SCHEDULING AND ACCOUNTING

P2 – Policy 2: Scheduling and Accounting [E]

Policy Subsections

A.	Scheduling
B.	Online Observation
C.	Accounting

Introduction

To operate a large power system like the one of UCTE and to create the suitable conditions for commercial electricity trade it is necessary to schedule in advance the power to be exchanged at the interconnection borders between the system operators. During daily operation, the schedules are followed by means of the LOAD-FREQUENCY CONTROL installed in each CONTROL AREA / CONTROL BLOCK. Notwithstanding LOAD-FREQUENCY CONTROL, UNINTENTIONAL DEVIATIONS invariably occur in energy exchanges. For this reason, it is necessary to co-ordinate the SCHEDULE nomination between the system operators, to observe in real-time UNINTENTIONAL DEVIATIONS and to co-ordinate ACCOUNTING and computation of the COMPENSATION PROGRAMS to balance UNINTENTIONAL DEVIATIONS.

History of changes

v2.2	draft	20.07.2004	WGOS, OH team	Final wording
v2.1	draft	17.06.2004	OH team	Revision after consultation

Current status

This policy will cancel and replace all previous UCTE ground rules and recommendations regarding the co-ordination of accounting and the organisation of load-frequency control (1999) as well as the recording and offsetting of unintentional deviations in the interconnected network of UCPTE (1988). This version of the document (version 2.2, level E, dated 20.07.2004) has "final policy" status.

The following UCPTE rules and recommendations are not used any longer:

- UCPTE Ground Rule: Co-ordination of the accounting and organisation of the load-frequency control, 1999
- UCPTE Recommendation: Recording and offsetting of unintentional deviations in the interconnected network of UCPTE, AR 1988
- UCPTE Recommendation: General principles concerning the recording and offsetting of unintentional deviations in the interconnected network of UCPTE, AR 1973-1974
- UCPTE Recommendation: Automatic programmed value setters, AR 1960-1961

A. Scheduling of Power Exchange

[UCTE Rule Co-ordination of the accounting and organisation of LFC]

[ETSO ESS Implementation guide Release 1]

[ETSO Guideline for FTP Data Exchange]

Introduction

The task of scheduling EXCHANGE PROGRAMS is performed during the operational planning phase. It aims to guarantee agreed, unique border - crossing EXCHANGE PROGRAMS among all CONTROL AREAS / CONTROL BLOCKS of UCTE. Scheduling of EXCHANGE PROGRAMS is an important issue to check the UCTE-wide consistency of the input variables used by the single parties involved in order to prevent systematic faults in the context of LOAD-FREQUENCY CONTROL (see Policy 1). The scheduling phase starts with the day-ahead schedule nomination of market participants and ends with the last intra-day schedule adaptations before system operation.

Criteria

C1. **EXCHANGE PROGRAM.** The EXCHANGE PROGRAM must have the same value on both sides of the border.

C2. **Sum of the CONTROL PROGRAMS.** The sum of the CONTROL PROGRAMS of all CONTROL BLOCKS for each time unit of a SYNCHRONOUS AREA must be at any time equal to zero.

C3. **Time frame** is a time resolution used in EXCHANGE SCHEDULES.

C4. **Definition of D , D-1, D+1**

D : the day when the nominated EXCHANGE SCHEDULES are set into force.

D-1 : the day ahead (before) "D"

D+1: the day after "D"

Requirements

R1. **Framework for an international Coding Scheme**. A common model of an international Coding Scheme is required as a basis for electronic exchange of schedules within UCTE. This model consists out of the UCTE organisation with CO-ORDINATION CENTRES (CC), CONTROL BLOCKS (CB) and CONTROL AREAS (CA). For the CONTROL AREAS, a common naming in accordance with EIC (ETSO Identification Code) is used.

    R1.1. For CONTROL AREAS the following codes are used

        R1.1.1.On CO-ORDINATION CENTRE level

            - 10YCC-UCTE-NO—K for CO-ORDINATION CENTRE North

            - 10YCC-UCTE-SO—W for CO-ORDINATION CENTRE South

        R1.1.2.On CONTROL BLOCK level

            - 10YCB-…. for CONTROL BLOCKS

        R1.1.3.On CONTROL AREA level

            - 10YCA-…. for CONTROL AREAS

R2.   Data exchange among the operators of CONTROL AREAS, CONTROL BLOCKS and CO-ORDINATION CENTRES.

R2.1. Electronic data exchange of EXCHANGE PROGRAMS is required (e.g. ELECTRONIC HIGHWAY, ftp-dial in via ISDN-line, e-mail; phone and fax as back-up if electronic communication is disturbed).

R2.2. The data exchange format for EXCHANGE PROGRAMS has to be agreed among the operators.

R2.3. The identification scheme for market participants has to be agreed between the operators.

R2.4. Standardisation. It is necessary to standardise the data exchange formats within a CONTROL BLOCK, within a CO-ORDINATION CENTRE and between the CO-ORDINATION CENTRES.

R3.   Time Frame.

R3.1. The following time frames are allowed: t_i = ¼h, ½h or 1h.

R3.2. The time frame for EXCHANGE SCHEDULES must be agreed bilaterally between adjacent operators. As a general rule, two neighbouring operators have to choose the larger time frame for their bilateral EXCHANGE SCHEDULES.

R4.   Resolution.

R4.1. The value of power in EXCHANGE SCHEDULES will be given in integer number of MW with or without decimal digits for time frame t_i = 1h

R4.2. The value of power in EXCHANGE SCHEDULES will be given in integer number MW with 3 decimal digits for time frame ti = ¼h or ½h.

R5.   Availability. The function of a scheduling office must be available every day from 00:00. to 24:00.

Standards

S1.   Day-ahead verification of EXCHANGE PROGRAMS between CONTROL AREAS (D-1 for D) (see ▶P2-A-G1)**.**

S1.1. CONTROL AREA verification. The CONTROL AREA OPERATORS have to agree with the neighbouring CONTROL AREA OPERATORS the EXCHANGE PROGRAMS per border (CAX) for every time unit. (see ▶P2-A-P1)

S1.2. Detail of exchange data. For each time unit, the CONTROL AREA OPERATORS have to exchange the aggregated EXCHANGE PROGRAMS per CONTROL AREA border.

S2.   Day-ahead CONTROL BLOCK verification (D-1 for D) (see ▶P2-A-G2)**.**

S2.1. Data exchange CONTROL AREA – CONTROL BLOCK. Every day (D-1), the CONTROL AREA OPERATORS have to submit to their corresponding CONTROL BLOCK OPERATOR the following day's (D) agreed bilateral EXCHANGE PROGRAM per border (CAX) concerning their borders.

S2.2. Details of exchange data. For each time unit, the CONTROL AREA OPERATOR has to submit the bilateral EXCHANGE PROGRAM per CONTROL AREA per border (CAX) to the CONTROL BLOCK OPERATOR.

S2.3. CONTROL BLOCK validation. The CONTROL BLOCK OPERATOR has to validate the scheduling data received from the CONTROL AREAS (see ▶P2-A-P2).

S2.4. CONTROL BLOCK verification. The CONTROL BLOCK OPERATOR has to submit the bilateral EXCHANGE PROGRAM of all affected CONTROL AREAS (CBS) and agree with the neighbouring CONTROL BLOCK OPERATORS the bilateral

EXCHANGE PROGRAMS for the corresponding CONTROL AREAS for every time unit. (see ▸▸ P2-A-P3)

S3. **Day-ahead CO-ORDINATION CENTRE verification (D-1 for D)** (see ▸▸ P2-A-G3)**.**

 S3.1. **Data exchange CONTROL BLOCK – CO-ORDINATION CENTRE.** Every day (D-1), the CONTROL BLOCK OPERATORS have to submit to their corresponding CO-ORDINATION CENTRE the following day's (D) agreed EXCHANGE PROGRAMS concerning their borders.

 S3.2. **Details of exchange data.** For each time unit, the CONTROL BLOCK OPERATOR has to submit the bilateral EXCHANGE PROGRAMS of all affected CONTROL AREA borders (CBS) to the CO-ORDINATION CENTRE.

 S3.3. **CO-ORDINATION CENTRE validation.** The CO-ORDINATION CENTRE has to validate the scheduling data received from the CONTROL BLOCKS. (see ▸▸ P2-A-P4)

 S3.4. **CO-ORDINATION CENTRE verification.** The CO-ORDINATION CENTRE has to verify and agree with the neighbouring CO-ORDINATION CENTRE the bilateral EXCHANGE PROGRAMS for the corresponding CONTROL AREAS (CCT) for every time unit. (see ▸▸ P2-A-P5)

S4. **Modification of EXCHANGE SCHEDULES.**

 S4.1. In case of a change of the EXCHANGE PROGRAM scheduled with another neighbouring CONTROL AREA, the operator of the relevant CONTROL AREA has to transmit in due time the information to the corresponding operator of the CONTROL BLOCK.

 S4.2. In case of a change of the hourly EXCHANGE PROGRAM scheduled with another neighbouring CONTROL BLOCK, the operator of the relevant CONTROL BLOCK has to transmit in due time the information to the corresponding CO-ORDINATION CENTRE.

S5. **Confirmation of verified EXCHANGE PROGRAMS.**

 S5.1. **CO-ORDINATION CENTRE verification.** After completion of the CO-ORDINATION CENTRE verification, the CO-ORDINATION CENTRES have to confirm within 30 minutes the agreed EXCHANGE PROGRAMS to the CONTROL BLOCK OPERATORS electronically by a confirmation report.

 S5.2. **CONTROL BLOCK verification.** After receipt of the CO-ORDINATION CENTRE confirmation, the completion of the CONTROL BLOCK verification has to be confirmed within 30 minutes by the CONTROL BLOCK OPERATORS to the CONTROL AREA OPERATORS electronically by a confirmation report.

S6. **Transparency.** The EXCHANGE PROGRAMS between CONTROL BLOCKS (CBX) and between CONTROL AREAS (CAX) shall be published by CO-ORDINATION CENTRES on the common information system for TSOs (VULCANUS) within 30 minutes after completion of the verification of EXCHANGE PROGRAMS.

S7. **Confidentiality.** The data used for scheduling may not be transmitted to third parties without authorisation.

Guidelines

G1. **Day-ahead verification of EXCHANGE PROGRAMS between CONTROL AREAS (D-1 for D).**

 G1.1. **Latest exchange of EXCHANGE PROGRAMS**. Exchange of EXCHANGE PROGRAMS (CAX) between CONTROL AREAS shall be completed till 14:45 .

 G1.2. **CONTROL AREA verification closure.** The CONTROL AREA verification shall be completed by the CONTROL AREA OPERATORS till (D-1), 15:45

G2.   Day-ahead CONTROL BLOCK verification (D-1 for D).

G2.1.   Data exchange CONTROL AREA – CONTROL BLOCK. Every day (D-1), the CONTROL AREA OPERATORS shall submit by 15:45 to their corresponding CONTROL BLOCK OPERATOR the following day's (D) agreed bilateral EXCHANGE PROGRAM per border (CAX) concerning their borders.

G2.2.   CONTROL BLOCK verification closure. The CONTROL BLOCK verification shall be completed by the CONTROL BLOCK OPERATOR till (D-1), 16:30.

G3.   Day-ahead CO-ORDINATION CENTRE verification (D-1 for D).

G3.1.   Data exchange CONTROL BLOCK – CO-ORDINATION CENTRE. Every day (D-1), the CONTROL BLOCK OPERATORS shall submit by 16:30 to their corresponding CO-ORDINATION CENTRE the following day's (D) agreed EXCHANGE PROGRAMS concerning their borders.

G3.2.   CO-ORDINATION CENTRE verification closure. The CO-ORDINATION CENTRE verification has to be completed by the CO-ORDINATION CENTRES till (D-1), 17:00.

G4.   Intra-day control area verification (during D).

G4.1.   CONTROL AREA verification. The CONTROL AREA OPERATORS have to agree with the neighbouring CONTROL AREA OPERATORS the bilateral exchanges per border (CAS) for every time unit.

G4.2.   CONTROL AREA verification closure. The CONTROL AREA verification has to be completed by the CONTROL AREA OPERATORS not later than 45 minutes before setting a schedule into force.

G5.   Intra-day CONTROL BLOCK verification (during D).

G5.1.   Data exchange CONTROL AREA – CONTROL BLOCK. In case of intra–day changes of the EXCHANGE SCHEDULES, the CONTROL AREA OPERATORS have to submit at least 45 minutes before setting a schedule into force the agreed valid EXCHANGE SCHEDULES concerning their borders to their corresponding CONTROL BLOCK OPERATOR.

G5.2.   Details of exchange data. For each time unit, the CONTROL AREA OPERATOR has to submit the total bilateral exchange per CONTROL AREA border (CAX) to the CONTROL BLOCK OPERATOR.

G5.3.   CONTROL BLOCK validation. The CONTROL BLOCK OPERATOR has to validate the scheduling data received from the CONTROL AREAS. Schedules having any changes in a time unit not allowed (out of the past) will be rejected.

G5.4.   CONTROL BLOCK verification. The CONTROL BLOCK OPERATOR has to submit the bilateral exchange schedules of all affected control areas (CBS) and agree with the neighbouring CONTROL BLOCK OPERATORS the bilateral EXCHANGE SCHEDULES for the corresponding CONTROL AREAS for every time unit

G5.5.   CONTROL BLOCK verification closure. The CONTROL BLOCK verification has to be completed by the CONTROL BLOCK OPERATOR not later than 30 minutes before setting a schedule into force.

G6.   Intra-day CO-ORDINATION CENTRE verification (during D).

G6.1.   Data exchange CONTROL BLOCK – CO-ORDINATION CENTRE. In case of intra–day changes of exchange schedules, the CONTROL BLOCK OPERATORS have to submit at least 30 minutes before setting a schedule into force the agreed valid EXCHANGE SCHEDULES concerning their borders to their corresponding CO-ORDINATION CENTRE.

G6.2. **Details of exchange data.** For each time unit, the CONTROL BLOCK operator has to submit bilateral exchange schedules per CONTROL AREA border (CBS) to the CO-ORDINATION CENTRE.

G6.3. **CO-ORDINATION CENTRE validation.** The CO-ORDINATION CENTRE has to validate the scheduling data received from the CONTROL BLOCKS. Schedules having any changes in a time unit not allowed (out of the past) will be rejected.

G6.4. **CO-ORDINATION CENTRE verification.** The CO-ORDINATION CENTRE has to verify and agree with the neighbouring CO-ORDINATION CENTRE the bilateral EXCHANGE SCHEDULES for the corresponding CONTROL AREAS (CCT) for every time unit.

G6.5. **CO-ORDINATION CENTRE verification closure.** The CO-ORDINATION CENTRE verification has to be completed by the CO-ORDINATION CENTRES not later than 15 minutes before setting a schedule into force.

G7. **Confirmation of verified EXCHANGE SCHEDULES.**

G7.1. **CO-ORDINATION CENTRE verification.** After completion of the CO-ORDINATION CENTRE verification, the CO-ORDINATION CENTRES have to confirm the agreed EXCHANGE SCHEDULES to the CONTROL BLOCK OPERATORS by a confirmation report.

G7.2. **CONTROL BLOCK verification.** After receipt of the CO-ORDINATION CENTRE confirmation, the completion of the CONTROL BLOCK verification has to be confirmed by the CONTROL BLOCK OPERATORS to the CONTROL AREA OPERATORS by a confirmation report.

G8. **Nomination.** It is recommended to use unambiguous identification procedures for the market participants involved in the case of nomination for exchange schedules crossing control area borders.

G9. **ELECTRONIC HIGHWAY.** For data exchange, the ELECTRONIC HIGHWAY shall be used with FTP protocol.

G10. **Data exchange.**

G10.1. For data exchange, the procedures defined in the ETSO ESS are recommended

G10.2. For the identification of market participants, the EIC or EAN standard is recommended

G11. **Schedule registration at the CONTROL AREA by market participants.** The market participants' schedules are registered until 14:30 of D-1 at the CONTROL AREA. The CONTROL AREA OPERATOR verifies the correctness of the EXCHANGE SCHEDULES and informs the parties involved as soon as possible (acknowledgement-, anomaly-, confirmation report).

G12. **Gate closure for schedule verification between market participants.** In case the EXCHANGE PROGRAMS do not have the same value on both sides of the border by 15:45 of D-1, the following rules shall be applied:

G12.1. Where no previous EXCHANGE SCHEDULE is available and the registered EXCHANGE SCHEDULES do not have the same delivery direction, the EXCHANGE SCHEDULE is set to zero.

G12.2. Where no previous EXCHANGE SCHEDULE is available and the registered EXCHANGE SCHEDULES have the same delivery direction, the EXCHANGE SCHEDULE is set to the lower absolute value**.**

G12.3. CONTROL AREA OPERATORS in the same CONTROL BLOCK may define other rules with market participants. These rules have to be agreed with all the CONTROL AREA OPERATORS within this CONTROL BLOCK

G13. Gate closure for intra-day schedule. In case the EXCHANGE PROGRAMS do not have the same value on both sides of the border in intra-day scheduling, the EXCHANGE SCHEDULE previously nominated (if any) will stay valid.

Procedures

P1. CONTROL AREA verification (see ▸P2-A-S1)**.**

　P1.1. Verification routines.

　　P1.1.1. The verification routines are performed by the CONTROL AREA OPERATOR together with the neighbouring CONTROL AREAS in order to ensure clear scheduling data.

　　P1.1.2. The CONTROL AREA OPERATORS verify per time unit if the EXCHANGE SCHEDULES per border are equal for both CONTROL AREA OPERATORS. If an error is detected by the verification routines, troubleshooting is applied between the CONTROL AREA OPERATORS concerned.

　P1.2. Troubleshooting.

　　P1.2.1. The CONTROL AREA exchange per market participant (CAS) is necessary.

　　P1.2.2. Identification of faulty time unit.

　　P1.2.3. Identification of the faulty individual border crossing market participant schedule and corresponding information of the market participant concerned.

　　P1.2.4. The affected market participant sends the corrected EXCHANGE SCHEDULE to relevant CONTROL AREAS.

　P1.3. Fault correction. Market participant agree with affected CONTROL AREA on a corrected common value.

P2. CONTROL BLOCK validation (see ▸P2-A-S2.3)**.**

　P2.1. Checking routines.

　　P2.1.1. The checking routines are performed by the CONTROL BLOCK OPERATOR himself in order to ensure the validity of the complete data set concerning the CONTROL BLOCK.

　　P2.1.2. The CONTROL BLOCK OPERATOR validates whether the data related to the internal borders of the underlying CONTROL AREAS in comparison to the corresponding CONTROL AREAS sum up to zero. If the checking routines fail, troubleshooting is applied.

　P2.2. Troubleshooting

　　P2.2.1. Identification of the bilateral border (s) between CONTROL AREAS where the fault applies.

　　P2.2.2. Identification of the faulty time unit.

　　P2.2.3. Identification of the faulty individual border crossing market participant EXCHANGE SCHEDULE by affected CONTROL AREA (**STEP P1.2)**

　P2.3. Fault correction. Ask the corresponding CONTROL AREA OPERATORS to agree on a corrected common value with the respective market participant.

P3. CONTROL BLOCK verification (see ▸P2-A-S2.4).

　P3.1. Verification routines.

P3.1.1. The verification routines are performed by the CONTROL BLOCK OPERATOR together with the neighbouring CONTROL BLOCKS in order to ensure clear scheduling data.

P3.1.2. The CONTROL BLOCK OPERATORS verify per time unit whether the total EXCHANGE PROGRAM per CONTROL AREA border is equal for both CONTROL BLOCK OPERATORS. If the verification routines fail, troubleshooting is applied between the CONTROL BLOCK OPERATORS concerned.

P3.2. Troubleshooting.

P3.2.1. Identification of the bilateral border (s) between CONTROL AREAS where the fault appears.

P3.2.2. Identification of the faulty time unit.

P3.2.3. Identification of the faulty CONTROL AREA border.

P3.2.4. Identification of the faulty individual border crossing market participant schedule by affected CONTROL AREA (STEP P1.2.)

P3.3. Fault correction. Ask the corresponding CONTROL AREA OPERATORS to agree on a corrected common value with the respective market participant.

P4. CO-ORDINATION CENTRE validation (see ▶P2-A-S3.3)**.**

P4.1. Checking routines.

P4.1.1. The checking routines are performed by the CO-ORDINATION CENTRE itself in order to ensure the validity of the complete data set concerning the CO-ORDINATION CENTRE.

P4.1.2. The CO-ORDINATION CENTRE validates whether the data related to the internal borders of the underlying CONTROL BLOCKS sum up to zero. If the checking routines fail, troubleshooting is applied.

P4.2. Troubleshooting

P4.2.1. Identification the bilateral border (s) between CONTROL BLOCKS where the fault appears.

P4.2.2. Identification the faulty time unit.

P4.2.3. Identification of the faulty individual CONTROL AREA border**.**

P4.3. Fault correction. Ask the corresponding CONTROL BLOCK OPERATORS to clear the fault.

P5. CO-ORDINATION CENTRE verification (see ▶P2-A-S3.4)**.**

P5.1. Verification routines.

P5.1.1. The verification routines are performed by the CO-ORDINATION CENTRE together with the neighbouring CO-ORDINATION CENTRE in order to ensure clear scheduling data.

P5.1.2. The CO-ORDINATION CENTRES verify per time unit whether the bilateral EXCHANGE PROGRAM per CONTROL AREA border is equal for both CO-ORDINATION CENTRES. If the verification routines fail, troubleshooting is applied between the CO-ORDINATION CENTRES concerned.

P5.2. Troubleshooting.

P5.2.1. The CO-ORDINATION CENTRES exchange the bilateral EXCHANGE PROGRAMS for the CONTROL AREAS (CCT) at the border between the CO-ORDINATION CENTRES for every time unit.

P5.2.2. Identification of the faulty time unit.

P5.2.3. Identification of the faulty CONTROL BLOCK border.

P5.2.4. Identification the faulty individual CONTROL AREA border**.**

P5.3. Fault correction. Ask the corresponding CONTROL BLOCK and CONTROL AREA OPERATORS to clear the fault.

Measures

M1. Data exchange.

M1.1. Day ahead (D-1 for D)

M1.1.1. CONTROL AREA. If the CONTROL AREA OPERATOR (s) does (do) not submit the data to the CONTROL BLOCK OPERATOR in time (see ▶▶P2-A-S2.1) and can not find a common solution with the control block operator, the CONTROL BLOCK OPERATOR shall set these data to zero and inform the CONTROL AREA OPERATOR accordingly. The CONTROL AREA OPERATOR has to arrange the setting with the market participants.

M1.1.2. CONTROL BLOCK. If the CONTROL BLOCK OPERATOR (s) does (do) not submit the data to the CO-ORDINATION CENTRE in time (see ▶▶P2-A-S3.1), and can not find a common solution with the co-ordination centre, the CO-ORDINATION CENTRE shall set these data to zero and inform the CONTROL BLOCK OPERATOR accordingly. The CONTROL BLOCK OPERATOR shall inform the CONTROL AREA OPERATOR, and the CONTROL AREA OPERATOR has to arrange the setting with the market participants.

M1.2. Intra-day (during D)

M1.2.1. CONTROL AREA. If the CONTROL AREA OPERATOR (s) does (do) not submit the data to the CONTROL BLOCK OPERATOR in time, the CONTROL BLOCK OPERATOR shall validate the data previously agreed and inform the CONTROL AREA OPERATOR accordingly. The CONTROL AREA OPERATOR has to arrange the setting with the market participants.

M1.2.2. CONTROL BLOCK. If the CONTROL BLOCK OPERATOR (s) does (do) not submit the data to the CO-ORDINATION CENTRE in time, the CO-ORDINATION CENTRE shall validate the data previously agreed and inform the CONTROL BLOCK OPERATOR accordingly. The CONTROL BLOCK operator will inform the CONTROL AREA OPERATOR, and the CONTROL AREA OPERATOR has to arrange the setting with the market participants.

M2. Data validation.

M2.1. Day ahead (D-1 for D)

M2.1.1. CONTROL BLOCK. If the CONTROL BLOCK OPERATOR is not able to validate in due time the scheduling data with the CONTROL AREAS concerned and can not find a common solution with CONTROL AREA OPERATORS, (see ▶▶P2-A-S2.3), the CONTROL BLOCK OPERATOR shall decide which CONTROL AREA data are relevant for scheduling and inform the CONTROL AREA OPERATOR accordingly. The CONTROL AREA OPERATOR has to arrange the setting with the market participants.

M2.1.2. CO-ORDINATION CENTRE. If the CO-ORDINATION CENTRE is not able to validate in due time the scheduling data with the CONTROL BLOCKS concerned and cannot find a common solution with control block operators, (see ▶▶P2-A-S3.3) the CO-ORDINATION CENTRE shall decide which CONTROL BLOCK data are relevant for scheduling, and inform the CONTROL BLOCK OPERATOR accordingly. The CONTROL BLOCK OPERATOR will inform the CONTROL AREA OPERATOR, and the CONTROL AREA OPERATOR has to arrange the setting with the market participants.

M2.2. Intra-day (during D)

M2.2.1. CONTROL BLOCK. If the CONTROL BLOCK OPERATOR is not able to validate in due time the scheduling data with the CONTROL AREAS concerned, the CONTROL BLOCK OPERATOR shall decide which CONTROL AREA data are relevant for scheduling, and inform the CONTROL AREA OPERATOR accordingly. The CONTROL AREA OPERATOR has to arrange the setting with the market participants.

M2.2.2. CO-ORDINATION CENTRE. If the CO-ORDINATION CENTRE is not able to validate in due time the scheduling data with the CONTROL BLOCKS concerned, the CO-ORDINATION CENTRE shall decide which CONTROL BLOCK data are relevant for scheduling, and inform the CONTROL BLOCK OPERATOR accordingly. The CONTROL BLOCK OPERATOR shall inform the CONTROL AREA OPERATOR, and the CONTROL AREA OPERATOR has to arrange the setting with the market participants.

M3. Data verification.

M3.1. CONTROL AREA. If the CONTROL AREA OPERATOR is not able to verify in due time with a neighbouring CONTROL AREA the EXCHANGE PROGRAM per border (see ⏩P2-A-S1.1) he should seek guidance from the CONTROL BLOCK OPERATORS. Follow STEP M2.1.1 / M2.2.1.

M3.2. CONTROL BLOCK. If the CONTROL BLOCK OPERATOR is not able to verify in due time with a neighbouring CONTROL BLOCK the EXCHANGE PROGRAM per border (see ⏩P2-A-S2.4) he should seek guidance from the CO-ORDINATION CENTRE (s). Follow STEP M2.1.2 / M2.2.2.

M3.3. CO-ORDINATION CENTRE. If the CO-ORDINATION CENTRE is not able to verify in due time with a neighbouring CO-ORDINATION CENTRE the EXCHANGE PROGRAM per border (see ⏩P2-A-S3.4) the two CO-ORDINATION CENTRES shall jointly decide which data are relevant for scheduling and inform the CONTROL BLOCK OPERATOR accordingly. The CONTROL BLOCK OPERATOR shall inform the CONTROL AREA OPERATOR, and the CONTROL AREA OPERATOR has to arrange the setting with the market participants.

B. Online Observation

This policy section replaces the corresponding sections for online observation in the latest "UCPTE-Ground Rules concerning the Co-ordination of the accounting and organisation of LFC within the UCPTE", dated 1999.

Introduction

The task of online observation is performed during the system operation phase. In order to prevent systematic faults in the context of LOAD FREQUENCY CONTROL (see Policy 1) it is essential to check the UCTE-wide consistency of the input variables for online operation used by the single parties involved. This comprises the control deviation used as an input value for LOAD FREQUENCY CONTROL as well as the real-time observation of border-crossing exchange power flows and EXCHANGE PROGRAMS among all CONTROL AREAS / CONTROL BLOCKS of UCTE.

Criteria

C1. **CONTROL PROGRAMS.** The sum of CONTROL PROGRAMS of all CONTROL BLOCKS of a SYNCHRONOUS AREA must be equal to zero at any time.

C2. **Physical Exchange.** The sum of the measurements of the physical exchange of all CONTROL BLOCKS of a SYNCHRONOUS AREA must be equal to zero at any time (taking account of the measurement's range of accuracy).

C3. **POWER DEVIATION.**

    C4. The sum of POWER DEVIATIONS of all CONTROL AREAS of a CONTROL BLOCK must be equal to the POWER DEVIATION of the CONTROL BLOCK concerned (taking account of the measurement's range of accuracy).

    C5. The sum of POWER DEVIATIONS of all CONTROL BLOCKS in the area of a CO-ORDINATION CENTRE must be equal to the POWER DEVIATION calculated with respect to the external border of the CO-ORDINATION CENTRE concerned (taking account of the measurement's range of accuracy).

    C6. The sum of POWER DEVIATIONS of all CONTROL BLOCKS of a SYNCHRONOUS AREA must be equal to zero at any time.

C7. **Calculated power deviations** are those power deviations which could be generated independently by the control block using the control programs and the transmitted measurements

Requirements

R1. **Accuracy of power measurements**. The accuracy of ACTIVE POWER measurement on the OBSERVATION LINE is determined by the accuracy of the measurement chain. The sampling rate of measurements must not exceed 10 seconds.

R2. **Transmission of measurements**.

    R2.1. The measurements of the TIE-LINE power flows crossing the border of a CONTROL AREA must be transmitted in a reliable manner to the corresponding operator of a CONTROL BLOCK by each CONTROL AREA (with an alarm in case of deficiency of a data transmission). The transmission delay must be shorter than 15 seconds.

    R2.2. The measurements of the TIE-LINE power flows crossing the border of a CONTROL BLOCK must be transmitted in a reliable manner to the corresponding CO-ORDINATION CENTRE by each CONTROL BLOCK (with an alarm in case of

deficiency of a data transmission). The transmission delay must be shorter than 15 seconds.

R3. **Transmission of POWER DEVIATIONS**.

> **R3.1.** The measurements of POWER DEVIATIONS of the CONTROL AREAS must be transmitted in a reliable manner to the corresponding operator of the CONTROL BLOCK by each CONTROL AREA (with an alarm in case of deficiency of a data transmission). The transmission delay must be shorter than 15 seconds.

> **R3.2.** The measurements of the POWER DEVIATIONS of the CONTROL BLOCKS must be transmitted in a reliable manner to the corresponding CO-ORDINATION CENTRE by each CONTROL BLOCK (with an alarm in case of deficiency of a data transmission). The transmission delay must be shorter than 15 seconds.

Standards

S1. **Perturbation of measurement equipment**.

> **S1.1.** The operator of the relevant CONTROL AREA has to inform the neighbouring CONTROL AREA OPERATORS and the corresponding operator of the CONTROL BLOCK on any perturbation in the measurement equipment with regard to the physical exchange crossing the borders with other neighbouring CONTROL AREAS.

> **S1.2.** The operator of the relevant CONTROL BLOCK has to inform the neighbouring CONTROL BLOCK OPERATORS and the corresponding CO-ORDINATION CENTRE about any perturbation in the measurement equipment with regard to the physical exchange crossing the borders with other neighbouring CONTROL BLOCKS.

S2. **Detection of abnormal operation.** The OBSERVATION OF UNINTENTIONAL DEVIATIONS by the CO-ORDINATION CENTRES allows to identify and to correct as soon as possible abnormal operating and ACCOUNTING situations (e.g.: abnormal values of TIE-LINE telemeasurements (TMs), misunderstanding in setting the EXCHANGE SCHEDULE of a CONTROL BLOCK, etc.).

Guidelines

G1. **Data Transmission of the CONTROL AREA.** The responsible of each CONTROL AREA shall transmit to the corresponding CONTROL BLOCK the CONTROL PROGRAM set on its load-frequency controller after any modification of this program.

G2. **Data Transmission of the** CONTROL BLOCK**.** The responsible party of each CONTROL BLOCK shall transmit in real time to the corresponding CO-ORDINATION CENTRE the CONTROL PROGRAM set on its load-frequency controller after any modification of this program.

G3. Should the transmitted POWER DEVIATION of a CONTROL AREA differ from the POWER DEVIATION calculated by the CONTROL BLOCK, the operator of the relevant CONTROL BLOCK has to contact immediately the corresponding operators of the CONTROL AREAS in order to solve the problem.

G4. Should the transmitted POWER DEVIATION of a CONTROL BLOCK differ from the POWER DEVIATION calculated by the CO-ORDINATION CENTRE, the operator of the relevant CO-ORDINATION CENTRE has to contact immediately the corresponding operator of the relevant CONTROL BLOCK in order to solve the problem.

G5. **Acquisition of TIE-LINE metering**. The CONTROL BLOCK OPERATORS shall acquire the provisional metering data of the TIE-LINES to ADJACENT CONTROL BLOCKS to record the energy in the time-frame used for power exchanges.

G3.   **Exchange of metered data**. The CO-ORDINATION CENTRE shall be provided with data of total hourly scheduled exchanges for each CONTROL BLOCK and real-time ACTIVE POWER TMs of each TIE-LINE[1] crossing the border of the CO-ORDINATION CENTRE area.

Measures

M1.   In case that the sum of the of POWER DEVIATIONS of the CONTROL AREAS in a CONTROL BLOCK is not equal to the POWER DEVIATION of the CONTROL BLOCK, the operator of the relevant CONTROL BLOCK shall immediately contact the corresponding operators of the CONTROL AREAS in order to solve the problem.

M2.   In case that the sum of the of POWER DEVIATIONS of the CONTROL BLOCKS in the area of a CO-ORDINATION CENTRE is not equal to the POWER DEVIATION calculated with respect to the external border of the CO-ORDINATION CENTRE concerned, the CO-ORDINATION CENTRE shall immediately contact the corresponding operator of the CONTROL BLOCKS in order to solve the problem.

M3.   In case that the sum of the CONTROL PROGRAMS of the CONTROL AREAS in a CONTROL BLOCK is not equal to CONTROL PROGRAM of the CONTROL BLOCK, the operator of the relevant CONTROL BLOCK shall immediately inform automatically the corresponding operator of the CONTROL AREAS.

M4.   In case that the sum of the CONTROL PROGRAMS of all CONTROL BLOCKS in the SYNCHRONOUS AREA is not equal to zero, the responsible CO-ORDINATION CENTRE shall immediately inform automatically the corresponding operators of the CONTROL BLOCKS.

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[1] Including virtual tie-lines that may exist for the operation of jointly owned power plants.

C. Accounting of unintentional deviations

[UCTE Ground Rule 99 Co-ordination of the accounting and organisation of LFC]

[UCTE Recommendation 88 Recording and offsetting of unintentional deviations]

This policy section replaces the corresponding sections for accounting of inadvertent exchange in the latest "UCPTE-Ground Rules concerning the "Co-ordination of the accounting and organisation of LFC", dated 1999.

Introduction

The task of accounting of UNINTENTIONAL DEVIATIONS is performed "after the fact", i.e. at the next working day following the system operation. It comprises the settlement of the account of UNINTENTIONAL DEVIATIONS of each CONTROL AREA / CONTROL BLOCK with reference to a recording period. The COMPENSATION OF UNINTENTIONAL DEVIATIONS is performed by using a program of compensation "in kind" within the compensation period - as an import / export of the corresponding amount of energy per tariff period, that was accumulated in the recording period. Accounting is an important issue to check the UCTE-wide consistency of the input variable "COMPENSATION PROGRAM" used by the single parties involved in order to prevent systematic faults in the context of LOAD FREQUENCY CONTROL (see Policy 1). The COMPENSATION PROGRAMSof all CONTROL BLOCKS within UCTE must sum up to zero.

Criteria

C1. **EXCHANGE PROGRAMS.** The EXCHANGE PROGRAMS must have the same value on both sides of the border.

C2. **Types of physical energy exchange**

    C2.1. TIE-LINE Flows ***ET.*** The sum of the tie line flows on a border between two CONTROL AREAS / CONTROL BLOCKS must have the same value on both sides of the border.

    C2.2. VIRTUAL TIE-LINE Flows ***EVT.*** The sum of the virtual tie line flows between two CONTROL AREAS / CONTROL BLOCKS must have the same value on both sides of the border.

C3. **UNINTENTIONAL DEVIATION.** Calculation of UNINTENTIONAL DEVIATIONS of a CONTROL AREA / CONTROL BLOCK for ACCOUNTING purposes: $UD = ET - (CAS + EVT)$. The sum of all UNINTENTIONAL DEVIATIONS of a SYNCHRONOUS AREA must be equal to zero.

C4. **Compensation of UNINTENTIONAL DEVIATIONS.** The sum of all COMPENSATION PROGRAMS for each time unit of a SYNCHRONOUS AREA must be equal to zero.

C5. **Accounting point.** One side of a TIE-LINE representing an interconnection point is defined as "*accounting point*", if it is used as unique basis for accounting of both adjacent TSOs.

C6. **Virtual accounting point** represents a point, associated to a TIE-LINE, for which energy exchange is calculated, using the meters on both sides of the TIE-LINE. That energy exchange is used as unique basis for accounting of both adjacent TSOs. The algorithm for this calculation is agreed between adjacent TSOs

C7. **Tariff period** is the time interval (e.g. season, holiday, working day, etc.) during which UNINTENTIONAL DEVIATIONS are attributed the same value for offsetting by compensation in kind (see Appendix). The accumulation of UNINTENTIONAL DEVIATIONS within the recording period is performed separately for each tariff period.

C8. **Working day** is the calendar day except Saturday, Sunday and 4 holidays: Christmas, New Year, Easter Monday and Ascension.

C9. **Recording period** is the time interval for which UNINTENTIONAL DEVIATIONS for specific CONTROL AREA should be summed up separately for each tariff period.

C10. **Compensation period** is the time interval during which the CONTROL AREA / CONTRTOL BLOCK is clearing the balance of UNINTENTIONAL DEVIATIONS according to the calculated COMPENSATION PROGRAM.

Requirements

R1. **Time Basis.** The UTC (universal time co-ordinated) is the time reference.

R2. **Time Frame.** The time frame for ACCOUNTING of UNINTENTIONAL DEVIATIONS has to correspond with the time frame of the EXCHANGE PROGRAM (1h, ½ h, ¼ h); this time frame applies to the figures *ET*, *EVT*, *UD* and *COMP*.

R3. **Resolution.** The operators of neighbouring CONTROL AREAS have to agree on the resolution for the validation of the energy exchange on their common border. The resolution for the validation of the EXCHANGE PROGRAM is the integer value of MWh for the time frame t_i = 1h and the integer MWh value with 3 decimal digits for the time frame t_i = ½ h or ¼ h.

R4. **Physical energy exchange**

    R4.1. **Data.** The physical energy exchange is represented by electricity meter values per accounting point and time unit. The time frame and the energy unit must be the same on a common border between two CONTROL AREAS.

    R4.2. The electricity meter values from the accounting point should be used by all partners involved as unique representation of the physical energy exchange concerning the interconnection point.

R5. **Accounting point.**

    R5.1. The partners at a common border have to agree on a common accounting point or virtual accounting point.

    R5.2. The location of the accounting point has to be bilaterally determined. Usually it is located within the substation close to the border between two partners.

R6. **Physical energy exchange – metering.**

    R6.1. **Voltage and current transformer.** Voltage and current transformers have to be operated at each accounting point. Voltage and current transformers at the accounting points should have an accuracy class rating of 0.2. Current transformers should have 2 cores for measurement purposes.

    R6.2. **Electricity metering.** On the basis of the current and voltage values measured by the transformers, the electricity meters determine the active energy flow in both directions related to a given time frame. The electricity meters at the accounting points should have an accuracy class rating of 0.2.

    R6.3. **Redundancy.** Accounting points should be equipped with main and check meters at each TIE-LINE. Main and check meter should be connected each to a separate core of the current transformer.

    R6.4. **Transformer cables.** Due to the accuracy of the whole metering, voltage transformer cables should be designed in such a way that a voltage drop is reduced to 0.1% or less of the nominal voltage.

    R6.5. **Telecounter.** The task of a telecounter is the acquisition of metered values from the electricity meters at the accounting point and the teletransmission of this data to the central accounting office of each partner concerned (remote meter reading). The counters at an accounting point should be doubled. For the sake of uniqueness, the data-flow from the electricity meters to the accounting offices has to be agreed unanimously between the partners sharing the accounting point.

R6.6. Availability. Every working day (D+1), metered values of the past working day (D) have to be available at the accounting office by 09:00; after a weekend / holidays, data for additional days have to be made available accordingly.

R7. Data exchange among partners.

R7.1. Electronic data exchange is required (e.g. ELECTRONIC HIGHWAY, ftp-dial-in via ISDN-line, e-mail; phone and fax as back-up if electronic communication is disturbed).

R7.2. The data exchange format has to be agreed among the partners.

R7.3. Standardisation. It is necessary to standardise the data exchange formats within a CONTROL BLOCK, within a CO-ORDINATION CENTRE and between the CO-ORDINATION CENTRES.

R8. Rounding. The operators of CONTROL AREAS and CONTROL BLOCKS have to agree on the rounding rules for the calculation of the UNINTENTIONAL DEVIATION and the COMPENSATION PROGRAMS.

R9. Availability. Accounting offices should be available on working days from 08:00. to 16:00.

Standards

S1. Scheduled energy exchange. The highest valid version of the data exchange sheets CAX / CBX has to be used by the CO-ORDINATION CENTRES for ACCOUNTING.

S2. Physical energy exchange *ET / EVT*.

S2.1. TSOs operating a common TIE–LINE or VIRTUAL TIE–LINE have to agree on unique meter values for every time unit.

S2.2. In case of problems concerning metering or telecounting equipment the TSOs operating a common TIE–LINE or VIRTUAL TIE–LINE have to agree on unique substitute meter values for every time unit.

S3. CONTROL BLOCK settlement per workday (D+1 for D).

S3.1. Data exchange between CONTROL BLOCK – CO-ORDINATION CENTRE. Every working day (D+1), the CONTROL BLOCK OPERATORS have to submit by 11:00 the past working day's (D) metered values of their TIE – LINES / VIRTUAL TIE – LINES to their corresponding CO-ORDINATION CENTRE; after the weekend / holidays, additional data for additional days have to be made available accordingly.

S3.2. Details of exchange data. For each time unit, the CONTROL BLOCK OPERATOR has to submit at least the bilateral sum of metered values per CONTROL BLOCK border to the CO-ORDINATION CENTRE.

S3.3. CONTROL BLOCK validation. The CO-ORDINATION CENTRE has to validate the accounting data received from the CONTROL BLOCKS until 14:00.

S3.4. CONTROL BLOCK settlement. The CO-ORDINATION CENTRE has to calculate the single CONTROL BLOCK'S account of UNINTENTIONAL DEVIATIONS for every tariff period for the day before (D), 24:00 and submit the result to the CONTROL BLOCK OPERATOR concerned. The data has to be confirmed by the CONTROL BLOCK OPERATOR.

S3.5. CONTROL BLOCK settlement closure. The CONTROL BLOCK validation and the CONTROL BLOCK settlement have to be completed as soon as possible, but not later than (D+1), 16:00.

S4. CO-ORDINATION CENTRE settlement per workday (D+1 for D).

S4.1. **CO-ORDINATION CENTRE validation.** The CO-ORDINATION CENTRES have to calculate the sum of the CONTROL BLOCK'S account of UNINTENTIONAL DEVIATIONS for every tariff period for the day before (D), 24:00 and validate the result vice-versa not later than (D+1), 16:00.

S4.2. **Confirmation of the settlement per workday.** The CO-ORDINATION CENTRES have to submit to the CONTROL BLOCK OPERATORS the account of UNINTENTIONAL DEVIATIONS for every tariff period for the day before (D), 24:00 after the completion of the CO-ORDINATION CENTRE validation.

S5. **Final CONTROL AREA settlement of a recording period.**

S5.1. **Data exchange CONTROL AREA – CONTROL BLOCK.** Corrections concerning the data exchanged during the daily settlement on working days have to be taken into account for the final CONTROL AREA settlement of a recording period if they are submitted from the CONTROL AREA OPERATORS to their corresponding CONTROL BLOCK OPERATOR by 10:00 two working days before the start of the compensation period.

S5.2. **CONTROL AREA validation.** The CONTROL BLOCK OPERATOR has to validate the accounting data received from the CONTROL AREAS.

S5.3. **CONTROL AREA settlement.** The CONTROL BLOCK OPERATOR shall calculate the single CONTROL AREA'S final account of UNINTENTIONAL DEVIATIONS for every tariff period for the last day of the recording period by 24:00 as well as the resulting COMPENSATION PROGRAMS of the recording period, and submit the result to the CONTROL AREA OPERATOR concerned; the data has to be confirmed by the CONTROL AREA OPERATOR.

S5.4. **CONTROL AREA settlement closure.** The final CONTROL AREA validation and the final CONTROL AREA settlement have to be completed by 12:00, at the latest, two working days before the start of the compensation period.

S6. **Final CONTROL BLOCK settlement of a recording period.**

S6.1. **Data exchange between CONTROL BLOCK – CO-ORDINATION CENTRE.** Corrections concerning the data exchanged during the daily settlement on working days have to be taken into account for the final CONTROL BLOCK settlement of a recording period if they are submitted from the CONTROL BLOCK OPERATORS to their corresponding CO-ORDINATION CENTRE by 12:00, at the latest, two working days before the start of the compensation period.

S6.2. **CONTROL BLOCK validation.** The CO-ORDINATION CENTRE has to validate the accounting data received from the CONTROL BLOCKS.

S6.3. **CONTROL BLOCK settlement.** The CO-ORDINATION CENTRE shall calculate the single CONTROL BLOCK'S final account of UNINTENTIONAL DEVIATIONS for every tariff period for the last day of the recording period, 24:00, as well as the resulting COMPENSATION PROGRAMS of the recording period, and submit these results to the CONTROL BLOCK OPERATOR concerned; the data has to be confirmed by the CONTROL BLOCK OPERATOR.

S6.4. **CONTROL BLOCK settlement closure.** The final CONTROL BLOCK validation and the final CONTROL BLOCK settlement have to be completed by 16:00, at the latest, two working days before the start of the compensation period.

S7. **Final CO-ORDINATION CENTRE settlement of a recording period.**

S7.1. **CO-ORDINATION CENTRE validation.** The CO-ORDINATION CENTRES shall calculate the sum of the CONTROL BLOCK'S final account of UNINTENTIONAL DEVIATIONS for every tariff period for the last day of the recording period, 24:00, as well as the resulting COMPENSATION PROGRAMS of the recording period, and validate the result vice-versa by 9:00 one working day before the start of the compensation period.

S8. Confirmation of the final settlement.

S8.1. Within 30 minutes after the final CO-ORDINATION CENTRE settlement of a recording period, the CO-ORDINATION CENTRES have to confirm the CONTROL BLOCK OPERATORS the agreed COMPENSATION PROGRAMS.

S8.2. Within 30 minutes after the confirmation of the CO-ORDINATION CENTRES, the CONTROL BLOCK OPERATORS have to confirm the CONTROL AREA OPERATORS the agreed COMPENSATION PROGRAMS accordingly.

S9. Transparency. The EXCHANGE PROGRAMS and the physical exchange between CONTROL BLOCKS have to be published according to a common information system for TSOs (VULCANUS) within 30 minutes after final settlement.

S10. Confidentiality. The data used for accounting may not be transmitted to third parties without authorisation.

Guidelines

G1. CONTROL AREA settlement per working day (D+1 for D).

G1.1. Data exchange between CONTROL AREA – CONTROL BLOCK. Every working day (D+1), the CONTROL AREA OPERATORS have to submit by 11:00 the metered values of the past working day (D) of their tie-lines / virtual tie-lines to their corresponding CONTROL BLOCK OPERATOR; after the weekend / holidays, data for additional days have to be made available accordingly.

G1.2. Details of exchange data. For each time unit, the CONTROL AREA OPERATOR has to submit at least the bilateral sum of metered values per CONTROL AREA border to the CONTROL BLOCK OPERATOR.

G1.3. CONTROL AREA validation. The CONTROL BLOCK OPERATOR has to validate the accounting data received from the CONTROL AREAS by 14:00.

G1.4. CONTROL AREA settlement. The CONTROL BLOCK OPERATOR shall calculate the single CONTROL AREA'S account of UNINTENTIONAL DEVIATIONS for every tariff period for the day before (D), 24:00, and submit the result to the CONTROL AREA OPERATOR concerned. The data has to be confirmed by the CONTROL AREA OPERATOR.

G1.5. CONTROL AREA settlement closure. The CONTROL AREA validation and the CONTROL AREA settlement have to be completed as soon as possible, but not later than (D+1), 16:00.

G2. Accounting point location. The location of the accounting points shall be the same as the location of the measurement values used for load frequency control (see ▸▸P1-A-R1.3).

G3. Physical energy exchange *ET / EVT*. TSOs operating a common TIE-LINE OR VIRTUAL TIE-LINE should read the same agreed meter value via telecounter which ensures that always unique meter values are used for every time unit by all partners involved.

G4. Data exchange between partners.

G4.1. ELECTRONIC HIGHWAY. For data exchanges, the ELECTRONIC HIGHWAY should be used.

G4.2. Details of data exchange between CONTROL AREA – CONTROL BLOCK. It is recommended that the CONTROL AREA OPERATOR submits for each time unit the single meter values of the TIE-LINES / VIRTUAL TIE-LINES to the CONTROL BLOCK OPERATOR.

G4.3. Details of data exchange between CONTROL BLOCK – CO-ORDINATION CENTRE. It is recommended, that the CONTROL BLOCK OPERATOR submits for each time

unit the single meter values of the TIE-LINES / VIRTUAL TIE-LINES to the CO-ORDINATION CENTRE.

G5. **Quality of on-line observation and accounting.** It is recommended that every partner regularly compares the measured values and the corresponding metered values of TIE-LINE flows (including virtual TIE-LINES) in order to detect early errors.

G6. **Unique definition of the data flow from the electricity meters to the accounting offices.** If each partner uses an own telecounter with data from both main and check meter, one telecounter has to be declared as reference for accounting. Alternatively, each partner at the accounting point is connected to both telecounters and gets the main meter data from one telecounter and the check meter data from the other one. Both variants proposed provide unique values for all partners.

G7. **Maximum values of UNINTENTIONAL DEVIATIONS**

G7.1. **Maximum values of hourly values of UNINTENTIONAL DEVIATIONS:** If the value of UNINTENTIONAL DEVIATIONS during one hour within a CONTROL AREA considerably exceeds a reasonable value, compensation can be treated separately by the CO-ORDINATION CENTRES on request of the partners.

G7.2. **Maximum values of the account of UNINTENTIONAL DEVIATIONS:** If the absolute value of the account of UNINTENTIONAL DEVIATIONS in a recording period of a CONTROL AREA considerably exceeds a reasonable value, compensation can be treated separately by the CO-ORDINATION CENTRES on request of partners concerned.

Procedures

P1. **Recording period.**

P1.1. The standard recording period is defined to comprise 7 days (one week), from Monday, 0:00 to Sunday 24:00.

P1.2. In case of bank holidays or change of tariff seasons, exceptions to this rule may occur. The CO-ORDINATION CENTRES agree on exceptions to the definition of the recording period and inform the CONTROL BLOCK OPERATORS 4 weeks before the start of the recording period accordingly.

P1.3. A recording period should last at least 4 days.

P2. **Compensation period.**

P2.1. The standard compensation period is defined to comprise 7 days (one week), from Thursday, 0:00 to Wednesday 24:00 , the standard compensation period starts with a delay of three days off the end of the corresponding recording period.

P2.2. In case of holidays or change of tariff seasons, exceptions to this rule may occur. The CO-ORDINATION CENTRES agree on exceptions to the definition of the compensation period and inform the CONTROL BLOCK OPERATORS 4 weeks before the start of the corresponding recording period accordingly.

P2.3. A compensation period should last at least 4 days.

P2.4. A compensation period has to start always with a delay of three working days off the end of the corresponding recording period.

P3. **CONTROL AREA validation** (see ▸▸P2-C-G1.3, ▸▸P2-C-S5.2)**.**

P3.1. **Checking routines.**

P3.1.1. The checking routines are performed by the CONTROL BLOCK OPERATOR itself in order to ensure the validity of the complete data set concerning the CONTROL BLOCK.

P3.1.2. The CONTROL BLOCK OPERATORS validate whether the data related to the internal borders of the underlying CONTROL AREAS sum up to zero. These routines are applied for the figures (**CAS**, **ET** and **EVT**). If the checking routines fail, troubleshooting is applied.

P3.2. Troubleshooting.

P3.2.1. Identify whether the fault applies to the EXCHANGE PROGRAM or the physical energy exchange on TIE-LINES **ET** or virtual TIE-LINES **EVT**.

P3.2.2. Identify the bilateral border (s) between CONTROL AREAS where the fault occurs.

P3.2.3. If the single (virtual) TIE-LINE flows are available: identify the (virtual) single TIE-LINE (s) between CONTROL AREAS where the fault occurs

P3.3. Fault correction. The CONTROL BLOCK OPERATOR asks the corresponding neighbouring CONTROL AREA OPERATORS to agree on a corrected common value.

P4. CONTROL AREA settlement (see ▸▸P2-C-S5.3)**.**

P4.1. Checking routines.

P4.1.1. The checking routines are performed by the CONTROL BLOCK OPERATOR together with the underlying CONTROL AREAS in order to ensure the validity of the accounting results.

P4.1.2. The CONTROL AREA OPERATORS validate whether the calculated account of UNINTENTIONAL DEVIATIONS per tariff period and – in case of the final settlement - the resulting Compensation Programs of the recording period is identical with the results submitted by the CONTROL BLOCK OPERATOR. If the checking routines fail, troubleshooting is applied between CONTROL BLOCK OPERATOR and CONTROL AREA OPERATOR.

P4.2. Troubleshooting.

P4.2.1. Identify the faulty tariff period(s) on the basis of the CONTROL AREA'S account of UNINTENTIONAL DEVIATIONS for every tariff period

P4.2.2. Identify the faulty time unit(s) on the basis of the CONTROL AREA'S account of UNINTENTIONAL DEVIATIONS for every time unit

P4.2.3. Follow **STEP P3.2.1.**

P4.3. Fault correction. The CONTROL BLOCK OPERATOR asks the corresponding CONTROL AREA OPERATOR to agree on the corrected value.

P5. CONTROL BLOCK validation (see ▸▸P2-C-S3.3, ▸▸P2-C-S6.2)**.**

P5.1. Checking routines.

P5.1.1. The checking routines are performed by the CO-ORDINATION CENTRE itself in order to ensure the validity of the complete data set concerning the CO-ORDINATION CENTRE.

P5.1.2. The CO-ORDINATION CENTRE validates whether the data related to the internal borders of the underlying CONTROL BLOCKS sum up to zero. These routines are applied for the figures (**CAS**, **ET** and **EVT**). If the checking routines fail, troubleshooting is applied.

P5.2. Troubleshooting

P5.2.1. Identify whether the fault applies to the EXCHANGE PROGRAM or the physical energy exchange on TIE-LINES **ET** or virtual TIE-LINES **EVT**

P5.2.2. Identify the bilateral border(s) between CONTROL BLOCKS where the fault occurs

P5.2.3. If the bilateral sums of (virtual) TIE-LINE flows per CONTROL AREA border are available: identify the bilateral border (s) between CONTROL AREAS where the fault occurs; otherwise **STEP P3.2.2**

P5.2.4. If the single (virtual) TIE-LINE flows are available: identify the (virtual) single TIE-LINE (s) between CONTROL AREAS where the fault occurs; otherwise **STEP P3.2.3**

P5.3. Fault correction. The CO-ORDINATION CENTRE asks the corresponding neighbouring CONTROL BLOCK OPERATORS to agree on a corrected common value.

P6. CONTROL BLOCK **settlement** (see ▸▸P2-C-S3.4, ▸▸P2-C-S6.3)**.**

P6.1. Checking routines.

P6.1.1. The checking routines are performed by the CO-ORDINATION CENTRE together with the underlying CONTROL BLOCKS in order to ensure the validity of the accounting results.

P6.1.2. The CONTROL BLOCK OPERATORS validate whether the calculated account of UNINTENTIONAL DEVIATIONS per tariff period and – in case of the final settlement - the resulting Compensation Programs of the recording period are identical with the results submitted by the CO-ORDINATION CENTRE. If the checking routines fail, troubleshooting is applied between CO-ORDINATION CENTRE and CONTROL BLOCK OPERATOR.

P6.2. Troubleshooting.

P6.2.1. Identify the faulty tariff period (s) on the basis of THE CONTROL AREA'S account of UNINTENTIONAL DEVIATIONS for every price – rating time bracket

P6.2.2. Identify the faulty time unit (s) on the basis of the CONTROL AREA'S account of UNINTENTIONAL DEVIATIONS for every time unit

P6.2.3. Follow **STEP P5.2.1**

P6.3. Fault correction. The CO-ORDINATION CENTRE asks the corresponding CONTROL AREA OPERATOR to correct the value.

P7. CO-ORDINATION CENTRE **validation** (see ▸▸P2-C-S4.1, ▸▸P2-C-S7.1)**.**

P7.1. Checking routines.

P7.1.1. The checking routines are performed by the CO-ORDINATION CENTRES in order to ensure the validity of the complete UCTE data set.

P7.1.2. The CO-ORDINATION CENTRES validate whether the data related to their external borders between the CO-ORDINATION CENTRES sum up to zero. These routines are applied for the figures (***CAS***, ***ET***, ***EVT, UD* and – in the case of final settlement - *COMP***). If the checking routines fail, troubleshooting is applied.

P7.2. Troubleshooting. Follow **STEP P5.2.1**

P7.3. Fault correction. The CO-ORDINATION CENTRE asks the corresponding neighbouring CONTROL BLOCK OPERATORS to agree on a corrected common value.

Measures

M1. **Substitute meter values.** In case of S2.2 the following procedure is recommended:

M1.1. If available, use the check meter values from the accounting point substation.

M1.2. If available, use the main meter values from the adjacent substation.

M1.3. If available, use the check meter values from the adjacent substation.

M1.4. If available, use the integrated measurement values from the on-line observation (see subsection on-line observation).

M1.5. Otherwise, the partners involved agree on the methodology to determine substitutes.

M2. **Data exchange.**

M2.1. If the CONTROL AREA OPERATOR(s) does (do) not submit the data to the CONTROL BLOCK OPERATOR in due time (see ▶▶P2-C-S3.1), the CONTROL BLOCK OPERATOR shall estimate substitute values.

M2.2. If the CONTROL BLOCK OPERATOR(s) does (do) not submit the data to the CO-ORDINATION CENTRE in due time (see ▶▶P2-C-S3.1), the CO-ORDINATION CENTRE shall estimate substitute values.

M3. **Data validation.**

M3.1. If the CONTROL BLOCK OPERATOR is not in a position to validate the accounting data with the CONTROL AREAS concerned in due time (see ▶▶P2-C-S5.2), the CONTROL BLOCK OPERATOR shall decide which CONTROL AREA data are relevant for accounting.

M3.2. If the CO-ORDINATION CENTRE is not in a position to validate the accounting data with the CONTROL BLOCKS concerned in due time (see ▶▶P2-C-S6.2), the CO-ORDINATION CENTRE shall decide which CONTROL BLOCK data are relevant for accounting.

M3.3. If the CO-ORDINATION CENTRES are not in a position to validate the accounting data vice-versa in due time (see ▶▶P2-C-S7.1), the CO-ORDINATION CENTRES agree upon CO-ORDINATION CENTRE data relevant for accounting.

M4. **Corrections of metered data.** Corrections of metered data have to be performed within 4 weeks after the day they correspond to.

M5. **Settlement.**

M5.1. If the CONTROL AREA OPERATOR is not in a position to confirm the account of UNINTENTIONAL DEVIATIONS and the resulting COMPENSATION PROGRAM in due time (see ▶▶P2-C-S5.3), the result of the CONTROL BLOCK OPERATOR shall be valid.

M5.2. If the CONTROL BLOCK OPERATOR is not in a position to confirm the account of UNINTENTIONAL DEVIATIONS and the resulting COMPENSATION PROGRAM in due time (see ▶▶P2-C-S6.3), the result of the CO-ORDINATION CENTRE shall be valid.