon for capacity allocation (e.g. yearly, monthly or daily allocation). However, only two TSOs perform common auctions together with their neighboring TSO (HEP TSO and HTSO) as requested by the Congestion Management Guidelines.

#### *Transparency*

The Congestion Management Guidelines describe in detail the transparency requirements for a market based allocation scheme. It could be noticed that not a single TSO provides all information required by the Congestion Management Guidelines.

#### *Use of Congestion Management Income*

Most of the countries in South East Europe have already provisions concerning the use of congestion management income in their legislation. Even the countries that have no provisions in their legislation have implemented one of the three options for the usage of congestion management income mentioned within the Regulation (EC) No 1228/2003.

#### *Implementation of a Secondary Market*

Following the Congestion Management Guidelines Cross Border Capacity has to be freely tradable on a secondary basis under the precondition that the relevant TSO is informed sufficiently in advance about such a transaction. Furthermore it is stated within the Congestion Management Guidelines that where a TSO refuses any secondary trade (transaction), this must be clearly and transparently communicated and explained to all the market participants by that TSO and notified to the Regulatory Authority.

However, only few TSOs implemented a secondary market as requested by the Guidelines. Furthermore it was noticed that in some cases market rules in the region don't even allow the implementation of a secondary market.

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## 1. Introduction

The national transmission systems, initially interconnected only for security reasons, are nowadays faced with a growing complex international electricity market as well as with a growing number of market participants in and outside the national borders. Furthermore growing energy demand, the perspective of a booming economy and the substitution of traditional primary energy sources as wood and coal for heating purposes as well as the dependency of some countries on volatile energy resources increase the need for a dynamic regional electricity market.

Thus cross border congestions occur and create a barrier for international electricity trade within Southeast Europe. Therefore it was necessary to implement proper rules for market based congestion management.

By signing the Energy Community of South East Europe Treaty (the Treaty), the participating countries committed themselves to developing a regional energy market in South East Europe (SEE). One important precondition for the development of a regional energy market, mentioned above, is that all market participants (generators, traders and consumers) interested in exchange and trade of power have access to the transmission system capable to fulfil the security requirements.

The Basic principles for Cross Border Congestion Management are mainly described in the Regulation (EC) No 1228/2003 which is applicable in South East Europe through the Energy Community Treaty

This report will give within the following pages an overview about both the requirements for and the status of the implementation of cross border capacity allocation methods in South East Europe based on the findings from questionnaire answered by the regional regulatory authorities of Bosnia and Herzegovina, Croatia, the former Yugoslav Republic of Macedonia, Serbia, UNMIK, Greece, Hungary, Slovenia and Italy. No responses were received from Albania<sup>1</sup>, Bulgaria, Romania and Montenegro. As UNMIK performs up to now no auctions some data is not available for UNMIK.

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<sup>1</sup> Information is received from Albania in the mean time and will be published within the next update of the report.

## **2. Legal requirements concerning CB capacity allocation**

### **2.1 Regulation (EC) No 1228/2003**

The Regulation describes in its Article 6 the basic principles for congestion management as it says that all Network congestion problems at the national borders shall be addressed with non discriminatory market based solutions which give efficient economic signals to the market participants and transmission system operators involved. Furthermore Regulation (EC) No 1228/2003 requests that the maximum capacity of the interconnections and/or the transmission networks affecting cross-border flows shall be made available to market participants, complying with safety standards of secure network operation.

Based on Article 6 of the Regulation it could be also concluded that there shall be no pro- rata allocation of cross border capacity or long term contracts any longer.

### **2.2 Congestion Management Guidelines**

The amended Congestion Management Guidelines provide further details concerning the allocation of cross border capacities as they require that cross border capacities shall be allocated through

- (a) explicit (capacity) or
- (b) implicit (capacity and energy)

auctions.

In this respect the allocation structure is subject to review by the respective Regulatory Authorities which should take into account:

- (a) the characteristics of the markets,
- (b) the operational conditions, such as the implications of netting firmly declared schedules,
- (c) the level of harmonization of the percentages and timeframes adopted for the different capacity allocation mechanisms in place.

Furthermore the Guidelines specify that capacity allocation at an interconnection line shall be coordinated and implemented using common allocation procedures by the TSOs involved. In cases where commercial exchanges between two countries (TSOs) are expected to significantly affect physical flow conditions in any third country (TSO), congestion management methods have to be, following the congestion management guidelines, coordinated between all the TSOs so affected through a common congestion management procedure.

Beside these basic principles the Congestion Management Guidelines provide also in depth information about transparency requirements.

Following the provisions from the Congestion Management Guidelines the TSOs have to publish all relevant data related to:

- (a) network availability,
- (b) network access and
- (c) network use, including
- (d) a report on where and why congestion exists,
- (e) the methods applied for managing the congestion and the
- (f) plans for its future management.

Furthermore TSOs have to publish a general description of the congestion management method and a general scheme for the calculation of the interconnection capacity for the different timeframes, based upon the electrical and physical realities of the network. It is stated that this scheme is subject to review by the Regulatory Authorities of the Member States concerned.

Beside that it is described within the Congestion Management Guidelines that the operational and planning security standards shall form an integral part of the information that TSOs publish in an open and public document. This document shall also be subject to review of national Regulatory Authorities.

In order to fulfil their obligation concerning transparency the TSOs shall publish at least:

- (a) annually: information on the long-term evolution of the transmission infrastructure and its impact on crossborder transmission capacity;
- (b) monthly: month- and year-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSO at the time of the forecast calculation (e.g. impact of summer and winter seasons on the capacity of lines, maintenance on the grid, availability of production units, etc.);
- (c) weekly: week-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSOs at the time of calculation of the forecast, such as the weather forecast, planned maintenance works of the grid, availability of production units, etc.;
- (d) daily: day-ahead and intra-day transmission capacity available to the market for each market time unit, taking into account all netted day-ahead nominations, day-ahead production schedules, demand forecasts and planned maintenance works of the grid;
- (e) total capacity already allocated, by market time unit, and all relevant conditions under which this capacity may be used (e.g. auction clearing price, obligations on how to use the capacity, etc.), so as to identify any remaining capacity;
- (f) allocated capacity as soon as possible after each allocation, as well as an indication of prices paid;
- (g) total capacity used, by market time unit, immediately after nomination;
- (h) as closely as possible to real time: aggregated realised commercial and physical flows, by market time unit, including a description of the effects of any corrective actions taken by the TSOs (such as curtailment) for solving network or system problems;
- (i) ex-ante information on planned outages and ex-post information for the previous day on planned and unplanned outages of generation units larger than 100 MW.

### 3. Implementation of the Requirements from the Regulation (EC) No 1228/2003 and the amended Congestion Management Guidelines in South East Europe

#### 3.1 Cross Border Capacity Allocation Procedures in the SEE Region

Most of the countries in South East Europe introduced already a market based allocation scheme for at least one specific time horizon for capacity allocation (e.g. yearly, monthly or daily allocation). Only Bosnia and Herzegovina is in this respect an exception as it has implemented only pro-rata allocation at the borders to its neighboring countries. But also here it is planned to introduce a market based allocation scheme in near future (plan is mid 2008).

Concerning coordination of TSOs it could be noticed that only two countries (Croatia and the former Yugoslav Republic of Macedonia) fulfill at least at one border for one auction type the Congestion Management Guidelines in view of coordination. Most of the contracting parties perform no coordinated auction at the time being.

It has to be highlighted that most of the contracting parties perform a “capacity split” approach which means that each TSO performs auctions only for his capacity slice. In this respect also the auction rules are quite often not harmonized.

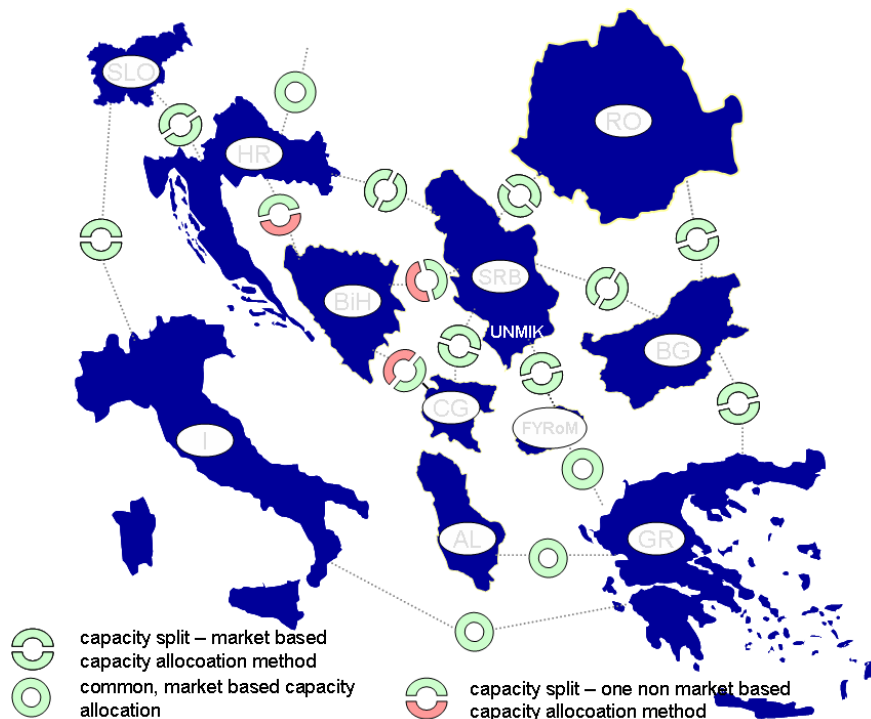


Figure 1 Cross Border Capacity Allocation Procedures applied in South East Europe

### 3.1.1 Overview about Allocation Schemes for Cross Border Capacity in the Contracting Parties of the Energy Community

#### 3.1.1.1 Bosnia and Herzegovina

Bosnia and Herzegovina performs pro rata allocation at its borders to Serbia, Croatia and Montenegro. For this allocation a capacity split approach is used. It is planned that also Bosnia and Herzegovina introduces a market based allocation scheme, fulfilling all provisions out of the Regulation (EC) No 1228/2003 by mid of 2008. The scheme itself is already developed and waits for its final approval by the regulatory authority.

Table 1 Capacity Allocation Schemes at the borders of Bosnia and Herzegovina

	From	To	Allocation Method	Market Based	
				yes	no
1	Bosnia and Herzegovina	Serbia	Pro Rata		✓
2	Serbia	Bosnia and Herzegovina	Pro Rata		✓
3	Bosnia and Herzegovina	Croatia	Pro Rata		✓
4	Croatia	Bosnia and Herzegovina	Pro Rata		✓
5	Bosnia and Herzegovina	Montenegro	Pro Rata		✓
6	Montenegro	Bosnia and Herzegovina	Pro Rata		✓

#### 3.1.1.2 Croatia

Croatia is performing explicit auctions (for base load) on a monthly basis at its borders to Slovenia and Bosnia and Herzegovina. At these borders there is a periodical allocation (yearly, half-yearly, quarterly). In the case of applications exceeding offered capacity priority is given to those with public service obligation and other participants importing for domestic customers or exporting from domestic producers with exception of intensified RES & cogeneration.

These explicit auctions are performed by Croatian TSO HEP-OPS. The auction schedules for these auctions are published on hep-ops web site as the schedule itself is not part of the Auction Rules. HEP-OPS publishes available capacities at least five (5) working days before the start of actual auction and the results of the auctions immediately after actual auction (dates already published in auction schedule table on hep-ops web).

For all auctions the “use it or loose it” principle is used.

The deadlines for confirming auctioned capacity (dates for signing the Contract for use and access to allocated cross border capacities) are predefined in the auction schedule table and published on hep-ops web page<sup>2</sup>.

Within the last year Croatia introduced furthermore a common explicit auction scheme (for base load on a monthly) together with MAVIR at the border to Hungary.<sup>3</sup>

Table 2 Capacity Allocation Schemes at the borders of Croatia

	From	To	Allocation Method	Market Based	
				yes	no
1	Croatia	Hungary	Common Explicit	✓	
2	Croatia	Hungary	Explicit	✓	
3	Croatia	Slovenia	Explicit	✓	
4	Croatia	Bosnia and Herzegovina	Explicit	✓	

### 3.1.1.3 Former Yugoslav Republic of Macedonia

The Former Yugoslav Republic of Macedonia is performing explicit auctions (for base load) at its border to Serbia and Greece whereas the auctions at the border to Greece are performed as joint auctions by the Greek TSO HTSO. Information concerning the Auctions on the Borders to Greece are available through the webpage of the Greek TSO whereas information concerning the allocation at the border to Serbia is available through the webpage of the Serbian TSO EMS. For all auctions the “use it or loose it” principle is used.

Table 3 Capacity Allocation Schemes at the borders of the former Yugoslav Republic of Macedonia (FYROM)

	From	To	Allocation Method	Market Based	
				yes	no
1	FYROM	Serbia	explicit auction	✓	
2	Serbia	FYROM	explicit auction	✓	
3	Greece	FYROM	joint auction	✓	
4	FYROM	Greece	joint auction	✓	

<sup>2</sup> <http://www.hep.hr/ops/en/services/transmission/allocation.aspx>

<sup>3</sup> For further information see also MAVIR homepage [www.mavir.hu](http://www.mavir.hu)

### 3.1.1.4 Serbia

Serbia is performing explicit auctions (for base load) at its border to Hungary, Romania, Bulgaria, the former Yugoslav Republic of Macedonia, Albania, Bosnia and Herzegovina and Montenegro. Up to now there are no common coordinated auctions in place. For all auctions the “use it or loose it” principle is used.

Table 4 Capacity Allocation Schemes at the borders of Serbia

	From	To	Allocation Method	Market Based	
				yes	no
1	Serbia	Hungary	Explicit auction	✓	
2	Serbia	Romania	Explicit auction	✓	
3	Serbia	Bulgaria	Explicit auction	✓	
4	Serbia	FYROM	Explicit auction	✓	
5	Serbia	Albania	Explicit auction	✓	
6	Serbia	Montenegro	Explicit auction	✓	
7	Serbia	Bosnia and Herzegovina	Explicit auction	✓	
8	Serbia	Croatia	Explicit auction	✓	
9	Hungary	Serbia	Explicit auction	✓	
10	Romania	Serbia	Explicit auction	✓	
11	Bulgaria	Serbia	Explicit auction	✓	
12	FYROM	Serbia	Explicit auction	✓	
13	Albania	Serbia	Explicit auction	✓	
14	Montenegro	Serbia	Explicit auction	✓	
15	Bosnia and Herzegovina	Serbia	Explicit auction	✓	
16	Croatia	Serbia	Explicit auction	✓	

### 3.1.2 Overview about Allocation Schemes for Cross Border Capacity in the Participant Countries of the Energy Community in South East Europe

#### 3.1.2.1 Greece

HTSO is performing the explicit auctions (for peak and off-peak) for the entire capacity on all borders to the neighboring countries except the border to Bulgaria. On the border to Bulgaria there is currently a capacity split implemented. Auctions are performed on annual, monthly and daily level. For all auctions the “use it or loose it” principle is used.

Table 5 Capacity Allocation Schemes at the borders of Greece

	From	To	Allocation Method	Market Based	
				yes	no
1	Bulgaria (Blagoevgrad)	Greece (Thessaloniki)	explicit/implicit auctions	✓	
2	FYROM (Dubrovo)	Greece (Thessaloniki)	explicit/implicit auctions	✓	
3	FYROM (Bitola)	Greece (Meliti)	explicit/implicit auctions	✓	
4	Albania (Zemblak)	Greece (Kardia)	explicit/implicit auctions	✓	

### 3.1.2.2 Hungary

Hungary has explicit auctions on yearly, monthly and daily level at its borders to Austria and Slovakia and explicit Auctions on a yearly and monthly level at its border to Croatia, Serbia and Romania. The auctions are for Base load products (except the Austrian-Hungarian border, where peak products, too).

As there is no congestion at the border to the Ukraine for the direction Ukraine to Hungary there is no congestion management scheme in place at the time being. According to the information received from the Hungarian Regulatory Authority an auction for the direction from Hungary to the Ukraine is not allowed by the Ukrainian TSO. For all auctions the “use it or loose it” principle is used. Furthermore the Hungarian TSO MAVIR has introduced also a “fill or kill” option for its auctions at the Austria.

Table 6 Capacity Allocation Schemes at the borders of Hungary

	From	To	Allocation Method	Market Based	
				yes	no
1	Austria	Hungary	Explicit auction (Y,M,D)	✓	
2	Hungary	Austria	Explicit auction (Y,M,D)	✓	
3	Slovakia	Hungary	Explicit auction (Y,M,D)	✓	
4	Hungary	Slovakia	Explicit auction (Y,M,D)	✓	
5	Ukraine	Hungary	No Congestion		
6	Hungary	Ukraine	Not allowed by the Ukrainian TSO		
7	Romania	Hungary	Explicit auction (Y,M)	✓	
8	Hungary	Romania	Explicit auction (Y,M)	✓	
9	Serbia	Hungary	Explicit auction (Y,M)	✓	
10	Hungary	Serbia	Explicit auction (Y,M)	✓	
11	Croatia	Hungary	Explicit auction (Y,M)	✓	



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12	Hungary	Croatia	Explicit auction (Y,M)	✓	
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### 3.1.2.3 Italy

Italy has explicit auctions at its borders to France, Austria, Switzerland, Greece and Slovenia on a

- yearly,
- monthly and
- daily level.

These auctions are for the following products:

Yearly Base: flat 00:00-24:00 from 1st January 2008 to 31st December 2008.

Yearly Base without August or with Maintenance Period: flat 00:00-24:00 from 1st January 2008 to 31st December 2008 with the exception of August or the Maintenance Period.

Monthly Base: flat 00:00-24:00 from 1st Day of the Month to the last Day of the Month.

Monthly Peak: 08:00-20:00 from Monday to Friday of the first Day of the Month to last Day of the Month

Monthly Off Peak: 00:00-08:00 and 20:00-24:00 from Monday to Friday; 00:00-24:00 on Saturday and Sunday, from the first Day of the Month to the last Day of the Month.

Daily product: hourly Blocks.

These Products are published in the Auction Specifications on the Auction Website. For all auctions the “use it or loose it” principle is used.

*Table 7 Capacity Allocation Schemes at the borders of Italy*

	From	To	Allocation Method	Market Based	
				yes	no
1	Italy	France	explicit auction	✓	
2	Italy	Austria	explicit auction	✓	
3	Italy	Switzerland	explicit auction	✓	
4	Italy	Greece	explicit auction	✓	
5	Italy	Slovenia	explicit auction	✓	

### 3.1.2.4 Slovenia

Slovenia has bilateral explicit auctions on a yearly, monthly and daily level at its borders to Austria and Italy and on a weekly and daily level on its border to Croatia. For all auctions the “use it or loose it” principle is used.

*Table 8 Capacity Allocation Schemes at the borders of Slovenia*

	From	To	Allocation Method	Market Based	
				yes	no
1	Slovenia	Italy	Explicit Auction	✓	
2	Slovenia	Austria	Explicit Auction	✓	
3	Slovenia	Croatia	Explicit Auction	✓	

## **3.2 Use of Congestion Management Income in South East Europe**

Regulation (EC) No 1228/2003 describes three options for the use of congestion management income. It is stated within the regulation that all revenues resulting from the allocation of interconnection have to be used for one or more of the following purposes:

- (a) guaranteeing the actual availability of the allocated capacity;
- (b) network investments maintaining or increasing interconnection capacities;
- (c) as an income to be taken into account by regulatory authorities when approving the methodology for calculating network tariffs, and/or in assessing whether tariffs should be modified.

Most of the countries in South East Europe have already provisions concerning the use of congestion management income in their legislation. Even the countries that have no provisions in their legislation have implemented one of the three options for the usage of congestion management income.

Furthermore most of the countries use congestion management income also for deducting it from the cost base used for tariffication

### **3.2.1 Use of Congestion Management Income in some of the Contracting Parties of the Energy Community**

#### **3.2.1.1 Bosnia and Herzegovina**

Bosnia and Herzegovina has foreseen no provisions about the use of congestion management income within its legislation.

The congestion management income is furthermore mainly used as an income to be taken into account by regulatory authorities when approving the methodology for calculating network tariffs, and/or in assessing whether tariffs should be modified.

#### **3.2.1.2 Croatia**

Croatian legislation includes also provisions concerning the usage of congestion management income. Congestion management income is used according to all three options mentioned within Regulation (EC) No 1228/2003

#### **3.2.1.3 Former Yugoslav Republic of Macedonia**

The legislation includes provisions concerning the usage of congestion management income. Congestion management income is used for all three options mentioned within Regulation (EC) No 1228/2003

#### **3.2.1.4 Serbia**

The legislation includes provisions concerning the usage of congestion management income. Congestion management income is used as an income to be taken into account by regulatory authorities when approving the methodology for calculating network tariffs, and/or in assessing whether tariffs should be modified.

#### **3.2.1.5 UNMIK**

The legislation includes provisions concerning the usage of congestion management income. Congestion management income is deducted by the Regulatory Authority from the Cost Base used for Tariffication.

The legal framework of UNMIK indicates

- (a) guaranteeing the actual availability of the allocated capacity;
- (b) network investments maintaining or increasing interconnection capacities;

as possible options for the use of Congestion Management Income.

### **3.2.2 Use of Congestion Management Income in some of the Participating Countries of the Energy Community in South East Europe**

#### **3.2.2.1 Greece**

The Greek legislation includes provisions concerning the use of congestion management income. Congestion Management income is not deducted from the TSOs cost base and is exclusively used in order to increase interconnection capacity.

#### **3.2.2.2 Hungary**

The Hungarian legislation includes provisions concerning the use of congestion management income. Congestion Management income is deducted from the TSOs costbase and is mainly used as an income to be taken into account by the regulatory authority when approving the methodology for calculating network tariffs, and/or in assessing whether tariffs should be modified.

#### **3.2.2.3 Italy**

The Italian legislation includes provisions concerning the use of congestion management income. Furthermore Congestion Management income is deducted from the TSOs cost base and it is mainly used for tariff reduction.

#### **3.2.2.4 Slovenia**

The Slovenian legislation includes provisions concerning the use of congestion management income. Congestion Management income is deducted from the TSOs costbase and is mainly

used for network investments, maintaining or increasing interconnection capacities and as an income to be taken into account by regulatory authorities when approving the methodology for calculating network tariffs, and/or in assessing whether tariffs should be modified.

### 3.3 Implementation of Transparency requirements in South East Europe

The Congestion Management Guidelines provide a detailed description about requirements concerning transparency. It could be noticed that not a single TSO provides all information required by the Congestion Management Guidelines. Also the Quality of Data provided to market participants is in most cases still quite poor and not homogeneous within the region. The following chapters provide an overview about the current state of play in South East Europe.

### 3.4 Implementation of Transparency requirements in some of the Contracting Parties of the Energy Community

#### 3.4.1.1 Bosnia and Herzegovina

Table 9 Overview about the implementation of Article 5.5 of the Congestion Management Guidelines in Bosnia and Herzegovina

		YES	NO
Are the provisions of the Article 5.5 of the Congestion Management Guidelines applicable to the TSO?		✓	
	TSO provides on an annual basis information on the long-term evolution of the transmission infrastructure and its impact on crossborder transmission capacity;	✓	
	TSO provides on a monthly basis month- and year-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSO at the time of the forecast calculation (e.g. impact of summer and winter seasons on the capacity of lines, maintenance on the grid, availability of production units, etc.);	✓	

	<p>TSO provides on a weekly basis week-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSOs at the time of calculation of the forecast, such as the weather forecast, planned maintenance works of the grid, availability of production units, etc.;</p>		
	<p>TSO provides on a daily basis information about day-ahead and intra-day transmission capacity available to the market for each market time unit, taking into account all netted day-ahead nominations, day-ahead production schedules, demand forecasts and planned maintenance works of the grid;</p>	✓	
	<p>TSO provides information about total capacity already allocated, by market time unit, and all relevant conditions under which this capacity may be used (e.g. auction clearing price, obligations on how to use the capacity, etc.), so as to identify any remaining capacity;</p>	✓	
	<p>TSO provides information about allocated capacity as soon as possible after each allocation, as well as an indication of prices paid;</p>	✓	
	<p>TSO provides information about total capacity used, by market time unit, immediately after nomination;</p>	✓	
	<p>TSO provides as closely as possible to real time information about aggregated realised commercial and physical flows, by market time unit, including a description of the effects of any corrective actions taken by the TSOs (such as curtailment) for solving network or system problems;</p>		✓

	TSO provides ex-ante information on planned outages and ex-post information for the previous day on planned and unplanned outages of generation units larger than 100 MW.		✓
	TSO publishes also the ex post realised values for the forecast information in the time period following that to which the forecast applies or at the latest on the following day (D+1)?	✓	

### 3.4.1.2 Croatia

Table 10 Overview about the implementation of Article 5.5 of the Congestion Management Guidelines in Croatia

	YES	NO
Are the provisions of the Article 5.5 of the Congestion Management Guidelines applicable ?		✓
TSO provides on an annual basis information on the long-term evolution of the transmission infrastructure and its impact on crossborder transmission capacity;		✓
TSO provides on a monthly basis month- and year-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSO at the time of the forecast calculation (e.g. impact of summer and winter seasons on the capacity of lines, maintenance on the grid, availability of production units, etc.);		✓

	<p>TSO provides on a weekly basis week-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSOs at the time of calculation of the forecast, such as the weather forecast, planned maintenance works of the grid, availability of production units, etc.;</p>		✓
	<p>TSO provides on a daily basis information about day-ahead and intra-day transmission capacity available to the market for each market time unit, taking into account all netted day-ahead nominations, day-ahead production schedules, demand forecasts and planned maintenance works of the grid;</p>		✓
	<p>TSO provides information about total capacity already allocated, by market time unit, and all relevant conditions under which this capacity may be used (e.g. auction clearing price, obligations on how to use the capacity, etc.), so as to identify any remaining capacity;</p>	✓	
	<p>TSO provides information about allocated capacity as soon as possible after each allocation, as well as an indication of prices paid;</p>	✓	
	<p>TSO provides information about total capacity used, by market time unit, immediately after nomination;</p>		✓
	<p>TSO provides as closely as possible to real time information about aggregated realised commercial and physical flows, by market time unit, including a description of the effects of any corrective actions taken by the TSOs (such as curtailment) for solving network or system problems;</p>		✓



	TSO provides ex-ante information on planned outages and ex-post information for the previous day on planned and unplanned outages of generation units larger than 100 MW.		✓
	TSO publishes also the ex post realized values for the forecast information in the time period following that to which the forecast applies or at the latest on the following day (D+1)?		✓

### 3.4.1.3 Former Yugoslav Republic of Macedonia

Table 11 Overview about the implementation of Article 5.5 of the Congestion Management Guidelines in the Former Yugoslav Republic of Macedonia

		YES	NO
	Are the provisions of the Article 5.5 of the Congestion Management Guidelines applicable to the TSO?	✓	
	TSO provides on an annual basis information on the long-term evolution of the transmission infrastructure and its impact on crossborder transmission capacity;	✓	
	TSO provides on a monthly basis month- and year-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSO at the time of the forecast calculation (e.g. impact of summer and winter seasons on the capacity of lines, maintenance on the grid, availability of production units, etc.);		✓

	<p>TSO provides on a weekly basis week-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSOs at the time of calculation of the forecast, such as the weather forecast, planned maintenance works of the grid, availability of production units, etc.;</p>		
	<p>TSO provides on a daily basis information about day-ahead and intra-day transmission capacity available to the market for each market time unit, taking into account all netted day-ahead nominations, day-ahead production schedules, demand forecasts and planned maintenance works of the grid;</p>		✓
	<p>TSO provides information about total capacity already allocated, by market time unit, and all relevant conditions under which this capacity may be used (e.g. auction clearing price, obligations on how to use the capacity, etc.), so as to identify any remaining capacity;</p>	✓	
	<p>TSO provides information about allocated capacity as soon as possible after each allocation, as well as an indication of prices paid;</p>	✓	
	<p>TSO provides information about total capacity used, by market time unit, immediately after nomination;</p>	✓	
	<p>TSO provides as closely as possible to real time information about aggregated realised commercial and physical flows, by market time unit, including a description of the effects of any corrective actions taken by the TSOs (such as curtailment) for solving network or system problems;</p>	✓	

	TSO provides ex-ante information on planned outages and ex-post information for the previous day on planned and unplanned outages of generation units larger than 100 MW.	✓	
	TSO publishes also the ex post realised values for the forecast information in the time period following that to which the forecast applies or at the latest on the following day (D+1)?	✓	

### 3.4.1.4 Serbia

Table 12 Overview about the implementation of Article 5.5 of the Congestion Management Guidelines in Serbia

	YES	NO
Are the provisions of the Article 5.5 of the Congestion Management Guidelines applicable?		✓
TSO provides on an annual basis information on the long-term evolution of the transmission infrastructure and its impact on crossborder transmission capacity;		✓
TSO provides on a monthly basis month- and year-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSO at the time of the forecast calculation (e.g. impact of summer and winter seasons on the capacity of lines, maintenance on the grid, availability of production units, etc.);		✓

	<p>TSO provides on a weekly basis week-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSOs at the time of calculation of the forecast, such as the weather forecast, planned maintenance works of the grid, availability of production units, etc.;</p>		✓
	<p>TSO provides on a daily basis information about day-ahead and intra-day transmission capacity available to the market for each market time unit, taking into account all netted day-ahead nominations, day-ahead production schedules, demand forecasts and planned maintenance works of the grid;</p>		✓
	<p>TSO provides information about total capacity already allocated, by market time unit, and all relevant conditions under which this capacity may be used (e.g. auction clearing price, obligations on how to use the capacity, etc.), so as to identify any remaining capacity;</p>		✓
	<p>TSO provides information about allocated capacity as soon as possible after each allocation, as well as an indication of prices paid;</p>		✓
	<p>TSO provides information about total capacity used, by market time unit, immediately after nomination;</p>		✓
	<p>TSO provides as closely as possible to real time information about aggregated realised commercial and physical flows, by market time unit, including a description of the effects of any corrective actions taken by the TSOs (such as curtailment) for solving network or system problems;</p>		✓

	TSO provides ex-ante information on planned outages and ex-post information for the previous day on planned and unplanned outages of generation units larger than 100 MW.		✓
	Does your TSO publish also the ex post realised values for the forecast information in the time period following that to which the forecast applies or at the latest on the following day (D+1)?		✓

### 3.4.1.5 UNMIK

The procedures for allocation of interconnection capacities foresee the publication of relevant information about

- long-term evolution of the transmission infrastructure and its impact on crossborder transmission capacity;
- month- and year-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSO at the time of the forecast calculation (e.g. impact of summer and winter seasons on the capacity of lines, maintenance on the grid, availability of production units, etc.);
- total capacity already allocated, by market time unit, and all relevant conditions under which this capacity may be used (e.g. auction clearing price, obligations on how to use the capacity, etc.), so as to identify any remaining capacity;
- allocated capacity as soon as possible after each allocation, as well as an indication of prices paid;
- total capacity used, by market time unit, immediately after nomination;
- planned outages and ex-post information for the previous day on planned and unplanned outages of generation units larger than 100 MW.

*As there is no allocation of cross border capacities at the moment these procedures are not implemented.*

### 3.5 Implementation of Transparency requirements in some of the Participating Countries of the Energy Community in South East Europe

#### 3.5.1.1 Greece

Table 13 Overview about the implementation of Article 5.5 of the Congestion Management Guidelines in Greece

		YES	NO
Are the provisions of the Article 5.5 of the Congestion Management Guidelines applicable to the TSO?		✓	
	TSO provides on an annual basis information on the long-term evolution of the transmission infrastructure and its impact on crossborder transmission capacity;	✓	
	TSO provides on a monthly basis month- and year-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSO at the time of the forecast calculation (e.g. impact of summer and winter seasons on the capacity of lines, maintenance on the grid, availability of production units, etc.);		✓
	TSO provides on a weekly basis week-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSOs at the time of calculation of the forecast, such as the weather forecast, planned maintenance works of the grid, availability of production units, etc.;		✓

	<p>TSO provides on a daily basis information about day-ahead and intra-day transmission capacity available to the market for each market time unit, taking into account all netted day-ahead nominations, day-ahead production schedules, demand forecasts and planned maintenance works of the grid;</p>	✓	
	<p>TSO provides information about total capacity already allocated, by market time unit, and all relevant conditions under which this capacity may be used (e.g. auction clearing price, obligations on how to use the capacity, etc.), so as to identify any remaining capacity;</p>	✓	
	<p>TSO provides information about allocated capacity as soon as possible after each allocation, as well as an indication of prices paid;</p>	✓	
	<p>TSO provides information about total capacity used, by market time unit, immediately after nomination;</p>	✓	
	<p>TSO provides as closely as possible to real time information about aggregated realised commercial and physical flows, by market time unit, including a description of the effects of any corrective actions taken by the TSOs (such as curtailment) for solving network or system problems;</p>		✓
	<p>TSO provides ex-ante information on planned outages and ex-post information for the previous day on planned and unplanned outages of generation units larger than 100 MW.</p>		✓

	TSO publishes also the ex post realised values for the forecast information in the time period following that to which the forecast applies or at the latest on the following day (D+1)?		✓
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### 3.5.1.2 Hungary

Table 14 Overview about the implementation of Article 5.5 of the Congestion Management Guidelines in Hungary

	YES	NO	
Are the provisions of the Article 5.5 of the Congestion Management Guidelines applicable to the TSO?	✓		
	TSO provides on an annual basis information on the long-term evolution of the transmission infrastructure and its impact on crossborder transmission capacity;	✓	
	TSO provides on a monthly basis month- and year-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSO at the time of the forecast calculation (e.g. impact of summer and winter seasons on the capacity of lines, maintenance on the grid, availability of production units, etc.);	✓	
	TSO provides on a weekly basis week-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSOs at the time of calculation of the forecast, such as the weather forecast, planned maintenance works of the grid, availability of production units, etc.;		✓
	TSO provides on a daily basis information about day-ahead and intra-day transmission capacity available to the market for each market time unit, taking into account all netted day-ahead nominations, day-ahead production schedules, demand forecasts and planned maintenance works of the grid;	✓	



	TSO provides information about total capacity already allocated, by market time unit, and all relevant conditions under which this capacity may be used (e.g. auction clearing price, obligations on how to use the capacity, etc.), so as to identify any remaining capacity;	✓	
	TSO provides information about allocated capacity as soon as possible after each allocation, as well as an indication of prices paid;	✓	
	TSO provides information about total capacity used, by market time unit, immediately after nomination;	✓	
	TSO provides as closely as possible to real time information about aggregated realised commercial and physical flows, by market time unit, including a description of the effects of any corrective actions taken by the TSOs (such as curtailment) for solving network or system problems;	✓	
	TSO provides ex-ante information on planned outages and ex-post information for the previous day on planned and unplanned outages of generation units larger than 100 MW.		✓
	TSO publishes also the ex post realised values for the forecast information in the time period following that to which the forecast applies or at the latest on the following day (D+1)?	✓	

### 3.5.1.3 Slovenia

Table 15 Overview about the implementation of Article 5.5 of the Congestion Management Guidelines in Slovenia

	YES	NO
A 1.10 Are the provisions of the Article 5.5 of the Congestion Management Guidelines applicable to the TSO?	✓	

	<p>TSO provides on an annual basis information on the long-term evolution of the transmission infrastructure and its impact on crossborder transmission capacity;</p>		✓
	<p>TSO provides on a monthly basis month- and year-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSO at the time of the forecast calculation (e.g. impact of summer and winter)</p>	✓	
	<p>TSO provides on a weekly basis week-ahead forecasts of the transmission capacity available to the market, taking into account all relevant information available to the TSOs at the time of calculation of the forecast, such as the weather forecast, planned</p>		✓
	<p>TSO provides on a daily basis information about day-ahead and intra-day transmission capacity available to the market for each market time unit, taking into account all netted day-ahead nominations, day-ahead production schedules, demand forecasts and planned</p>	✓	
	<p>TSO provides information about total capacity already allocated, by market time unit, and all relevant conditions under which this capacity may be used (e.g. auction clearing price, obligations on how to use the capacity, etc.), so as to identify any remaining</p>		✓

	TSO provides information about allocated capacity as soon as possible after each allocation, as well as an indication of prices paid;	✓	
	TSO provides information about total capacity used, by market time unit, immediately after nomination;		✓
	TSO provides as closely as possible to real time information about aggregated realised commercial and physical flows, by market time unit, including a description of the effects of any corrective actions taken by the TSOs (such as curtailment) for solving		✓
	TSO provides ex-ante information on planned outages and ex-post information for the previous day on planned and unplanned outages of generation units larger than 100 MW.		✓
	TSO publishes also the ex post realised values for the forecast information in the time period following that to which the forecast applies or at the latest on the following day (D+1)?		✓

### 3.6 Publication of relevant Auction Data in South East Europe

The timeschedules for the publication of relevant auction data are not harmonized. This creates a barrier for traders who want to trade across more than one border. Furthermore this lack of harmonization can also influence the prices reached at bilateral explicit auctions.

The table below shows the different approaches for the publication of relevant Auction Data within South East Europe.

	Publication of Data									
	Albania	Bosnia and Herzegovina	Croatia	Former Yugoslav Republic of Macedonia	Montenegro	UNMIK	Serbia	Greece	Hungary	Slovenia
TSO publishes auction schedules	N.A	N.A	N.A	Monthly Auction: 3rd day of M-1	N.A		Monthly Auction: First day in month M ( for M+1 auctions)	Yearly Auction: December Y-1, Monthly Auction: 15th of M-1 (more or less), Daily Auction: Predefined in Auction Rules	See auction rules (www.MAVIR.hu)	Yearly Auction: at least 7 days before yearly auctions Monthly Auction: At least 3 days before monthly auctions Daily Auction: At least 3 days before daily auctions
TSO publish available capacities	N.A	N.A	HEP-OPS publishes available capacities at least five (5) working days before the start of actual auction	Monthly Auction: monthly	N.A		Monthly Auction: Every 11th of the M-1	Yearly Auction: As above Monthly Auction: As above Daily Auction: 06:45 to 07:15 CET D-1	Yearly Auction: Nov.(Y-1) Monthly Auction: First week of (M-1) Daily Auction: 9h (D-1)	Yearly Auction: Monthly Auction: 14 hours before auction
TSO publishes auction results?	N.A	N.A	Immediately after actual auction (dates already published in auction schedule table on hep-ops web)	18th day of month M-1 for M	N.A		3 hours after gate closure for submitting of bids	Same day the Auction is held	Immediately after the auction	3 hours after gate closure for submitting of bids

Figure 2 Publication of relevant auction data within selected countries in South East Europe

### 3.7 Implementation of a Secondary Market for Cross Border Capacity

Following the Congestion Management Guidelines Cross Border Capacity has to be freely tradable on a secondary basis under the precondition that the relevant TSO is informed sufficiently in advance about such a transaction. Furthermore it is stated within the Congestion Management Guidelines that where a TSO refuses any secondary trade (transaction), this must be clearly and transparently communicated and explained to all the market participants by that TSO and notified to the Regulatory Authority.

However, only few TSOs implemented a secondary market as requested by the Guidelines. Furthermore it was noticed that in some cases market rules in the region don't even allow the implementation of a secondary market.

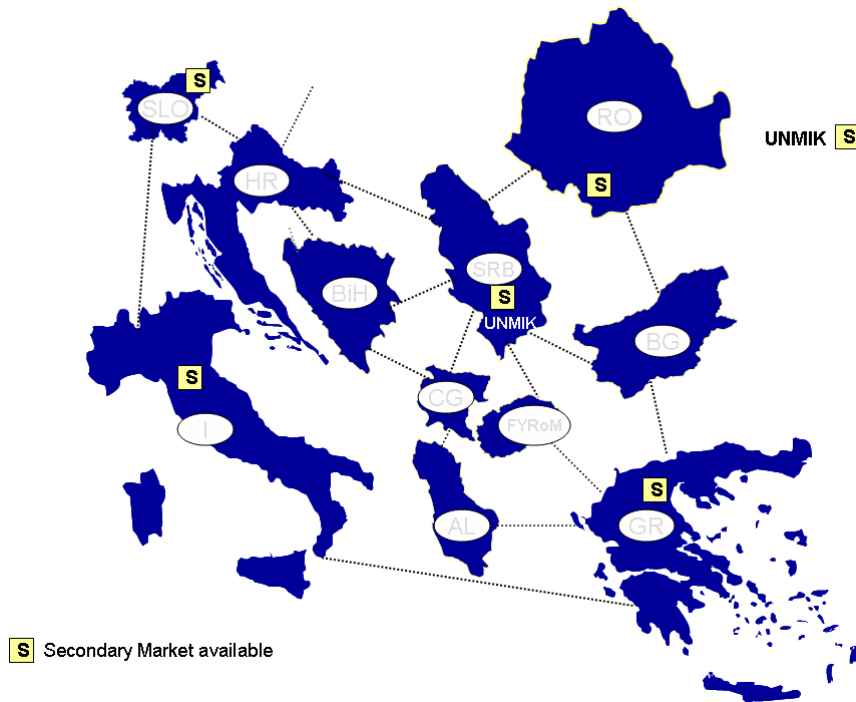


Figure 3 Implementation of a Secondary Markets for Cross Border Capacities in South East Europe

### 3.8 Barriers for international Traders

All TSOs in the region provide in principle also webpages in English. However not all necessary information concerning crossborder trade is available in English.

This creates a barrier for international traders and the development of an integrated electricity market in SEE.

The figure below shows the availability of relevant documents in English.

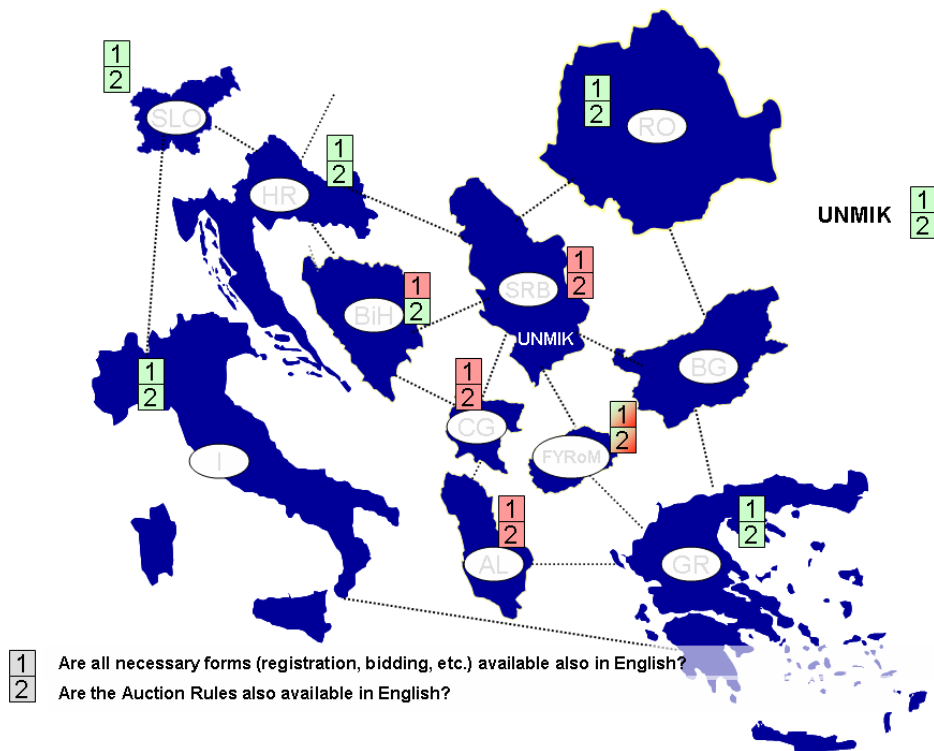


Figure 4 Availability of relevant documents in English<sup>4</sup>

<sup>4</sup> Please note that Auction Rules as well as the forms for the participation in auctions of UNMIK TSO are not valid as there is no auction of cross border capacity at the moment.

## 4. ANNEX II

### 4.1 Overview about Physical Interconnections in South East Europe

### 4.2 Overview about Physical Interconnections of the Contracting Parties of the Energy Community

#### 4.2.1 Bosnia and Herzegovina

Table 16 Physical Interconnections to Croatia

<b>Interconnectors to:</b>	Croatia
Thermal capacity:	<u>OHL 400 kV:</u> 1330 MVA (1920 A) <u>OHL 220 kV:</u> 301 MVA (790 A)
Reliability Margin:	150 MVA, agreed value between TSO's
Methodology for NTC calculation:	Definitions of Transfer Capacities in liberalised Electricity Markets, Final Report 2001

Table 17 Physical Interconnections to Serbia

<b>Interconnectors to:</b>	Serbia
Thermal Capacity:	<u>OHL 400 kV:</u> 1330 MVA (1920 A) <u>OHL 220 kV:</u> 301 MVA (790 A)
Reliability Margin:	100 MVA, agreed value between TSO's
Methodology for NTC calculation:	Definitions of Transfer Capacities in liberalised Electricity Markets, Final Report 2001

Table 18 Physical Interconnections to Montenegro

<b>Interconnectors to:</b>	Montenegro
Thermal Capacity:	<u>OHL 400 kV:</u> Itm=1920 A <u>OHL 220 kV:</u> Itm=790 A <u>OHL 110 kV:</u> 89 MVA (470 A)
Reliability Margin:	100 MVA, agreed value between TSO's
Methodology for NTC calculation:	Definitions of Transfer Capacities in liberalised Electricity Markets, Final Report 2001

## 4.2.2 Croatia

*Table 4 Physical Interconnections to Bosnia and Herzegovina*

<b>Interconnectors to:</b>	Bosnia and Herzegovina
Thermal capacity:	3700 MVA
Reliability Margin:	N.A.
Methodology for NTC calculation:	Definitions of Transfer Capacities in liberalised Electricity Markets, Final Report 2001

*Table 5 Physical Interconnections to Serbia*

<b>Interconnectors to:</b>	Serbia
Thermal capacity:	1100 MVA
Reliability Margin:	N.A.
Methodology for NTC calculation:	Definitions of Transfer Capacities in liberalised Electricity Markets, Final Report 2001

*Table 6 Physical Interconnections to Slovenia*

<b>Interconnectors to:</b>	Slovenia
Thermal capacity:	3950 MVA
Reliability Margin:	N.A.
Methodology for NTC calculation:	Definitions of Transfer Capacities in liberalised Electricity Markets, Final Report 2001



### 4.2.3 Former Yugoslav Republic of Macedonia

Table 7 Physical Interconnections to Serbia

<b>Interconnectors to:</b>	Serbia
Thermal capacity:	1330 MVA
Reliability Margin:	100 MVA
Methodology for NTC calculation:	Composit, (RS+RO+BG)-->(MK+GR+AL)

### 4.2.4 Serbia

Table 8 Physical Interconnections to Hungary

<b>Interconnectors to/from:</b>	Hungary
Thermal capacity:	700/600 MVA
Reliability Margin:	100/100 MVA
Methodology for NTC calculation:	Methodology defined by ETSO and UCTE rules and recommendation.

Table 9 Physical Interconnections to Romania

<b>Interconnectors to/from:</b>	Romania
Thermal capacity:	800/800 MVA
Reliability Margin:	100/100 MVA
Methodology for NTC calculation:	Methodology defined by ETSO and UCTE rules and recommendation.

Table 10 Physical Interconnections to Bulgaria

<b>Interconnectors to/from:</b>	Bulgaria
Thermal capacity:	700/700 MVA
Reliability Margin:	100/100 MVA
Methodology for NTC calculation:	Methodology defined by ETSO and UCTE rules and recommendation.

Table 11 Physical Interconnections to Former Yugoslav Republic of Macedonia

<b>Interconnectors to/from:</b>	Former Yugoslav Republic of Macedonia
Thermal capacity:	500/500 MVA
Reliability Margin:	100/100 MVA
Methodology for NTC calculation:	Methodology defined by ETSO and UCTE rules and recommendation.

Table 12 Physical Interconnections to Albania

<b>Interconnectors to/from:</b>	Albania
Thermal capacity:	260/260 MVA
Reliability Margin:	50/50 MVA
Methodology for NTC calculation:	Methodology defined by ETSO and UCTE rules and recommendation.

Table 13 Physical Interconnections to Montenegro

<b>Interconnectors to/from:</b>	Montenegro
Thermal capacity:	600/600 MVA
Reliability Margin:	100-150/100-150 MVA
Methodology for NTC calculation:	Methodology defined by ETSO and UCTE rules and recommendation.

Table 14 Physical Interconnections to Bosnia and Herzegovina

<b>Interconnectors to/from:</b>	Bosnia and Herzegovina
Thermal capacity:	600/600 MVA
Reliability Margin:	100/100 MVA
Methodology for NTC calculation:	Methodology defined by ETSO and UCTE rules and recommendation.

*Table 15 Physical Interconnections to Croatia*

<b>Interconnectors to/from:</b>	Croatia
Thermal capacity:	600/600 MVA
Reliability Margin:	100/100 MVA
Methodology for NTC calculation:	Methodology defined by ETSO and UCTE rules and recommendation.

### 4.3 Physical Interconnections of Participating Countries of the Energy Community in South East Europe

#### 4.3.1 Greece

Table 16 Physical Interconnections

<b>Interconnectors to:</b>	all
Thermal capacity:	Nominal/summer :1400/1100 MVA
Reliability Margin:	150 MVA (total TRM for the interconnections with Bulgaria, FYROM & Albania)
Methodology for NTC calculation:	NTC=TTC-TRM. TTC calculation takes into account: a) steady-state "N-1" security criterion with national & relevant regional transmission system elements considered, b) the response of the system during simulated transient/dynamic phenomena that result from disturbances (transient stability).

#### 4.3.2 Hungary

Table 17 Physical Interconnections to Austria

<b>Interconnectors to/from:</b>	Austria
Thermal capacity:	550/500 MVA
Reliability Margin:	200 MVA
Methodology for NTC calculation:	The method described in the UCTE Operational Handbook.

Table 18 Physical Interconnections to Slovakia

<b>Interconnectors to/from:</b>	Slovakia
Thermal capacity:	600/900 MVA
Reliability Margin:	200 MVA
Methodology for NTC calculation:	The method described in the UCTE Operational Handbook.

Table 19 Physical Interconnections to Ukraine

<b>Interconnectors to/from:</b>	Ukraine
Thermal capacity:	0/455 MVA
Reliability Margin:	0 MVA
Methodology for NTC calculation:	The method described in the UCTE Operational Handbook

Table 20 Physical Interconnections to Romania

<b>Interconnectors to/from:</b>	Romania
Thermal capacity:	150/200 MVA
Reliability Margin:	100 MVA
Methodology for NTC calculation:	The method described in the UCTE Operational Handbook

Table 21 Physical Interconnections to Serbia

<b>Interconnectors to/from:</b>	Serbia
Thermal capacity:	150/200 MVA
Reliability Margin:	100 MVA
Methodology for NTC calculation:	The method described in the UCTE Operational Handbook

Table 22 Physical Interconnections to Croatia

<b>Interconnectors to/from:</b>	Croatia
Thermal capacity:	650/400 MVA
Reliability Margin:	200 MVA
Methodology for NTC calculation:	The method described in the UCTE Operational Handbook

### 4.3.3 Slovenia

*Table 23 Physical Interconnections to Italy*

<b>Interconnectors to:</b>	Italy
Thermal capacity:	430 MVA
Reliability Margin:	N.A.
Methodology for NTC calculation:	Bilateral agreement between TSOs concerned.

*Table 24 Physical Interconnections to Austria*

<b>Interconnectors to:</b>	Austria
Thermal capacity:	600 MVA
Reliability Margin:	N.A.
Methodology for NTC calculation:	Bilateral agreement between TSOs concerned.

*Table 25 Physical Interconnections to Croatia*

<b>Interconnectors to:</b>	Croatia
Thermal capacity:	1000 MVA
Reliability Margin:	N.A.
Methodology for NTC calculation:	Bilateral agreement between TSOs concerned.