COMPLIANCE AUDIT REPORT
SEPS

24 – 25 SEPTEMBER 2014

COMPLIANCE AUDIT CONDUCTED IN THE NATIONAL
CONTROL CENTRE IN ŽILINA BY ENTSO-E RG CE SG CME
DISCLAIMER

The present Compliance Audit Report is based on the information as provided by the audited company. This report is in no way a guarantee that security and reliability on the system of the audited company and/or on the whole synchronously interconnected system of the Regional Group Continental Europe (RG CE) is ensured. This report cannot be considered as a certification of whatever form. Finally, this report does not as such have any impact on the compliance, by the audited company and/or by any other member of ENTSO-E, with the RG CE Operation Handbook and/or any other relevant applicable standard.
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1 EXECUTIVE SUMMARY

1.1 COMPLIANCE MONITORING IN ENTSO-E RG CE

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

- the annual process of self-assessment, which is applied to all TSOs, as well as
- the annual 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 randomly.

Sub-Group Compliance Monitoring & Enforcement (SG CME) is in charge of performing above mentioned two processes. The 2014 is the fifth year of conducting mandatory compliance audits. SG CME performed 4 voluntary compliance audits in 2008-2009 and 24 mandatory audits in 2010-2013.

1.2 AUDITED TSO

The RG CE member TSO SEPS was chosen for a Compliance Audit in 2014. CME conducted the audit on 24 & 25 September 2014 in Žilina (SEPS premises), Slovakia.

1.3 AUDITED OH STANDARDS

The Compliance Audit encompassed 16 standards/sub-standards of Operation Handbook Policy 3 (Operational Security). In 2013, SEPS made compliance declarations in the self-assessment process for all standards of OH Policy 3, a subset of which was checked against their evidence during the audit.

1.4 RESULTS

At the beginning the Audit Team had an hour long visit in the National Control Centre, which helped the Audit Team to understand better the organisation and processes in the system of SEPS.

The Audit Team audited 16 standards/sub-standards. The Audit Team concluded that SEPS is fully compliant with all 16 standards.

SEPS was very well prepared for the audit, the evidences were already provided in the worksheet beforehand. All the documents considered as evidence were available during the audit as well and were a good basis for proving the compliance level of SEPS with the audited standards. Requests for additional material were promptly met.

In the case of this Compliance Audit, all preconditions for a successful audit were fulfilled and the Audit Team wishes to express its gratitude to the SEPS staff involved in the Audit and the company management.

Table 1 describes SEPS compliance declaration in self-assessment questionnaire 2013 and compliance audit questionnaire 2014 with compliance level suggestion by the Audit Team after reviewing the evidence for the audited standards.
### Table 1: Compliance level changes for the audited OH standards

<table>
<thead>
<tr>
<th>OH Standard</th>
<th>Self-assessment questionnaire 2013</th>
<th>Compliance audit questionnaire 2014</th>
<th>On site compliance audit 2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>P3-A1-S3.3. CALCULATIONS IN REAL TIME OPERATION</td>
<td>FCo</td>
<td>FCo</td>
<td>FCo</td>
</tr>
<tr>
<td>P3-A1-S3.3.1 FREQUENCY CALCULATION</td>
<td>FCo</td>
<td>FCo</td>
<td>FCo</td>
</tr>
<tr>
<td>P3-A1-S3.3.2 ADDITIONAL N-1 CALCULATIONS</td>
<td>FCo</td>
<td>FCo</td>
<td>FCo</td>
</tr>
<tr>
<td>P3-A2-S1. DETERMINATION OF THE EXTERNAL CONTINGENCY LIST AND OBSERVABILITY AREA</td>
<td>FCo</td>
<td>FCo</td>
<td>FCo</td>
</tr>
<tr>
<td>P3-A2-S2 IMPLEMENTATION OF OBSERVABILITY AREA</td>
<td>FCo</td>
<td>FCo</td>
<td>FCo</td>
</tr>
<tr>
<td>P3-A2-S6 DATA PROVISION</td>
<td>FCo</td>
<td>FCo</td>
<td>FCo</td>
</tr>
<tr>
<td>P3-A3-S2. OVERLOADS IN N-1 SITUATION (SIMULATION)</td>
<td>FCo</td>
<td>FCo</td>
<td>FCo</td>
</tr>
<tr>
<td>P3-A3-S2.2 INSTANTANEOUS TRIPPING IN N-1 SIMULATIONS</td>
<td>FCo</td>
<td>FCo</td>
<td>FCo</td>
</tr>
<tr>
<td>P3-A3-S4.1 TIE-LINES OPERATION CONDITIONS</td>
<td>$Co$</td>
<td>FCo</td>
<td>FCo</td>
</tr>
<tr>
<td>P3-A3-S4.2.2 SYNCHRONISING EQUIPMENT SETTINGS</td>
<td>FCo</td>
<td>FCo</td>
<td>FCo</td>
</tr>
<tr>
<td>P3-A3-S4.2.3 PROTECTION SYSTEM SETTING</td>
<td>FCo</td>
<td>FCo</td>
<td>FCo</td>
</tr>
<tr>
<td>P3-A4-S5 PREPARATION OF REMEDIAL ACTIONS IN THE OPERATIONAL PLANNING STAGE</td>
<td>FCo</td>
<td>FCo</td>
<td>FCo</td>
</tr>
<tr>
<td>OH STANDARD P3-A4-S5.1</td>
<td>FCo</td>
<td>FCo</td>
<td>FCo</td>
</tr>
<tr>
<td>OH STANDARD P3-A4-S5.2</td>
<td>FCo</td>
<td>FCo</td>
<td>FCo</td>
</tr>
<tr>
<td>OH STANDARD P3-A4-S5.3</td>
<td>$Co$</td>
<td>FCo</td>
<td>FCo</td>
</tr>
<tr>
<td>OH STANDARD P3-A4-S5.4</td>
<td>FCo</td>
<td>FCo</td>
<td>FCo</td>
</tr>
</tbody>
</table>
2 AUDIT REPRESENTATIVES

The Audit Team has the task to prepare and perform the Compliance Audit as well as to develop the corresponding audit report. The Audit Team composition is given in Table 2. The TSO subject to a compliance audit may object any member of the Audit Team on the basis 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 four weeks prior to the team’s arrival on-site. No objection was expressed by SEPS. SEPS personnel involved in the audit are given in Table 3.

Table 2: SG CME Audit Team

<table>
<thead>
<tr>
<th>Audit Team role</th>
<th>Company or association</th>
<th>Name</th>
<th>Email address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit Team leader</td>
<td>ELES</td>
<td>Gorazd Sitar</td>
<td><a href="mailto:gorazd.sitar@eles.si">gorazd.sitar@eles.si</a></td>
</tr>
<tr>
<td>Audit Team member</td>
<td>APG</td>
<td>Kurt Misak</td>
<td><a href="mailto:kurt.misak@apg.at">kurt.misak@apg.at</a></td>
</tr>
<tr>
<td>Audit Team member</td>
<td>HOPS</td>
<td>Luka Špoljar</td>
<td><a href="mailto:luka.spoljar@hops.hr">luka.spoljar@hops.hr</a></td>
</tr>
<tr>
<td>Compliance Monitoring Advisor</td>
<td>ENTSO-E Secretariat</td>
<td>Jaka Žvab</td>
<td><a href="mailto:jaka.zvab@entsoe.eu">jaka.zvab@entsoe.eu</a></td>
</tr>
</tbody>
</table>

Table 3: SEPS Audit Staff

<table>
<thead>
<tr>
<th>Function in the company</th>
<th>Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Real time control of power system department - Head of department</td>
<td>Pavel Vico</td>
</tr>
<tr>
<td>Preparation of transmission system operation department - Head of department</td>
<td>Stanislav Priežšný</td>
</tr>
<tr>
<td>Training coordination manager</td>
<td>Pavol Barta</td>
</tr>
<tr>
<td>Training coordination manager</td>
<td>Martin Murgaš</td>
</tr>
<tr>
<td>Preparation of transmission system operation department – technician</td>
<td>Martin Jedinák</td>
</tr>
<tr>
<td>Preparation of ancillary services department - technician</td>
<td>Jaroslav Martinček</td>
</tr>
<tr>
<td>Real time control of power system department - technician</td>
<td>Peter Demeter</td>
</tr>
</tbody>
</table>
3 **Audit Plan**

3.1 **General Procedures**

The audit covered a chosen set of Operation Handbook (OH) standards which had already been monitored within the Compliance Monitoring Program 2013 self-assessment process.

The completed Audit Worksheet was sent by email to the ENTSO-E Secretariat and carbon copies to all Audit Team members four weeks before the first audit day. The complete schedule of the audit process for SEPS is given in the Table 4.

In preparation for the audit, SEPS organised its supporting compliance documentation which is the evidence of the compliance with audited standards. The ENTSO-E RG CE SG CME acknowledges a good preparation for the audit.

All documentation (evidence) required for the onsite audit of each standard was also available in electronic format during the audit. The Control Area Manager and/or other responsible expert personnel were available during the audit to provide guidance to the Audit Team on where to look in the documentation for compliance to the OH standard and, if requested, to give further explanation on criteria and procedures implemented.

All documentation will be considered as confidential audit records and treated as such. The Audit Team will prepare a public report of its audit findings.
### Table 4: Schedule for the Compliance Audit

<table>
<thead>
<tr>
<th>Event</th>
<th>Timeframe</th>
</tr>
</thead>
<tbody>
<tr>
<td>Submittal of the audit material on behalf of the Audit Team</td>
<td>8 weeks prior to audit, 31.7.2014</td>
</tr>
<tr>
<td>Objection or concern about audit team personnel</td>
<td>5 weeks prior to audit, 21.8.2014</td>
</tr>
<tr>
<td>Submittal of the completed Audit Worksheet to the Audit Team by SEPS</td>
<td>4 weeks prior to audit, 28.8.2014</td>
</tr>
<tr>
<td>Initial feedback based on the submitted Audit Worksheet sent to SEPS</td>
<td>2 working days prior to audit, 22.9.2014</td>
</tr>
<tr>
<td>Opening meeting of the Audit Team and CAM of SEPS</td>
<td>First audit day, 24.9.2014 09:00 – 09:30</td>
</tr>
<tr>
<td>(1) Introduction of the Audit Team members,</td>
<td>First audit day, 24.9.2014 09:30 – 17:30</td>
</tr>
<tr>
<td>(2) Description of how the on-site audit will be conducted,</td>
<td></td>
</tr>
<tr>
<td>(3) Discussion on how confidential information will be handled,</td>
<td></td>
</tr>
<tr>
<td>(4) Discussion on data access required by the Audit Team,</td>
<td></td>
</tr>
<tr>
<td>(5) Announcement that SEPS will be asked to provide feedback on the</td>
<td></td>
</tr>
<tr>
<td>audit process and results,</td>
<td></td>
</tr>
<tr>
<td>(6) Presentation of the TSO and TSO's organization.</td>
<td></td>
</tr>
<tr>
<td>Start of the OH standards’ review*</td>
<td></td>
</tr>
<tr>
<td>Continuation of the OH standards’ review</td>
<td>Second audit day, 25.9.2014 09:00 – 12:30</td>
</tr>
<tr>
<td>Internal Audit Team meeting</td>
<td>Second audit day, 25.9.2014 12:30 – 14:00</td>
</tr>
<tr>
<td>Closing meeting with CAM of SEPS</td>
<td>Second audit day, 25.9.2014 14:00 – 15:30</td>
</tr>
<tr>
<td>(1) Presentation of preliminary audit findings and recommendations</td>
<td></td>
</tr>
<tr>
<td>to be included on the draft audit report, with a strong emphasis on</td>
<td></td>
</tr>
<tr>
<td>the evidence for each compliance level or non-compliance identified</td>
<td></td>
</tr>
<tr>
<td>by the Audit Team,</td>
<td></td>
</tr>
<tr>
<td>(2) Discussion and feedback by SEPS with a possibility to object the</td>
<td></td>
</tr>
<tr>
<td>findings,</td>
<td></td>
</tr>
<tr>
<td>(3) In case of any non-compliance or lack of evidence of</td>
<td></td>
</tr>
<tr>
<td>compliance, first draft proposal of the TSO on an adequate</td>
<td></td>
</tr>
<tr>
<td>mitigation plan, including deadline. Should such an immediate</td>
<td></td>
</tr>
<tr>
<td>proposal not be possible, the TSO must submit it afterwards in</td>
<td></td>
</tr>
<tr>
<td>written copy within seven days.</td>
<td></td>
</tr>
<tr>
<td>Delivery of the draft audit report to SEPS for review</td>
<td>2 weeks after the audit, 9.10.2014</td>
</tr>
<tr>
<td>Remarks by SEPS</td>
<td>4 weeks after the audit, 23.10.2014</td>
</tr>
<tr>
<td>Delivery of the final audit report to SEPS</td>
<td>6 weeks after the audit, 6.11.2014</td>
</tr>
<tr>
<td>Acknowledgement of the final Audit Report by ENTSO-E RG CE Plenary</td>
<td>RG CE Plenary in 2015</td>
</tr>
<tr>
<td>and decision on its possible internal or external publishing.</td>
<td></td>
</tr>
</tbody>
</table>
3.2 Scope

The objective of Compliance Audits in 2014 is to check chosen set of standards from OH Policy 3. These standards were also monitored in the 2013 regular compliance process via the self-assessment questionnaire.

The scope of a compliance audit encompasses issues which are directly related to the compliance of the audited TSO with the investigated RG CE OH standards and 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 RG CE OH standards:

- 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
- Self-assessment questionnaires of 2013 stored at the ENTSO-E Secretariat related to audited TSO concerning the audited OH standards
- Audit Worksheet (AW) 2014
- Information and explanations which the Audit Team receives on site

General background

The compliance audit also encompasses issues of general nature listed below:

- General policies of the audited TSO rules and procedures for the control centre(s) related to the audited standards
- Procedures to control the application of the audited OH standards and their follow-up
- Procedures to improve the compliance with the audited OH standards
- TSO’s internal report related to the implementation of the audited OH standards
- TSO’s internal audits and/or documentation concerning implementation of OH standards
- TSO’s internal bodies (forums, panels) for the implementation of the OH standards

3.3 Methodology

The CME group prepared an audit schedule defining the chronological order of the compliance audit, which the audited TSO accepted without comment. The Audit Team reviewed the existing material on the audited TSO and its neighbouring TSOs already collected through the self-assessment process in the 2013 self-assessment questionnaires. It also processed (assessed) the answers in the 2014 Audit Worksheet filled in by the audited TSO.

The applied methodology includes audit criteria and expectations based on best practices. The adopted criteria are objective, measurable (if possible), complete and relevant to the objectives. At defining the audit methodology, the auditors identified the potential sources of audit evidence and estimated the amount and type of evidence needed.

The Audit Team used an Audit Worksheet (see chapter 4) for reviewing the audited OH standards. The purpose of the AW is to ensure consistency and fairness. By using the AW the Audit Team documented the material reviewed and the observations made. 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 the self-assessed declarations of the audited TSO. The Audit Team determined whether the evidence presented by the TSO is sufficient. They did this by assessing the relevance, validity and reliability of the information and documentation presented.

It was the responsibility of the audited TSO to provide evidence of compliance with all audited OH standards. In most cases the evidence was in written form like documents, plans, programs or
records. In some cases the evidence consisted of a review of computerized records or additional supporting material provided at interviews by the staff of the audited TSO.

3.4 EVALUATION PRINCIPLES

Preparatory phase – activities in charge of Audited TSO

- Inspection of the exact wording of each audited OH standard and of additional questions formulated by the CME
- Fill in the audit questionnaire and submit to the Audit Team before the audit
- Identification of documents and other material to present to the auditors in order to demonstrate its compliance level with each OH standard

Preparatory phase – activities in charge of CME Audit team

- Identification of compliance level declaration inconsistency with neighbouring TSOs (Self-assessment questionnaire 2013 cross-border check regarding compliance level declarations)
- Analysis of the explanations and comments which the audited TSO made in the self-assessment 2013 and audit questionnaires 2014 in written form in order to evaluate the quality of explanations and comments
- Identification of the missing explanations in the self-assessment 2013 and audit questionnaire 2014
- Analysis of the improvements achieved during the implementation of mitigation and improvement plans declared in the MLA Addendum/Addenda, in the self-assessment questionnaire 2013 and in the Audit Worksheet 2014 in case of non-compliance and sufficient compliance

Audit phase

- Request to the audited TSO to give additional explanations, especially related to standards which were not or not fully addressed by documents and other material mentioned in the self-assessment questionnaire 2013 and audit questionnaire 2014.
  - The goal was to improve the quality of the explanations.
- Request to the audited TSO to present that evidence and, if necessary, additional evidence, in printed or electronic form
  - The goal was to improve the quality of the presented evidence.
  - The goal was to present material relevant to the audited OH standard at all.
- Request to the audited TSO to remark the titles of all presented documents, their relevant chapters and even relevant passages.
- Request to the audited TSO to provide further written explanations related to the presented material.

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 supplementary confidentiality agreement, if the audited TSO assert such a claim.
### 4 Audit Worksheet for 2014 Onsite Audit

#### 4.1 OH Standard P3-A1-S3.3. Calculations in Real Time Operation

**Self-Assessment Questionnaire 2013**

<table>
<thead>
<tr>
<th>P3-A1-S3.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculations in real time operation. The N situation has to be determined by state estimation on the basis of measurements and topology. Each TSO must perform an automatic N-1 simulation for all the contingencies of the contingency list in real time.</td>
</tr>
</tbody>
</table>

**Compliance Level:** FCo

**Additional Questions**

- Do you determine the N situation by state estimation on the basis of measurements and topology? **yes**
- Do you have a list of contingencies for the automatic N-1 simulations in real time? **yes**
- Do you perform an automatic N-1 simulation for all the contingencies of the contingency list in real time? **yes**

**Audit Questionnaire 2014**

<table>
<thead>
<tr>
<th>P3-A1-S3.3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calculations in real time operation. The N situation has to be determined by state estimation on the basis of measurements and topology. Each TSO must perform an automatic N-1 simulation for all the contingencies of the contingency list in real time.</td>
</tr>
</tbody>
</table>

**Compliance Level:** FCo

Concise explanation and list of evidence for declared compliance level:

Contingency analysis runs periodically every 10 minutes and spontaneously based on operator initiative. There are defined contingency lists – internal, external, exceptional and all calculations are done using real-time grid model.

**Do you have a mitigation plan to the standard?** Yes [ ] No [x]

In case of an existing Addendum or a Non Compliance Declaration; list of evidence for a mitigation plan, comments:
Additional Questions

Do you determine the N situation by state estimation on the basis of measurements and topology?
- Yes ☑
- No □

Do you have a list of contingencies for the automatic N-1 simulations in real time?
- Yes ☑
- No □

Do you perform an automatic N-1 simulation for all the contingencies of the contingency list in real time?
- Yes ☑
- No □

List of evidence, comments:

1) SCADA/EMS
2) Contingency lists – external, internal, exceptional
3) Internal instruction: Dispečersky pokyn č. 1: N-1 kritérium
4) SEPS, a. s. Technical Rules

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Compliance Level suggestion by the Audit Team: FCo

Explanation for the suggested compliance level:
Audit team visited control room and checked state estimator calculations and N-1 simulation, which is part of Siemens Sinaut Spectrum SCADA-EMS. The N situation is determined on state estimator on the basis of measurements and topology, the cycle of state estimator is 10 minutes and can also be triggered on demand by dispatcher. The automatic N-1 simulation is performed on state estimator results taking into account all contingencies of the contingency list. The contingency list and other relevant documentation is available in the control room (System operation agreements, instructions for EAS…)

List of evidence:
1) SCADA/EMS: State estimator, N-1 calculation
2) Contingency lists – external (CEPS, PSE, APG, MAVIR, WPS Ukrenergo), internal, exceptional
3) Internal instruction: Dispečersky pokyn DP č.1/3 Bezpečnostne kriterium (N-1) v PS SR vramci dispecerskeho riadenia: N-1 kritérium , 16.9.2013, it is updated every year
4) SEPS, a. s. Technical Rules, September 2011
### 4.2 OH STANDARD P3-A1-S3.3.1 FREQUENCY CALCULATION

#### SELF-ASSESSMENT QUESTIONNAIRE 2013

<table>
<thead>
<tr>
<th>P3-A1-S3.3.1</th>
</tr>
</thead>
</table>

**Frequency of calculation.** The automatic N-1 simulation must run periodically, at least every 15 minutes in real time.

**Compliance Level:** FCo

**Additional Questions**

- How often do you perform an automatic N-1 simulation in real time?

  *The automatic N-1 simulation is modifiable SCADA parameter (from 1-15 minutes). The best practise settings is the period of 5 minutes*

#### AUDIT QUESTIONNAIRE 2014

<table>
<thead>
<tr>
<th>P3-A1-S3.3.1</th>
</tr>
</thead>
</table>

**Frequency of calculation.** The automatic N-1 simulation must run periodically, at least every 15 minutes in real time.

**Compliance Level:** FCo

**Concise explanation and list of evidence for declared compliance level:**

- Contingency analysis runs periodically every 10 minutes (adjustable parameter 5-15 minutes).

**Do you have a mitigation plan to the standard?**

- Yes ☐
- No ☒

In case of an existing Addendum or a Non Compliance Declaration; list of evidence for a mitigation plan, comments:

**Additional Questions**

- How often do you perform an automatic N-1 simulation in real time?

  *Every 10 minutes.*

List of evidence, comments:

- SCADA/EMS
COMPLIANCE AUDIT 2014

Compliance Level suggestion by the Audit Team: FCo

Explanation for the suggested compliance level:
The automatic N-1 simulation is performed based on state estimator results every 10 minutes or additionally when there is a change of topology and in case of significant change of power flows on the elements. According to previous experience and in order not to overload the EMS system, SEPS decided to change cycle interval from 5 to 10 minutes.
4.3 OH STANDARD P3-A1-S3.3.2 ADDITIONAL N-1 CALCULATIONS

SELF-ASSESSMENT QUESTIONNAIRE 2013

P3-A1-S3.3.2

Additional N-1 calculations. The TSOs must perform additional N-1 simulations prior to the application of important topology changes by manoeuvres (opening line, opening bus-bar) or after a relevant unexpected change of topology or a significant shift of the generation pattern (e.g. units tripped or out of operation).

Compliance Level: FCo

Additional Questions

In which cases or in which situations do you perform additional N-1 simulations?

Additional N-1 simulations are fully dispatchers’ liability. The internal directives prescribe to perform N-1 simulations in case of significant topology change (e.g. line opening, reconfiguration activation) or unplanned incident in the grid, or prior to activation any remedial action (in the responsibility/observability area).

AUDIT QUESTIONNAIRE 2014

P3-A1-S3.3.2

Additional N-1 calculations. The TSOs must perform additional N-1 simulations prior to the application of important topology changes by manoeuvres (opening line, opening bus-bar) or after a relevant unexpected change of topology or a significant shift of the generation pattern (e.g. units tripped or out of operation).

Compliance Level: FCo

Concise explanation and list of evidence for declared compliance level:

Internal instruction: Dispečersky pokyn č. 1 detailed describes all recommendation for dispatchers. SCADA/EMS Study mode functionality is used in advance of significant topology change.

Do you have a mitigation plan to the standard? Yes ☐ No ☒

In case of an existing Addendum or a Non Compliance Declaration; list of evidence for a mitigation plan, comments:

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Additional Questions

In which cases or in which situations do you perform additional N-1 simulations?

Additional N-1 simulations are fully dispatchers’ liability. The internal directives prescribe to
perform N-1 simulations in case of significant topology change:

1) Significant planned topology change (line disconnection) – before/after
2) After each serious outage – line, transformer or generation
3) Implementation of remedial action (reconfiguration) - before/after

Announced significant topology change in the neighbouring grid

List of evidence, comments:

1) SCADA/EMS
2) Internal instruction: Dispečersky pokyn č. 1: N-1 kritérium
3) Internal instruction: Dispečersky pokyn č. 2: Postup pri realizácii rekonfigurácii v PS SR
4) SEPS, a. s. Technical Rules

**COMPLIANCE AUDIT 2014**

Compliance Level suggestion by the Audit Team: FCo

Explanation for the suggested compliance level:

On auditors request SEPS dispatcher demonstrated additional N-1 analysis in study mode, which is performed according to internal directives in case of:

1) topology change
2) after each relevant outage – line, busbar, transformer or generation
3) before implementation of remedial actions
4) announced significant topology change in the neighbouring grid

List of evidence:

1) SCADA/EMS: N-1 simulation in study mode
2) Internal instruction: Dispečersky pokyn DP č.1/3 Bezpečnostne kriterium (N-1) v PS SR vramci dispecerskeho riadenia: N-1 kritérium , 16.9.2013, document is updated every year
3) SEPS, a. s. Technical Rules, September 2011
4.4 OH STANDARD P3-A2-S1. DETERMINATION OF THE EXTERNAL CONTINGENCY LIST AND OBSERVABILITY AREA

SELF-ASSESSMENT QUESTIONNAIRE 2013

P3-A2-S1

Determination of the external contingency list and observability area. Each TSO is required to determine the external contingency list and the external observability list related to its responsibility area. External contingency list items must be treated as normal type of contingencies in all N-1 security calculations in all time frames. Additionally exceptional contingencies (double lines, busbars) as announced by a neighbouring TSO have to be included by the TSO if it considers them very relevant for risks.

Compliance Level: FCo

Additional Questions

Do you determine the external contingency list related to your responsibility area? yes

Do you determine the external observability list related to your responsibility area? yes

Which criteria do you implement in determination of the external contingency list and the external observability list related to your responsibility area?

Influence factor calculation results, NTC optimization.

Do you include the elements of your external observability list in the model of your security analysis? yes

AUDIT QUESTIONNAIRE 2014

P3-A2-S1

Determination of the external contingency list and observability area. Each TSO is required to determine the external contingency list and the external observability list related to its responsibility area. External contingency list items must be treated as normal type of contingencies in all N-1 security calculations in all time frames. Additionally exceptional contingencies (double lines, busbars) as announced by a neighbouring TSO have to be included by the TSO if it considers them very relevant for risks.

Compliance Level: FCo
Concise explanation and list of evidence for declared compliance level:

Determination of external contingency list and observability is part of SEPS Defence plan (developed by external research company). All lists (external/internal/exceptional contingency lists) are regularly (yearly) updated. These lists are included in our Y-1, M-1, D-1 and also daily/realtime calculations.

Do you have a mitigation plan to the standard? Yes ☐ No ☒

In case of an existing Addendum or a Non Compliance Declaration; list of evidence for a mitigation plan, comments:

Additional Questions

Do you determine the external contingency list related to your responsibility area?

Yes ☒ No ☐

Do you determine the external observability list related to your responsibility area?

Yes ☒ No ☐

Which criteria do you implement in determination of the external contingency list and the external observability list related to your responsibility area?

SEPS follows recommendations of OH Appendix 3. Standard methods are "Influence factor" with threshold=10% and "Influence factor linked with Influence Threshold" (performed by external company). There is also implemented criterion of “best practise” and optimalisation according to cooperation within CEE region.

Do you include the elements of your external observability list in the model of your security analysis?

Yes ☒ No ☐

List of evidence, comments:

1) Internal instruction: Dispečersky pokyn č. 1: N-1 kritérium
2) Documentation of Defence plan – study of research company
3) Regularly updating procedure: email communication with neighbouring TSOs

COMPLIANCE AUDIT 2014

Compliance Level suggestion by the Audit Team: FCo
**Explanation for the suggested compliance level:**

SEPS determined the external contingency list related to its responsibility area in System Operational Agreements (SOA) with SEPS, PSE, MAVIR, WPS and via email with APG.

SEPS presented to the auditors an example of regular email correspondence with neighbouring TSOs about updating the contingency list, for years 2010-2013.

List of evidence:

1) Contingency lists – external (CEPS, PSE, APG, MAVIR WPS), internal, exceptional  
2) SCADA/EMS: Contingency list implemented in N-1 simulation  
3) Internal instruction: Dispečersky pokyn DP č.1/3 Bezpečnostne kriterium (N-1) v PS SR vramci dispecerskeho riadenia: N-1 kritérium , 16.9.2013, it is updated every year  
4) Documentation of Defence plan for 2015– study of research company– chapter 7, Opatrenia pre zabranenie pret'azení prvkov ES SR a pre znizenie pret'azenia prvkov ES SR, februar 2014  
5) Regularly updating procedure: email communication with neighbouring TSOs  
6) SOAs with all neighbouring TSOs:  
   - Agreement on Grid and System Operation Management between PSE and SEPS, 20.03.2014, Annex 12  
   - Agreement on Grid and System Operation Management between MAVIR and SEPS, 2003, Article 6, last amendment of the agreement 4.11.2011  
   - Contract on cooperation and operation control of 400 kV line Vel'ke Kapusany – Mukachevo interconnecting the transmission system of SEPS and WPS, 4 Aug 2009
4.5 OH STANDARD P3-A2-S2 IMPLEMENTATION OF OBSERVABILITY AREA

SELF-ASSESSMENT QUESTIONNAIRE 2013

P3-A2-S2

Implementation of observability area. The external network model corresponding to the observability area must be implemented in the SCADA system and its real-time observability by state estimator must be ensured by a proper amount of exchanged online data.

Compliance Level: FCo

Additional Questions
Are there external elements of your observability area that are not included in your SCADA/EMS model? no

AUDIT QUESTIONNAIRE 2014

P3-A2-S2

Implementation of observability area. The external network model corresponding to the observability area must be implemented in the SCADA system and its real-time observability by state estimator must be ensured by a proper amount of exchanged online data.

Compliance Level: FCo

Concise explanation and list of evidence for declared compliance level:
Observability area is implemented in the SCADA and its real-time observability is ensured by state estimator.

Do you have a mitigation plan to the standard? Yes ☐ No ☒

In case of an existing Addendum or a Non Compliance Declaration; list of evidence for a mitigation plan, comments:

Additional Questions
Are there external elements of your observability area that are not included in your SCADA/EMS model?

Yes ☐ No ☒

List of evidence, comments:
1) SCADA/EMS
2) NA calculation in real time operation
3) Internal instruction: Dispečersky pokyn č. 1: N-1 kritérium

**COMPLIANCE AUDIT 2014**

**Compliance Level suggestion by the Audit Team:** FCo

**Explanation for the suggested compliance level:**
Contingency list is implemented in N-1 simulation in SCADA/EMS system. SEPS presented a list of the number of measurements and signals exchange via ENTSO-E Electronic Highway between SEPS and TSOs in CEE region.

List of evidence:
1) SCADA/EMS: Contingency list implemented in N-1 simulation
2) a list of the number of measurements and signals exchange via ENTSO-E Electronic Highway
3) Internal instruction: Dispečersky pokyn č. 1: N-1 kritérium
4.6 OH STANDARD P3-A2-S6 DATA PROVISION

**SELF-ASSESSMENT QUESTIONNAIRE 2013**

**P3-A2-S6**

Data provision. The TSO has to provide its neighbours in due time with all needed information for adequate simulations. Each TSO must provide the real-time telemetry and the network characteristics to its neighbours that is necessary for the neighbouring TSOs to have a sufficient external network model of the observability area for the state estimator and for the N-1 security calculations. This implies among others all data related to switching status, active and reactive power flows, voltage, injections and loads, tap changer position of transformers.

**Compliance Level:** FCo

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**Additional Questions**

Do you provide the data requested by the neighbouring TSO in due time?

- **CEPS** yes
- **MAVIR ZRt** yes
- **PSE** yes

Do you receive the data requested from the neighbouring TSO in due time?

- **CEPS** yes
- **MAVIR ZRt** yes
- **PSE** yes
**P3-A2-S6**

**Data provision.** The TSO has to provide its neighbours in due time with all needed information for adequate simulations. Each TSO must provide the real-time telemetry and the network characteristics to its neighbours that is necessary for the neighbouring TSOs to have a sufficient external network model of the observability area for the state estimator and for the N-1 security calculations. This implies among others all data related to switching status, active and reactive power flows, voltage, injections and loads, tap changer position of transformers.

**Compliance Level:** FCo

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**Concise explanation and list of evidence for declared compliance level:**

Details about information exchange for the elements of the external observability area are defined in bilateral operational agreements, signed with all neighbouring TSOs.

List of evidences:
- Bilateral Operational Agreements (set of information exchanged)

**Do you have a mitigation plan to the standard?**  
Yes [ ]  No [x]

In case of an existing Addendum or a Non Compliance Declaration; list of evidence for a mitigation plan, comments:

**Additional Questions**

Do you provide the data requested by the neighbouring TSO in due time?

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Do you receive the data requested from the neighbouring TSO in due time?

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List of evidence, comments:

1) SOAs with all neighbouring TSOs
2) List of providing data to neighbouring TSOs
3) SCADA/EMS
**COMPLIANCE AUDIT 2014**

**Compliance Level suggestion by the Audit Team:** FCo

**Explanation for the suggested compliance level:**
Contingency list is implemented in N-1 simulation in SCADA/EMS system, which was presented in the control room. SEPS presented a list of the number of exchanged values (measurements, topology states) between SEPS and TSOs in CEE region.

List of evidence:
1) SOAs with all neighbouring TSOs
   - Agreement on Grid and System Operation Management between PSE and SEPS, 20.03.2014, Appendix 12
   - Agreement on Grid and System Operation Management between MAVIR and SEPS, 2003, Article 6, last amendment of the agreement 4.11.2011
   - Contract on cooperation and operation control of 400 kV line Vel'ke Kapusany – Mukachevo interconnecting the transmission system of SEPS and WPS, 4 August 2009
2) List of providing data to neighbouring TSOs
3) SCADA/EMS

**Recommendation:**
Audit team recommends to SEPS to update the agreement between MAVIR and SEPS to have the latest data exchange details in the agreement.
4.7 **OH STANDARD P3-A3-S2. OVERLOADS IN N-1 SITUATION (SIMULATION)**

### SELF-ASSESSMENT QUESTIONNAIRE 2013

**P3-A3-S2**

**Overloads in N-1 situation (simulation).** Considering the loss of a network element (N-1 situation) overloads on impacted network elements are admitted only if remedial actions are available as to get back any overloaded network element below its respective Permanent Admissible Transmission Loading PATL.

**Compliance Level:** FCo

**Additional Questions**

What type of remedial action do you use to get back an overloaded network element below its respective PATL?

*The most often used action are: cancellation of planned maintenance, topology changes in the SS and emergency energy delivery. Our SOAs include also possibility of redispatching, counter trading and capacity reduction.*

### AUDIT QUESTIONNAIRE 2014

**P3-A3-S2**

**Overloads in N-1 situation (simulation).** Considering the loss of a network element (N-1 situation) overloads on impacted network elements are admitted only if remedial actions are available as to get back any overloaded network element below its respective Permanent Admissible Transmission Loading PATL.

**Compliance Level:** FCo

**Concise explanation and list of evidence for declared compliance level:**

N-1 is monitored within all operational planning phases: yearly, monthly, weekly, daily and realtime. All operational planning phases are given with relevant preventive remedial action.

In case of N-1 violation in realtime dispatchers are competent to implement relevant remedial actions, especially cancellation of planned works or topology changes.

**Do you have a mitigation plan to the standard?**  
Yes ☐  No ☒

In case of an existing Addendum or a Non Compliance Declaration; list of evidence for a mitigation plan, comments:

- - -

**Additional Questions**
What type of remedial action do you use to get back an overloaded network element below its respective PATL?

*The most often used action are: cancellation of planned maintenance, topology changes in the SS and emergency energy delivery. Our SOAs include also possibility of redispatching, counter trading and capacity reduction.*

List of evidence, comments:

1) SOAs with all neighbouring TSOs
2) Internal instruction: Dispečersky pokyn č. 1: N-1 kritérium
3) Internal instruction: Dispečersky pokyn č. 2: Postup pri realizácii rekonfigurácií v PS SR
4) Internal document: Štúdia o prevádzke elektrizačnej sústavy na rok 2014
5) SEPS, a. s. Technical Rules
6) Guidelines for RAAS EIS within CEE region (Internal instruction: PI č. 133-2)
7) EAS

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**COMPLIANCE AUDIT 2014**

**Compliance Level suggestion by the Audit Team:** N/A

**Explanation for the suggested compliance level:**
SEPS presented an example of internal email correspondence, Forecast 17.07.2014, aktualizacia DACF modelov, proving that relevant preventive remedial actions are analysed before their implementation.

List of evidence:

1) Internal instruction: Dispečersky pokyn DP č.1/3 Bezpečnostne kriterium (N-1) v PS SR v ramci dispečerskeho riadenia: N-1 kritérium , 16.9.2013, chapter 5.3
2) Internal instruction: Dispečersky pokyn č. 2: Postup pri realizácii rekonfigurácií v PS SR
3) Internal document: Štúdia o prevádzke elektrizačnej sústavy na rok 2014
4) SEPS, a. s. Technical Rules, September 2011, chapter 7.4.4 Overload management
5) Guidelines for RAAS EIS within CEE region (Internal instruction: PI č. 133-2)
6) EAS
4.8 OH STANDARD P3-A3-S2.2 INSTANTANEOUS TRIPPING IN N-1 SIMULATIONS

SELF-ASSESSMENT QUESTIONNAIRE 2013

**P3-A3-S2.2**

**Instantaneous tripping in N-1 simulation.** It is admitted to overpass the TC of a network element after a N-1 simulation exclusively if there is no uncontrolled evolution for the overall system (no cascading tripping, no voltage collapse, no loss of synchronism). If the N-1 simulation indicates an uncontrolled evolution or cascading effects with impact outside the boundaries, preventive remedial actions are mandatory to come back to an N-1 secure situation. TSO informs its neighbours as soon as the danger of over-passing is detected and no remedial actions are available to avoid it.

**Compliance Level:** FCo

**Additional Questions**

Do you apply preventive remedial actions in case that probable instantaneous tripping in N-1 simulation leads to a cascading effect?  

**yes**

AUDIT QUESTIONNAIRE 2014

**P3-A3-S2.2**

**Instantaneous tripping in N-1 simulation.** It is admitted to overpass the TC of a network element after a N-1 simulation exclusively if there is no uncontrolled evolution for the overall system (no cascading tripping, no voltage collapse, no loss of synchronism). If the N-1 simulation indicates an uncontrolled evolution or cascading effects with impact outside the boundaries, preventive remedial actions are mandatory to come back to an N-1 secure situation. TSO informs its neighbours as soon as the danger of over-passing is detected and no remedial actions are available to avoid it.

**Compliance Level:** FCo

**Concise explanation and list of evidence for declared compliance level:**

- N-1 is monitored within all operational planning phases: yearly, monthly, weekly, daily and realtime. All operational planning phases are given with relevant preventive remedial action.
- In case of N-1 violation in realtime dispatchers are competent to implement relevant remedial action, especially cancelation of planned works or topology changes.
- Information about operational problems (N-1 violation) is shared within WOPT and DOPT in region of CEE. Use of platform RAAS EIS (region CEE) and EAS are also mandatory.

**Do you have a mitigation plan to the standard?**  

- **Yes**  
- **No**

In case of an existing Addendum or a Non Compliance Declaration; list of evidence for a mitigation plan, comments:
Additional Questions

Do you apply preventive remedial actions in case that probable instantaneous tripping in N-1 simulation leads to a cascading effect?

Yes ☒ No ☐

List of evidence, comments:

1) Internal instruction: Dispečersky pokyn č. 1: N-1 kritérium
2) Internal instruction: Dispečersky pokyn č. 2: Postup pri realizácii rekonfigurácií v PS SR
3) SEPS, a. s. Technical Rules
4) Guidelines for RAAS EIS within CEE region (Internal instruction: PI č. 133-2)
5) EAS
6) SOAs with all neighbouring TSOs
7) Security calculations after DACF process + intraday updates

COMPLIANCE AUDIT 2014

Compliance Level suggestion by the Audit Team: FCo

Explanation for the suggested compliance level:
No defined value of Tripping Current (agreed with the neighbours) on the tie-lines with neighbouring TSOs. Distance protection disconnects the line in case of necessity. Information about operational problems (N-1 violation) is shared within WOPT and DOPT in CEE region. RAAS EIS (region CEE) and EAS platforms were presented in the control room.

List of evidence:

1) Internal instruction: Dispečersky pokyn č. 1: N-1 kritérium
2) Internal instruction: Dispečersky pokyn č. 2: Postup pri realizácii rekonfigurácií v PS SR
3) SEPS, a. s. Technical Rules, September 2011
4) Guidelines for RAAS EIS within CEE region (Internal instruction: PI č. 133-2)
5) EAS
6) SOAs with all neighbouring TSOs
- Agreement on Grid and System Operation Management between PSE and SEPS, 20.03.2014, Appendix 4
- Agreement on Grid and System Operation Management between MAVIR and SEPS, March 2003, Article 9.2.1/Appendix 7, last amendment of the agreement 4.11.2011
- Contract on cooperation and operation control of 400 kV line Vel'ke Kapusany – Mukachevo interconnecting the transmission system of SEPS and WPS, 4 August 2009
7) Security calculations after DACF process + intraday updates
8) Example of remedial action in CEE region via Emergency information system, between 8 TSOs (RAAS), 26.8.2013
4.9 **OH STANDARD P3-A3-S4.1 TIE-LINES OPERATION CONDITIONS**

### SELF-ASSESSMENT QUESTIONNAIRE 2013

#### P3-A3-S4.1

**Tie-lines operating conditions.** The information on values of PATL, TATL or couples (TATL; Duration), overload conditions (acceptable duration of overload), and TC of tie-lines must be shared with adjacent TSOs. Mutual information must be agreed and implemented. In case of settings changes TSO has to inform the adjacent TSO on the new values.

**Compliance Level:** SCo

**Actions taken to reach compliance:**
The new SOA with PSE is under singing procedure. (from technical point of view values are agreed and implemented in practise)

**Deadline:** 8/2013

**Additional Questions**

Do you have a reference document with the values of PATL, TATL and TC for both sides of tie-lines agreed by both TSOs?

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<td>yes</td>
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Please, describe the procedure of changing settings of PATL, TATL and TC on tie-lines?

Values are agreed in SOA. All changes are bilateral agreed in the amendment of SOA (written form).

### AUDIT QUESTIONNAIRE 2014

#### P3-A3-S4.1

**Tie-lines operating conditions.** The information on values of PATL, TATL or couples (TATL; Duration), overload conditions (acceptable duration of overload), and TC of tie-lines must be shared with adjacent TSOs. Mutual information must be agreed and implemented. In case of settings changes TSO has to inform the adjacent TSO on the new values.

**Compliance Level:** FCo

Concise explanation and list of evidence for declared compliance level:

- PATL and TC values are defined, agreed and included in SOAs.
- Values of TATL are not implemented in our region.
- Updating process of values agreed in SOAs are defined in special SOAs appendix.
Do you have a mitigation plan to the standard?  Yes ☐  No ☒

In case of an existing Addendum or a Non Compliance Declaration; list of evidence for a mitigation plan, comments:

Additional Questions

Do you have a reference document with the values of PATL, TATL and TC for both sides of tie-lines agreed by both TSOs?

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<th>TSO</th>
<th>PATL</th>
<th>TATL</th>
<th>TC</th>
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<tr>
<td>CEPS</td>
<td>Yes</td>
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<td>MAVIR ZRt</td>
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Please, describe the procedure of changing settings of PATL, TATL and TC on tie-lines?

There are defined contact persons responsible for each Appendix of agreed SOA. These persons communicate with concerned TSO to update changed values also in Appendix of SOA. All mutual agreed changes are in written form signed by responsible persons. Updating procedure is described in special part of SOAs in detail.

List of evidence, comments:

1) SOAs with all neighbouring TSOs + updating process

COMPLIANCE AUDIT 2014

Compliance Level suggestion by the Audit Team: FCo

Explanation for the suggested compliance level:

PATL values are agreed within SOAs. Values of TATL are not implemented in their region. No defined value of Tripping Current (agreed with the neighbours) on the tie-lines with neighbouring TSOs.

Updating process of values is defined and agreed in SOAs appendices.

List of evidence:

1) SOAs with all neighbouring TSOs + updating process
   - Agreement on Grid and System Operation Management between PSE and SEPS, 20.03.2014, Appendix 4
   - Agreement on Grid and System Operation Management between MAVIR and SEPS, March 2003, Article 9.2.1/Appendix 7, last amendment of the agreement 4.11.2011
   - Contract on cooperation and operation control of 400 kV line Velke Kapusany – Mukachevo interconnecting the transmission system of SEPS and WPS Ukreenergo, 4 August 2009
2) Internal instruction: Prevadzkova instrukcia c. 022-1/2, Parametre prvkov prenosovej sustavy SR, 12.8.2014, Appendix A
3) Correspondence with neighbouring TSOs on updating the PATL values, between CEPS and SEPS from October 2013
4.10 OH STANDARD P3-A3-S4.2.2 SYNCHRONISING EQUIPMENT SETTINGS

SELF-ASSESSMENT QUESTIONNAIRE 2013

P3-A3-S4.2.2

Synchronising equipment settings. TSO is obliged to inform the neighbouring TSO about the settings of the synchronising equipment for switching supervision installed on tie-lines (voltage phase angle difference, voltage module difference, frequency difference).

Compliance Level: FCo

Additional Questions

Do you inform your neighbours about the settings of the synchronising equipment for switching supervision installed on your side of tie-lines?

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Do you have information about the settings of the synchronising equipment for switching supervision installed on the neighbouring side of tie-lines?

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AUDIT QUESTIONNAIRE 2014

P3-A3-S4.2.2

Synchronising equipment settings. TSO is obliged to inform the neighbouring TSO about the settings of the synchronising equipment for switching supervision installed on tie-lines (voltage phase angle difference, voltage module difference, frequency difference).

Compliance Level: FCo

Concise explanation and list of evidence for declared compliance level:

Synchronising equipment settings are agreed and included in SOAs

Do you have a mitigation plan to the standard? Yes ☐ No ☒

In case of an existing Addendum or a Non Compliance Declaration; list of evidence for a mitigation plan, comments:
Additional Questions

Do you inform your neighbours about the settings of the synchronising equipment for switching supervision installed on your side of tie-lines?

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Do you have information about the settings of the synchronising equipment for switching supervision installed on the neighbouring side of tie-lines?

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<th>CEPS</th>
<th>MAVIR ZRt</th>
<th>PSE</th>
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<tr>
<td>Yes</td>
<td>No</td>
<td>Yes</td>
<td>No</td>
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</table>

List of evidence, comments:

1) SOAs with all neighbouring TSOs
2) Common document of SPD Subgroup of RG CE

COMPLIANCE AUDIT 2014

Compliance Level suggestion by the Audit Team: FCo

Explanation for the suggested compliance level:
SEPS presented the list of synchronising equipment settings, which is part of the SOAs.

List of evidence:

1) SOAs with all neighbouring TSOs + updating process
   - Agreement on Grid and System Operation Management between PSE and SEPS, 20.03.2014, Appendix 6 Protection systems and their settings
   - Agreement on Grid and System Operation Management between MAVIR and SEPS, March 2003, Appendix 7 -10, last amendment of the agreement 4.11.2011
   - Contract on cooperation and operation control of 400 kV line Vel'ke Kapusany – Mukachevo interconnecting the transmission system of SEPS and WPS, 4 August 2009
4.11 OH STANDARD P3-A3-S4.2.3 PROTECTION SYSTEM SETTING

SELF-ASSESSMENT QUESTIONNAIRE 2013

P3-A3-S4.2.3

Protection system settings. The settings of protection systems for tie-lines have to be co-ordinated between TSOs. Therefore TSO is obliged to inform in advance neighbouring TSOs of the settings of protection systems and of changes in operating conditions of tie lines.

Compliance Level: FCo

CEPS MAVIR ZRt PSE
FC FC FC

Additional Questions

How do you coordinate the settings of protection systems for tie-lines with neighbouring TSOs?

Values are agreed in SOAs. Neighbours are informed in case of settings changes at the time of the change. All changes are bilateral agreed in amendment of SOA (written form).

AUDIT QUESTIONNAIRE 2014

P3-A3-S4.2.3

Protection system settings. The settings of protection systems for tie-lines have to be co-ordinated between TSOs. Therefore TSO is obliged to inform in advance neighbouring TSOs of the settings of protection systems and of changes in operating conditions of tie lines.

Compliance Level: FCo

CEPS MAVIR ZRt PSE
FC FC FC

Compliance Level:

Concise explanation and list of evidence for declared compliance level:

General terms of protection settings are agreed and included in SOAs.

Details of protection settings, planned changes, protection maintenance or replacement are up to close communication between protection experts of each TSO. All works are agreed within operation planning phase and all planned works are recorded.

Do you have a mitigation plan to the standard? Yes ☐ No ☑

In case of an existing Addendum or a Non Compliance Declaration; list of evidence for a
mitigation plan, comments:

Additional Questions

How do you coordinate the settings of protection systems for tie-lines with neighbouring TSOs?

There are defined contact persons, protection experts TSO. These persons communicate with concerned TSO to update changed settings or any planned works regarding protection devices. All mutual agreed changes are in written form signed by responsible persons.

List of evidence, comments:

1) SOAs with all neighbouring TSOs + updating process

COMPLIANCE AUDIT 2014

Compliance Level suggestion by the Audit Team: FCo

Explanation for the suggested compliance level:
The agreed settings of protections systems are part of SOAs as appendices which are updated when needed. Procedures on update of Appendices are in annexes of SOAs.

List of evidence:

1) SOAs with all neighbouring TSOs + updating process procedure
   - Agreement on Grid and System Operation Management between PSE and SEPS, 20.03.2014, Appendix 6 Protection systems and their settings, Appendix 15 - Procedures on update of Appendices
   - Agreement on Grid and System Operation Management between MAVIR and SEPS, March 2003, Appendix 7 - 10, last amendment of the agreement 4.11.2011, Article 17.5, 17.6 - Procedures on update of Appendices
   - Contract on cooperation and operation control of 400 kV line Vel’ke Kapusany – Mukachevo interconnecting the transmission system of SEPS and WPS, 4 August 2009
### 4.12 OH STANDARD P3-A4-S5 PREPARATION OF REMEDIAL ACTIONS IN THE OPERATIONAL PLANNING STAGE

#### SELF-ASSESSMENT QUESTIONNAIRE 2013

**P3-A4-S5**

Preparation of remedial actions in the operational planning stage. Preventive and curative remedial actions are due to be prepared in the operational planning stage.

**Compliance Level:** FCo

**No Additional Questions**

#### AUDIT QUESTIONNAIRE 2014

**P3-A4-S5**

Preparation of remedial actions in the operational planning stage. Preventive and curative remedial actions are due to be prepared in the operational planning stage.

**Compliance Level:** FCo

Concise explanation and list of evidence for declared compliance level:

Compliance Level: FCo from P3-A4-S5.1 to P3-A4-S5.4 ⇒ FCo for P3-A4-S5

List of evidence:

1) SOAs with all neighbouring TSOs
2) Yearly/monthly/weekly disconnection plan
3) WOPT/DOPT reports
4) DACF files
5) Internal instruction: Dispečersky pokyn č. 1: N-1 kritérium
6) Internal instruction: Dispečersky pokyn č. 2: Postup pri realizácii rekonfigurácií v PS SR
7) Guidelines for RAAS EIS within CEE region
8) EAS
9) Security calculations after DACF process + intraday updates

**Do you have a mitigation plan to the standard?**

Yes ☐

No ☒

In case of an existing Addendum or a Non Compliance Declaration; list of evidence for a mitigation plan, comments:

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COMPLIANCE AUDIT 2014

Compliance Level suggestion by the Audit Team: FCo

Explanation for the suggested compliance level:

Yearly plan is agreed at Coordinated disconnection meetings (3 coordination meetings). Monthly planning is confirmed via emails and weekly plan is reported in WOPT. SEPS provides DACF files to Swissgrid and participates in DOPT organized by TSC. Report is prepared internally for dispatchers in control room.

Before topology changes SEPS performs analyses, taking into account remedial actions, which are shared with adjacent TSOs.

Reconfigurations with possible influence to more TSOs in region CEE is agreed on level of CSO (Coordinated System operation) SG and in regional groups in CEE region.

Main possible remedial actions are agreed in SOAs. Before the activation of remedies in real-time operation SEPS informs all neighbouring TSOs at least 15 min in advance, so that these TSOs have time and possibility to object.

List of evidence:

1) Yearly disconnection plan
2) WOPT/DOPT reports
3) DACF files
4) Internal document: Štúdia o prevádzke elektrizačnej sústavy na rok 2014, November 2013, príloha c.2a, also published on SEPS web page from 2010 up to 2014
5) Internal SEPS analysis, Analyza možnosti paralelné prevádzky UO Sucany a Liptovska Mara, Zilina, January 2014
7) SOAs with all neighbouring TSOs
   - Agreement on Grid and System Operation Management between PSE and SEPS, 20.03.2014, Appendix 10 List of remedial measures
   - Agreement on Network and System Operation Management between MAVIR and SEPS, March 2003, , last amendment of the agreement 4.11.2011 – Measures in critical network situations
   - Contract on cooperation and operation control of 400 kV line Vel'ke Kapusany – Mukachevo interconnecting the transmission system of SEPS and WPS, 4 August 2009
8) Internal instruction: Dispečerský pokyn č. 1: N-1 kritérium
9) Internal instruction: Dispečerský pokyn č. 2: Postup pri realizácii rekonfigurácií v PS SR, last update 5.9.2013
10) Guidelines for RAAS EIS within CEE region
11) EAS and RAAS platforms
12) Announcement via RAAS system about execution of reconfiguration in 400 kV substation Lemesany, 26 August 2013
13) Announcement in the SG CSO meeting, 19 January, 2012
14) Email correspondence with neighbouring TSOs, test of reconfiguration in substations 400 kV Varin, Lemesany and combinations results, 26.01.2012
15) Email correspondence with MAVIR, Announcement of expected overload, 4.1.2013
## 4.13 OH STANDARD P3-A4-S5.1

### SELF-ASSESSMENT QUESTIONNAIRE 2013

<table>
<thead>
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<th>P3-A4-S5.1</th>
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<td>Remedies are prepared pursuant to the time horizons they are detected: from year ahead, to week ahead and till day ahead.</td>
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<td><strong>Compliance Level:</strong> FCo</td>
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**No Additional Questions**

### AUDIT QUESTIONNAIRE 2014

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<td><strong>Compliance Level:</strong> FCo</td>
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**Concise explanation and list of evidence for declared compliance level:**

- According to internal legislation there are implemented operational planning stages:
  - yearly planning
    - Yearly plan, agreed at Coordinated disconnection meeting (3 coordination meetings)
  - monthly planning
    - Monthly plan, confirmed by emails
  - weekly planning
    - WOPT report
  - day ahead planning
    - DACF process, relevant remedial actions are simulated and possible scenarios are taking into account
    - DOPT report

- All plans are designed to keep N-1.

**Evidences:**

- same as P3-A4-S5.

**Do you have a mitigation plan to the standard?**

- Yes ☐
- No ☒

In case of an existing Addendum or a Non Compliance Declaration; list of evidence for a
mitigation plan, comments:


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<tr>
<td>Explanation for the suggested compliance level:</td>
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<tr>
<td>See the explanation in P3-A4-S5 and list of evidence from 1) to 6).</td>
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4.14 OH STANDARD P3-A4-S5.2

SELF-ASSESSMENT QUESTIONNAIRE 2013

P3-A4-S5.2

These remedial actions (preventive/curative) have to be previously assessed by numerical simulations in order to evaluate the efficiency of those measures on the constraints.

Compliance Level: FCo

No Additional Questions

AUDIT QUESTIONNAIRE 2014

P3-A4-S5.2

These remedial actions (preventive/curative) have to be previously assessed by numerical simulations in order to evaluate the efficiency of those measures on the constraints.

Compliance Level: FCo

Concise explanation and list of evidence for declared compliance level:

All remedial actions are simulated at operational planning phase and directly before realization in realtime as well. The most serious actions are tested also at training simulator and in realtime (in normal, secure state of grid).

Evaluations of relevancy and efficiency of remedial action is assessed by our Planning/Calculation Department. Analysis consist also recommendation, limits and possible impacts of implementation of remedies for dispatchers (for realtime operation).

Evidences:

same as P3-A4-S5

Do you have a mitigation plan to the standard?   Yes ☑   No ☒

In case of an existing Addendum or a Non Compliance Declaration; list of evidence for a mitigation plan, comments:

COMPLIANCE AUDIT 2014

Compliance Level suggestion by the Audit Team: FCo

Explanation for the suggested compliance level:

See the explanation in P3-A4-S5 and list of evidence from 4) to 6).
4.15 OH STANDARD P3-A4-S5.3

**SELF-ASSESSMENT QUESTIONNAIRE 2013**

**P3-A4-S5.3**

The remedial actions applied by a TSO with possible influence abroad must be checked between all TSOs of the same region in order to prevent counter-effects to neighbouring networks. Additional simulations have to be executed.

**Compliance Level:** SCo

**Actions taken to reach compliance:**

SEPS does not participate in TSC initiative, therefore SEPS does not receive all information about Day-ahead planned and activated remedial actions from neighbouring TSOs. There is intention to participate at least in DOPT (daily operation planning teleconference) to be included in process of remedial action planning in the CEE region.

**Deadline:** 12/2015

**Additional Questions**

How are remedial actions with possible influence abroad checked between all TSOs of your region(s) before applied by the TSO(s), in the different time frames?

All possible remedial actions are in general terms checked and agreed in SOAs. During the real-time operation our dispatchers inform all neighbours 15-20min before the activation remedies in our grid and all partners have time and possibility to object.

**AUDIT QUESTIONNAIRE 2014**

**P3-A4-S5.3**

The remedial actions applied by a TSO with possible influence abroad must be checked between all TSOs of the same region in order to prevent counter-effects to neighbouring networks. Additional simulations have to be executed.

**Compliance Level:** FCo

Concise explanation and list of evidence for declared compliance level:

All remedial actions are simulated at operational planning phase. The most serious actions are tested also at training simulator and in realtime (in normal, secure state of grid).

The serious remedial actions (as topology change or line opening) with possible influence to neighbouring TSOs are announced in advance (15 minutes). All partners (including local DSOs and producers) have right to give objections/remarks.
**Do you have a mitigation plan to the standard?**  Yes ☐  No ☒

In case of an existing Addendum or a Non Compliance Declaration; list of evidence for a mitigation plan, comments:

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<th>Evidence</th>
<th>Comments</th>
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**Additional Questions**

How are remedial actions with possible influence abroad checked between all TSOs of your region(s) before applied by the TSO(s), in the different time frames?

- Remedial actions with possible influence to neighbouring TSOs are in general agreed in SOAs.
- Reconfigurations with possible influence to more TSOs in region CEE is agreed on level of CSO (Coordinated System operation) SG and in regional groups in CEE region. These serious actions are announced in advance by email/phone.

List of evidence, comments:

- same as P3-A4-S5

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**COMPLIANCE AUDIT 2014**

**Compliance Level suggestion by the Audit Team:** FCo

**Explanation for the suggested compliance level:**

See the explanation in P3-A4-S5 and list of evidence 12) and 13).
### 4.16 OH STANDARD P3-A4-S5.4

#### SELF-ASSESSMENT QUESTIONNAIRE 2013

**P3-A4-S5.4**

The remedial actions with possible influence abroad have to be agreed by the neighbouring TSOs in advance. Therefore information between TSOs is due to be exchanged without any delay as soon as a problem is detected for the real time operation.

**Compliance Level:** FCo

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**No Additional Questions**

#### AUDIT QUESTIONNAIRE 2014

**P3-A4-S5.4**

The remedial actions with possible influence abroad have to be agreed by the neighbouring TSOs in advance. Therefore information between TSOs is due to be exchanged without any delay as soon as a problem is detected for the real time operation.

**Compliance Level:** FCo

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**Concise explanation and list of evidence for declared compliance level:**

Remedial actions with possible influence to neighbouring TSOs are in general agreed in SOAs. Reconfigurations with possible influence to more TSOs in region CEE is agreed on level of CSO (Coordinated System operation) SG and in regional groups in CEE region. These serious actions are announced in advance by email/phone.

Information is exchanged during WOPT and DOPT teleconferences (information about possibility of realization) and in realtime by dispatchers in shift (information about soon realization of action with information about reasons behind this action)

**Evidence:**

- same as P3-A4-S5
Do you have a mitigation plan to the standard?  

| Yes ☐ | No ☒ |

In case of an existing Addendum or a Non Compliance Declaration; list of evidence for a mitigation plan, comments:

COMPLIANCE AUDIT 2014

Compliance Level suggestion by the Audit Team: FCo

Explanation for the suggested compliance level:
See the explanation in P3-A4-S5 and list of evidence 14) and 15).
5 CONCLUSIONS

At the beginning of the first audit day, the Audit Team had an hour long visit in the National Control Centre, which helped the Audit Team to better understand the organisation and processes in the system of SEPS. Presentation of installed SCADA/EMS with demonstration of calculations was the significant part of this visit.

The Audit Team audited 16 standards and sub-standards. The Audit Team concluded that SEPS is fully compliant with all the audited standards. SEPS estimates that their staff needed about 150 man hours for the preparation of the compliance audit.

SEPS was well prepared for the audit. The documents considered as evidence were available during the audit. All these documents were a good basis for proving the compliance level of SEPS with the audited standards. SEPS has updated operation agreements, what is evidence of sufficient cooperation with all neighbours. Requests for additional material were promptly met by SEPS.

In the case of this Compliance Audit, all preconditions for a successful audit were fulfilled and the Audit Team wishes to express its gratitude to the SEPS staff involved in the Audit and the company management.

Recommendations by Audit Team:  
Audit team recommends to update the agreement between MAVIR and SEPS to have the latest data exchange details in the agreement.
6 SIGNATURE PAGE

ENTSO-E Audit Team Members:

Gorazd Sitar (Audit Team Leader)

Kurt Misak (Audit Team Member)

Luka Spoljar (Audit Team Member)

Jaka Žvab (Compliance monitoring Advisor)

Date and Place: 07.11.2014, Brussels, Belgium