



European Network of
Transmission System Operators
for Electricity

COMPLIANCE AUDIT REPORT APG

4.10.2011. – 5.10.2011

**COMPLIANCE AUDIT CONDUCTED IN VIENNA BY THE
ENTSO-E RG CE SG COMPLIANCE MONITORING &
ENFORCEMENT
AT THE CONTROL CENTRE OF THE ENTSO-E MEMBER
APG**

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 (RGCE) 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 RGCE Operation Handbook and/or any other relevant applicable standard.

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1 EXECUTIVE SUMMARY

1.1 COMPLIANCE MONITORING IN ENTSO-E RGCE

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

SG Compliance Monitoring & Enforcement (CME) is in charge of performing above mentioned two processes. The 2011 is the second year of conducting mandatory compliance audits. In 2008 and 2009 CME performed four voluntary compliance audits and in 2010 six mandatory audits.

1.2 AUDITED TSO

The RGCE member TSO APG was chosen for a Compliance Audit in 2011. CME conducted the audit on the 4th and 5th October 2011 at the control centre of APG in Vienna, Austria.

1.3 AUDITED OH STANDARDS

The Compliance Audit encompassed 21 standards of Operation Handbook Policies 1-3 which are related to Load-Frequency Control and Performance, Scheduling and Accounting, and Operational Security. In 2010 APG made compliance declarations in the self-assessment process for standards which will be checked against their evidence during the audit:

1	P1-A-S1.1 PRIMARY CONTROL Organisation
2	P1-B-S4 SECONDARY CONTROL RESERVE
3	P2-A-S4 General Agreements between UCTE System Operators who are affected by cross border scheduling
4	P2-A-S5 General Agreements between neighbouring CONTROL AREAS
5	P2-A-S5.1 Identification Code used-either EIC or GS1 (former EAN)
6	P2-A-S5.2 Agreement on the contents and granularity of the exchanged CAS (e.g. MTFs, resolution) in order to allow a sufficient matching
7	P2-A-S5.3 Agreed timing for processes (e.g. exchange of programs, matching, day ahead and intraday process, Gate Closure, Cut-Off Time)
8	P2-A-S5.4 Rules to solve mismatches at Cut-Off Time
9	P2-A-S5.5 Responsibilities (e.g. matching, CAPACITY check)
10	P3-A1-S2 Coordination for exceptional type of contingency
11	P3-A2-S1 Determination of the external contingency list and observability area
12	P3-A2-S2 Implementation of observability area
13	P3-A2-S5.2 Abroad consequences of TSOs decisions in operational planning and in real time
14	P3-A2-S6 Data provision
15	P3-A3-S2 Overloads in N-1 situation (simulation)
16	P3-A3-S4.1 Tie-lines operating conditions
17	P3-A4-S3 Principle of "No cascading with impact outside my border"
18	P3-A4-S4.1 Regional agreement for the set of remedial actions
19	P3-B-S1.2.2 Other REACTIVE POWER generation/absorption resources
20	P3-B-S2.1.2 Coordination for voltage and reactive power management
21	P3-D-S2 Transient angle Stability calculation

1.4 RESULTS

The Audit Team visited the APG control room at the beginning of the audit. All questions of the Audit Team were answered in a very precise manner. The evidences presented in the control room helped the auditors to better understand the organisation of the work and the processes.

APG was excellently prepared for the audit. All necessary documentation was easily available. This has eased the audit process which in itself was very complicated, because APG has 9 neighbouring TSOs. The APG representatives answered all questions in a competent way and gave detailed explanations. The Audit Team wants to stress its full satisfaction with the approach of APG to the compliance audit.

The Audit Team upgraded APG in case of 5 standards from the level of sufficient compliant (SC) to the level of full compliant (FC) - see table below. This led to the conclusion that APG is fully compliant with all audited standards.

The table 1 describes APG's compliance declaration in self assessment questionnaire 2010 and compliance audit questionnaire 2011 with compliance level suggestion by CME audit team after reviewing the evidence for the audited standards. Upgrades are highlighted with green and downgrades with red colour. Standards which kept their declaration level are not highlighted.

TABLE 1: COMPLIANCE LEVEL CHANGES FOR THE AUDITED OH STANDARDS

OH Standard	Self assessment questionnaire 2010	Compliance audit questionnaire 2011	On site compliance audit 2011
P1-A-S1.1	SC	FC	FC
P1-B-S4	FC	FC	FC
P2-A-S4	FC	FC	FC
P2-A-S5	-	SC	FC
P2-A-S5.1	SC	FC	FC
P2-A-S5.2	SC	SC	FC
P2-A-S5.3	SC	SC	FC
P2-A-S5.4	FC	FC	FC
P2-A-S5.5	FC	FC	FC
P3-A1-S2	SC	FC	FC
P3-A2-S1	SC	FC	FC
P3-A2-S2	FC	FC	FC
P3-A2-S5.2	FC	FC	FC
P3-A2-S6	FC	FC	FC
P3-A3-S2	FC	FC	FC
P3-A3-S4.1	FC	FC	FC
P3-A4-S3	SC	FC	FC
P3-A4-S4.1	FC	FC	FC
P3-B-S1.2.2	SC	SC	FC
P3-B-S2.1.2	FC	FC	FC
P3-D-S2	NC	SC	FC

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 on 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. The APG didn't make any such objection. The APG staff present during the compliance audit is given on table 3.

TABLE 2: CME AUDIT TEAM FOR APG

Audit team role	Company or association	Name
Audit team leader	EMS	Vladimir Ilic
Audit team member	Transelectrica	Octavia Unguroiu
Audit team member	HTSO	Yiannis Toliás
Compliance Monitoring Advisor	ENTSO-E Secretariat	Alexander Mondovic

TABLE 3: APG AUDIT STAFF

Function in the company	Title	Name
Head of Control Centre (CAM)		Erich Pokorny
Director of Division Operations		Wolfgang Haimbl
Deputy Head of Control Centre, Team Leader Dispatchers		Tahir Kapetanovic
Head of Grid Security, Coordination		Kurt Misak
Team Leader Operational concepts , Top expert balancing energy		Alexander Stimmer
Team leader scheduling office		Günther Mann
Top expert operational planning		Günter Mika
Team leader network analysis		Andrea Dummer
Expert grid analysis		Richard Weissnar
Expert operational planning		Jörg Leonhardt
Expert scheduling and account		Daniel Leanyi

3 AUDIT PLAN

3.1 GENERAL PROCEDURES

The purpose of this chapter is to help and provide guidance to your organization regarding the oncoming Compliance Audit. The audit will cover a chosen set of Operation Handbook (OH) standards equivalent to those monitored within the Compliance Monitoring Program 2010 self-assessment process.

Please submit the completed Audit Worksheet by email to the ENTSO-E Secretariat and send carbon copies to all Audit Team members three weeks before the first audit day. In table 4 you may find the complete schedule of the audit process for your company.

All documentation (evidence) required for the onsite audit of each standard must be available as a hard copy or in electronic format at the audit location. The Control Area Manager and/or other responsible expert personnel must be 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.

In preparation for the audit, please organise your supporting compliance documentation which is the evidence for your compliance for audited standards. If possible, please try to provide English versions of the documents. Otherwise please translate the main title, index and the last update of the document for the Audit Team. Previously mentioned preparations must be completed prior to the start of the on-site audit. The ENTSO-E RGCE SG CME would like to emphasize the importance of preparation for the audit. 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

Submittal of the audit material on behalf of the Audit Team	7 weeks prior to audit
Submittal of the completed Audit Worksheet to the Secretariat by APG	3 weeks prior to audit
Initial draft of the audit report based on the Audit Worksheet sent to APG by the Audit Team	2 working days prior to audit
Opening meeting of the Audit Team and CAM of APG (1) Introduction of the Audit Team members, (2) Description of how the on-site audit will be conducted, (3) Discussion on how confidential information will be handled, (4) Discussion on data access required by the Audit Team, (5) Announcement that the APG will be asked to provide feedback on the audit process and results, (6) Presentation of the TSO and TSO's organization (7) Visit at the control room	First audit day, 4.10.2011 09:00 – 10:00
Start of the OH standards' review	First audit day, 4.10.2011 10:00 – 17:00
Continue of the OH standards' review	Second audit day, 5.10.2011 09:00 – 16:00
Closing meeting with CAM of APG	Second audit

<p>(1) Presentation of preliminary audit findings and recommendations to be included on the draft audit report, with a strong emphasis on the evidences for each compliance level or non compliance identified by the Audit Team,</p> <p>(2) Discussion and feedback by the APG with a possibility to object the findings,</p> <p>(3) In case of any non-compliance or lack of evidence of compliance, first draft proposal of the TSO on an adequate mitigation plan, including deadline. Should such an immediate proposal not be possible, the TSO must submit it afterwards in written copy within seven days.</p>	<p>day, 5.10.2011 16:00 – 17:00</p>
Internal Audit Team meeting	<p>After audit 6.10.2011 09:00 – 11:30</p>
Delivery of the draft audit report to APG for review	2 weeks after the audit
Remarks by APG	4 weeks after the audit
Delivery of the final audit report to APG	6 weeks after the audit
Acknowledgement of the final Audit Report by ENTSO-E RGCE Plenary and decision on its possible internal or external publishing.	RGCE Plenary in 2012

3.2 OBJECTIVES

In 2011 the objective of Compliance Audits is to check chosen set of standards from OH Policies 1-3. These standards were also monitored in the 2010 regular compliance process via the self-assessment questionnaire. Furthermore, before performing the Compliance Audit, the Audit Team makes recommendations to the audited TSO to prepare the evidence or documentation on compliance with the audited OH standards.

3.3 SCOPE

The scope of a compliance audit encompasses issues which are directly related to the compliance of the audited TSO with the investigated RGCE 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 RGCE 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 2010 stored at the ENTSO-E Secretariat related to audited TSO concerning the audited OH standards
- Audit Worksheet 2011
- 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

3.4 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 2010 self-assessment questionnaires. It also processed (assessed) the answers in the 2011 Audit Worksheet filled in by the audited TSO.

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

The audit team uses an Audit Worksheet (AW) (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 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.

3.5 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
- The TSO must fill in the audit questionnaire and submit to the audit team before the audit
- Identification of documents and other material the TSO has 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 2010 cross-border check regarding compliance level declarations)
- Analysis of the explanations and comments which the audited TSO made in the self-assessment 2010 and audit questionnaires 2011 in written form in order to evaluate the quality of explanations and comments.
- Identification of the missing explanations in the self-assessment 2010 and audit questionnaires 2011
- Analysis of the improvements achieved during the implementation of mitigation and improvement plans declared in the MLA Addendum/Addenda, in the self-assessment questionnaire 2010 and in the Audit Worksheet 2011 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 2010 and audit questionnaire 2011.
 - The goal is 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 is to improve the quality of the presented evidence
 - The presented material must be 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

3.6 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 asserts such a claim.

4 AUDIT WORK SHEET

4.1 P1-A-S1.1 PRIMARY CONTROL ORGANISATION

PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010	
P1-A-S1.1.	
<p>PRIMARY CONTROL Organisation. An organisational procedure to cover requirements and obligations for PRIMARY CONTROL actions and reserves performed by third parties in the CONTROL AREA including a monitoring procedure must be in place (e.g. GridCode, regulation, association agreement or contract).</p>	
Compliance Level: SC	
Actions taken to reach full compliance:	
Detailed monitoring with real time data of all involved generators is being developed; data to some extent already available; monitoring tool to some extent already implemented	
Deadline:	12\2010
Additional Questions	
Do you have a formal procedure in place to ensure compliance with this standard?	yes
What level of legal support does the procedure entitle? (i.e. law, grid code, agreement, other) contracts with generators	
How do you monitor the primary control response of your Control area? (i.e. as a whole, for each single generation unit, etc. Timeframe: realtime/retrospective)	
online data (2s resolution) requested from every participating unit; monitoring is done ex post in the first step (Detailed monitoring parameters to be worked out based on experience. Some generator data is already available, but comprehensive monitoring will be available by the end of the year; apart from that the the total behaviour of the Control Block ist monitored according to	

the LFC report requirements).

AUDIT QUESTIONNAIRE 2011

P1-A-S1.1 PRIMARY CONTROL Organisation. An organisational procedure to cover requirements and obligations for PRIMARY CONTROL actions and reserves performed by third parties in the CONTROL AREA including a monitoring procedure must be in place (e.g. Grid Code, regulation, association agreement or contract).

Compliance level **FC** **SC** **NC**

Concise explanation for declared compliance level:

Detailed procedure is in place including 1) technical pre-qualification, 2) Contract 3) tendering and 4) monitoring

Do you have an addendum to the standard? **Yes** **No**

In case of an existing addendum; list of evidences for a mitigation plan, comments:

Do you have a formal procedure in place to ensure compliance with this standard?

Yes No

List of evidences, comments:

See tender platform www.regelleistung.at (“regelleistung” means “balancing power”)

What level of legal support does the procedure entitle? (i.e. law, grid code, agreement, other)

Law, grid code and contracts with the providers including penalty regulations

List of evidences, comments:

See law, grid code and contract in the enclosed files

How do you monitor the primary control response of your Control area? (i.e. as a whole, for each single generation unit, etc. timeframe: realtime/retrospective)

Monitoring is done ex-post with real time data for every involved generator with a time resolution of 2s, currently for the RGCE incidents

List of evidences, comments:

See enclosed slides with examples

AUDIT PHASE

COMPLIANCE AUDIT 2011

APG has shown the legal obligations imposed on APG: “Bundesgesetzblatt on 23/12/2010”. Primary reserve has to be procured by tendering procedure. The generators are obliged by law to deliver primary reserve on demand (in case APG has problems, but this has never been used yet). In the grid code “Technische und organisatorische Regeln für Betreiber und Benutzer von Netzen, Teil B” (last version) it is stated that generators which participate in the primary control have to fulfil a number of requirements described in Policy 1 (which is explicitly mentioned in the text).

APG has presented the implementation process. First step is prequalification: “Bewertung der technischen Präqualifikation für Bezug/Lieferung von Primärregelreserve“, which is done by the university of Graz. Second step is the contract: “Rahmenvertrag über die Vergabe von Aufträgen zur Erbringung von Primärregelleistung“, and the third step is tendering (weekly, for 76 MW in 2011).

APG established a monitoring tool: “Regelungs-Monitoring-System”. APG has presented the example of frequency deviation on 03/12/2010. At that time there were 4 providers of primary reserve. In the slides it is shown how they reacted (measurements against expected behaviour).

Compliance Level suggestion by the audit team:

FC

Explanation for the suggested compliance level:

APG provided sufficient proof of full compliance.

Improvement/Mitigation plan with deadline:

n/a

4.2 P1-B-S4 SECONDARY CONTROL RESERVE

PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010

P1-B-S4.

SECONDARY CONTROL RESERVE. An adequate SECONDARY CONTROL RESERVE must be available to cover expected DEMAND and generation fluctuations. If the loss of the largest generating unit of the CONTROL AREA is not already covered by the requisite SECONDARY CONTROL RESERVE, additional TERTIARY CONTROL RESERVE (see -> P1-C) has to be activated to offset the shortfall within the required time (see P1-B-S2.1).

Compliance Level: FC

Additional Questions

Does the sum of allocated Secondary and Tertiary Reserve cover normally and within the required time the loss of the largest generation unit connected in your control area? yes

How does your TSO monitor and report about the technical availability of TERTIARY RESERVE?

monitoring is done by checking the balance of the respecting BRP ex post

AUDIT QUESTIONNAIRE 2011

P1-B-S4 SECONDARY CONTROL RESERVE. An adequate SECONDARY CONTROL RESERVE must be available to cover expected DEMAND and generation fluctuations. If the loss of the largest generating unit of the CONTROL AREA is not already covered by the requisite SECONDARY CONTROL RESERVE, additional TERTIARY CONTROL RESERVE (see P1-C) has to be activated to offset the shortfall within the required time (see P1-B-S2.1).

Compliance level FC SC NC

Concise explanation for declared compliance level:

Contract with a single provider for Secondary Control, Tendering for Tertiary Control

Do you have an addendum to the standard? Yes No

In case of an existing addendum; list of evidences for a mitigation plan, comments:

[Redacted]

Does the sum of allocated Secondary and Tertiary Reserve cover normally and within the required time (Secondary: 15 min and Tertiary: 30 min) the loss of the largest generation unit connected in your control area?

Yes No

List of evidences, comments:

Procured total sum of secondary control reserves and the dedicated part of the tertiary control reserve (so called "shifting") covers the loss of largest generation unit (block) of 425 MW within 15 minutes.

How does your TSO monitor and report about the technical availability of TERTIARY RESERVE?

Monitoring is provided by observation and analysis of the control area behaviour; in case of non sufficient behaviour a detailed analysis is done. Usually (see LFC-report) the quality of LFC in APG's control area is excellent.

List of evidences, comments:

LFC report (see samples)

AUDIT PHASE

COMPLIANCE AUDIT 2011

The largest generating unit has 425 MW.

The structure of procurement of secondary reserve is the same as for the primary reserve (see the previous standard). However, there is no tendering procedure for the secondary reserve. This will change from the beginning of 2012 on.

At present, APG has a system service contract: "Netzdienstleistungsvertrag" with a single provider for 195 MW of spinning reserve. Additional 230 MW to cover the biggest block outage (425 MW), that can be activated at any time by APG with a lead time of 5 minutes, is guaranteed by the same provider (the same contract).

Monitoring is provided by observation and analysis of the control area behaviour (LFC-Reports). Up to now, the reaction of the secondary/tertiary reserve is good. In case of non sufficient behaviour a detailed analysis will be done. In the future (from 2012 on) there will be more providers, and every one of them will have to be monitored.

In the APG grid, there are 2 new generating units connected to the grid with a single circuit (Limberg II). The sum of the capacity of these 2 units is 480 MW. In the contract with these producers it is specified that they will provide within 15 minutes the difference between 480 MW and 400 MW i.e. 80 MW in case the single circuit trips and thus provokes imbalance.

Compliance Level suggestion by the audit team:

FC

Explanation for the suggested compliance level:

APG provided sufficient proof of full compliance.

Improvement/Mitigation plan with deadline:

n/a

4.3 P2-A-S4 GENERAL AGREEMENTS BETWEEN UCTE SYSTEM OPERATORS WHO ARE AFFECTED BY CROSS BORDER SCHEDULING PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010

P2-A-S4.

General Agreements between UCTE System Operators who are affected by cross border scheduling. For performing a proper matching process and especially for cases of troubleshooting the UCTE bodies (Control Areas, Control Blocks and CO-ORDINATION CENTRES) have to document common agreed rules e.g.

Compliance Level: FC

Additional Questions

Do you have common agreed documents with corresponding ENTSOe bodies for Scheduling of Power Exchange? no

Do you have an agreement which specifies MTFs (Multi Time Frame System) and number of digits? yes

What procedure do you apply for solving mismatches ?

Up till now every mismatch was amicably solved via communication with the adjacent TSOs and the involved market participants. In case we can not solve it in that way the lower value would be applied. In case the program is nominated to the both TSOs in opposite directions the program would be set to zero.

AUDIT QUESTIONNAIRE 2011

P2-A-S4 General Agreements between UCTE System Operators who are affected by cross border scheduling. For performing a proper matching process and especially for cases of troubleshooting the UCTE bodies (Control Areas, Control Blocks and CO-ORDINATION CENTRES) have to document common agreed rules e.g.

A-S-4.1 Agreed MTFs and number of digits

A-S-4.2 Solution for mismatches (see Guidelines)

A-S-4.3 Troubleshooting in case of problems with data exchange and matching process.
(see P2-A-G2 & P2-A-G3 & P2-A-G4)

Compliance level FOR P2-A-S4 **FC** **SC** **NC**

Concise explanation for declared compliance level:

Yes, "Inter TSO Agreements" (Chapter 3, Point 3.2) and special agreements with CEPS, ELES, MAVIR, Terna, swissgrid (see attached file "General_Agreements.ppt")

Do you have an addendum to the standard? **Yes** **No**

In case of an existing addendum; list of evidences for a mitigation plan, comments:

Do you have common agreed documents with corresponding ENTSO-E bodies for Scheduling of Power Exchange?

Yes No

List of evidences, comments:

Yes, with adjacent TSOs: "Inter TSO Agreements" (Chapter 3, Point 3.2) and special agreements with CEPS, ELES, MAVIR, Terna, swissgrid (see attached file "General_Agreements.ppt").

Do you have an agreement which specifies MTFs (Multi Time Frame System) and number of digits?

Yes No

List of evidences, comments:

see "Implementation Guide CEE region" (attached).

What procedure do you apply for solving mismatches?

Immediate communication with the adjacent TSOs and the involved market participants. If no solution can be achieved that way, the lower value would be applied. In case the program is nominated to both TSOs in opposite directions the program would be set to zero.

List of evidences, comments:

APG is acting in full compliance with the UCTE SO-SO process (System Operator to System Operator process, defined in the attached paper "Implementation Guide for the ESS (ENTSO Scheduling System) in the UCTE processes") (Chapter 10, "Annex 3") and "Implementation Guide CEE region", chapter 3.2.4. (attached).

AUDIT PHASE

COMPLIANCE AUDIT 2011

APG has inter-TSO agreements (listed under P3-A2-S1, chapter 3, and point 3.2) with all neighbouring TSOs and special additional agreements with CEPS, ELES, MAVIR, Terna, Swissgrid.

At present, at the borders to CEPS, ELES and MAVIR the ESS version 3.3 is implemented. With all other neighbouring TSOs the ESS version 2.3 is used. Swissgrid will be the next to switch to the version 3.3. APG has the capability to switch from the version 2.3 to the version 3.3 at every border. As soon as a neighbour is ready to use the ESS version 3.3, APG will immediately switch to it (everything is prepared).

APG has presented “The implementation guide CEE scheduling TSO (chapter 3.2.4)” in which the matching agreement with the neighbouring TSOs belonging to the CEE region (CEPS, ELES and MAVIR) is defined.

At the German border there is no bottleneck and no congestion. Therefore, every schedule that is formally correct must be accepted.

The rules referring to which value has to be accepted in case of mismatch are defined in the auction or similar rules. Examples:

- “Access rules to France-Italy, Switzerland-Italy, Austria-Italy, Slovenia-Italy, Greece-Italy interconnections (capacity allocation auction rules 2011, chapter 3.6.1 and 3.6.2)”.
- “Fahrplananmeldung in Deutschland mit Hilfe des ESS”. However, there are no auctions on the German border, because there is no structural congestion.

Compliance Level suggestion by the audit team:

FC

Explanation for the suggested compliance level:

APG has given sufficient proof of full compliance.

Improvement/Mitigation plan with deadline:

n/a

4.4 P2-A-S5 GENERAL AGREEMENTS BETWEEN NEIGHBOURING CONTROL AREAS

PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010

P2-A-S5.

General Agreements between neighbouring CONTROL AREAS. For automatic matching neighbouring CONTROL AREAS have to document their agreement for common rules for their border. Rules relevant for Market Parties must be published or communicated towards the parties in question. This document has to contain:

Compliance Level:

Additional Questions

Do you perform automatic matching with your neighbouring CONTROL AREAS?	no
Do you have documented agreements on automatic matching with your neighbours?	no
Do you have agreements which define the contents and granularity of the exchanged CAS in order to allow sufficient matching?	yes
Do the agreements include timing for processes (e.g. exchange of programs, matching, day ahead and intra day process, Gate Closure, Cut-Off Time)?	yes
How are the relevant rules communicated to the Market Parties?	
You can find it in the Austrian Market Rules (published on the Website of the Austrian Regulator and in the Auction Rules (published on the Website of the Auction Office).	
Do you have rules which are agreed in advance to solve mismatches at Cut-Off Time?	yes

Do the agreed responsibilities assignment follow the “Implementation Guide for the ESS (ETSO Scheduling System) in the UCTE processes”?	yes
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AUDIT QUESTIONNAIRE 2011

P2-A-S5 General Agreements between neighbouring CONTROL AREAS. For automatic matching neighbouring CONTROL AREAS have to document their agreement for common rules for their border. Rules relevant for Market Parties must be published or communicated towards the parties in question. This document has to contain:

- A-S-5.1 Identification Code used-either EIC or GS1 (former EAN)
- A-S-5.2 Agreement on the contents and granularity of the exchanged CAS (e.g. MTF5, resolution) in order to allow a sufficient matching
- A-S-5.3 Agreed timing for processes (e.g. exchange of programs, matching, day ahead and intra day process, Gate Closure, Cut-Off Time)
- A-S-5.4 Rules to solve mismatches at Cut-Off Time
- A-S-5.5 Responsibilities (e.g. matching, CAPACITY check)

Neighbouring CONTROL AREAS shall implement and run their matching process according to the “Implementation Guide for the EES (ETSO Scheduling System) in the UCTE processes”

Compliance level FC SC NC

Concise explanation for declared compliance level:

We fulfil this standard with every adjacent TSO, which supports the standard (CEPS, MAVIR, ELES, Terna, swissgrid); see “Implementation Guide CEE region” (attached) and special agreements with Terna and swissgrid.

Do you have an addendum to the standard? Yes No

In case of an existing addendum; list of evidences for a mitigation plan, comments:

Do you perform matching with your neighbouring CONTROL AREAS?

Yes No

List of evidences, comments:

APG acts according to “UCTE SO-SO process” (from APG’s side possible at every border, but fully implemented only wit MAVIR, CEPS and ELES; negotiations ongoing with TERNA; will be implemented with swissgrid by mid 2012 when they have implemented their new scheduling system)

How are the relevant rules communicated to the Market Parties?

“Austrian Market Rules” - published on the Website of the Austrian Regulator www.e-control.at and in the Auction Rules (published on the Website of the Auction Offices), “Users Guide” (published on the website of Central Auction Office), “Intraday Trader Guide” (published on the website of CEPS)

List of evidences, comments:

Above-mentioned “Austrian Market Rules”, Users and trader Guide.

AUDIT PHASE

COMPLIANCE AUDIT 2011

The Audit Team checked this main standard by all its 5 sub-standards, and took a summary decision on the APG’s compliance with the main standard.

The Audit Team found that APG is fully compliant with all sub-standards.

Compliance Level suggestion by the audit team:

FC

Explanation for the suggested compliance level:

APG provided sufficient proof of full compliance for all sub-standards.

Improvement/Mitigation plan with deadline:

n/a

4.5 P2-A-S-5.1 IDENTIFICATION CODE USED-EITHER EIC OR GS1 (FORMER EAN)

PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010	
P2-A-S5.1.	
Identification Code used - either EIC or GS1 (former EAN)	
Compliance Level: SC	
Actions taken to reach full compliance:	
<p>The actions have to be set by our adjacent partners not supporting this standard at the moment - APG is prepared to handle it immediately (as APG is already doing it with CEPS , MAVIR and ELES). The existing rules with the neighbours not using this standard are sufficient and guarantee as proved by a long time praxis a successful matching process. The expected date to reach full compliance depends on our partners.</p>	
Deadline:	12\2010

AUDIT QUESTIONNAIRE 2011	
P2-A-S-5.1 Identification Code used-either EIC or GS1 (former EAN)	
Compliance level FC <input checked="" type="checkbox"/> SC <input type="checkbox"/> NC <input type="checkbox"/>	
Concise explanation for declared compliance level:	
APG uses the EIC code.	
Do you have an addendum to the standard? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	
In case of an existing addendum; list of evidences for a mitigation plan, comments:	
<div style="border: 1px solid #ccc; height: 20px; width: 100%;"></div>	

AUDIT PHASE

COMPLIANCE AUDIT 2011

APG has demonstrated that it uses EIC.

Compliance Level suggestion by the audit team:

FC

Explanation for the suggested compliance level:

APG provided sufficient proof of full compliance.

Improvement/Mitigation plan with deadline:

n/a

4.6 P2-A-S-5.2 AGREEMENT ON THE CONTENTS AND GRANULARITY OF THE EXCHANGED CAS (E.G. MTFS, RESOLUTION) IN ORDER TO ALLOW A SUFFICIENT MATCHING

PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010	
P2-A-S5.2.	
Agreement on the contents and granularity of the exchanged CAS(e.g. MTFS, resolution) in order to allow a sufficient matching	
Compliance Level: SC	
Actions taken to reach full compliance: The actions have to be set by our adjacent partners not supporting this standard at the moment - APG is prepared to handle it immediately (as APG is already doing it with CEPS , MAVIR and ELES). The existing rules with the neighbours not using this standard are sufficient and guarantee as proved by a long time praxis a successful matching process. The expected date to reach full compliance depends on our partners.	
Deadline:	12\2010

AUDIT QUESTIONNAIRE 2011	
P2-A-S-5.2 Agreement on the contents and granularity of the exchanged CAS (e.g. MTFS, resolution) in order to allow a sufficient matching	
Compliance level	FC <input type="checkbox"/> SC <input checked="" type="checkbox"/> NC <input type="checkbox"/>
Concise explanation for declared compliance level: We fulfil this standard with every adjacent TSO which supports the standard (CEPS, MAVIR, ELES, Terna, swissgrid); see "Implementation Guide CEE region" (attached) and special agreements with Terna and swissgrid. The expected date to reach full compliance is completely on our partners as APG is "ready to do it".	
Do you have an addendum to the standard?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
In case of an existing addendum; list of evidences for a mitigation plan, comments:	

Do you have documented agreements on matching with your neighbours?

Yes No

List of evidences, comments:

Implementation Guide CEE region, ELES Intraday specification

Do you have agreements which define the contents and granularity of the exchanged CAS in order to allow sufficient matching?

Yes No

List of evidences, comments:

Implementation Guide CEE region

AUDIT PHASE

COMPLIANCE AUDIT 2011

APG has demonstrated that all necessary agreements and rules are published on the Internet.

Compliance Level suggestion by the audit team:

FC

Explanation for the suggested compliance level:

APG declared sufficient compliance, because it believed that separate signed annexes to the operational agreements, with detailed description of the processes, are necessary. APG has not signed such documents with all its neighbouring TSOs. However, the standard doesn't require that. It is enough to "document" i.e. to define in a tangible form and to publish the agreements and rules (which exist and are practised with the neighbours). Therefore, the Audit Team upgraded APG to the level of full compliance.

Improvement/Mitigation plan with deadline:

n/a

4.7 P2-A-S-5.3 AGREED TIMING FOR PROCESSES (E.G. EXCHANGE OF PROGRAMS, MATCHING, DAY AHEAD AND INTRA DAY PROCESS, GATE CLOSURE, CUT-OFF TIME)

PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010	
P2-A-S5.3.	
Agreed timing for processes (e.g. exchange of programs, matching, day ahead and intra day process, Gate Closure, Cut-Off Time)	
Compliance Level: SC	
Actions taken to reach full compliance:	
<p>The actions have to be set by our adjacent partners not supporting this standard at the moment - APG is prepared to handle it immediately (as APG is already doing it with CEPS , MAVIR and ELES). The existing rules with the neighbours not using this standard are sufficient and guarantee as proved by a long time praxis a successful matching process. The expected date to reach full compliance depends on our partners.</p>	
Deadline:	12\2010

AUDIT QUESTIONNAIRE 2011	
P2-A-S-5.3 Agreed timing for processes (e.g. exchange of programs, matching, day ahead and intra day process, Gate Closure, Cut-Off Time)	
Compliance level	FC <input type="checkbox"/> SC <input checked="" type="checkbox"/> NC <input type="checkbox"/>
Concise explanation for declared compliance level:	
We fulfil this standard with every adjacent TSO, which supports the standard (CEPS, MAVIR, ELES, Terna, swissgrid); see "Implementation Guide CEE region" (attached) and special agreements with Terna and swissgrid. The expected date to reach full compliance is completely on our partners as APG is "ready to do it".	
Do you have an addendum to the standard?	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
In case of an existing addendum; list of evidences for a mitigation plan, comments:	
<div style="background-color: #cccccc; height: 20px; width: 100%;"></div>	

Do the agreements include timing for processes (e.g. exchange of programs, matching, day ahead and intraday process, Gate Closure, Cut-Off Time)?

Yes No

List of evidences, comments:

See attached file "General_Agreements.ppt"

AUDIT PHASE

COMPLIANCE AUDIT 2011

APG has demonstrated that all necessary agreements and rules are published on the Internet.

With the German TSOs the existing operational agreements fulfil the standard in general. APG has additional agreements with the other neighbouring TSOs where similar general rules are given. Detailed rules are published on the Internet.

Compliance Level suggestion by the audit team:

FC

Explanation for the suggested compliance level:

APG declared sufficient compliance, because it believed that separate signed annexes to the operational agreements, with detailed description of the processes, are necessary. APG has not signed such documents with all its neighbouring TSOs. However, the standard doesn't require that. It is enough to have defined agreements. Their publication on the Internet is the proof that the agreements exist. Therefore, the Audit Team upgraded APG to the level of full compliance.

Improvement/Mitigation plan with deadline:

n/a

4.8 P2-A-S-5.4 RULES TO SOLVE MISMATCHES AT CUT-OFF TIME

PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010
P2-A-S5.4.
Rules to solve mismatches at Cut-Off Time
Compliance Level: FC

AUDIT QUESTIONNAIRE 2011
P2-A-S-5.4 Rules to solve mismatches at Cut-Off Time
Compliance level FC <input checked="" type="checkbox"/> SC <input type="checkbox"/> NC <input type="checkbox"/>
Concise explanation for declared compliance level:
APG is acting according to the rules defined in Annex 10 of the UCTE SO-SO process.
Do you have an addendum to the standard? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
In case of an existing addendum; list of evidences for a mitigation plan, comments:
<hr/>
<i>Do you perform matching with your neighbouring CONTROL AREAS?</i>
Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
List of evidences, comments:
See attached file "General_Agreements.ppt"

AUDIT PHASE

COMPLIANCE AUDIT 2011
The rules to solve mismatches at Cut-Off Time are defined in the agreements with neighbouring TSOs. The lower value principle is applied at all borders except at the border to Terna and Swissgrid. With Terna the export values are agreed for the long term. For day-ahead the minimum values are applied. With Swissgrid the APG schedule prevails in any case.

Compliance Level suggestion by the audit team:
FC

Explanation for the suggested compliance level:
APG provided sufficient proof of full compliance.

Improvement/Mitigation plan with deadline:
n/a

4.9 P2-A-S-5.5 RESPONSIBILITIES (E.G. MATCHING, CAPACITY CHECK)**PREPARATORY PHASE****SELF-ASSESSMENT QUESTIONNAIRE 2010****P2-A-S5.5.**

Responsibilities (e.g. matching, CAPACITY check)

Neighbouring CONTROL AREAS shall implement and run their matching process according to the "Implementation Guide for the ESS (ETSO Scheduling System) in the UCTE processes".

Compliance Level: FC**AUDIT QUESTIONNAIRE 2011****P2-A-S-5.5 Responsibilities (e.g. matching, CAPACITY check)****Compliance level** FC SC NC

Concise explanation for declared compliance level:

APG is completely acting according to the rules defined in the "Implementation guide CEE region" and the "UCTE SO-SO process".

Do you have an addendum to the standard? Yes No

In case of an existing addendum; list of evidences for a mitigation plan, comments:

*Does the agreed responsibilities assignment follow the "Implementation Guide for the ESS (ETSO Scheduling System) in the UCTE processes"?*Yes No

List of evidences, comments:

See our scheduling system (at time of audit; see also attached screenshot).

AUDIT PHASE**COMPLIANCE AUDIT 2011**

APG has presented its scheduling system. APG convinced the Audit Team that it acts according to the rules defined in the “Implementation guide CEE region” and the “UCTE SO-SO process”.

Automatic matching is performed at all borders except at the border to German TSOs. APG system is prepared to apply automatic matching as soon as the German TSOs are ready for that.

ESS version 3.3 is implemented at the borders to ELES, MAVIR and CEPS. ESS version 2.3 is implemented at all other borders. APG has the capability to switch from the version 2.3 to the version 3.3 at every border.

Compliance Level suggestion by the audit team:

FC

Explanation for the suggested compliance level:

APG provided sufficient proof of full compliance.

Improvement/Mitigation plan with deadline:

n/a

4.10 P3-A1-S2 COORDINATION FOR EXCEPTIONAL TYPE OF CONTINGENCY

PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010

P3-A1-S2.

Coordination for exceptional type of contingency. It is the responsibility of the operator of the concerned network elements to establish the list of the exceptional type of contingency for security calculation based on the likelihood of occurrence of the event and to communicate this list to the neighbouring TSOs. Each TSO selects these exceptional contingencies based on the respective risk assessment by itself (see P3-A2-S1). Some exceptional events are considered only in case of temporary specific operational conditions, which have to be communicated to neighbors with a view of security calculation. If a TSO A considers a resulting risk for an exceptional type of contingency for elements located in the area of TSO B not considered in the contingency list of TSOB, both TSOs reconsider together their contingency lists.

Compliance Level: SC

TIWAG Netz AG SC	VKW-Netz AG SC	transpower SC	Amprion SC	EnBW Transportnetze SC
swissgrid SC	Terna S.p.A. SC	ELES SC	MAVIR ZRt SC	CEPS SC

Actions taken to reach full compliance:

Coordination and exchange on a regular basis and/or by necessity in the TSC, SoS-Group, Pentilateral Group and the weekly teleconference (region CWE and CEE); an official list is created according to this standard and transmitted to all participating partners.

Deadline: 12\2010

Additional Questions

Do you establish and communicate to other TSOs a formal list of exceptional contingencies?

TIWAG Netz AG	VKW-Netz AG	transpower	Amprion	EnBW Transportnetze
no	no	no	no	no
swissgrid	Terna S.p.A.	ELES	MAVIR ZRt	CEPS
no	no	no	no	no

Do you consider the exceptional list from the neighbouring TSOs and reconsider your own contingency list with your neighbour TSO if needed?

TIWAG Netz AG	VKW-Netz AG	transpower	Amprion	EnBW Transportnetze
yes	yes	yes	yes	yes
swissgrid	Terna S.p.A.	ELES	MAVIR ZRt	CEPS
yes	yes	yes	yes	yes

How do you coordinate with your neighbouring TSOs the exceptional contingency list as of what to take into account and how to manage the list?

TIWAG Netz AG

in the planning phase, especially in the weekly teleconference and in real time when necessary.
In the near future in the daily TSC process.

VKW-Netz AG

in the planning phase, especially in the weekly teleconference and in real time when necessary.
In the near future in the daily TSC process.

transpower

in the planning phase, especially in the weekly teleconference and in real time when necessary.
In the near future in the daily TSC process.

Amprion

in the planning phase, especially in the weekly teleconference and in real time when necessary.
In the near future in the daily TSC process.

EnBW Transportnetze

in the planning phase, especially in the weekly teleconference and in real time when necessary.
In the near future in the daily TSC process.

swissgrid

in the planning phase, especially in the weekly teleconference and in real time when necessary.
In the near future in the daily TSC process.

Terna S.p.A.

in the planning phase, especially in the weekly teleconference and in real time when necessary.

ELES

in the planning phase, especially in the weekly teleconference and in real time when necessary.
In the near future in the daily TSC process.

MAVIR ZRt

in the planning phase, especially in the weekly teleconference and in real time when necessary.

CEPS

in the planning phase, especially in the weekly teleconference and in real time when necessary.
In the near future in the daily TSC process.

AUDIT QUESTIONNAIRE 2011

P3-A1-S2 COORDINATION FOR EXCEPTIONAL TYPE OF CONTINGENCY. It is the responsibility of the operator of the concerned network elements to establish the list of the exceptional type of contingency for security calculation based on the likelihood of occurrence of the event and to communicate this list to the neighbouring TSOs. Each TSO selects these exceptional contingencies based on the respective risk assessment by itself (see P3-A2-S1). Some exceptional events are considered only in case of temporary specific operational conditions, which have to be communicated to neighbours with a view of security calculation.

If a TSO A considers a resulting risk for an exceptional type of contingency for elements located in the area of TSO B not considered in the contingency list of TSO B, both TSOs reconsider together their contingency lists.

Overall Compliance level **FC** **SC** **NC**

Neighbour	Compliance level
VKW-Netz	FC
TenneT-D	FC
Amprion	FC
EnBW	FC
Swissgrid	FC
Terna	FC
Eles	FC
Mavir	FC
Ceps	FC

Concise explanation for declared compliance level:

Exchange of relevant information in the planning phase, in the weekly teleconference (“WOPT” – weekly operational planning teleconference), in the daily TSC process (“DOPT” - daily operational planning teleconference) and in real time when necessary.

Do you have an addendum to the standard? Yes No

In case of an existing addendum; list of evidences for a mitigation plan, comments:

Do you establish and communicate to other TSOs a formal list of exceptional contingencies?

Neighbour	Yes	No
VKW-Netz	X	
TenneT-D	X	
Amprion	X	
EnBW	X	
Swissgrid <input type="checkbox"/>	X	
Terna	X	
Eles	X	
Mavi <input type="checkbox"/>	X	
Ceps	X	

List of evidences, comments:

Minutes of regular teleconferences (DOPT, WOPT) with all of our adjacent TSOs and attached e-mail example to CEPS (with corresponding file “2011_09_OA_EC_CEPS.xls”)

Do you consider the exceptional list from the neighbouring TSOs and reconsider your own contingency list with your neighbour TSO if needed?

Neighbour	Yes	No
VKW-Netz	X	
TenneT-D	X	
Amprion	X	
EnBW	X	
Swissgrid	X	
Terna	X	
Eles	X	
Mavir	X	
Ceps	X	

List of evidences, comments:

Minutes of DOPT / WOPT

How do you coordinate with your neighbouring TSOs the exceptional contingency list as of what to take into account and how to manage the list?

Neighbour	Explanation
VKW-Netz	By inter TSO agreements and regular teleconferences
TenneT-D	By inter TSO agreements and regular teleconferences
Amprion	By inter TSO agreements and regular teleconferences
EnBW	By inter TSO agreements and regular teleconferences
Swissgrid	By inter TSO agreements and regular teleconferences
Terna	By inter TSO agreements and regular teleconferences
Eles	By inter TSO agreements and regular teleconferences
Mavir	By inter TSO agreements and regular teleconferences
Ceps	By inter TSO agreements and regular teleconferences

List of evidences, comments:

inter TSO agreements, minutes of regular teleconferences (DOPT / WOPT)

AUDIT PHASE

COMPLIANCE AUDIT 2011

A list with the same structure is used for each of the neighbouring TSO. APG has shown a list for Amprion. The lists are distributed via e-mail. 4 double circuit outages are considered as exceptional contingencies in case of Amprion and all other TSOs except in case of TenneT DE (5 exceptional contingencies). In general, outages of lines with the highest frequency of being highly loaded are considered as exceptional contingencies. Double circuit outages are also considered in the grid of neighbouring TSOs.

The tripping of bus-bars is not considered, because of special protection of bus-bars (differential bus-bar protection).

As stated in the APG answer above, the list of exceptional contingencies is distributed to all neighbouring TSOs.

Daily and weekly operational planning teleconferences can be used to change the list of exceptional contingencies.

In the APG's inter-TSO agreements exchanging the list of exceptional contingencies is not mentioned.

Compliance Level suggestion by the audit team:
FC

Explanation for the suggested compliance level:
APG has given sufficient proof of full compliance.

Improvement/Mitigation plan with deadline:
n/a

4.11 P3-A2-S1 DETERMINATION OF THE EXTERNAL CONTINGENCY LIST AND OBSERVABILITY AREA.

PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010				
P3-A2-S1.				
<p>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 timeframes. 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.</p>				
Compliance Level: SC				
TIWAG Netz AG FC	VKW-Netz AG FC	transpower SC	Amprion SC	EnBW Transportnetze FC
swissgrid FC	Terna S.p.A. FC	ELES SC	MAVIR ZRt FC	CEPS FC
Actions taken to reach full compliance:				
<p>Online data exchange is formally agreed in the Inter TSO contracts and fully implemented. Contingency lists see above.</p>				
Deadline:			12\2010	
There are no Questions defined for this company and this policy!				
Additional Questions				

AUDIT QUESTIONNAIRE 2011
<p>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 timeframes. 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.</p>

Overall Compliance level FC SC NC

Neighbour	Compliance level
VKW-Netz	FC
TenneT-D	FC
Amprion	FC
EnBW	FC
Swissgrid	FC
Terna	FC
Eles	FC
Mavir	FC
Ceps	FC

Concise explanation for declared compliance level:

All relevant lines are determined by a sensitivity analysis and are integrated in the (n-1) security calculation (performed every 10 minutes). The list is updated whenever needed by DOPT and/or WOPT or in real time when necessary.

Do you have an addendum to the standard? Yes No

In case of an existing addendum; list of evidences for a mitigation plan, comments:

Do you determine the external contingency list? If yes how often do update it?

Yes, the list is updated whenever needed by DOP and/or WOPT or ad hoc (when necessary).

List of evidences, comments:

Minutes of DOPT / WOPT; attached e-mail example to CEPS (with corresponding file "2011_09_OA_EC_CEPS.xls")

Is your external contingency list integrated in all your N-1 security calculations?

Yes No

List of evidences, comments:

See (n-1) security calculation results at time of Audit and attached picture "n-1_Overview_diagram (Small).bmp".

AUDIT PHASE

COMPLIANCE AUDIT 2011

APG has shown a slide with the observability area of all TSC countries. The observability area of APG is one of the biggest within this zone. It includes also tie-lines from MAVIR to Transelectrica and JP EMS and from HEP-OPS to JP EMS. However, n-1 calculations are not performed for those tie-lines. These lines are observed only. For all other lines security calculations are performed.

In the inter-TSO agreements the observability area is defined (in terms of data exchange):

- Agreement on Network and System Operation Management between Verbund – Austrian Power Grid AG and Terna on 21-01-2009, and Agreement for data exchange via the Electronic Highway on 14/04/2011
- Netz- und Systemführungsvertrag zwischen Verbund – Austrian Power Grid AG und E.ON Netz GmbH on 12.12.2008
- Netz- und Systemführungsvertrag zwischen Swissgrid und Verbund – Austrian Power Grid AG on 08.06.2010
- Agreement on Network and System Operation Management between Verbund – Austrian Power Grid AG and MAVIR on 03/07/2009
- Netz- und Systemführungsvertrag zwischen EnBW Transportnetze AG und Verbund – Austrian Power Grid AG on 19/11/2009
- Agreement on Network and System Operation Management between Verbund – Austrian Power Grid AG and Elektro-Slovenija on 02/12/2008, and Agreement for Data Exchange via the Electronic Highway on 24/07/2009
- Agreement on Network and System Operation Management between CEPS and Verbund – Austrian Power Grid AG on 15/12/2008, and Agreement on the cooperation and data exchange via the Electronic highway on 21/11/2005
- Netz- und Systemführungsvertrag zwischen Verbund – Austrian Power Grid AG und Amprion on 02/09/2009
- Vereinbarung über die Übermittlung von Echtzeitdaten über den Electronic Highway abgeschlossen zwischen Verbund – Austrian Power Grid AG und VKW-Netz on 25/09/2006

During the visit in the control room it was shown to the Audit Team that external contingencies are also included in the n-1 security calculation.

APG has shown an example of information sent to MAVIR about a grid topology change.

Compliance Level suggestion by the audit team:

FC

Explanation for the suggested compliance level:

APG provided sufficient proof of full compliance.

Improvement/Mitigation plan with deadline:

n/a

4.12 P3-A2-S2 IMPLEMENTATION OF OBSERVABILITY AREA

PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010
P3-A2-S2.
<p>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.</p>
Compliance Level: FC
<p>There are no Questions defined for this company and this policy!</p> <p>Additional Questions</p>

AUDIT QUESTIONNAIRE 2011																								
<p>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.</p>																								
<p>Overall Compliance level FC <input checked="" type="checkbox"/> SC <input type="checkbox"/> NC <input type="checkbox"/></p>																								
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 50%; padding: 5px;">Neighbour</th> <th style="width: 50%; padding: 5px;">Compliance level</th> </tr> </thead> <tbody> <tr><td style="padding: 5px;">VKW-Netz</td><td style="padding: 5px;">FC</td></tr> <tr><td style="padding: 5px;">TenneT-D</td><td style="padding: 5px;">FC</td></tr> <tr><td style="padding: 5px;">Amprion</td><td style="padding: 5px;">FC</td></tr> <tr><td style="padding: 5px;">EnBW</td><td style="padding: 5px;">FC</td></tr> <tr><td style="padding: 5px;">Swissgrid</td><td style="padding: 5px;">FC</td></tr> <tr><td style="padding: 5px;">Terna</td><td style="padding: 5px;">FC</td></tr> <tr><td style="padding: 5px;">Eles</td><td style="padding: 5px;">FC</td></tr> <tr><td style="padding: 5px;">Mavir</td><td style="padding: 5px;">FC</td></tr> <tr><td style="padding: 5px;">Ceps</td><td style="padding: 5px;">FC</td></tr> <tr><td style="padding: 5px;"> </td><td style="padding: 5px;"> </td></tr> <tr><td style="padding: 5px;"> </td><td style="padding: 5px;"> </td></tr> </tbody> </table>	Neighbour	Compliance level	VKW-Netz	FC	TenneT-D	FC	Amprion	FC	EnBW	FC	Swissgrid	FC	Terna	FC	Eles	FC	Mavir	FC	Ceps	FC				
Neighbour	Compliance level																							
VKW-Netz	FC																							
TenneT-D	FC																							
Amprion	FC																							
EnBW	FC																							
Swissgrid	FC																							
Terna	FC																							
Eles	FC																							
Mavir	FC																							
Ceps	FC																							
<p>Concise explanation for declared compliance level:</p> <p style="background-color: #e0e0e0; padding: 5px;">Exchange of relevant real time data defined in Inter TSO Agreements with all adjacent</p>																								

TSOs; updated whenever needed and visualized in real time in the control room.

Do you have an addendum to the standard? Yes No

In case of an existing addendum; list of evidences for a mitigation plan, comments:

[Redacted area]

Is the observability area implemented in the SCADA? If yes how often do update it?

Yes, fully implemented and visualized in real time in the control room; updated whenever necessary (via DOPT / WOPT, e-mail, by phone)

List of evidences, comments:

See attached pictures "APG+neighbouring_grid*.bmp"

Do you have a proper amount of exchanged online data to ensure the real time observability by the state estimator

Yes No

List of evidences, comments:

Real time data exchange connections with all partners; data exchange defined in Inter TSO Agreements (see attached example with ELES "InterTSOagreement_contents_(ELES sample).pdf").

AUDIT PHASE

COMPLIANCE AUDIT 2011

During the visit to the control room APG has demonstrated that the external network model corresponding to the observability area is implemented in the SCADA system and that its real-time observability by state estimator is ensured.

Compliance Level suggestion by the audit team:
FC

Explanation for the suggested compliance level:
APG provided sufficient proof of full compliance.

Improvement/Mitigation plan with deadline:
n/a

4.13 P3-A2-S5.2 ABROAD CONSEQUENCES OF TSOS DECISIONS IN OPERATIONAL PLANNING AND IN REAL TIME

PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010

P3-A2-S5.2.

Abroad consequences of TSOs decisions in operational planning and in real time. In case of changing the network configuration for network branches included in the external observability list of neighbors (e.g. outage of elements, double busbar operation) or major changes of generation pattern, the TSO must inform in due time and firstly in the operational planning phase its affected neighbors². If needed corresponding measures have to be coordinated to prevent counter-effects in neighboring networks.

Compliance Level: FC

TIWAG Netz AG FC	VKW-Netz AG FC	transpower FC	Amprion FC	EnBW Transportnetze FC
swissgrid FC	Terna S.p.A. FC	ELES FC	MAVIR ZRt FC	CEPS FC

Additional Questions

Have you implemented a procedure ensuring exchange of information related to changes of network configuration or major changes of generation pattern in operational planning and real time operation?

TIWAG Netz AG yes	VKW-Netz AG yes	transpower yes	Amprion yes	EnBW Transportnetze yes
swissgrid yes	Terna S.p.A. yes	ELES yes	MAVIR ZRt yes	CEPS yes

Do you have any agreed procedures in which counter measures to prevent counter-effect in neighbouring networks are determined?

TIWAG Netz AG	VKW-Netz AG	transpower	Amprion	EnBW Transportnetze
no	no	no	no	no
swissgrid	Terna S.p.A.	ELES	MAVIR ZRt	CEPS
no	no	no	no	no

AUDIT QUESTIONNAIRE 2011

P3-A2-S5.2 ABROAD CONSEQUENCES OF TSOs DECISIONS IN OPERATIONAL PLANNING AND IN REAL TIME. In case of changing the network configuration for network branches included in the external observability list of neighbours (e.g. outage of elements, double busbar operation) or major changes of generation pattern, the TSO must inform in due time and firstly in the operational planning phase its affected neighbours. If needed corresponding measures have to be coordinated to prevent counter-effects in neighbouring networks.

Overall Compliance level **FC** **SC** **NC**

Neighbour	Compliance level
VKW-Netz	FC
TenneT-D	FC
Amprion	FC
EnBW	FC
Swissgrid	FC
Terna	FC
Eles	FC
Mavir	FC
Ceps	FC

Concise explanation for declared compliance level:

RAAS (Real time Awareness and Alarming System), exchange of relevant information whenever needed; in the DOPT (TSC process) / WOPT, via e-mail and if necessary in real time by phone.

Do you have an addendum to the standard? **Yes** **No**

In case of an existing addendum; list of evidences for a mitigation plan, comments:

Have you implemented a procedure ensuring exchange of information related to changes of network configuration or major changes of generation pattern in operational planning and real time operation?

Neighbour	Yes	No
VKW-Netz	X	
TenneT-D	X	
Amprion	X	
EnBW	X	
Swissgrid	X	
Terna	X	
Eles	X	
Mavir	X	
Ceps	X	

List of evidences, comments:

TSC process with all adjacent TSO except Terna (see attached operational agreement);
 Pentilateral agreement with Terna; DOPT / WOPT

Do you have any agreed procedures in which counter measures to prevent counter-effect in neighbouring networks are determined?

Neighbour	Yes	No
VKW-Netz	X	
TenneT-D	X	
Amprion	X	
EnBW	X	
Swissgrid	X	
Terna	X	
Eles	X	
Mavir	X	
Ceps	X	

List of evidences, comments:

TSC process with all adjacent TSO except Terna (see attached operational agreement);
 Pentilateral agreement with Terna; DOPT / WOPT

AUDIT PHASE**COMPLIANCE AUDIT 2011**

APG has shown a snapshot of the RAAS system for 03/10/2011. It is obvious that APG informed its neighbours (in fact all TSOs of the TSC area) about an alarm in the APG grid (the origin of the problem was in another grid). The corresponding mail was also shown.

In the Report on TSOs' Operational Work, State of the Art, Appendix APG 07/02/2011 the remedial actions and problems detected in the TSC area are described. An abbreviation is assigned to every remedial action. In the daily operation planning teleconferences the toolbox of these remedial actions is used to quickly inform the neighbours about actions that will be undertaken (in operational planning or real-time). APG has shown an Excel file related to one daily operational planning teleconference. APG has shown a document related to a weekly operational planning teleconference. In this document the starting and end time of line/transformer/generation unit disconnections are given in a table and in a graphical way.

APG has a pentilateral agreement with Terna signed on 16/12/2010. Terna also participates in weekly operation planning teleconferences.

Compliance Level suggestion by the audit team:

FC

Explanation for the suggested compliance level:

APG provided sufficient proof of full compliance.

Improvement/Mitigation plan with deadline:

n/a

4.14 P3-A2-S6 DATA PROVISION

PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010

P3-A2-S6.

Data provision. The TSO has to provide its neighbors in due time with all needed information for adequate simulations. Each TSO must provide the real-time telemetry and the network characteristics to its neighbors that is necessary for the neighboring 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: FC

TIWAG Netz AG	VKW-Netz AG	transpower	Amprion	EnBW Transportnetze
FC	FC	FC	FC	FC
swissgrid	Terna S.p.A.	ELES	MAVIR ZRt	CEPS
FC	FC	FC	FC	FC

Additional Questions

Do you have an agreement with your neighbouring TSOs which precises in details what data have to be exchanged concerning the network elements identified in the observability area ?

TIWAG Netz AG	VKW-Netz AG	transpower	Amprion	EnBW Transportnetze
yes	yes	yes	yes	yes
swissgrid	Terna S.p.A.	ELES	MAVIR ZRt	CEPS
yes	yes	yes	yes	yes

What kind of communication methods do you use for data provision? (e.g. email, data server,...)

TIWAG Netz AG

Data Exchange via TASE 2 protocol

VKW-Netz AG

Data Exchange via TASE 2 protocol

transpower

Data Exchange via TASE 2 protocol

Amprion

Data Exchange via TASE 2 protocol

EnBW Transportnetze

Data Exchange via TASE 2 protocol

swissgrid

Data Exchange via TASE 2 protocol

Terna S.p.A.

Data Exchange via TASE 2 protocol

ELES

Data Exchange via TASE 2 protocol

MAVIR ZRt

Data Exchange via TASE 2 protocol

CEPS

Data Exchange via TASE 2 protoco

AUDIT QUESTIONNAIRE 2011

P3-A2-S6 DATA PROVISION. The TSO has to provide its neighbors in due time with all needed information for adequate simulations. Each TSO must provide the real-time telemetry and the network characteristics to its neighbors that is necessary for the neighboring 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.

Overall Compliance level FC SC NC

Neighbour	Compliance level
VKW-Netz	FC
TenneT-D	FC
Amprion	FC
EnBW	FC
Swissgrid	FC
Terna	FC
Eles	FC
Mavir	FC
Ceps	FC

Concise explanation for declared compliance level:

Data provision defined in the Inter TSO Agreements with all adjacent TSOs (see attached example with ELES "InterTSOagreement_contents_(ELES sample).pdf")

Do you have an addendum to the standard? Yes No

In case of an existing addendum; list of evidences for a mitigation plan, comments:

[Redacted area]

Do you have an agreement with your neighbouring TSOs which describe in detail what data have to be exchanged concerning the network elements identified in the observability area?

Neighbour	Yes	No
VKW-Netz	X	
TenneT-D	X	
Amprion	X	
EnBW	X	
Swissgrid	X	
Terna	X	
Eles	X	
Mavir	X	
Ceps	X	

List of evidences, comments:

Inter TSO Agreements with all adjacent TSOs (see attached example with ELES "InterTSOagreement_contents_(ELES sample).pdf")

Do you provide the realtime telemetry necessary for the state estimator and for the N-1 calculations to the neighbouring TSOs? (to be asked border by border),...

Neighbour	Yes	No
VKW-Netz	X	

TenneT-D	X	
Amprion	X	
EnBW	X	
Swissgrid	X	
Terna	X	
Eles	X	
Mavir	X	
Ceps	X	

List of evidences, comments:

Inter TSO Agreements with all adjacent TSOs (see attached example with ELES “InterTSOagreement_contents_(ELES sample).pdf”) and attached picture “APG+neighbouring_grid*.bmp”

AUDIT PHASE

COMPLIANCE AUDIT 2011

The exchange of real-time telemetry and the network characteristics with the neighbouring TSOs, 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, is specified in the bilateral agreements (see above under P3-A2-S1 the list of agreements and special contracts with Terna, ELES and SEPS). The Audit Team has seen the relevant parts of these agreements.

Compliance Level suggestion by the audit team:

FC

Explanation for the suggested compliance level:

APG provided sufficient proof of full compliance.

Improvement/Mitigation plan with deadline:

n/a

4.15 P3-A3-S2 "OVERLOADS IN N-1 SITUATION (SIMULATION)

PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010

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: FC

Additional Questions

Which measures do you take if there is no possible remedial action in terms of topological modifications and generation redispatching available in such a case? (That means remedial actions allowed by laws, regulators, which can be applied in such a situation, but which are not prepared in advance for regular application, e.g. no contracts,...)

In such a case n-1 security can not be guaranteed. In the CEE Region and in the TSC Region possible assistance of partners will be checked. RAAS (Regional Alarming and Awareness system) will be set to yellow (or red). In case of disturbances emergency procedures have to be implemented.

If a remedial action is considered as "available", which time lag is taken into account for this action to become effective?

When a n-1 violation is detected in the planning phase and a remedial action is available APG intends to set this measure in advance. If not, the remedial action should be able to be executed without delay. For example: opening a busbar coupler with an already prepared busbar configuration.

AUDIT QUESTIONNAIRE 2011

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 **FC** **SC** **NC**

Concise explanation for declared compliance level:

Regular (n-1) security calculation every 10 minutes; RAAS (Real time awareness and alarming system), TSC process, Pentalateral Agreement.

Do you have an addendum to the standard? **Yes** **No**

In case of an existing addendum; list of evidences for a mitigation plan, comments:

Which measures do you take if there is no possible remedial action in terms of topological modifications and generation redispatching available in such a case? (That means remedial actions allowed by laws, regulators, which can be applied in such a situation, but which are not prepared in advance for regular application, e.g. no contracts,...)

In such a case n-1 security can not be guaranteed. In the CEE Region and in the TSC Region possible assistance of partners will be checked. RAAS (Regional Alarming and Awareness system) will be set to yellow (or red). In case of disturbances emergency procedures have to be implemented.

List of evidences, comments:

See attached pictures regarding (n-1) security calculations, RAAS, TSC operational agreement, pentilateral agreement.

If a remedial action is considered as "available", which time lag is taken into account for this action to become effective?

When a n-1 violation is detected in the planning phase and a remedial action is available APG intends to set this measure in advance. If not, the remedial action should be able to be executed without delay. For example: opening a busbar coupler with an already prepared busbar configuration.

List of evidences, comments:

Minutes of DOPT / WOPT, other minutes regarding critical grid situations.

AUDIT PHASE

COMPLIANCE AUDIT 2011

In the Report on TSOs' Operational Work, State of the Art, Appendix, APG 07/02/2011, the remedial actions for problems detected in the TSC area are described. This comprises the internal remedial actions of APG, too. Moreover, the actions on the existing phase shifters are mostly used to solve internal problems (and have been developed for strictly internal reasons). There are practically no other non-costly measures. On the other hand, there are also costly measures. For example, during a certain period of time the pump hydro power plant are forbidden to pump. This action is prepared in advance and is communicated to the generators accordingly.

APG has shown the statistics of costly remedial actions (in the grid, with the grid of the railway and redispatching) in the first quarter 2006. "In the grid" means increasing generation or reducing pumping in the southern part of the grid in order to counteract the load-flows which are mostly from the north to the south. In the statistics for the first half of 2011 the existing redispatching contracts with power plants are listed.

In Excel files related to daily operational planning teleconferences (e.g. for 24/06/2011 and 30/09/2011) all planned remedial actions are documented and communicated to neighbours. APG doesn't differentiate between remedial actions which are strictly internal and those which could have an impact on the neighbours (there are not so many internal lines comparing to the number of tie-lines in the APG grid).

Examples of performed remedial actions are presented in the document "20110915_Tagesbericht UBH".

Compliance Level suggestion by the audit team:

FC

Explanation for the suggested compliance level:

APG provided sufficient proof of full compliance.

Improvement/Mitigation plan with deadline:

n/a

4.16 P3-A3-S4.1 TIE-LINES OPERATING CONDITIONS

PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010

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: FC

TIWAG Netz AG FC	VKW-Netz AG N/A	transpower FC	Amprion FC	EnBW Transportnetze FC
swissgrid FC	Terna S.p.A. FC	ELES FC	MAVIR ZRt FC	CEPS FC

Additional Questions

Do you share values of PATL, TATL and TC for all tie-line with adjacent TSOs?

TIWAG Netz AG yes	VKW-Netz AG yes	transpower yes	Amprion yes	EnBW Transportnetze yes
swissgrid yes	Terna S.p.A. yes	ELES yes	MAVIR ZRt yes	CEPS yes

Do you inform neighbours in case of settings changes at the time of the change?

TIWAG Netz AG	VKW-Netz AG	transpower	Amprion	EnBW Transportnetze
yes	yes	yes	yes	yes
swissgrid	Terna S.p.A.	ELES	MAVIR ZRt	CEPS
yes	yes	yes	yes	yes

AUDIT QUESTIONNAIRE 2011

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.

Overall Compliance level FC SC NC

Neighbour	Compliance level
VKW-Netz	N/A
TenneT-D	FC
Amprion	FC
EnBW	FC
Swissgrid	FC
Terna	FC
Eles	FC
Mavir	FC
Ceps	FC

Concise explanation for declared compliance level:

APG uses no TATL; PATL is agreed and coordinated by Inter TSO agreements and updated whenever necessary in real time via e-mail.

Do you have an addendum to the standard? Yes No

In case of an existing addendum; list of evidences for a mitigation plan, comments:

Do you share values of PATL, TATL and TC for all tie-line with adjacent TSOs?

Neighbour	Yes	No
VK□-Netz	N/A	

TenneT-D	X	
Amprion	X	
EnBW	X	
Swissgrid	X	
Terna	X	
Eles	X	
Mavir	X	
Ceps	X	

List of evidences, comments:

Inter TSO Agreements (see attached example with ELES), minutes of DOPT / WOPT

Do you inform neighbours in case of settings changes at the time of the change?

Yes No

List of evidences, comments:

minutes of DOPT / WOPT

AUDIT PHASE

COMPLIANCE AUDIT 2011

APG uses no TATL. PATL is agreed and coordinated by inter-TSO agreements (as specified under P3-A2-S1) and updated in real time whenever necessary via e-mail. APG has shown an example of annex 8a containing the PATL values with CEPS. The same was demonstrated in the agreement with Amprion. There is an annex 8a in all agreements.

APG and its neighbours (except Amprion) don't use over-current protection on its lines. During the visit to the control room APG has shown the over-current settings of Amprion tie-lines.

APG has no tie-lines with VKW-Netz AG.

Compliance Level suggestion by the audit team:

FC

Explanation for the suggested compliance level:

APG provided sufficient proof of full compliance.

Improvement/Mitigation plan with deadline:

n/a

4.17 P3-A4-S3 PRINCIPLE OF “NO CASCADING WITH IMPACT OUTSIDE MY BORDER”

PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010

P3-A4-S3.

Principle of "No cascading with impact outside my border". TSOs commonly identify, prepare and implement in a coordinated way all possible operational measures and remedial actions (doing their best efforts in accordance with their legal framework) so that the simulated situations⁴ based on the contingency lists cannot lead to the propagation of cascading effects outside their borders.

Compliance Level: SC

TIWAG Netz AG SC	VKW-Netz AG SC	transpower SC	Amprion SC	EnBW Transportnetze SC
swissgrid SC	Terna S.p.A. SC	ELES SC	MAVIR ZRt SC	CEPS SC

Actions taken to reach full compliance:

only for non-costly measures; only after acceptance by Regulatory Authority after bilateral agreements (probably this is seen as fully compliant by ENTSOE resp. by our adjacent TSOs).

Deadline: 1\2011

Additional Questions

Do you share datasets and additional information to identify risks of cascading effects on the interconnection by the means of calculations?

TIWAG Netz AG yes	VKW-Netz AG yes	transpower yes	Amprion yes	EnBW Transportnetze yes
swissgrid yes	Terna S.p.A. yes	ELES yes	MAVIR ZRt yes	CEPS yes

Do you define in advance a set of contingencies and relative coordinated remedial actions with neighbouring TSOs?

TIWAG Netz AG	VKW-Netz AG	transpower	Amprion	EnBW Transportnetze
yes	yes	yes	yes	yes
swissgrid	Terna S.p.A.	ELES	MAVIR ZRt	CEPS
yes	yes	yes	yes	yes

How do you check the effectiveness of prepared measures for situations based on the contingency list?

TIWAG Netz AG

Sensitivity analysis

VKW-Netz AG

Sensitivity analysis

transpower

Sensitivity analysis

Amprion

Sensitivity analysis

EnBW Transportnetze

Sensitivity analysis

swissgrid

Sensitivity analysis

Terna S.p.A.

Sensitivity analysis

ELES

Sensitivity analysis

MAVIR ZRt

Sensitivity analysis

CEPS

Sensitivity analysis

Do you have a procedure to coordinate remedial actions with your neighbouring TSOs in case of detected violations on the interconnection?

TIWAG Netz AG	VKW-Netz AG	transpower	Amprion	EnBW Transportnetze
yes	yes	yes	yes	yes
swissgrid	Terna S.p.A.	ELES	MAVIR ZRt	CEPS
yes	yes	yes	no	yes

Do you have agreed methods of cost sharing?

TIWAG Netz AG	VKW-Netz AG	transpower	Amprion	EnBW Transportnetze
no	no	no	no	no
swissgrid	Terna S.p.A.	ELES	MAVIR ZRt	CEPS
no	no	no	no	no

AUDIT QUESTIONNAIRE 2011

P3-A4-S3 PRINCIPLE OF “NO CASCADING WITH IMPACT OUTSIDE MY BORDER”. TSOs commonly identify, prepare and implement in a coordinated way all possible operational measures and remedial actions (doing their best efforts in accordance with their legal framework) so that the simulated situations based on the contingency lists cannot lead to the propagation of cascading effects outside their borders.

Overall Compliance level **FC** **SC** **NC**

Neighbour	Compliance level
VKW-Netz	FC
TenneT-D	FC
Amprion	FC
EnBW	FC
Swissgrid	FC
Terna	FC

Eles	FC
Mavir	FC
Ceps	FC

Concise explanation for declared compliance level:

All possible remedial actions are coordinated by TSC process or by Pentalateral Agreement (with Terna). Contracts with TenneT-D for cross border redispatch and TSC Trial Phase for multilateral redispatch (currently this contract is in the signing phase).

Do you have an addendum to the standard? Yes No

In case of an existing addendum; list of evidences for a mitigation plan, comments:

[Redacted area]

Do you share datasets and additional information to identify risks of cascading effects on the interconnection by the means of calculations?

Neighbour	Yes	No
VKW-Netz	X	
TenneT-D	X	
Amprion	X	
EnBW	X	
Swissgrid	X	
Terna	X	
Eles	X	
Mavir	X	
Ceps	X	

List of evidences, comments:

TSC operational agreement, minutes of DOPT / WOPT, e-mails in case of real time issues.

Do you define in advance a set of contingencies and relative coordinated remedial actions with neighbouring TSOs?

Neighbour	Yes	No
VKW-Netz	X	
TenneT-D	X	
Amprion	X	
EnBW	X	
Swissgrid	X	

Terna	X	
Eles	X	
Mavir	X	
Ceps	X	

List of evidences, comments:

TSC operational agreement, minutes of DOPT / WOPT, e-mails in case of real time issues.

How do you check the effectiveness of prepared measures for situations based on the contingency list?

Neighbour	Explanation
VKW-Netz	in the TSC process and by sensitivity analysis.
TenneT-D	in the TSC process and by sensitivity analysis.
Amprion	in the TSC process and by sensitivity analysis.
EnBW	in the TSC process and by sensitivity analysis.
Swissgrid	in the TSC process and by sensitivity analysis.
Terna	by sensitivity analysis.
Eles	in the TSC process and by sensitivity analysis.
Mavir	in the TSC process and by sensitivity analysis.
Ceps	in the TSC process and by sensitivity analysis.

List of evidences, comments:

TSC operational agreement, minutes of DOPT / WOPT, e-mails in case of real time issues

Do you have a procedure to coordinate remedial actions with your neighbouring TSOs in case of detected violations on the interconnection?

Neighbour	Yes	No
VKW-Netz	X	
TenneT-D	X	
Amprion	X	
EnBW	X	
Swissgrid	X	
Terna	X	
Eles	X	
Mavir	X	
Ceps	X	

List of evidences, comments:

All possible remedial actions are coordinated by TSC process or by Pentalateral Agreement (with Terna)

AUDIT PHASE**COMPLIANCE AUDIT 2011**

All possible remedial actions are coordinated by the TSC process (see Report on TSOs' Operational Work, State of the Art) or by the pentilateral agreement with Terna (the remedial action described in the latter is about reducing of the load of Terna).

During the visit in the control room it was demonstrated that in case the security calculations show that an element will be overloaded by >120% the outage of this overloaded element will be taken into account (manually) in the next security calculation in order to analyse possible cascading effects.

APG discovered a possible cascading outside its borders on 26/11/2009 and informed its neighbours. APG has shown a presentation containing all calculated outages.

Compliance Level suggestion by the audit team:

FC

Explanation for the suggested compliance level:

APG provided sufficient proof of full compliance.

Improvement/Mitigation plan with deadline:

n/a

4.18 P3-A4-S4.1 REGIONAL AGREEMENT FOR THE SET OF REMEDIAL ACTIONS

PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010				
P3-A4-S4.1.				
Regional agreement for the set of remedial actions. For probable constraints impacting neighboring control areas TSOs have to agree in advance with their neighbours in the same region on a set of remedial actions and on related procedures of activation.				
Compliance Level: FC				
TIWAG Netz AG FC	VKW-Netz AG FC	transpower FC	Amprion FC	EnBW Transportnetze FC
swissgrid FC	Terna S.p.A. FC	ELES FC	MAVIR ZRt FC	CEPS FC
Additional Questions				
Do you have any written agreements on procedures to provide maximal assistance to adjacent TSOs no longer capable to face a critical situation, taking into account cross-border remedial actions. (i.e. changes of network topology, cross-border re-dispatching, counter-trading, NTC curtailment, etc.)?				
TIWAG Netz AG no	VKW-Netz AG no	transpower no	Amprion no	EnBW Transportnetze no
swissgrid no	Terna S.p.A. no	ELES no	MAVIR ZRt no	CEPS no

AUDIT QUESTIONNAIRE 2011

P3-A4-S4.1 REGIONAL AGREEMENT FOR THE SET OF REMEDIAL ACTIONS. For probable constraints impacting neighbouring control areas TSOs have to agree in advance with their neighbours in the same region on a set of remedial actions and on related procedures of activation.

Overall Compliance level FC SC NC

Neighbour	Compliance level
VKW-Netz	FC
TenneT-D	FC
Amprion	FC
EnBW	FC
Swissgrid	FC
Terna	FC
Eles	FC
Mavir	FC
Ceps	FC

Concise explanation for declared compliance level:

All possible remedial actions are coordinated by TSC process (Security Panel of Experts, SPE), by Pentilateral Agreement (with Terna), by SoS CEE (expert team “Security of Supply”).

Do you have an addendum to the standard? Yes No

In case of an existing addendum; list of evidences for a mitigation plan, comments:

Have you agreed with your neighbouring TSOs in the same region on a set of remedial actions and on activation of related procedures for probable constraints impacting neighbouring control areas?

Yes No

List of evidences, comments:

This is treated highly flexible by the TSC process (“TSC Toolbox”, developed by SPE); fixed procedures are agreed in the Pentilateral Agreement with Terna.

AUDIT PHASE

COMPLIANCE AUDIT 2011

All possible remedial actions are coordinated by the TSC process (see Report on TSOs' Operational Work, State of the Art) or by the pentilateral agreement with Terna.

Compliance Level suggestion by the audit team:

FC

Explanation for the suggested compliance level:

APG provided sufficient proof of full compliance.

Improvement/Mitigation plan with deadline:

n/a

4.19 P3-B-S1.2.2 OTHER REACTIVE POWER GENERATION/ABSORPTION RESOURCES

PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010

P3-B-S1.2.2.

Other REACTIVE POWER generation/absorption resources. TSOs have to keep available a sufficient number of other reactive power sources like generators, capacitors and reactors connected to the grid, which contribute to REACTIVE POWER generation or absorption, in order to maintain or get back the voltage in normal ranges after any contingency.

Compliance Level: SC

Actions taken to reach full compliance:

sometimes too less inductive reserve of reactive power (too few coils) in off-peak hours; additional reactive power elements (coils) already planned

Deadline: 9\2011

Additional Questions

Do you check regularly whether you have a sufficient additional reserve of reactive power in order to recover the normal range in N-1 situation yes

Do you have information about the availability/restriction of reactive power reserves? yes

Do you have any contracts with adjacent TSOs for the exchange of reactive power reserve in case of necessity (e.g. voltage margins violations)? no

AUDIT QUESTIONNAIRE 2011

P3-B-S1.2.2 OTHER REACTIVE POWER GENERATION/ABSORPTION RESOURCES. TSOs have to keep available a sufficient number of other reactive power sources like generators, capacitors and reactors connected to the grid, which contribute to REACTIVE POWER generation or absorption, in order to maintain or get back the voltage in normal ranges after

any contingency.

Compliance level FC SC NC

Concise explanation for declared compliance level:

Sometimes too less inductive reserve of reactive power (too few coils) in off-peak hours; additional reactive power elements (coils) already planned; contract with power plants for exchange of reactive power; APG already developed a concept for exchanging old (small) coils with bigger ones. Meanwhile APG sometimes is forced to switch off systems during low load periods.

Do you have an addendum to the standard? Yes No

In case of an existing addendum; list of evidences for a mitigation plan, comments:

Do you check regularly whether you have a sufficient additional reserve of reactive power in order to recover the normal range in N-1 situation?

Yes No

List of evidences, comments:

Visualized in our SCADA system; see attached picture "U-Q-overview.png"

Do you have information about the availability/restriction of reactive power reserves?

Yes No

List of evidences, comments:

Visualized in our SCADA system; see attached picture "U-Q-overview.png"

AUDIT PHASE

COMPLIANCE AUDIT 2011

The status of all reactive power grid elements is visualized in the control room. This contains all available shunt reactors and capacitors (including the generators which are connected to the grid, and can contribute to voltage control).

APG has shown the contract "Vereinbarung betreffend Blindleistung" signed on 24/08/2011 and which will be put into force in January 2012. In annex 1 all generating units participating in production and absorption of reactive power are listed. This contract will include the diagrams of generators. The power producers need to do exhaustive calculations to evaluate the reactive power at the grid side of the block transformer.

APG faced very high voltages in 2009/2010. Upon this, an analysis was performed. As a result, installation of several coils is envisaged (3 of them are already in operation since 2011, 3 others will be put into operation in 2012). The DSOs have been warned to reduce their in-feed of reactive power. MAVIR, ELES and CEPS have been contacted in order to switch-off tie-lines when needed/possible.

Compliance Level suggestion by the audit team:

FC

Explanation for the suggested compliance level:

APG switches-off transmission lines in case of too high voltages (by respecting the n-1 security criterion). The installation of additional coils is foreseen only for the purpose to avoid switching-off transmission lines too often. APG is however always capable to manage the voltage control. Therefore the Audit Team finds that APG is fully compliant.

Improvement/Mitigation plan with deadline:

n/a

4.20 P3-B-S2.1.2 COORDINATION FOR VOLTAGE AND REACTIVE POWER MANAGEMENT

PREPARATORY PHASE

SELF-ASSESSMENT QUESTIONNAIRE 2010

P3-B-S2.1.2.

Coordination for voltage and reactive power management. A coordination between adjacent TSOs is needed in order to manage voltage control (primary and other means) and reactive power resources near boundary preventing that individual actions have a contrary effect to the security of neighbours (including border nodes for voltage) in normal operation and in case of disturbances.

Compliance Level: FC

TIWAG Netz AG FC	VKW-Netz AG FC	transpower FC	Amprion FC	EnBW Transportnetze FC
swissgrid FC	Terna S.p.A. FC	ELES FC	MAVIR ZRt FC	CEPS FC

Additional Questions

Do you have any reactive power resources which are placed near to the boundaries of your system?

TIWAG Netz AG yes	VKW-Netz AG yes	transpower yes	Amprion yes	EnBW Transportnetze yes
swissgrid yes	Terna S.p.A. yes	ELES yes	MAVIR ZRt yes	CEPS yes

Do you inform your neighbours in advance if you intend to perform an action that will cause

significant increase or decrease of voltage at your boundary substations?

TIWAG Netz AG	VKW-Netz AG	transpower	Amprion	EnBW Transportnetze
no	no	no	no	no
swissgrid	Terna S.p.A.	ELES	MAVIR ZRt	CEPS
no	no	no	no	no

Do you inform your neighbours if a disturbance which occurred in your system causes a significant change of voltage at boundary substations and additional reactive flows on tie-lines?

TIWAG Netz AG	VKW-Netz AG	transpower	Amprion	EnBW Transportnetze
no	no	no	no	no
swissgrid	Terna S.p.A.	ELES	MAVIR ZRt	CEPS
no	no	no	no	no

How do you control voltages and reactive power flows on tie-lines (i.e. using of reactors or capacitors, generator based reactive power dispatch, etc.)?

TIWAG Netz AG

Coils, Capacitors, Generators, Transformers (380/220 kV), Phase shifters optimized by the OPF and controlled by SCADA System.

VKW-Netz AG

Coils, Capacitors, Generators, Transformers (380/220 kV), Phase shifters optimized by the OPF and controlled by SCADA System.

transpower

Coils, Capacitors, Generators, Transformers (380/220 kV), Phase shifters optimized by the OPF and controlled by SCADA System.

Amprion

Coils, Capacitors, Generators, Transformers (380/220 kV), Phase shifters optimized by the OPF and controlled by SCADA System.

EnBW Transportnetze

Coils, Capacitors, Generators, Transformers (380/220 kV), Phase shifters optimized by the OPF and controlled by SCADA System.

swissgrid

Coils, Capacitors, Generators, Transformers (380/220 kV), Phase shifters optimized by the OPF and controlled by SCADA System.

Terna S.p.A.

Coils, Capacitors, Generators, Transformers (380/220 kV), Phase shifters optimized by the OPF and controlled by SCADA System.

ELES

Coils, Capacitors, Generators, Transformers (380/220 kV), Phase shifters optimized by the OPF and controlled by SCADA System.

MAVIR ZRt

Coils, Capacitors, Generators, Transformers (380/220 kV), Phase shifters optimized by the OPF and controlled by SCADA System.

CEPS

Coils, Capacitors, Generators, Transformers (380/220 kV), Phase shifters optimized by the OPF and controlled by SCADA System.

AUDIT QUESTIONNAIRE 2011

P3-B-S2.1.2 COORDINATION FOR VOLTAGE AND REACTIVE POWER MANAGEMENT. A coordination between adjacent TSOs is needed in order to manage voltage control (primary and other means) and reactive power resources near boundary preventing that individual actions have a contrary effect to the security of neighbors (including border nodes for voltage) in normal operation and in case of disturbances.

Overall Compliance level FC SC NC

Neighbour	Compliance level
VKW-Netz	FC
TenneT-D	FC
Amprion	FC
EnBW	FC
Swissgrid	FC
Terna	FC
Eles	FC
Mavir	FC

Ceps	FC

Concise explanation for declared compliance level:

Voltage levels and exchange of reactive power is basically defined in the Inter TSO Agreements wit all adjacent TSOs.

Do you have an addendum to the standard? Yes No

In case of an existing addendum; list of evidences for a mitigation plan, comments:

[Redacted area]

Do you inform your neighbours in advance if you intend to perform an action that will cause significant increase or decrease of voltage at your boundary substations?

Neighbour	Yes	No
VKW-Netz		X
TenneT-D		X
Amprion		X
EnBW		X
Swissgrid		X
Terna		X
Eles		X
Mavir		X
Ceps		X

List of evidences, comments:

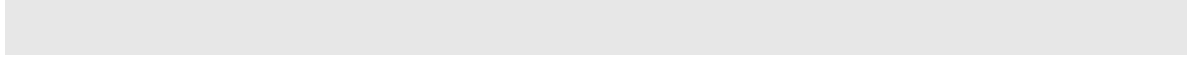
[Redacted area]

Do you inform your neighbours if a disturbance which occurred in your system causes a significant change of voltage at boundary substations and additional reactive flows on tie-lines?

Neighbour	Yes	No
VKW-Netz		X
TenneT-D		X
Amprion		X
EnBW		X
Swissgrid		X
Terna		X
Eles		X
Mavir		X

Ceps		X

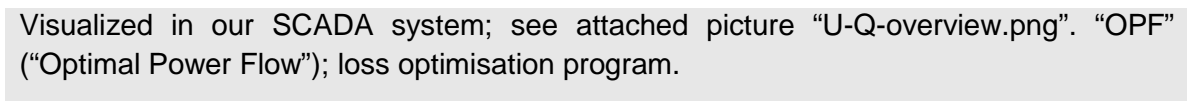
List of evidences, comments:



How do you control voltages and reactive power flows on tie-lines (i.e. using of reactors or capacitors, generator based reactive power dispatch, etc.)?

Neighbour	Explanation
VKW-Netz	Coils, Capacitors, Generators, Transformers, Phase shifters, Line switchings
TenneT-D	Coils, Capacitors, Generators, Transformers, Phase shifters, Line switchings
Amprion	Coils, Capacitors, Generators, Transformers, Phase shifters, Line switchings
EnBW	Coils, Capacitors, Generators, Transformers, Phase shifters, Line switchings
Swissgrid	Coils, Capacitors, Generators, Transformers, Phase shifters, Line switchings
Terna	Coils, Capacitors, Generators, Transformers, Phase shifters, Line switchings
Eles	Coils, Capacitors, Generators, Transformers, Phase shifters, Line switchings
Mavir	Coils, Capacitors, Generators, Transformers, Phase shifters, Line switchings
Ceps	Coils, Capacitors, Generators, Transformers, Phase shifters, Line switchings

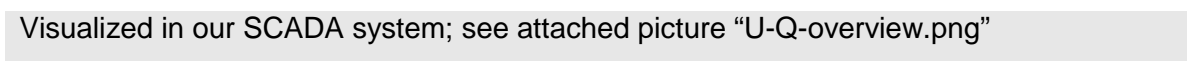
List of evidences, comments:



Do you have any reactive power resources which are placed near to the boundaries of your system?

Neighbour	Explanation
VKW-Netz	Coils, Capacitors, Generators, Transformers, Phase shifters
TenneT-D	Coils, Capacitors, Generators, Transformers, Phase shifters
Amprion	Coils, Capacitors, Generators, Transformers, Phase shifters
EnBW	Coils, Capacitors, Generators, Transformers, Phase shifters
Swissgrid	Coils, Capacitors, Generators, Transformers, Phase shifters
Terna	Coils, Capacitors, Generators, Transformers, Phase shifters
Eles	Coils, Capacitors, Generators, Transformers, Phase shifters
Mavir	Coils, Capacitors, Generators, Transformers, Phase shifters
Ceps	Coils, Capacitors, Generators, Transformers, Phase shifters

List of evidences, comments:



AUDIT PHASE**COMPLIANCE AUDIT 2011**

Voltage levels and exchange of reactive power is basically defined in the inter-TSO agreements (see the list under P3-A2-S1) with all adjacent TSOs. In all agreements, the maximal and minimal voltage levels are defined. Moreover, in the agreement with CEPS (who usually operates with higher voltages) it is specified that “the reactive power fed in or out at boundary nodes of interconnecting lines should be limited in normal operation to the range between -100 MVar and +100 MVar (for 380 kV lines) and -50 MVar and +50 MVar (for 220 kV lines)”.

APG answered in the pre-audit questionnaire that it doesn't inform the neighbouring TSOs in advance when it intends to perform an action that will cause significant increase or decrease of voltage at boundary substations, because all such possible actions within the APG grid are of no big significance. The same is true for the answer related to possible disturbances which could occur in the APG system and cause a significant change of voltage at boundary substations and additional reactive flows on tie-lines. There are no such disturbances in the APG grid. Of course, should any significant impact be observed, APG will always inform its neighbours (in the sense of inter-TSO agreements).

At the occasion of the installation of the shunt-reactor in Kainachtal the reactive power flow on the tie-lines to ELES changed. APG informed ELES about this in advance.

Compliance Level suggestion by the audit team:

FC

Explanation for the suggested compliance level:

APG provided sufficient proof of full compliance.

Improvement/Mitigation plan with deadline:

n/a

4.21 P3-D-S2 TRANSIENT ANGLE STABILITY CALCULATION**PREPARATORY PHASE****SELF-ASSESSMENT QUESTIONNAIRE 2010****P3-D-S2.**

Transient angle Stability calculation. Each TSO has at its own disposal relevant dynamic models and dedicated software in order to carry out dynamic simulations ensuring transient angle stability in its responsibility area.

Compliance Level: NC

Actions taken to reach compliance:

Establishing relevant skills and tools

Deadline:

12\2010

Temporary measures to preserve the security of interconnected system

Due to short distances and lack of large generating units APG never observed stability problems in grid. For very special situations studies were performed by universities and further studies will be performed until we have the necessary means available.

Existing addendum for this Policy reference

yes

Additional Questions

Do you have relevant dynamic models in order to carry out dynamic simulations ensuring transient angle stability in your responsibility area.

no

AUDIT QUESTIONNAIRE 2011

P3-D-S2 TRANSIENT ANGLE STABILITY CALCULATION. Each TSO has at its own disposal relevant dynamic models and dedicated software in order to carry out dynamic simulations ensuring transient angle stability in its responsibility area

Compliance level FC SC NC

Concise explanation for declared compliance level:

APG has a suitable software and a basic model; stability analyses are performed by consultant "Technical University of Graz", which has a model and experience. Currently building the internal skills for performing own analyses; (but due to relatively short lines

APG never experienced stability problems by now).

Do you have an addendum to the standard? Yes No

In case of an existing addendum; list of evidences for a mitigation plan, comments:

Do you have relevant dynamic models in order to carry out dynamic simulations ensuring transient angle stability in your responsibility area?

Yes No

List of evidences, comments:

APG has a first basic model, TU-Graz has a more detailed model (see examples: studies in the region of Malta and Tauern:

- Reisseck II
- Automatic Reclosure of the 220 kV line TA-SZ when building the 380 kV line SP-Salzburg)

AUDIT PHASE

COMPLIANCE AUDIT 2011

APG has shown examples of dynamic studies performed by the University of Graz e.g.:

- „Dynamische Untersuchung: Ausfall des 380/220-kV-Kuppelumspanners im UW Tauern und Abschaltung der Leitung Salzbach – St. Peter“,
- „Richtungsbetrieb im Kraftwerk Malta-Hauptstufe“ and
- „Dynamische Stabilitätsberechnungen für das Kraftwerk Reisseck 2“.

The University of Graz uses the calculation tool Neplan. APG has a contract with this university.

APG has the calculation tool Digsilent and uses it for testing purposes at present (the model exists). APG intends to recalculate the results of the University of Graz, and then to make the next study in parallel with them.

Compliance Level suggestion by the audit team:

FC

Explanation for the suggested compliance level:

The Audit Team finds that the studies performed by external consultants and the model presented by APG justify the full compliance level.

Improvement/Mitigation plan with deadline:

n/a

5 CONCLUSIONS

The Audit Team found that APG is fully compliant with all audited standards.

APG estimates that its staff needed about 200 hours for the preparation of the compliance audit.

The Audit Team visited the APG control room at the beginning of the audit. All questions of the Audit Team were answered in a very precise manner. The evidences presented in the control room helped the auditors to better understand the organisation of the work and the processes.

APG was excellently prepared for the audit. All necessary documentation was easily available. This has eased the audit process which in itself was very complicated, because APG has 9 neighbouring TSOs. The APG representatives answered all questions in a competent way and gave detailed explanations. The Audit Team wants to stress its full satisfaction with the approach of APG to the compliance audit.

The Audit Team upgraded APG from the level of sufficient compliance to the level of full compliance in case of 5 standards: P2-A-S5, P2-A-S5.2, P2-A-S5.3, P3-B-S1.2.2, P3-D-S2. The explanations for these decisions are given in the following:

P2-A-S5: APG provided proof that it is fully compliant with all sub-standards of P2-A-S5

P2-A-S5.2: APG declared sufficient compliance, because it believed that separately signed annexes to the operational agreements with detailed description of the processes are necessary. APG has not signed such documents with all its neighbouring TSOs. However, the standard doesn't require that. It is enough to "document" i.e. to define in a tangible form and to publish the agreements and rules (which exist and are practised with the neighbours). Therefore, the Audit Team upgraded APG to the level of full compliance.

P2-A-S5.3: APG declared sufficient compliance, because it believed that separately signed annexes to the operational agreements with detailed description of the processes are necessary. APG has not signed such documents with all its neighbouring TSOs. However, the standard doesn't require that. It is enough to have defined agreements. Their publication in Internet is the proof that the agreements exist. Therefore, the Audit Team upgraded APG to the level of full compliance.

P3-B-S1.2.2: APG switches-off transmission lines in case of too high voltages (by respecting the n-1 security criterion). The installation of additional coils is foreseen only for the purpose to avoid switching-off transmission lines too often. APG is however always capable to manage the voltage control. Therefore the Audit Team finds that APG is fully compliant.

P3-D-S2: The Audit Team finds that the studies performed by external consultants and the model presented by APG justify the full compliance level.

The Audit Team made the experience that APG is an excellently organized TSO with a very high level of expertise.

The Audit Team wishes to express its gratitude to the APG company management for fulfilling all preconditions for an excellent and successful audit.

6 SIGNATURE PAGE

ENTSO-E Audit Team Members:



Vladimir Ilic (Audit Team Leader)



Octavia Unguroiu (Audit Team Member)



Yiannis Toliass (Audit Team Member)



Alexander Mondovic (Secretary)

Date and Place: 14.10.2011, Brussels, Belgium