



European Network of
Transmission System Operators
for Electricity

COMPLIANCE AUDIT REPORT JP ELEKTROMREŽA SRBIJE

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COMPLIANCE AUDIT CONDUCTED IN BELGRADE BY THE
ENTSO-E RG CE SG COMPLIANCE MONITORING &
ENFORCEMENT
AT THE CONTROL CENTRE OF THE ENTSO-E MEMBER
TSO EMS

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Contents

1	EXECUTIVE SUMMARY.....	4
1.1	COMPLIANCE MONITORING IN ENTSO-E RGCE.....	4
1.2	AUDITED TSO.....	4
1.3	AUDITED OH STANDARDS.....	4
1.4	EMS APPROACH TO THE AUDIT.....	4
1.5	RESULTS.....	5
2	AUDIT REPRESENTATIVES.....	6
2.1	CME AUDIT TEAM STRUCTURE.....	6
2.2	CME AUDIT TEAM FOR EMS.....	6
2.3	EMS AUDIT STAFF.....	6
3	AUDIT PLAN.....	7
3.1	OBJECTIVES.....	7
3.2	SCOPE.....	7
3.3	METHODOLOGY.....	7
3.4	EVALUATION PRINCIPLES.....	8
3.5	CONFIDENTIALITY.....	10
4	AUDIT RESULTS.....	11
4.1	P8-A-R1: TRAINING PROGRAM.....	11
4.2	P8-A-R2: INITIAL PROGRAM.....	14
4.3	P8-A-R3: CONTINUOUS PROGRAM.....	16
4.4	P8-A-R4: ENGLISH TRAINING.....	19
4.5	P8-A-S1: TRAINING PROGRAMS.....	21
4.6	P8-A-S2: TSO REFERENCE LIST OF ENGLISH TECHNICAL TERMS.....	23
4.7	P8-B-R1: EXPERIENCE EXCHANGE.....	25
4.8	P8-B-S1: COMMON TRAINING.....	27
4.9	P8-C-S1: COORDINATION OF THE TRAINING.....	30
4.10	P8-C-S2: ORGANIZATION.....	32
4.11	P8-C-S3: EVALUATION.....	35
4.12	P8-C-S4: FIRST ACCREDITATION.....	38
4.13	P8-C-S5: TRAINERS' SELECTION.....	40
4.14	P8-C-S6: TRAINING OF TRAINERS.....	42
5	CONCLUSIONS.....	44
6	SIGNATURE PAGE.....	45

1 EXECUTIVE SUMMARY

1.1 COMPLIANCE MONITORING IN ENTSO-E RGCE

The mission of the Regional Group Continental Europe (RGCE) is to improve the reliability and security of the interconnected power system in the continental part of Europe through developing and enforcing Operation Handbook standards, monitoring the interconnected power system and assessing its future adequacy. The RGCE member TSOs are subject to compliance with all approved Operation Handbook (OH) standards. The Compliance Monitoring Program (CMP) is the RGCE program that monitors and assesses compliance with these standards via:

- the yearly processes of self-assessment, which is applied to all TSOs, as well as
- the yearly process of mandatory on-site Compliance Audits, which is applied to a certain number of TSOs chosen on a rotating base either directly (in case of doubts that a certain TSO complies with OH Standards) or by random.

SG Compliance Monitoring & Enforcement (SG CME) is in charge of performing these processes.

The year 2010 is the first year of conducting mandatory Compliance Audits. Before this, in 2008 and 2009 Voluntary Compliance Audits have been performed at altogether 4 volunteering TSOs. Through this, the SG CME gained first experiences with this kind of process.

1.2 AUDITED TSO

The RGCE member TSO EMS was chosen for a Compliance Audit in 2010. SG CME conducted the audit on 9 - 10th of November in 2010 at the control centre of EMS in Belgrade.

1.3 AUDITED OH STANDARDS

The Compliance Audit encompassed all 14 standards of Operation Handbook Policy 8 which is related to operational training of dispatchers. In 2009 EMS made 14 compliance declarations in the self-assessment process.

EMS declared full compliance with the following standards:

- P8-A-R1, P8-A-R4, P8-A-S1, P8-A-S2, P8-B-R1, P8-B-S1, P8-C-S1, P8-C-S2, P8-C-S3, P8-C-S4, P8-C-S5, P8-C-S6

EMS declared sufficient compliance with the following standards:

- P8-A-R2, P8-A-R3

EMS did not have non compliance declarations.

1.4 EMS APPROACH TO THE AUDIT

The representatives of EMS were well prepared for the audit. All the necessary documentation was available and very well organised. The representatives of EMS clearly demonstrated that they are familiarized with the content of every single document. The Audit Team particularly wishes to stress the easiness and quickness with which all required evidences were presented and explained.

A visit to the EMS control room helped the Audit Team members to better understand the processes implemented at EMS and the explanations given by the EMS representatives later on.

In the beginning of the audit the representatives of EMS presented the organisation of EMS, how the grid looks like and where it is interconnected, and the general policies of EMS related to the implementation of the OH standards, especially Policy 8, and to internal organizational aspects which are of importance for achieving and/or maintaining compliance.

The readiness of the EMS representatives to explain and discuss openly all subjects covering Policy 8 and beyond contributed to convince the Audit Team members that the compliance declarations of EMS are correct and based on sound reasoning.

Important documents had been translated to English in order to simplify the analyses of evidence. During the visit of the EMS control room the Audit Team member had the chance to verify, whether all dispatcher have access to the required information.

1.5 RESULTS

The Audit Team found that the evidence presented by EMS during the audit is adequate and that EMS is fully compliant in case of 14 out of 14 investigated OH requirements and standards. For the standards P8-A-R2, P8-A-R3 the audit team proposed to increase the compliance levels declared by EMS in 2009 from sufficiently compliant to fully compliant. The audit team suggested to elaborate trainer profiles for continuous (periodical and additional training in EMS) training program on “Instruction for dispatchers training” regarding standard P8-C-S5.

EMS accepted this view and committed itself to realize the proposed measures.

The Audit Team recommends (i.e. these measures are not decisive for determining the compliance levels):

- EMS to evaluate possibilities for common DTS sessions with neighbouring TSOs to promote higher level of DTS training in South-East Europe.

2 AUDIT REPRESENTATIVES

2.1 CME AUDIT TEAM STRUCTURE

The Audit Team has the task to prepare and perform the Compliance Audit as well as to write the corresponding Audit Report. The Audit Team consists of the following members:

- Audit Team Leader – a member of the SG CME not belonging to the audited TSO and its neighbouring TSOs
- Up to two Control Area Managers (CAMs) or members of the SG Coordinated System Operation (CSO) excluding the CAM and representatives of the audited TSO as well as those of the neighbouring TSOs
- Two members of the SG CME not belonging to the audited TSO and its neighbouring TSOs
- One observer/supporter from the ENTSO-E Secretariat.

In this particular case the Compliance Audit was conducted without participation of a Control Area Manager or a member of the WG CSO.

2.2 CME AUDIT TEAM FOR EMS

Audit Team Role	Name	Role in the Compliance Audit Process	Company (TSO) or ENTSO-E
AT Leader	Martin Rehacek	Member of the SG CME	CEPS
AT Member	Matthias Kuring	Member of the SG CME	50 Hertz
AT Member	Rafal Kuczynski	Member of the SG CME	PSE-O
AT Member	Lasse Kontinen	Compliance Monitoring Advisor	ENTSO-E Secretariat

A TSO subject to an audit may object any member of the Audit Team on grounds of a conflict of interests or the existence of other circumstances that could interfere with the impartial performance of his or her duties. The audited TSO is obligated to express its concerns with the proposed team member prior to the team's arrival on-site. EMS didn't make any such objection.

2.3 EMS AUDIT STAFF

Name	Function at EMS
Srdjan Subotic	System Operation Division Manager Deputy (CAM)
Vladimir Ilic	Operating Shift Leader
Dusko Anicic	Operating Shift Leader
Aleksandar Petkovic	Dispatcher
Petar Petrovic	Operating Shift Leader

An initial letter and an audit schedule were sent to EMS on 30th June 2010. This letter included an audit questionnaire. EMS submitted the completed audit questionnaire on 26th of October in 2010. They didn't require any explanations related to the audit questionnaire and other material received from the Audit Team.

A reminder and the first draft of the Compliance Audit Report containing the general layout of the report text and the methodology of the Compliance Audit were sent to EMS on 8th of November in 2010.

3 AUDIT PLAN

3.1 OBJECTIVES

In 2010 the objective of Compliance Audits is to check all 14 RGCE OH standards of Policy 8. These standards were also monitored in the 2009 regular process via the self-assessments.

Furthermore, at performing the Compliance Audit the Audit Team makes recommendations to the audited TSO so as to enhance the evidence or documentation on compliance with the audited OH standards.

3.2 SCOPE

The scope of a compliance audit encompasses:

- issues which are directly related to the compliance of the audited TSO with the audited RGCE OH standards
- issues which make a general background for the implementation of the OH at the audited TSO

Directly related issues

Issues directly related to the audited RGCE OH standards are the following:

- Existence of TSO's addenda and/or non-compliance declarations/non-compliance self-reports
- Follow-up of the TSO's mitigation plans to remove the declared non-compliances
- 2009 self-assessment questionnaires stored at the ENTSO-E Secretariat related to EMS concerning the audited OH standards
- Information and explanations which the Audit Team receives on site
- Implementation of the knowledge of the audited OH standards in the training of dispatchers and operators

General background

The Compliance Audit also encompasses issues of general nature listed below:

- Reference system of rules existing at the audited TSO: general policies of EMS, related set of rules and procedures for the control centre(s) of EMS
- Procedures to control the application of the audited OH standards and their follow-up
- Procedures to improve the compliance with the audited OH standards
- Existence of any TSO's internal report related to the implementation of the audited OH standards
- Existence of TSO's internal audits and/or documentation concerning implementation of OH standards
- Existence of TSO's internal bodies (forums, panels) for the implementation of the OH standards

3.3 METHODOLOGY

The SG CME prepared an audit schedule defining the chronological order of the compliance audit, which EMS accepted without comment.

The Audit Team reviewed the existing material on EMS and its neighbouring TSOs already collected through the self-assessment process in the 2009 self-assessment questionnaires. It also inspected the answers in the 2010 audit questionnaire filled in by EMS.

The methodology includes audit criteria and expectations based on best practices. The criteria are objective, measurable (if possible), complete and relevant to the objectives. At defining the audit

methodology the auditors identify the potential sources of audit evidence and estimate the amount and type of evidence needed.

The Audit Team used an Audit Worksheet (AW) (see chapter 4) for reviewing the audited OH standards. The purpose of the AW is to help to ensure consistency and fairness. By using the AW the Audit Team documented the material reviewed and the observations made.

As EMS declared full compliance and sufficient compliance for the most of the audited OH standards, the Audit Team communicated to the EMS Control Area Manager all evidences of possible deviation from this assessment.

In fact, one of the main reasons for an on-site visit is to review the existing documentation and to interview the staff. Thus, the auditors obtain "objective evidence" which support (or not) the self-assessed claims of the audited TSO. The audit team determine whether the evidence presented by the TSO is sufficient. They do this by assessing the relevance, validity and reliability of the information and documentation presented.

It is the responsibility of the audited TSO to provide evidence of compliance with all audited OH standards.

In most cases the evidence is in written form like documents, plans, programs or records. In some cases the evidence is a review of computerized records or additional supporting material provided at interviews with the staff of the audited TSO.

3.4 EVALUATION PRINCIPLES

The evaluation principles of the audit at EMS were the following:

Preparatory phase:

- Inspecting the exact wording of each audited OH standard and of additional questions formulated by the SG CME
- Identification of documents and other material the TSO has to present to the auditors in order to demonstrate its full compliance with each OH standard
- Identification of remaining discrepancies (inconsistencies) with neighbouring TSOs (by considering the answers of the latter in the 2009 self-assessment questionnaires concerning their relationship to EMS)
- Analysing the explanations/comments EMS made in the 2009 self-assessment and 2010 audit questionnaires by using a marking system (see below) in order to evaluate the quality of explanations/comments in general
- Determining to which needed documents and other material an explanation/comment is actually given (this equals to the identification of the missing explanations)
- Inventorying of the evidences i.e. of the reference documents EMS stated in the 2009 self-assessment and 2010 audit questionnaires by using a marking system (see below) in order to evaluate the quality of statements (not of evidences themselves, because the Audit Team will see them only during the audit)
- Analysing the quality of mitigation plans and improvement plans EMS stated in Addenda (if existing), and in 2009 self-assessment and 2010 audit questionnaire in case of non compliance and sufficient compliance

Audit phase:

- Demanding from EMS to give additional explanations, especially related to documents and other material which were not or not fully addressed by documents and other material mentioned in the 2009 self-assessment and 2010 audit questionnaire
 - the goal is to heighten the quality of explanations to the highest mark of the marking system (if possible i.e. if EMS is able to give adequate explanations)
- Demanding from EMS to present that evidence and, if necessary, additional evidence, in printed or electronic form

- the goal is again to heighten the quality of evidence to the highest mark of the marking system (if possible i.e. if EMS is able to present relevant documents or other material)
- this can be achieved by determining whether the presented material is relevant to the audited OH standard at all,
- by remarking the titles of all presented documents, their relevant chapters and even relevant passages extracted from them as well as
- by writing down explanations related to the presented material

The results of the preparatory and audit phase are given in chapter 4. In the following a description of the marking system is given:

Quality of explanation (it is always applied to the entirety of stipulations of an OH standard and to additional questions formulated by the SG CME):

Missing = TSO **doesn't give any explanation.**

e = TSO gives only a **short explanation** which is mostly **only (slightly) related to the stipulations of the OH standard**, but not also to the additional questions in the 2009 self-assessment questionnaire and 2010 audit questionnaire.

d = TSO gives a **broader explanation**, but which is mostly only **related to the stipulations of the OH standard**, but not also to the additional questions in the 2009 self-assessment questionnaire and 2010 audit questionnaire.

c = TSO gives a broader explanation which is enlarged to **some explicit details asked in the additional questions.**

b = TSO gives a broader explanation which is **enlarged to the most of the explicit details asked in the additional questions.**

a = TSO gives a broader explanation which is **enlarged to all explicit details asked in the additional questions.**

Quality of list of references (it is always applied to the entirety of stipulations of an OH standard and to additional questions formulated by the SG CME):

Missing = TSO **doesn't give any list of references or gives an elusive answer.**

e = TSO lists documents which are **only indirectly** related to the question.

d = TSO lists some documents for which **one can reasonably assume** that they are related to the question, **but an explanation is needed.**

c = TSO lists some documents which are **obviously** related to the question, **but the exact document titles are missing.**

b = TSO lists some documents which are **obviously** related to the question and **the document titles seem to be complete.**

a = TSO lists some documents which are **obviously** related to the question, **the document titles seem to be complete and an additional explanation is given.**

Compliance level, mitigation/improvement plan - the compliance level the TSO declared and the quality of corresponding mitigation plan or improvement plan to remove non-compliance or sufficient compliance, respectively, are also considered within the scope of the Compliance Audit:

Compliance level the audited TSO declared:

FC = fully compliant (this implies that neither a mitigation nor an improvement plan is needed)

SC = sufficiently compliant (this implies an improvement to reach full compliance plan is obligatory)

NC = non-compliant (a mitigation plan to remove non-compliance and reach full compliance is obligatory)

N/A = not applicable

Quality of mitigation/improvement plan:

Missing = TSO **doesn't specify a mitigation/improvement plan.**

b = TSO specifies a **mitigation/improvement plan.**

a = TSO specifies a **in depth mitigation/improvement plan.**

Deadline missing (additionally to marks "a" and "b", if applicable) = TSO specifies an **(in depth) mitigation/improvement plan, but without a deadline.**

3.5 CONFIDENTIALITY

By signing this report the Audit Team members assure that they will maintain the confidentiality of information obtained during the Compliance Audit and drafting of the Audit Report. Moreover, they express their readiness to sign a confidentiality agreement in the future should EMS assert such a claim.

4 AUDIT RESULTS

4.1 P8-A-R1: TRAINING PROGRAM

TRAINING PROGRAM. Each TSO provides its dispatchers with a structured training program that is designed to develop and improve their skills. This program includes initial and continuous parts. The training has to be permanently adapted to the operational evolutions. All the issues of the training have to be regularly checked and updated.

PREPARATORY PHASE

Mismatches with neighbouring TSOs:	N/A
Quality of explanation:	a
Quality of the list of references:	b
Compliance level, mitigation / improvement plan:	FC

EXPLANATION GIVEN IN THE 2009 SELF-ASSESSMENT QUESTIONNAIRE

Compliance Level: FC

Explanation of the declared compliance level:

The structure of the training program is defined in the document Instructions for the Dispatchers Training. In this document it is defined how to perform both initial and continuous training for dispatchers. The structure of training program is updated on the ground of operational experience and major changes in technical, legal or organizational framework.

Additional Questions

Do you have a training program including both initial and continuous part? yes

Do you adapt permanently the training program? yes

Do you have criteria to check whether the training program is in accordance with the current operational challenges ? yes

EXPLANATION GIVEN IN THE 2010 AUDIT QUESTIONNAIRE

Do you have an Addendum to the rule: Yes No

1.1 Do YOU HAVE A TRAINING PROGRAM INCLUDING BOTH INITIAL AND CONTINUOUS PART?

Yes No

List of Evidences: Instructions for the Dispatchers Training

Comments: The structure of the training program is defined in the document Instructions for the Dispatchers Training. In this document it is defined how to perform both initial and continuous training for dispatchers. The structure of

training program is updated on the ground of operational experience and major changes in technical, legal or organizational framework.

1.2 HOW OFTEN DO YOU CARRY OUT THE CONTINUOUS TRAINING PROGRAM?

Instances per year:

List of Evidences: Training Plan 2010, Training Plan 2011, Minutes of the regular dispatcher meetings, Agendas and materials of workshops with RCCs, Agendas and materials of workshops with neighbouring TSOs

Comments: We carry out continuous program in different manners: 1) regular dispatcher meetings - at least 4 times per year 2) annual training with dispatchers of regional 110 kV control centres 3) simulation sessions - twice per year 4) annual international dispatcher trainings with adjacent TSOs 5) training for preparation of maintenance disconnection – once in two years 6) English language – once in two years

1.3 DO YOU ADAPT THE TRAINING PROGRAM ON A REGULAR BASIS AND IF YES HOW OFTEN?

Yes No

List of Evidences: Instructions for the Dispatchers Training 2008, Instructions for the Dispatchers Training 2010

Comments: The structure of training program is updated on the ground of operational experience and major changes in technical, legal or organizational framework. The first version of this document was issued in 2008, and the second one in 2010.

1.4 DO YOU HAVE CRITERIA TO CHECK WHETHER THE TRAINING PROGRAM IS IN ACCORDANCE WITH THE CURRENT OPERATIONAL CHALLENGES?

Yes No

List of Evidences:

Comments: We perform following criteria: 1) Training program has to be in compliance with superior legal and technical acts 2) Training program has to cover critical issues on the ground of our operational control experience.

1.5 DO YOU DIVERSIFY THE TRAINING CONTENTS ON THE BASE OF THE DISPATCHER ASSIGNMENT (OFF-DEMAND BALANCE, NETWORK SECURITY, ETC.)?

Yes No

List of Evidences:

Comments: No, as all dispatchers have the very same scope of responsibilities.

AUDIT PHASE

Question	Response
<p>1. P8-A-R1: Training program</p> <p>Does the TSO have evidences to confirm self-assessment?</p> <p>Finding: EMS presented “Instruction for dispatchers training” which contained initial and continuous parts of the dispatcher training. It was signed by Branislav Djukic (Operational Control Division Manager) and</p>	<p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Needs Improvement</p>

Question	Response
<p>Srdjan Subotic (Operational Control Division Deputy Manager) in Belgrade on 6.10.2010. EMS also showed older version of the document which was signed on 6.10.2008 by Dusko Tubic and Srdjan Subotic.</p> <p>Initial program for dispatcher candidates lasts 6 - 12 months, Mentors are appointed for all dispatcher candidates and main responsibility for training is on training coordination manager.</p> <p>EMS has regular dispatcher meetings (three in 2010 with wide attendance) to inform operational staff on recent events in power systems and facts related to it. EMS also provides detailed disturbance analyses to its dispatchers on bigger events.</p> <p>Agendas and minutes with regional control centre workshops were also provided to the audit team. All dispatchers attended the workshops on rotational basis. All output from the workshops are distributed to all dispatchers.</p> <p>New mark for quality of explanation: a</p> <p>New mark for list of references: a</p> <p>Compliance level: FC</p> <p>Remark:</p> <p>Improvement/mitigation plan with deadline (if needed):</p>	

4.2 P8-A-R2: INITIAL PROGRAM

INITIAL PROGRAM. The initial program consists of a theoretical part and on-the-job part complemented by simulator sessions.

PREPARATORY PHASE

Mismatches with neighbouring TSOs:	N/A
Quality of explanation:	a
Quality of the list of references:	b
Compliance level, mitigation/ improvement plan:	SC

EXPLANATION GIVEN IN THE 2009 SELF-ASSESSMENT QUESTIONNAIRE

Compliance Level: SC

Actions taken to reach compliance:

DTS is an integral part of the SCADA/EMS system, but it is not fully operational at the moment. DTS will become fully operational after vendor removes all malfunctions which are notified during the warranty period.

Deadline: 12\2009

Explanation of the declared compliance level:

Initial training includes both theoretical and on-the-job part. On-the-job part is implemented in the shift, where trainees work under the supervision of the shift leader and senior dispatchers. At the moment, simulator sessions are not a part of the dispatchers training because DTS is not fully operational yet. We expect DTS to be fully operational by the end of 2009, and after that simulator sessions will be a part of both initial and continuous training. In mean time, DTS sessions are replaced by SCADA/EMS and security analyses (DACF) sessions. On-the-job part of the Initial training lasts 175 work days as it is defined in the document: Instructions for the Dispatchers Training

Additional Questions

Does your initial program consist of both theoretical and on-the-job part? yes

Does your initial program include simulator sessions as well? no

How long does the initial program on-the-job part (education) last before the new candidate is certified to take the respective dispatcher position? (How many months) (3 / 6 months - as defined in A-G1) months: 9

EXPLANATION GIVEN IN THE 2010 AUDIT QUESTIONNAIRE

Do you have an Addendum to the rule: Yes No

2.1 DOES YOUR INITIAL PROGRAM CONSIST OF BOTH THEORETICAL AND ON-THE-JOB PART?

Yes No

List of Evidences: Instructions for the Dispatchers Training

Comments: The structure of the training program, including theoretical and on-the-job part is defined in the document Instructions for the Dispatchers Training. Theoretical part consists of: Electricity Sector – legislation framework, Structure of the electricity Sector, Technical characteristics of the Power System, Coordinated Planning, N-1 Security Analysis, Daily Operational Plan, Interconnection, NTC Calculation, Telecommunication and IT system, Connection, Transmission System Development, Electricity Market (75 working days) and simulator sessions (20 days). On-the-job part lasts 160 days.

2.2 DOES YOUR INITIAL PROGRAM INCLUDE SIMULATOR SESSIONS?

Yes No

List of Evidences: Instructions for the Dispatchers Training, DTS Training Manual

Comments: Up to 2010, simulator sessions were not a part of the dispatchers training because DTS was not fully operational, as vendor failed to fulfill its obligations in due time. Since, October 2010 DTS is fully operational, and after this simulator sessions will be a part of both initial and continuous training. According to Instructions for the Dispatcher Training, initial training on simulator lasts 20 working days. DTS manual defines training for 1) normal operation 2) emergency operation 3) system restoration.

2.3 HOW LONG DOES THE INITIAL PROGRAM ON-THE-JOB PART (EDUCATION) LAST BEFORE THE NEW CANDIDATE IS CERTIFIED TO TAKE THE RESPECTIVE DISPATCHER POSITION? (HOW MANY MONTHS?) (3 / 6 MONTHS - AS DEFINED IN A-G1)

Time: 8 months - 160 work days

List of Evidences: Instructions for the Dispatchers Training

Comments: On-the-job part of the Initial training lasts 160 work days as it is defined in the document Instructions for the Dispatchers Training.

AUDIT PHASE

Question	Response
<p>2. P8-A-R2: Initial program</p> <p>Does the TSO have evidences to confirm self-assessment?</p> <p>Finding: "Instruction for dispatchers training" contains initial training program which has theoretical and on-the-job part with simulator sessions. Initial training program lasts from six months to one year depending on the previous experience of the dispatcher candidate on power systems. Dispatcher Training Simulator sessions lasts 20 days on four phases. EMS' DTS became fully operational in October 2010.</p> <p>EMS also presented "Initial and Periodical DTS Training Protocol" to the audit team which covers regular operation, disturbance operation and restoration from blackout training. The document was signed by Srecko Jeremic on 10.10.2010. Currently EMS does not have dispatcher candidates in initial program.</p> <p>New mark for quality of explanation: a</p> <p>New mark for list of references: a</p> <p>Compliance level: FC</p> <p>Remark:</p> <p>Improvement/mitigation plan with deadline (if needed):</p>	<p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Needs Improvement</p>

4.3 P8-A-R3: CONTINUOUS PROGRAM

CONTINUOUS PROGRAM. The continuous program is applied to all dispatchers as soon as they are certified and nominated to a dispatcher position. The main aim of the continuous program is to keep and extend the dispatchers' knowledge and competences. The continuous program is established to complement the initial program with:

- advanced theoretical parts;
- learning of new rules and procedures;
- additional simulator sessions.

PREPARATORY PHASE

Mismatches with neighbouring TSOs:	N/A
Quality of explanation:	a
Quality of the list of references:	b
Compliance level, mitigation/ improvement plan:	SC

EXPLANATION GIVEN IN THE 2009 SELF-ASSESSMENT QUESTIONNAIRE

Compliance Level: SC

Actions taken to reach compliance:

Simulator sessions will be part of both initial and continuous training as soon as DTS becomes fully operational.

Deadline: 6\2010

Explanation of the declared compliance level:

The regular meetings of dispatchers of National Dispatching Centre are organized every 2 month. The events in the previous period are analyzed, amendments of legislation and internal acts are presented to dispatchers, and any other subjects which are interested for dispatchers are discussed at these meetings. Periodical training with dispatchers of Regional Dispatching Centres is organized annually. Training with dispatchers of neighbouring TSOs is organized periodically, as work-shops or cross visits. Additional training is performed in these situations:

- There are new circumstances in the power system;
- New procedures or new technologies are implemented in the power system control;
- Dispatcher is not familiar with some parts of initial training;
- Dispatcher makes mistakes performing tasks;
- Dispatcher has not been working for a longer period of time.

At the moment, simulator sessions are not a part of the dispatchers training because DTS is not fully operational yet. We expect DTS to be fully operational by the end of 2009, and after that simulator sessions will be a part of both initial and continuous training. In mean time, DTS sessions are replaced by SCADA/EMS and security analyses (DACF) sessions.

Additional Questions

Do you provide advanced theoretical parts? yes

Do you provide teaching of new rules and procedures? yes

How often do you provide simulator sessions? months: 0

Do you train dispatchers to work under new conditions affecting network operations (new network elements or power units)? Yes

EXPLANATION GIVEN IN THE 2010 AUDIT QUESTIONNAIRE

Do you have an Addendum to the rule: Yes No

3.1 Do you provide advanced theoretical parts? In case you do, please describe shortly its content.

Yes No

List of Evidences: Collection of examples related to generation and transmission of electricity, Minutes of the regular dispatcher meetings, Agendas and materials of workshops with RCCs, Agendas and materials of workshops with neighbouring TSOs

Comments: Our distinguished former employee published for the purpose of dispatcher training the 'Collection of examples related to generation and transmission of electricity' which covers examples of various calculations relevant for improved dispatcher knowledge and this covers: synchronous generators, short-circuits, power flows, losses, LFC regulation, voltage regulation, probability, stability and measuring. In case of implementation of new standards or technologies we practice to train dispatchers through different forms of training. Besides this, in case of appearance of new technologies relevant for transmission system control, we organize lectures devoted to a topic.

3.2 DO YOU PROVIDE TEACHING OF NEW RULES AND PROCEDURES?

Yes No

List of Evidences: Minutes of the regular dispatcher meetings, Agendas and materials of workshops with RCCs, Agendas and materials of workshops with neighbouring TSOs

Comments: For this purpose we primarily use regular dispatcher meetings, as well as regular annual training with the regional control centres 110 kV (RCC) dispatchers.

3.3 HOW OFTEN DO YOU PROVIDE SIMULATOR SESSIONS?

Annually to each dispatcher

List of Evidences: Instructions for the Dispatchers Training, DTS Training Manual

Comments: Up to 2010, simulator sessions were not a part of the dispatchers training because DTS was not fully operational, as vendor failed to fulfill its obligations in due time. Since, October 2010 DTS is fully operational, and after this simulator sessions will be a part of continuous training, twice per year for each dispatcher. DTS manual defines continuous 1) emergency operation 2) system restoration. The very first simulator session continuous is presently going on.

3.4 DO YOU TRAIN THE RESTORATION AFTER A BLACKOUT?

Yes No

List of Evidences: DTS Training Manual

Comments: System Restoration is primarily trained in DTS. Moreover, back-up solutions for bottom-up approach are PSS-E or DIgSILENT – dynamic models.

3.5 DO YOU CARRY OUT EXCEPTIONAL TRAINING SESSIONS WITHIN THE SCOPE OF THE CONTINUOUS TRAINING IN CASE OF NEW/CHANGED PROCEDURES?

Yes No

List of Evidences: Minutes of the regular dispatcher meetings, Agendas and materials of workshops with RCCs, Agendas and materials of workshops with neighbouring TSOs.

Comments: For this purpose we primarily use regular dispatcher meetings, as well

as regular yearly training with the regional 110 kV control centres dispatchers.

3.6 Do you train your dispatchers one by one or as a complete shifting team?

Single training Shifting team training

List of Evidences:

Comments: We do not have fixed teams for shifts. Therefore we train principally our dispatchers individually.

3.7 Do you train dispatchers to work under new conditions affecting network operations (new network elements or power units)?

Yes No

List of Evidences: Documentation on new and reconstructed facilities

Comments: In case of commissioning of new element in transmission system, our Planning Department performs calculations and issues report on commissioning for dispatcher scope of work (general technical data, expected power flows, voltages, security checking, protection settings, performing of manoeuvres...). If necessary, dispatchers are informed in advance at regular dispatchers meetings.

AUDIT PHASE

Question	Response
<p>3. P8-A-R3: Continuous program</p> <p>Does the TSO have evidences to confirm self-assessment?</p> <p>Finding: "Instruction for dispatchers training" contains continuous training program "Periodical Training" which includes advanced theoretical parts, information and evaluation of new rules and procedures and DTS sessions. EMS also provides "Additional training" to all dispatchers which is conducted on need basis on special topics.</p> <p>EMS showed Audit team detailed "Periodical Training plan proposal for 2010 and 2011" which has realisation of attendance to training in 2010 by dispatchers. EMS presented various attendance lists on different training events according continuous program.</p> <p>Audit team was presented "Collection of examples related to generation and transmission of electricity" which is extensively used for dispatcher training.</p> <p>EMS provided to the audit team "Documentation on new and reconstructed facilities" which is available in control centre. It describes all changes in EMS grid and it's updated continuously.</p> <p>New mark for quality of explanation: a</p> <p>New mark for list of references: a</p> <p>Compliance level: FC</p> <p>Remark:</p> <p>Improvement/mitigation plan with deadline (if needed):</p>	<p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Needs Improvement</p>

4.4 P8-A-R4: ENGLISH TRAINING

ENGLISH TRAINING. Dispatchers in contact with neighbouring control areas shall have sufficient knowledge of English and operational terms to carry out their tasks, ensuring the safe and smooth flow of information in an international environment using clear expressions in order to ease an immediate understanding.

PREPARATORY PHASE

Mismatches with neighbouring TSOs:	N/A
Quality of explanation:	a
Quality of the list of references:	b
Compliance level, mitigation/ improvement plan:	FC

EXPLANATION GIVEN IN THE 2009 SELF-ASSESSMENT QUESTIONNAIRE

Compliance Level: FC

Explanation of the declared compliance level:

The precondition for a candidate to apply for a dispatchers job is to have good knowledge of English language. In JP EMS all dispatchers has at least average speaking skills of English language and it is verified by their superiors. If superiors find out that some dispatchers has insufficient knowledge of English they are obliged to attend the English courses. A reference list of technical terms in English, based on the existing UCTE reference list, with translation to Serbian language, is a part of the document Instructions for the Dispatchers Training.

Additional Questions

Do you verify English speaking skills of your dispatchers? yes

Does the learning of English technical terms relevant to system operation make a part of the dispatcher training? yes

Does each shift team have at least one dispatcher who speaks English? yes

EXPLANATION GIVEN IN THE 2010 AUDIT QUESTIONNAIRE

Do you have an Addendum to the rule: Yes No

4.1 DO YOU VERIFY ENGLISH SPEAKING SKILLS OF YOUR DISPATCHERS?

Yes No

List of Evidences: Job appliances documentation/ Faculty certificates

Comments: Since 2000, precondition for a candidate to apply for a dispatcher's job is to have good knowledge of English language (verified by external certificate and internal testing). In JP EMS all dispatchers have at least average speaking skills of English language and this is verified by their superiors. If superiors find out that some dispatchers have insufficient knowledge of English, they are obliged to attend the English courses.

4.2 DOES THE LEARNING OF ENGLISH TECHNICAL TERMS RELEVANT TO SYSTEM OPERATION MAKE A PART OF THE DISPATCHER TRAINING?

Yes No

List of Evidences: Instructions for the Dispatchers Training

Comments: A reference list of technical terms in English, based on the existing

UCTE reference list, with translation to Serbian language, is a part of the document Instructions for the Dispatchers Training.

4.3 Do you also train dispatchers to on phone conversation in English?

Yes No

List of Evidences:

Comments: On phone conversation is trained within English language training.

4.4 Does each shift team have at least one dispatcher who speaks English?

Yes No

List of Evidences:

Comments: All dispatchers have at least average speaking skills of English language.

4.5 Do you maintain the existing skills of dispatchers to speak languages of neighbouring countries in addition to English? In case you do which languages are concerned?

Yes No

List of Evidences:

Comments: With dispatchers of HEP-OPS, NOS BiH, CGES and MEPSO we speak on Serbian.

AUDIT PHASE

Question	Response
<p>4. P8-A-R4: English training</p> <p>Does the TSO have evidences to confirm self-assessment?</p> <p>Finding: All EMS dispatchers job descriptions state requirement for fluent English. EMS also showed English tests and certificates of their dispatchers. Four of seventeen dispatchers participate in inter-TSO working groups. EMS dispatchers can use their native language on communication with HEP-OPS, ISO BiH, CGES and MEPSO. With other TSOs EMS dispatchers communicate in English. Audit team interviewed dispatchers on shift and they all had good command of English.</p> <p>New mark for quality of explanation: a</p> <p>New mark for list of references: a</p> <p>Compliance level: FC</p> <p>Remark:</p> <p>Improvement/mitigation plan with deadline (if needed):</p>	<p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Needs Improvement</p>

4.5 P8-A-S1: TRAINING PROGRAMS

TRAINING PROGRAMS. The initial and continuous program has to consider the relevant parts of the ENTSO-E Operation Handbook and mutual agreements between TSOs. Each TSO defines its specific requirements for the initial program and the continuous program and their duration.

PREPARATORY PHASE

Mismatches with neighbouring TSOs:	N/A
Quality of explanation:	a
Quality of the list of references:	b
Compliance level, mitigation/ improvement plan:	FC

EXPLANATION GIVEN IN THE 2009 SELF-ASSESSMENT QUESTIONNAIRE

Compliance Level: FC

Explanation of the declared compliance level:

The relevant parts of the UCTE Operation Handbook and bilateral agreements between JP EMS and neighboring TSOs has to be learned during the initial training. UCTE Operation Handbook and bilateral agreements are part of dispatchers' documentation which is available to all dispatchers. Dispatchers of JP EMS are always informed when documentation is updated. If necessary additional training is organized.

Additional Questions

Is the inter-TSO training part of your continuous training program? yes

Does your training program cover agreements between TSOs? yes

Does your training program consider the relevant parts of the UCTE

OH? yes

EXPLANATION GIVEN IN THE 2010 AUDIT QUESTIONNAIRE

Do you have an Addendum to the rule: Yes No

5.1 DOES YOUR TRAINING PROGRAM CONSIDER THE RELEVANT PARTS OF THE RG CE OH?

Yes No

List of Evidences: Instructions for the Dispatchers Training

Comment: The relevant parts of the ENTSO-E RG CE Operation Handbook and bilateral agreements between JP EMS and neighboring TSOs have to be learnt during the initial training, as it is envisaged by our internal document Instructions for the Dispatchers Training – chapter Interconnection. ENTSO-E RG CE Operation Handbook and emanating bilateral agreements are part of dispatchers' documentation which is available to all dispatchers. Dispatchers of JP EMS are always informed when documentation is updated. If necessary additional training is organized.

5.2 Do YOUR DISPATCHERS HAVE TO ACCESS TO RG CE OH?

Yes No

List of Evidences:

Comment: This document is an integral part of National Control Center documentation. Moreover, the most important rules are included in national Grid Code and internal operational documents.

5.3 IS THE INTER-TSO TRAINING PART OF YOUR CONTINUOUS TRAINING PROGRAM?

Yes No

List of Evidences: Agendas and materials of workshops with neighbouring TSOs.

Comment: In the last several years we have been regularly participating in joint training organized by MAVIR and Transelectrica, and since 2010 we organize regional SE Europe dispatcher training.

5.4 DOES YOUR TRAINING PROGRAM COVER AGREEMENTS BETWEEN TSOs?

Yes No

List of Evidences: Instructions for the Dispatchers Training

Comment: The document Instructions for the Dispatchers Training – chapter Interconnection, envisages studying of following agreements: 1. Bilateral operational agreements 2. Emergency energy agreements 3. NTC Agreements 4. Multilateral agreement. These agreements are part of the National Control Center documentation.

AUDIT PHASE

Question	Response
<p>5. P8-A-S1: Training programs</p> <p>Does the TSO have evidences to confirm self-assessment?</p> <p>Finding: Assessment on requirements P8-A-R1, P8-A-R2, P8-A-R3 covers all required actions in P8-A-S1. Relevant parts of the RGCE OH are covered in initial training. "Instruction for dispatchers training" has numerous references to RGCE OH.</p> <p>New mark for quality of explanation: a</p> <p>New mark for list of references: a</p> <p>Compliance level: FC</p> <p>Remark:</p> <p>Improvement/mitigation plan with deadline (if needed):</p>	<p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Needs Improvement</p>

4.6 P8-A-S2: TSO REFERENCE LIST OF ENGLISH TECHNICAL TERMS

REFERENCE LIST OF ENGLISH TECHNICAL TERMS. Each TSO makes available a reference list of technical terms in English with translation to the mother language of dispatchers for operation and for training based on the existing ENTSO-E reference list (see Appendix 8).

PREPARATORY PHASE

Mismatches with neighbouring TSOs:	N/A
Quality of explanation:	A
Quality of the list of references:	B
Compliance level, mitigation/ improvement plan:	FC

EXPLANATION GIVEN IN THE 2009 SELF-ASSESSMENT QUESTIONNAIRE

Compliance Level: FC

Explanation of the declared compliance level:

A reference list of technical terms in English, based on the existing UCTE reference list, with translation to Serbian language, is a part of the document Instructions for the Dispatchers Training.

Additional Questions

Do you have and make available to dispatchers a list of English technical terms relevant to system operation, with translation into their native language? Yes

EXPLANATION GIVEN IN THE 2010 AUDIT QUESTIONNAIRE

Do you have an Addendum to the rule: Yes No

6.1 Do you have and make available to dispatchers a list of English technical terms relevant to system operation, with translation into their native language?

Yes No

List of Evidences: Instructions for the Dispatchers Training

Comment: A reference list of technical terms in English, based on the former UCTE reference list, with translation to the Serbian language, is a part of the document Instructions for the Dispatchers Training. This document is available as a hard copy and in electronic form within National Control Center documentation.

AUDIT PHASE

Question	Response
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Question	Response
<p>6. P8-A-S2: TSO reference list of English technical terms</p> <p>Does the TSO have evidences to confirm self-assessment?</p> <p>Finding: EMS presented "TSO REFERENCE LIST OF ENGLISH TECHNICAL TERMS" which is part of the "Instruction for dispatchers training" (Appendix 3) document. The document is available to dispatchers in an electronic format at the control room.</p> <p>New mark for quality of explanation: a</p> <p>New mark for list of references: a</p> <p>Compliance level: FC</p> <p>Remark:</p> <p>Improvement/mitigation plan with deadline (if needed):</p>	<p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Needs Improvement</p>

4.7 P8-B-R1: EXPERIENCE EXCHANGE

EXPERIENCE EXCHANGE. TSOs have to exchange the operational experience with their neighbours in order to cope with normal and abnormal situations in a coordinated way.

PREPARATORY PHASE

Mismatches with neighbouring TSOs:	None
Quality of explanation:	a
Quality of the list of references:	b
Compliance level, mitigation/ improvement plan:	FC

EXPLANATION GIVEN IN THE 2009 SELF-ASSESSMENT QUESTIONNAIRE

Compliance Level: FC

Explanation of the declared compliance level:

Cross-visits has been implemented in inter-TSO training with ISO-BiH, ESO-EAD, MEPSO and EPCG. Dispatchers of JP EMS regularly attend annual work-shops organized by MAVIR and Transelectrica, whereby they are in position to exchange operational experience with dispatchers of HEP-OPS as well.

Additional Questions

Do you organize the exchange of the operational experience with your neighbors?

ISO BiH

yes

ESO EAD

yes

MAVIR ZRt

yes

HEP-OPS

yes

Transelectrica

yes

MEPSO

yes

EPCG

yes

Do your dispatchers take part in that exchange? yes

EXPLANATION GIVEN IN THE 2010 AUDIT QUESTIONNAIRE

Do you have an Addendum to the rule: Yes No

7.1 DO YOU ORGANIZE THE EXCHANGE OF THE OPERATIONAL EXPERIENCE WITH YOUR NEIGHBOURS?

Yes No

List of Evidences: Agendas and materials of workshops with neighbouring TSOs.

Comments: In 2010 JP EMS organized dispatchers' training/workshop for all adjacent ENTSO-E TSOs, ELES, HTSO, and even for the Albanian TSO – KESH which is not member of ENTSO-E (altogether 11 TSOs). In future, JP EMS intends to hold these trainings on a yearly basis.

7.2 DO YOUR DISPATCHERS TAKE PART IN THAT EXCHANGE?

Yes No

List of Evidences: Agendas and materials of workshops with neighbouring TSOs.

Comments: Dispatchers of JP EMS regularly attend annual work-shops organized by MAVIR and Transelectrica, whereby they are in position to exchange operational experience with dispatchers of following adjacent TSOs: HEP-OPS, MAVIR, Transelectrica and ESO-EAD.

AUDIT PHASE

Question	Response
<p>7. P8-B-R1: Experience exchange</p> <p>Does the TSO have evidences to confirm self-assessment?</p> <p>Finding: EMS presented agendas, minutes and attendance lists for various Inter-TSO workshops with neighbouring TSOs from 2008 - 2010. MAVIR, Transelectrica and EMS each organise annual Inter-TSO dispatcher workshops. All presentations from workshops are available for all EMS dispatchers. CGES dispatcher candidates have some part of their initial training in EMS which equals as on-shift cross periods. Cross-visits with neighbouring TSOs are also part of EMS experience exchange. OST (Albanian TSO) also participates in EMS organised workshops. EMS dispatcher training realisation list proves that the TSO commits itself to high level of Inter-TSO dispatcher experience exchange.</p> <p>New mark for quality of explanation: a</p> <p>New mark for list of references: a</p> <p>Compliance level: FC</p> <p>Remark:</p> <p>Improvement/mitigation plan with deadline (if needed):</p>	<p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Needs Improvement</p>

4.8 P8-B-S1: COMMON TRAINING

COMMON TRAINING. Each TSO implements at least one of the four actions defined in guidelines P8-B-G3 to improve communication and coordinated measures between neighbouring TSO dispatchers. The actions taken have to be chosen depending on the mutual level of risks for secure system operation with the first (or further) neighbouring TSO.

PREPARATORY PHASE

Mismatches with neighbouring TSOs:	None in 2009. On EMS audit questionnaire they had only cross-visits with neighbouring TSOs. It was not the with ISO BiH, MEPSO and CGES in 2009. This is explained by EMS organised Inter-TSO workshop in 2010.
Quality of explanation:	a
Quality of the list of references:	b
Compliance level, mitigation/ improvement plan:	FC

EXPLANATION GIVEN IN THE 2009 SELF-ASSESSMENT QUESTIONNAIRE

Compliance Level: FC

Explanation of the declared compliance level:

The last dispatchers work-shop organized by JP EMS was in 2000. From 2000 cross-visits has been implemented in inter-TSO training with ISO-BiH, ESO-EAD, MEPSO and EPCG. Dispatchers of JP EMS regularly attend annual work-shops organized by MAVIR and Transelectrica, whereby they are in position to exchange operational experience with dispatchers of HEP-OPS as well.

Additional Questions

Which actions defined in guidelines P8-B-G3 do you implement? (To answer this question border by border).

ISO BiH

P8-B-G3.1

ESO EAD

P8-B-G3.2

MAVIR ZRt

P8-B-G3.2

HEP-OPS

P8-B-G3.2

Transelectrica

P8-B-G3.2

MEPSO

P8-B-G3.1

EPCG

P8-B-G3.1

EXPLANATION GIVEN IN THE 2010 AUDIT QUESTIONNAIRE

Do you have an Addendum to the rule: Yes No

8.1 WHICH ACTIONS DEFINED IN GUIDELINES P8-B-G3 DO YOU IMPLEMENT? (PLEASE ANSWER THIS QUESTION BORDER BY BORDER)

Neighbour	P8-B-G3.1.	P8-B-G3.2.	P8-B-G3.3.	P8-B-G3.4.
MAVIR	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>

Transelectrica	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
ESO EAD	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
MEPSO	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
Prenos	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
NOS BiH	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
HEP-OPS	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>
OST (Albania)	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>	Yes <input type="checkbox"/> No <input type="checkbox"/>

List of Evidences: Agendas and materials of workshops with neighbouring TSOs.

Comments: In 2010 JP EMS organized dispatchers' training/workshop for all adjacent ENTSO-E TSOs, ELES, HTSO, and even for the Albanian TSO – KESH (altogether 11 TSOs). In future, JP EMS intends to hold these trainings on a yearly basis. Dispatchers of JP EMS regularly attend annual workshops organized by MAVIR and Transelectrica, whereby they are in position to exchange operational experience with dispatchers of following adjacent TSOs: HEP-OPS, MAVIR, Transelectrica and ESO-EAD.

8.2 Do you carry out common training only sporadically or on a regular basis? How often if regular?

Yes No

List of Evidences: Agendas and materials of workshops with neighbouring TSOs.

Comments: JP EMS intends to hold these trainings/workshops on a yearly basis. Workshops in Hungary and Romania are on a yearly basis as well.

AUDIT PHASE

Question	Response
<p>8. P8-B-S1: Common training</p> <p>Does the TSO have evidences to confirm self-assessment?</p> <p>Finding: EMS presented agendas, minutes and attendance lists for various Inter-TSO workshops with neighbouring TSOs from 2008 - 2010. MAVIR, Transelectrica and EMS each organise annual Inter-TSO dispatcher workshops. All presentations from workshops are available for all EMS dispatchers. CGES dispatcher candidates have some part of their initial training in EMS which equals as on-shift cross periods. Cross-visits with neighbouring TSOs are also part of EMS experience exchange. OST (Albanian TSO) also participate in EMS workshops. EMS dispatcher training realisation list proves that the TSO commits itself to high level of Inter-TSO dispatcher experience exchange.</p> <p>New mark for quality of explanation: a</p> <p>New mark for list of references: a</p> <p>Compliance level: FC</p> <p>Remark: Audit team recommends EMS to evaluate possibilities for common DTS sessions with neighbouring TSOs.</p>	<p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Needs Improvement</p>

Question	Response
Improvement/mitigation plan with deadline (if needed):	

4.9 P8-C-S1: COORDINATION OF THE TRAINING

COORDINATION OF THE TRAINING. TSO appoints a training coordination manager responsible for training organization: designing, following-up and updating the full training process.

PREPARATORY PHASE

Mismatches with neighbouring TSOs:	N/A
Quality of explanation:	b
Quality of the list of references:	b
Compliance level, mitigation/ improvement plan:	FC

EXPLANATION GIVEN IN THE 2009 SELF-ASSESSMENT QUESTIONNAIRE

Compliance Level: FC
Explanation of the declared compliance level:
 JP EMS appointed a training coordination manager in 2008, who is responsible for training organization.
Additional Questions
 Have you appointed a training coordination manager? yes

EXPLANATION GIVEN IN THE 2010 AUDIT QUESTIONNAIRE

Do you have an Addendum to the rule: Yes No

9.1 HAVE YOU APPOINTED A TRAINING COORDINATION MANAGER?

Yes No

List of Evidences: Internal act on work organization, work contract of Training Coordination Manager

Comments: JP EMS appointed a training coordination manager in 2008, who is responsible for training organization.

9.2 DO YOU HAVE A PERMANENT BODY TO FOLLOW-UP THE TRAINING PROCESS?

Yes No

List of Evidences:

Comments: Permanent follow-up of the training process are tasks of: Training Coordination Manager, System Operation Division Manager, Head Dispatcher, Head of NCC and Head of RCCs.

AUDIT PHASE

Question	Response
9. P8-C-S1: Coordination of the training Does the TSO have evidences to confirm self-assessment? Finding: EMS provided document "The Act of Internal Work Organization" signed by Milos Milankovic (General Director of EMS) on	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Needs Improvement

Question	Response
<p>24.12.2009 which shows a position for Training Coordination Manager in EMS organisation. Srecko Jeremic is appointed as Training Coordination Manager based on his employment contract signed by Milos Mladenovic (Executive Director for Operation and Markets) on 10.12.2009. These two documents cover all actions required in P8-C-S1.</p> <p>New mark for quality of explanation: a</p> <p>New mark for list of references: a</p> <p>Compliance level: FC</p> <p>Remark:</p> <p>Improvement/mitigation plan with deadline (if needed):</p>	

4.10 P8-C-S2: ORGANIZATION

ORGANIZATION. The training coordination manager determines appropriate procedures for the training organization. These procedures shall cover:

- a description of the dispatchers required qualifications (knowledge and skills);
- a reference list of topics for training programs linked to the dispatchers required qualification;
- the processes for the initial and continuous programs including scripts/documents; of the theoretical sessions, time-schedules, supervision, tools, support for trainees, evaluation/validation and continuous improvement of the programs
- the process of dispatchers accreditation;
- trainers selection and training of trainers.

PREPARATORY PHASE

Mismatches with neighbouring TSOs:	N/A
Quality of explanation:	b
Quality of the list of references:	b
Compliance level, mitigation/ improvement plan:	FC

EXPLANATION GIVEN IN THE 2009 SELF-ASSESSMENT QUESTIONNAIRE

Compliance Level: FC

Explanation of the declared compliance level:

JP EMS appointed a training coordination manager in 2008. In our opinion experienced dispatchers are the most suitable for the position of a training coordination manager. We also recognize that pedagogical skills are necessary for trainers to implement all aspects of training and to translate their knowledge to students. The current training coordination manager in JP EMS has 22 years experience of working in the shift. He also possesses pedagogical skills (pedagogical course finished in 1996) and proved himself by successful training of many dispatchers so far. The training coordination manager has to follow the document Instructions for the Dispatchers Training that fully covers all items defined by this OH rule.

Additional Questions

Do your procedures for training include a description of the dispatchers required qualifications: yes

Do your procedures for training include a reference list of topics for training programs linked to the dispatchers required qualification: yes

Do your procedures for training include the processes for the initial and continuous programs including scripts/documents; of the theoretical sessions, time-schedules, supervision, tools, support for trainees, evaluation/validation and continuous improvement of the programs: yes

Do your procedures for training include the process of dispatchers Accreditation: yes

Do your procedures for training include trainers selection and training of trainers: yes

EXPLANATION GIVEN IN THE 2010 AUDIT QUESTIONNAIRE

Do you have an Addendum to the rule: Yes No

10.1 Do YOUR PROCEDURES FOR TRAINING INCLUDE A DESCRIPTION OF THE DISPATCHERS REQUIRED QUALIFICATIONS?

Yes No

List of Evidences: Internal act on work organization, work contracts of dispatchers

Comments: A description of the dispatchers required qualifications is primarily covered by work-contract and internal act on work organization. These tasks are transferred in the document Instructions for the Dispatchers Training.

10.2 Do YOUR PROCEDURES FOR TRAINING INCLUDE A REFERENCE LIST OF TOPICS FOR TRAINING PROGRAMS LINKED TO THE DISPATCHERS REQUIRED QUALIFICATION?

Yes No

List of Evidences: Instructions for the Dispatchers Training

Comment: A reference list of topics for training programs linked to the dispatchers required qualification is covered by the document Instructions for the Dispatchers Training.

10.3 Do YOUR PROCEDURES FOR TRAINING INCLUDE THE PROCESSES FOR THE INITIAL AND CONTINUOUS PROGRAMS INCLUDING SCRIPTS/DOCUMENTS; OF THE THEORETICAL SESSIONS, TIME-SCHEDULES, SUPERVISION, TOOLS, SUPPORT FOR TRAINEES, EVALUATION/VALIDATION AND CONTINUOUS IMPROVEMENT OF THE PROGRAMS?

Yes No

List of Evidences: Instructions for the Dispatchers Training

Comment: The document Instructions for the Dispatchers Training include the processes for the initial and continuous programs including scripts/documents; of the theoretical sessions, time-schedules, supervision, tools, support for trainees, evaluation/validation and continuous improvement of the programs.

10.4 Do YOUR PROCEDURES FOR TRAINING INCLUDE THE PROCESS OF DISPATCHERS' ACCREDITATION?

Yes No

List of Evidences: Instructions for the Dispatchers Training

Comment: This topic is covered by Work Low for apprentices. For others, this is covered by internal act on work organization and the document Instructions for the Dispatchers Training.

10.5 Do YOUR PROCEDURES FOR TRAINING INCLUDE TRAINERS' SELECTION AND TRAINING OF TRAINERS?

Yes No

List of Evidences: Instructions for the Dispatchers Training, Internal act on work organization

Comment: According the act of internal work organization, Training Coordination Manager has to be former dispatcher with relevant experience. Also, according the Instructions for the Dispatchers Training principal trainer-mentor has to be either shift leader or experienced dispatcher.

AUDIT PHASE

Question	Response
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Question	Response
<p>10. P8-C-S2: Organization</p> <p>Does the TSO have evidences to confirm self-assessment?</p> <p>Finding: "Instruction for dispatchers training" covers all actions required in P8-C-S2. Job descriptions of system operation staff are described in "The Act of Internal Work Organization", signed by Milos Milankovic (General Director of EMS) on 24.12.2009.</p> <p>EMS provided answer for additional question 10.3. which was "yes".</p> <p>New mark for quality of explanation: a</p> <p>New mark for list of references: a</p> <p>Compliance level: FC</p> <p>Remark:</p> <p>Improvement/mitigation plan with deadline (if needed):</p>	<p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Needs Improvement</p>

4.11 P8-C-S3: EVALUATION

EVALUATION. The initial program has to be completed by an evaluation in which the knowledge and capabilities of a candidate to perform a dispatcher job are tested. This evaluation is performed by the trainers; a relevant document is forwarded to the manager of the candidate.

PREPARATORY PHASE

Mismatches with neighbouring TSOs:	N/A
Quality of explanation:	a
Quality of the list of references:	b
Compliance level, mitigation/ improvement plan:	FC

EXPLANATION GIVEN IN THE 2009 SELF-ASSESSMENT QUESTIONNAIRE

Compliance Level: FC

Explanation of the declared compliance level:

Every three months, trainer performs testing of a trainee. After that, trainer produces report on evaluation of a trainee and forwards it to System Operation Division Management. Initial program is completed with an exam in which candidates capabilities to perform dispatcher's job are tested.

Additional Questions

Do you complete the initial program with a test of the knowledge of dispatches candidates? **yes**

Does the trainer issue a document containing the results of the evaluation to the manager of the candidate? **yes**

EXPLANATION GIVEN IN THE 2010 AUDIT QUESTIONNAIRE

Do you have an Addendum to the rule: Yes No

11.1 Do YOU COMPLETE THE INITIAL PROGRAM WITH A TEST OF THE KNOWLEDGE OF DISPATCHER CANDIDATES?

Yes No

List of Evidences: Instructions for the Dispatchers Training, Test results, Commission Report

Comment: Every three months, training coordination manager performs testing of a trainee. After that, he produces a report on evaluation of a trainee and forwards it to System Operation Division Management. Initial program is completed with an exam in which candidates capabilities to perform dispatcher's job are tested.

11.2 DOES THE TRAINER ISSUE A DOCUMENT CONTAINING THE RESULTS OF THE EVALUATION TO THE MANAGER OF THE CANDIDATE?

Yes No

List of Evidences: Instructions for the Dispatchers Training, Test results, Commission Report

Comment: Trainees are examined by Commission (comprising generally trainers, but not obligatory) which evaluates the knowledge and skills of trainees and their ability to perform dispatcher job. If a trainee passes the exam, Commission issues positive report. On that ground, the job contract with license to work as a dispatcher is to be signed.

11.3 Do you have other trainers than the training coordination manager?

Yes No

List of Evidences: Instructions for the Dispatchers Training

Comment: According to the document Instructions for the Dispatchers Training, principal trainer is so called mentor, who has to be either shift leader or experienced dispatcher. Other trainers are experts in separate fields of expertise (besides standard dispatching tasks, trainees are introduced with tasks related to system planning, system development, scheduling, market, relay protection, maintenance, market, connection, interconnection rules, legal framework..).

11.4 Is training of the dispatchers a full time job for trainer?

Yes No

List of Evidences: Instructions for the Dispatchers Training, Internal act on work organization

Comment: Only Training Coordination Manager is a full time job, primarily oriented to the training organization. Other trainers are experts in their field of expertise, and for them training is only a periodical task, besides their primary duties.

11.5 Does the trainer carry out the evaluation of the dispatchers?

Yes No

List of Evidences: Instructions for the Dispatchers Training

Comment: Usually, trainers participate in Commission for trainee evaluation.

11.6 Is there any external body that does the evaluation of the dispatchers?

Yes No

List of Evidences:

Comment:

AUDIT PHASE

Question	Response
<p>11. P8-C-S3: Evaluation</p> <p>Does the TSO have evidences to confirm self-assessment?</p> <p>Finding: "Instruction for dispatchers training" describes evaluation process of the dispatcher candidates. Exam Commission follows training of the dispatcher candidates and it is nominated for each exam. EMS provided the latest "Exam Commission Nomination" document signed by Dusko Tubic on 15.9.2009. EMS provided as an example two sets of following documents: interim exams, final exam, final exam report, proposal for accreditation and employment contract containing accreditation information for a dispatcher.</p>	<p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Needs Improvement</p>

Question	Response
New mark for quality of explanation: a New mark for list of references: a Compliance level: FC Remark: Improvement/mitigation plan with deadline (if needed):	

4.12 P8-C-S4: FIRST ACCREDITATION

FIRST ACCREDITATION. The TSO has to deliver a first accreditation to the dispatcher candidate that authorizes him to perform his job in the control room. The first accreditation is attributed according to defined criteria for a duration decided by the TSO as in below-mentioned guidelines.

PREPARATORY PHASE

Mismatches with neighbouring TSOs:	N/A
Quality of explanation:	a
Quality of the list of references:	b
Compliance level, mitigation/ improvement plan:	FC

EXPLANATION GIVEN IN THE 2009 SELF-ASSESSMENT QUESTIONNAIRE

Compliance Level: FC

Explanation of the declared compliance level:

Trainees are examined by Commission which evaluates the knowledge and skills of trainees and their ability to perform dispatcher job. If a trainee passes the exam, Commission issues positive report. On that ground, the job contract with license to work as a dispatcher is to be signed. Validity duration of dispatchers licenses is not limited, but periodically testing is obligatory. In case one fails, he has to pass additional training. Moreover, for dispatchers who have not been working for longer period or for those who have made mistakes performing their tasks, the additional training is organized as well. After performing the additional training an exam is mandatory.

Additional Questions

Do you deliver a first accreditation to your dispatcher? yes

Do you have criteria for accreditation of dispatcher candidate? yes

EXPLANATION GIVEN IN THE 2010 AUDIT QUESTIONNAIRE

Do you have an Addendum to the rule: Yes No

12.1 DO YOU DELIVER A FIRST ACCREDITATION TO YOUR DISPATCHER?

Yes No

List of Evidences: Work contracts of dispatchers

Comments: Legal framework requires that dispatcher accreditation is to be encompassed by work contract.

12.2 DO YOU HAVE CRITERIA FOR ACCREDITATION OF DISPATCHER CANDIDATE?

Yes No

List of Evidences: Instructions for the Dispatchers Training, Commission Report

Comments: Trainee is examined by the Commission which evaluates the knowledge and skills of a trainees and his ability to perform dispatcher job. If a trainee passes the exam, Commission issues positive report. On that ground, the contract with license to work as a dispatcher is to be signed.

12.3 HOW LONG DOES THE ACCREDITATION LAST?

Time: Not limited

<p>List of Evidences: Instructions for the Dispatchers Training, Internal act on work organization</p> <p>Comments: Validity duration of dispatcher’s licenses is not limited, but periodically testing is obligatory. In case one fails, he has to pass additional training. Moreover, for dispatchers who have not been working for longer period or for those who have made mistakes performing their tasks, the additional training is organized as well. After performing the additional training an exam is mandatory.</p>
<p>12.4 Do you have different levels of accreditation?</p> <p>Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p>
<p>List of Evidences: Internal act on work organization</p> <p>Comments: Internal act on work organization envisages 3 types of accreditations for dispatcher positions: 1) junior 2) senior 3) shift leader.</p>

AUDIT PHASE

Question	Response
<p>12. P8-C-S4: First accreditation</p> <p>Does the TSO have evidences to confirm self-assessment?</p> <p>Finding: EMS provided final exam, final exam report, proposal for accreditation and employment contract containing accreditation information for all new dispatchers after adoption Policy 8.</p> <p>EMS clarified that they have three dispatcher positions and each position is permitted to work with the same accreditation, but different responsibilities depending on their experiences (Additional question 12.4.).</p> <p>New mark for quality of explanation: a</p> <p>New mark for list of references: a</p> <p>Compliance level: FC</p> <p>Remark:</p> <p>Improvement/mitigation plan with deadline (if needed):</p>	<p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Needs Improvement</p>

4.13 P8-C-S5: TRAINERS' SELECTION

TRAINERS' SELECTION. TSOs have to determine the profile of trainers with regards to their respective tasks and responsibilities in the training programs. Trainers are selected internally (experienced dispatchers) or from external bodies.

PREPARATORY PHASE

Mismatches with neighbouring TSOs:	N/A
Quality of explanation:	a
Quality of the list of references:	b
Compliance level, mitigation/ improvement plan:	FC

EXPLANATION GIVEN IN THE 2009 SELF-ASSESSMENT QUESTIONNAIRE
<p>Compliance Level: FC</p> <p>Explanation of the declared compliance level: In our opinion experienced dispatchers are the most suitable for the position of a training coordination manager. We also recognize that pedagogical skills are necessary for trainers to implement all aspects of training and to pass their knowledge to students. The training process is fully organized by trainer but some parts of training are performed by external bodies (e.g. some parts of training are performed in power plants or experts in specific fields are engaged). The profile of training coordination manager is defined within an internal act, altogether with all other job profiles.</p> <p>Additional Questions Do you have determined profile of trainers? yes Do you appoint external bodies for carrying out the training programs? partially</p>

EXPLANATION GIVEN IN THE 2010 AUDIT QUESTIONNAIRE
<p>Do you have an Addendum to the rule: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/></p> <p>13.1 HAVE YOU DETERMINED THE PROFILE TRAINERS SHOULD HAVE? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>List of Evidences: Instructions for the Dispatchers Training</p> <p>Comments: In our opinion experienced dispatchers are the most suitable for the position of a Training Coordination Manager and principal trainers/mentors, as it is defined within Instructions for the Dispatchers Training. For other fields of expertise, we practice to engage the most prominent experts: within our company for planning, development, maintenance, relay protection, market etc. or within generation/distribution companies.</p> <p>13.2 DO YOU APPOINT EXTERNAL BODIES FOR CARRYING OUT THE TRAINING PROGRAMS? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></p> <p>List of Evidences: Instructions for the Dispatchers Training</p> <p>Comments: Yes, regarding the training in generation companies, distribution companies and Regulatory Agency.</p>

13.3 Do you select trainers with dispatching experience?

Yes No

List of Evidences: Instructions for the Dispatchers Training

Comments: According the Instructions for the Dispatchers Training, principal trainer/mentor has to be either shift leader or experienced dispatcher.

AUDIT PHASE

Question	Response
<p>13. P8-C-S5: Trainers' selection</p> <p>Does the TSO have evidences to confirm self-assessment?</p> <p>Finding: Trainers are selected for each training session on need basis. EMS showed presentations from previous training sessions. "Instruction for dispatchers training" describes profile for trainers (mentors) in initial program. Audit team received excellent explanation on trainer profiles, but the actual written documentation on continuous training program is less detailed than initial training program.</p> <p>New mark for quality of explanation: a</p> <p>New mark for list of references: b</p> <p>Compliance level: FC</p> <p>Remark: Trainer profiles should be elaborated for continuous (periodical and additional training in EMS) training program on "Instruction for dispatchers training".</p> <p>Improvement/mitigation plan with deadline (if needed):</p>	<p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Needs Improvement</p>

4.14 P8-C-S6: TRAINING OF TRAINERS

TRAINING OF TRAINERS. Depending on education and previous experience, an individual training program is defined for each trainer; it can be provided by internal sessions or by outsourced training sessions.

PREPARATORY PHASE

Mismatches with neighbouring TSOs:	N/A
Quality of explanation:	a
Quality of the list of references:	b
Compliance level, mitigation/ improvement plan:	FC

EXPLANATION GIVEN IN THE 2009 SELF-ASSESSMENT QUESTIONNAIRE

Compliance Level: FC

Explanation of the declared compliance level:

It is obligation of the System Operation Division Management and training coordination manager to ensure trainers for each aspect of dispatcher training. Those trainers are ultimate experts and there is no need to organize training program for them, except the pedagogical one, which is outsourced.

Additional Questions

Do you have individual training program for trainers? no

Do you have pedagogical program for trainers? yes

EXPLANATION GIVEN IN THE 2010 AUDIT QUESTIONNAIRE

Do you have an Addendum to the rule: Yes No

14.1 Do you have individual training program for trainers?

Yes No

List of Evidences: Individual training program 2010, Individual training program 2011

Comments: Training Coordination Manager prepares plan for the individual training for each of the trainers. As we have already mentioned, our trainers are shift leaders and experienced dispatchers who are regularly trained through continuous dispatchers' training program. In addition to that, trainers take part in the development of new procedures. Some of them also participate in the international groups established by ENTSO-E.

14.2 Do you have pedagogical program for trainers?

Yes No

List of Evidences: Individual training program 2010, Individual training program 2011.

Comments: Pedagogical training is applied when Training Coordination Manager and Head of NCC deem it necessary for trainers' personal development.

AUDIT PHASE

Question	Response
<p>14. P8-C-S6: Training of trainers</p> <p>Does the TSO have evidences to confirm self-assessment?</p> <p>Finding: EMS presented “Individual training program for trainers in 2010” and “Individual training program for trainers in 2011” which describe the training program for each trainer. Documents were signed by Srecko Jeremic (Training Coordination Manager) on 22.12.2009 and 22.10.2010 respectively.</p> <p>New mark for quality of explanation: a</p> <p>New mark for list of references: a</p> <p>Compliance level: FC</p> <p>Remark:</p> <p>Improvement/mitigation plan with deadline (if needed):</p>	<p><input checked="" type="checkbox"/> Yes</p> <p><input type="checkbox"/> No</p> <p><input type="checkbox"/> Needs Improvement</p>

5 CONCLUSIONS

The Compliance Audit conducted at EMS clearly demonstrated that the on-site checking of the TSO's compliance with the OH standards is one of the best methods for receiving clear and precise information of the audited TSO and to revise its list of evidences.

The Audit Team has a much better opportunity to outline its main intentions at asking questions than within the scope of the self-assessment process. If the audited TSO actively participate in the audit (as EMS did), the Audit Team always receives high quality explanations. This is also true for the list of evidences, because its quality is not measured by its completeness and the number of details it contains, but by the readiness of the audited TSO to show the evidence, to discuss its content or to simply admit that there is no evidence.

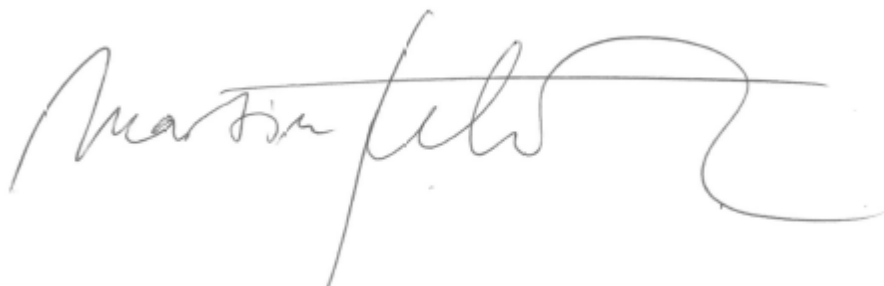
On the other hand, the content of explanations and evidences has, of course, an impact on the compliance level the Audit Team will assign to the audited TSO in relation to its compliance with a specific OH standard.

The Compliance Audit requires a very good preparation of both the Audit Team and the representatives of the audited TSO. The audit itself absorbs a lot of time, patience and full concentration of the participants. Two days audits seem acceptable from the practical point of view, but duration of the audit depends mostly of how OH standards may have to be evaluated and discussed. In case of OH Policy 8 an extended on-site stay wouldn't produce better results; all OH standards were checked in depth in very efficient cooperation with staff of audited TSO. Additionally it has to be respected that a clear meaning of a standard is very important for a reasonable Compliance Audit.

In case of the EMS Compliance Audit, all preconditions for an excellent and successful audit were fulfilled, and the Audit Team wishes to express its gratitude for that to the EMS company management.

6 SIGNATURE PAGE

ENTSO-E Audit Team Members:



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Date and Place: 9th of December, Brussels, Belgium