

## **MEMORANDUM**

**Between**

### **JP ELEKTROMREŽA SRBIJE**

Kneza Miloša 11, 11000 Beograd, Serbia  
(Hereinafter „EMS“),

**and**

### **ELECTRO ENERGY SYSTEM OPERATOR EAD**

James Baucher str. No 51, 1407 Sofija, Bulgaria  
(Hereinafter “ESO”)

**For the period January 1<sup>st</sup>, 2007 - June 30<sup>th</sup>, 2007  
(Both of which are hereinafter referred to as the “parties”)**

#### **Whereas**

- a. EMS in its role of Transmission System and Market Operator is responsible for the operation, maintenance and development of the Serbian transmission system and its interconnections with other systems in order to guarantee the security of supply at the standard level.
- b. ESO in its role of Transmission System Operator is responsible for the operation, maintenance and development of the Bulgarian transmission system and its interconnections with other systems in order to guarantee the security of supply at the standard level.
- c. EMS and ESO agree to apply the ETSO and the UCTE rules and recommendations for cross-border power exchanges. EMS and ESO observe the European “Regulation No. 1228/2003 of the European Parliament and the Council as of 26 June 2003 on the Conditions for Access to the Network for Cross-Border Exchanges of Electricity”
- d. EMS and ESO provide common evaluation of the available transfer capacity between the power systems of Serbia and Bulgaria.

#### **The parties to this Memorandum agree to the following:**

1. The transfer capacity definitions used by EMS and ESO for commercial contracting for the period January 1, 2007 (0:00 h CET) - June 30, 2007 (24:00 h CET) are presented in the Appendix 1.

The use of the same interconnection interface by two partners will be taken into consideration and the total NTC will be divided between them equally (50%/50%).

The yearly NTC values shall be evaluated by EMS and ESO according to ETSO and UCTE methodologies. Both parties agreed that the guaranteed NTC values for 2007 shall be 0 MW from Bulgaria to Serbia and 0 MW from Serbia to Bulgaria. The monthly ATC values shall be calculated based on the actual operational conditions of the electrical power systems.

2. The monthly ATC values shall be evaluated by EMS and ESO by the 8th calendar day of the previous month and shall apply from the first calendar day of the month (0:00 h CET) till the last day of the month (24:00 h CET).

The following procedure for monthly ATC evaluation shall apply:

- 15 days before the deadline for monthly ATC evaluation forecast models of Bulgarian and Serbian electrical power systems are exchanged in UCTE format, including active reserves for increasing/decreasing of the generation, exchange programs and AAC of the parties and data about maintenance programs (beginning and end) for the investigated period.

Both parties agree the data received by the other party to be used only for the purpose of monthly ATC evaluation and not to be committed to third parties for any purpose.

- 10 days before the deadline for monthly ATC evaluation, calculation of TTC and NTC according to ETSO and UCTE rules is performed. Each party calculates the TTC values checking the n-1 criterion in its power system.
  - 2 days before the deadline for monthly ATC evaluation TTC, NTC and ATC values are exchanged by email and after discussion are harmonized. If no agreement is reached about the NTC value – lower value is in force.
  - The TRM value at the border is agreed to be 100 MW in both directions.
3. In case of significant changes in the network topology, which cause transmission constraints, after consultation and by mutual agreement ATC values could be changed according to the results of weekly and daily operational planning.
  4. The free capacity in both directions shall be allocated evenly half-and-half (50%/50%) by EMS under consideration of the Serbian laws and rules and by ESO under consideration of the Bulgarian laws and rules.
  5. EMS and ESO shall fully accept the result of the individual allocation procedures held by the other party and shall carry out the transmission services according to the respective allocation results in compliance with the legal requirements of grid access, possible electricity import restrictions and applicable market rules.
  6. EMS reserve the right to amend/or adapt the auction rules according to the Serbian laws and rules. The actual version of Serbian Rules for capacity allocation shall be published on the website of EMS- [www.ems.co.yu](http://www.ems.co.yu)
  7. ESO reserve the right to amend/or adapt the auction rules according to the Bulgarian laws and rules. The actual version of Bulgarian Rules for capacity allocation shall be published on the website of ESO - [www.tso.bg](http://www.tso.bg)
  8. EMS and EESOESO shall apply a common auction method in line with European regulation No. 1228/2003 and its guidelines.
  9. The parties are obliged to inform each other on the results of capacity allocation or changes in capacity use not later than five working days before the beginning of the new capacity right use. Reserved capacity use right transfer or changes in capacity use can be made only for the whole next calendar week. Only contact persons listed below can sign the information exchange document (Appendix 2).
  10. EMS and ESO will notify each other about the allocated ATC values among the market participants and about the supplying-receiving partners at both sides of the Serbian-Bulgarian borders.

11. The contact persons and parties for the cross-border contracts are

EMS	ESO
Mr. Predrag Savić System Operation Division Deputy Division Manager – Chief Dispatcher tel. +381 11 3974 125 fax. +381 11 3970 217 e-mail: <a href="mailto:predrag.savic@ems.co.yu">predrag.savic@ems.co.yu</a>	Mr. <b>Simeon Pechenikov</b> Chief Dispatcher of NDC ESO EAD tel. +359 2 988-59-35 fax. +359 2 981 01 02 e-mail: <a href="mailto:spechenikov@ndc.bg">spechenikov@ndc.bg</a>
Mr. Branko Šumonja System Operation Division Head of Planning Department tel. +381 11 2492 192 fax. +381 11 3970 217 e-mail: <a href="mailto:branko.sumonja@ems.co.yu">branko.sumonja@ems.co.yu</a>	Mr. <b>Plamen Gerdgikov</b> Head of operation department tel. +395 2 981-54-15 fax. +359 2 981 01 02 e-mail: <a href="mailto:pgerdgikov@ndc.bg">pgerdgikov@ndc.bg</a>
Mr. Aleksandar Kurćubić System Operation Division Head of Transmission Planning Group tel. +381 11 3975 771 fax. +381 11 3970 217 e-mail: <a href="mailto:aleksandar.kurcubic@ems.co.yu">aleksandar.kurcubic@ems.co.yu</a>	Mr. <b>Georgi Stoilov</b> Head of power planning department Tel: +3592 980 40 84 Fax: +3592 981 01 02 e-mail: <a href="mailto:gstoilov@ndc.bg">gstoilov@ndc.bg</a>
Operating (00:00 CET – 24.00 CET) Tel: +381 11 3971 964 Fax: +381 11 3971 965 E-mail: <a href="mailto:koordinator@ems.co.yu">koordinator@ems.co.yu</a>	Operating (0:00 a.m. – 12.00 p.m.) <b>Dispatching Centre</b> Tel: +359 2 981 29 22: +359 2 986 24 72 Fax: +359 2 981 49 49 E-mail: <a href="mailto:cdubg@ndc.bg">cdubg@ndc.bg</a>

The contact persons and parties for the transfer capability evaluation and data exchange are:

EMS	ESO
Mr. Branko Šumonja System Operation Division Head of Planning Department tel. +381 11 2492 192 fax. +381 11 3970 217 e-mail: <a href="mailto:branko.sumonja@ems.co.yu">branko.sumonja@ems.co.yu</a>	Mr. <b>Nenko Gamov</b> Transmission Planning Department Tel:+359 2 92 63 728 fax. +359 2 981 01 02 e-mail: <a href="mailto:ngamov@ndc.bg">ngamov@ndc.bg</a>

12. The parties agree to inform each other in advance on any changes in paragraph 11.

13. The cross-border exchanges between EMS and ESO will be summarized with regard to the comparison between them and total monthly ATC value.

14. In case of unexpected transmission constraints (congestion in respect of the total ATC value) the parties agree to reduce proportionally their respective programs of exchange. The reduction in the programs of exchange of each party has to correspond to its laws and rules.

15. The parties agree to inform each other immediately on any disconnection of transmission-components in their own grid, provided that these disconnections have an essential impact on the grid of the other party (in case of an unplanned disconnection promptly and in case of the planned disconnection till the fifth working day of the previous month).

16. The organisational procedure between EMS and ESO related to the scheduling and accounting activities shall be in conformity with the Policy 2 "Scheduling and Accounting" of the UCTE "Operational Handbook" (Appendix 3).

The contact persons and parties for the scheduling and accounting are:

EMS	ESO
Mr. Srđan Resavac System Operation Division Head of Scheduling Group tel. +381 11 2472 077 fax. +381 11 3970 217 e-mail: <a href="mailto:srdjan.resavac@ems.co.yu">srdjan.resavac@ems.co.yu</a>  Ms. Svetlana Sege Ms. Jadranka Janjanin tel. +381 11 2472 077 fax. +381 11 3970 217 e-mail: <a href="mailto:svetlana.sege@ems.co.yu">svetlana.sege@ems.co.yu</a> e-mail: <a href="mailto:jadranka.janjanin@ems.co.yu">jadranka.janjanin@ems.co.yu</a>	<b>Ms. Ljudmila Todorova,</b> <b>Mr. Julian Dimitrov,</b> <b>Mr. Cvetan Vazharov</b> <b>Mr. Milen Vasilev</b> Tel:+ 359 2 981 8617 Fax:+359 2 981 0102 e-mail: <a href="mailto:tsoplan@ndc.bg">tsoplan@ndc.bg</a>

If the parties can not agree the schedules until 14:45 CET day ahead the lowest values will be in force.

17. The parties agree to apply 1:1 pair cross-border nominations. The pairs are described in the Appendix 4.

18. The provisions of this Memorandum could be amended by mutual agreement of the parties in order to follow any changes of their respective legislation.

For EMS:

For ESO:

Dr. Duško Tubić  
System Operation Division  
Division Manager

Mitju Hristozov

DIRECTOR of NDC

**EMS / ESO MEMORANDUM**

for the period 1 January 2007 till 30 June, 2007

**The Total Transfer Capacity (TTC)** that is the maximum exchange programme between two areas compatible with operational security standards applicable at each system if future network conditions, generation and load patterns were perfectly known in advance.

**The Transmission Reliability Margin (TRM)** which is a security margin that copes with uncertainties on the computed TTC values arising from:

- a) Unintended deviations of physical flows during operation due to the physical functioning of load-frequency regulation
- b) Emergency exchanges between TSOs to cope with unexpected unbalanced situations in real time
- c) Inaccuracies, e. g. in data collection and measurements
- d) Uncertainties on the base case used for computation (this base case is a forecast of the power system state for a given time period in the future).

**The Net Transfer Capacity (NTC)** that is defined as:

$$NTC = TTC - TRM$$

NTC is the maximum exchange programme between two areas compatible with security standards applicable in both areas and taking into account the technical uncertainties on future network conditions.

**The Already Allocated Capacity (AAC)** that is the total amount of allocated transmission rights, whether they are capacity or exchange programmes depending on the allocation method.

**The Available Transmission Capacity (ATC)** that is the part of NTC that remains available, after each phase of the allocation procedure, for further commercial activity. ATC is given by the following equation:

$$ATC = NTC - AAC$$

APPENDIX 2

System Operation  
Division

**FAX MESSAGE**

Addressee:	Ref.No.:	
	ID.No.:	
Position:	Sender:	
Trade name:	Fax number:	
Fax number:	Phone number:	
	Pages:	1

Date:  
Subject: Cross Border Capacity Rights allocated by EMS  
For .....

Dear Mr. ....,

According to the MEMORANDUM between our companies please be informed that the under mentioned Cross Border Capacities were allocated by Serbian Side and will be used for the month .....2007.

Direction: Bulgaria - Serbia

Name of the company	Execute capacity	Type of allocation
		Monthly

Total: .....

Direction: Serbia - Bulgaria

Name of the company	Execute capacity	Type of allocation
		Monthly

Total: ....

Sincerely Yours,

Name  
Director

**EMS/ESO MEMORANDUM**

for the period 1 January 2007 until 30 June 2007

**TIME SCHEDULE FOR THE DAILY DATA EXCHANGE RELATED TO CROSS-CHECKING OF CROSS-BORDER PROGRAMS**

Communication between TSO's EMS – ESO

<b>Type of data/information</b>	<b>Deadline</b>	<b>Processing, Consultation, Conclusion</b>	<b>Mode of Information exchange</b>
Hourly cross-border exchange program detailed according to responsible balance circles****	Previous workday 8:00 a.m. (CET)	Sending/receiving programs  Cross-checking	E-mail Fax Telephone
Hourly capacity allocation according to responsible balance circles/traders****	Previous workday 11:00 a.m. (CET)	Sending/receiving programs	direct data connection E-mail Fax Telephone
I/1. Hourly cross-border exchange program detailed according to responsible balance circles/traders, and in total for the day(s) concerned*	Previous workday till 2:45p.m. (CET) According to UCTE Policy 2	Sending/receiving programs  Cross-checking***	CAS, CAX files in KISS or CAS according to ETSO ESS v2 R3 E-mail Fax Telephone
I/2. Identified deviations between programs	Previous workday till 3:30 p.m. (CET) According to UCTE Policy 2	Identification of balance circles/traders making mistake(s) Modification and re-sending of programs  Repeated cross-checking	CAS, CAX files in KISS or CAS according to ETSO ESS v2 R3  E-mail Fax Telephone
I/3. Confirmation of agreed program(s)	Previous workday till 3:30 p.m. (CET) According to UCTE Policy 2	Sending/receiving confirmation of the agreed program(s) Finalization of accepted cross-border exchange program(s) for the day(s) concerned	E-mail Fax Telephone
II/1. Request for intra-day modification of cross-border exchange program**	Actual day 60 minutes before start of modified hour	Sending/receiving new program with reason for the change and identification of the balance circle/trader concerned	Telephone and e-mail or fax
II/2. Confirmation of modified program	Actual day 45 minutes before start of modified hour	Sending/receiving confirmation of the agreed new program(s) Finalization of accepted changes of cross-border exchange program(s) for the day(s) concerned	CAS, CAX files in KISS or CAS according to ETSO ESS v2 R3  E-mail Fax Telephone

- \* The communication for daily agreements takes place from Monday to Friday except for Serbian and Bulgarian holidays. The data exchange for Saturdays, Sundays and Monday take place on Friday.
- \*\* Intra-day modification of cross-border exchange programs must always be managed by the dispatchers of the two TSO, and they should be handled according to the relevant UCTE rules.
- \*\*\* The reserved capacities are used on the basis of the schedules disposal respecting the principle 1:1 pair cross-border nominations. In the case, if the participants (from the respective pair 1:1) deliver the incompatible schedules of transmission, the schedules will be reduced or refused. In so far as the schedules do not tally in transmission value terms (MW) only, but the transmission direction tallies, less-valued transmission shall be accepted. Unless the schedules tally in the transmission direction, such unmatched schedules shall not be accepted - none electricity transmission shall be effected.
- \*\*\*\*Not applicable until the common daily capacity auction/allocation is organize



APPENDIX 4

System Operation  
Division

**FAX MESSAGE**

Addressee:

Position:

Trade name:

Fax number:

Ref.No.:

ID.No.:

Sender:

Fax number:

Phone number:

Pages: 1

**Date:**

**Subject:** Allowed Cross-border Nominations

Dear Mr. ....,

According to the MEMORANDUM between our companies please be informed that the under mentioned Cross-border Nominations is accepted and will be applied for the month ..... 2007.

Company responsible in, Serbia, EIC	Company responsible in Bulgaria, EIC

Sincerely Yours,

Name

Position