Methods Document

Risk Management NEW

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Note: This translation of the German text "APCS Methodendokument Riskmanagement" has been prepared for the convenience of the reader and serves only information purposes.

Table of Contents

List of Figures

Introduction

APCS in its function as a clearing agent and a balance group coordinator operates a risk management system to cover counterparty risk. The system is currently being prepared for amendments. This document serves to explain the individual clauses of the Risk Management Annex which is currently up for consultation. Within the scope of the consultations, market participants are to be given an opportunity to contribute their comments on the new risk management. After the close of the consultation phase, the Balance Group Coordinator (APCS) will present the new Risk Management Annex to the regulatory authority for approval. After receiving the official approval from the regulator and implementing the required IT adjustments, the amendments are scheduled to enter into force in mid-2016.

The current risk management system is based primarily on historic values. Therefore, the collateral requirements are calculated on the basis of already settled and recorded values. Due to the increasingly fast pace and the volatility on the European, and therefore also Austrian power markets, a higher weighting will be placed on the current situation of the respective balance groups in the future.

To this end the frequency of data exchange with the control area manager will be increased. The transmission of external schedules several times a day makes it possible to obtain an overview of the global position of a balance group in a timely manner. If there are open positions in its balance groups as a result of the nominations of the balance group representative, these open positions can be assessed and compared to the collateral on deposit. Should the outcome be a shortfall, the response may be an immediate margin call to increase collateral.

The current rules and regulations of the Balance Group Coordinator (APCS) contain long periods for the depositing of collateral. If the collateral is not deposited the only means available for mitigating risk is to terminate the contract. Therefore, apart from the termination of the contract, the new risk management procedure includes the timely (temporary) blocking of balance groups. This limits the period during which consumption of balance energy may occur.

The current system already takes the creditworthiness of the balance group representative into account. However, its influence on the collateral to be deposited is to be increased. Therefore, the deductible amount derived from the credit rating and the own funds of the

balance group representative is increased. However, just like in the current system, this does not have any influence on the basic collateral which is relevant for the joint and several liability.

As even the most accurate risk management cannot afford protection against, for example, an unexpected default of a BGR, the Balance Group Coordinator (APCS) in its function as market operator will continue to need the tool of joint and several liability. First, this tool makes it possible to protect market participants from a default of the Balance Group Coordinator (APCS) itself. Second, this creates an incentive to pay more attention to compliance-relevant aspects when selecting trading partners. The new risk management system is designed to minimize the probability of having to resort to the joint and several liability mechanism.

The total current volume of collateral is expected to remain more or less at the same level. Merely increasing collateral requirements without making adjustments to the actual system was not considered a sound course of action.

The premise on which the system is based may be summarized as follows:

- Historic data is the basis for the basic and variable collateral
- Daily (incl. WE) valuations of schedules and open positions
- The update from the "General Terms and Conditions of Business of the Balance Group Coordinator Vers. 9" to the "General Terms and Conditions of Business of the Balance Group Coordinator Vers. 10" does not have the purpose of raising collateral requirements in general.
- Equal treatment of all balance groups (traders, suppliers, producers, mixed BG) in the risk management
- Joint and several liability is an essential component of risk management
- More attention will be paid to the creditworthiness of market participants
- Statistical determination of replacement values when metering values are lacking
- Fast-acting measures: blocking of balance groups, blocking of schedule components (buy and/or sell side) and termination of contract
- Extended exchange of data between Control Area Manager (APG) and Balance Group Coordinator (APCS)

The clauses of the General Terms and Conditions of Business of the Balance Group Coordinator are explained in the following section.

Ad 1 Depositing of Collateral

1.1. A default occurs when a bank's automatic debit order fails due to a rejected credit transfer. After the reminder period expires without result and another repeated rejection of a credit transfer, a default is deemed to occur. The default triggers the realization of the individual collateral assets of the balance group representative (BGR). If the collateral deposited is insufficient to cover the automatic debit order, joint and several liability mechanism is triggered.

1.2. The balance group representative is liable for all balance groups (BG) assigned to it. The balance group representative must deposit the collateral prior to the activation of a balance group and is responsible for compliance with the aggregate collateral requirements for all registered balance groups assigned to it. The balance group representative has the following options for depositing collateral:

- Bank guarantees
- Securities
- Cash collateral account
- Direct credit transfer to an account of the Balance Group Coordinator (APCS) for quick/short-term deposits

1.3. The Balance Group Coordinator (APCS) uses the services of OeKB as a provider within the scope of the financial clearing and settlement and of risk management.

Ad 2 Collateral Requirements

2.1. The highest value derived from three calculation methods results in the collateral requirement of the BGR. The application of the following three methods constitutes the foundation for the collateral requirements imposed on the BGR:

(i) Collateral requirements based on annual turnover (collateral table)
(ii) Historic imbalance energy clearings (incl. 2nd clearing)
(iii) Valuation of current open positions

The method for calculating collateral is defined in clauses 2.1., 2.2. and 2.3. of the Risk Management Annex and explained in this document in these clauses.

The sum of collateral requirements of the balance groups is displayed to the BGR as the collateral requirement in the web-based IT system (clearing system). The value per BGR is displayed in the clearing platform of the Balance Group Coordinator (APCS) under the menu item

Risk Management → Risk Assets

Under the menu item

Risk Management → Risk Assets → Details

the values are displayed per balance group.

The collateral requirement is updated daily after 07:00 hrs. (until 7:30 hrs.). The clearing platform contains information on which of the three calculation methods is decisive for the current collateral requirement.

If the calculation of the collateral shows that 50% of the collateral deposited has already been utilized, the market participant is informed of this by e-mail. The relevant e-mail address must be notified to the Balance Group Coordinator (APCS).

If the collateral requirement exceeds the collateral deposited, the balance group representative is deemed to have shortfall. Every BGR is under the obligation to avoid shortfalls and must check the status of its collateral requirements daily.

In the event of a shortfall, the BGR must deposit collateral by the deadlines defined in clause 4 collateral that meet the conditions set out in clause 3. The Balance Group Coordinator (APCS) must inform the BGR in writing of any shortfalls. The periods for remedying the shortfall depend on the cause of the call to increase the collateral (category increments table, historic imbalance energy clearing, open position).

In the case of technical or communication problems between the Control Area Manager and the Balance Group Coordinator (APCS) or if the data material available is insufficient, this may result in the postponement or suspension of the calculation of the collateral by the Balance Group Coordinator (APCS). Therefore, last collateral requirement determined remains unchanged.

2.2. The minimum collateral of EUR 50,000 is the collateral that must be deposited for each balance group as a minimum. The requirement per balance group cannot be lower than this value as long as the 2nd clearing has not been completed for the last clearing period in which the balance group was active.

Ad 2.1. Collateral requirements – based on turnover

Annual energy turnover

Energy turnover of the last twelve months cleared (annual energy turnover) refers to the sum of the energy sold per schedule, the imbalance energy sold and consumption, and thus describes one side of the energy balance sheet within the balance group system.

For balance groups for which the clearing data for twelve months are already available, the annual energy turnover based on the turnover data of the last twelve 1st clearings is used.

In the case of balance groups for which the clearing data is not yet available for twelve months, all turnover data already available as well as information from the BGR is used in the calculation when determining the annual energy turnover.

The Balance Group Coordinator (APCS) is authorized to define, at any time, based on the turnover values observed annual energy turnover projections for the balance group and to classify the balance group accordingly in the collateral table.

After deactivation of a balance group the collateral requirement calculated on the basis of the collateral table stays for six months at the last level determined.

The values of the table used up to now were retained. However, the collateral table was enlarged by interim categories (from 9 to 13 categories) in order to avoid large intervals in the collateral requirements. Furthermore, the ratio of 60/40 (basis/variable) was changed to 50/50 (basis/variable) in order to give credit ratings a higher weighting.

Credit Classification

Every BGR is assigned a credit rating class (1-5) pursuant to the Credit Assessment Annex. A good credit rating can reduce the variable collateral requirement (according to the collateral table) for the BGR.

Creditworthiness has a higher weighting in the new concept. The percentage of own funds applicable per credit rating class was increased from 0.5% to 1.5%. Therefore, the maximum deductible amount is 6% of own funds.

This results in the following table:

Credit Rating Classes	Eligible percentage of own funds
1	6.0 %
2	4.5 %
3	3.0 %
4	1.5 %
5	0.0 %

Ad 2.2. Collateral requirements - based on historic clearing

As long as the balance group is active, the collateral requirement is computed as follows:

> Double the amount of the highest invoice balances of the last twelve 1st clearings cleared.

After deactivation of the balance group and the successful automatic debit in the last 1st clearing, the collateral requirement is calculated as follows:

> For every not yet executed final settlement, double the amount of the highest invoice balance of the last twelve final settlements before the balance group deactivation, but not higher than the collateral amount required at the time of deactivation of the balance group.

The invoice balances are understood to be inclusive of the charges and taxes stated on the respective invoices.

A differentiation is made between active and inactive balance groups. The deactivation of balance groups has after-effects for 15 months in the form of final settlements. This means that also after deactivation of balance groups, collateral has to be deposited for the final settlements.

The collateral for the "ongoing operation of balance groups" is computed based on the historic imbalance energy clearings. Factor 2 serves as safety margin.

Collateral is returned after deactivation of a balance group. The collateral requirement is determined on the basis of the last twelve final settlements observed as of the deactivation of a balance group, with the amount receivable being successively reduced every month. The risk exists that future final settlements will be around the level of the already cleared final settlements. For this purpose, the collateral requirement is calculated based on the pending final settlements. Factor 2 serves as safety margin when calculating the collateral requirement.

The data for the settlements are displayed in the clearing calendar (http://www.apcs.at/de/clearing/clearingkalender).

The invoice balance refers to the values to be booked from the credit transfers and debits per clearing settlement taking into account fees and taxes. The invoices from the clearing of imbalance energy can be viewed under the menu item *Archiv* → *Rechnungsarchiv* (Archives → Archive of Invoices). The invoices for the respective clearing month can be viewed as of the date the invoice is sent. The archives also include a history of all imbalance energy invoices.

Ad 2.3. Collateral requirements - based on open positions

If there is a shortfall on the collateral requirement due to open positions and if the collateral is not increased within the periods defined in clause 4, the balance groups of

the BGR with a shortfall may be blocked by the Balance Group Coordinator (APCS) after coordinating such a move with the regulatory authority.

The open position in kWh per balance group is the difference that results from the energy sold per schedule and consumption compared to the sum of energy bought per schedule and generation. When determining the open position, both internal control area schedules as well as external control area schedules are taken into account and the abovementioned difference is calculated on a quarter-hour basis. As the metering values are not fully available at the time of assessment (consumption/generation), the replacement values are calculated using statistical methods (determination of a confidence interval for the difference between consumption and production – for details, see below). The imbalance energy volumes determined in this manner are assessed by price and result in the **collateral requirement based on open positions.**

The section below explains the method used to determine the volume of open positions in kWh, the replacement value procedure, the valuation price and the valuation period for the calculation of the collateral requirements based on open positions:

Open positions – calculation of volumes

For balance groups without metering value components, the open position corresponds to the balance of schedule transactions (control area internal and control area external).

For balance groups with metering value components, a confidence interval/tolerance band for the quarter-hour balance of the metering values (consumption - generation) is computed. If the balance of the quarter-hour schedules (buy – sell schedules) exceeds tolerance limits, the volume that exceeds the tolerance limits are deemed an open position. If the schedule balance exceeds the upper limit of the metering value tolerance band (confidence interval) this means that the BG sold imbalance energy; if it drops below the lower limit this means that the BG bought imbalance energy.

The limits of the confidence interval are determined by the 5% and 95% quantile of the historic balance from volumes consumed and produced per quarter hour of each of the balance groups. In order to account for weekday effects, the quantiles are

determined per type of day. The types of days are defined as workdays (Mo – Fr) and weekends (Sa, So, holidays).

The quantiles are computed by type of day based on the clearing data over a period of one year (the last 12 months cleared). If there are no data for a whole year for the balance group, only the existing clearing data of the months cleared are used to determine the quantiles.

Open position – valuation and valuation price

The valuation of the open position is done every quarter-hour. The open position reported as collateral requirement is the aggregate value of all quarter hours during the period of observation (periods not settled).

For the valuation, two periods are analyzed:

- **Open positions until the preceding day (D-1) of the valuation day (D)** are assessed with the indicative price per quarter hour. Debits for the preceding day (D-1) are weighted with a factor of 4.

  The indicative prices for imbalance energy are calculated based on the observed control area delta per quarter hour and the weighted tertiary balancing energy price as well as on exchange prices. The formula for calculating the indicative prices is contained in Annex 1. All credit transfers/debits determined in this manner until (D-2) will be taken into account without weighting.

- **Open position – valuation and valuation day (D)**

  All of the schedules available at the time of the valuation are used for the valuation of open positions on the valuation day (D). While the preceding day has already been processed, the schedules are fed into the valuation of this day that may still undergo major changes.

  The open positions calculated on these schedules are valued with three times the EXAA exchange price (EXAA hourly prices), but no less than 75 EUR/MWh, with every open position value being considered as a debit. The EXAA price is used as a valuation price for this day, as the indicative prices cannot yet be determined on day D because there are no control area deltas available.

Open position – valuation period:

The valuation period covers all delivery days not yet settled including D, with D being the day of the valuation.

Publication of indicative prices

The time series for the indicative prices are published by the Balance Group Coordinator (APCS) on its website.

Ad 3 Type of Collateral and Type of Deposit

The Balance Group Coordinator (APCS) accepts only collateral deposited by a document that corresponds to specimen document published on the website of the Balance Group Coordinator (APCS). No deviations from the specimens of the Balance Group Coordinator (APCS) are permitted due to the principle of equal treatment of all market participants. The validity of the collateral deposit is subject to the criteria listed under the points below.

Collateral shall be deemed deposited if

- The original bank guarantee or as a scan, which corresponds to the specimen (see HP) of the Balance Group Coordinator (APCS), has been sent to OeKB. The valid depositing of collateral has been confirmed by registration in the clearing system.
- The collateral on pledged cash collateral accounts is deposited by sending a statement of account for the pledged account that shows the amount of the collateral requirement (or a higher amount), in the original or as a scan to OeKB.

All documents regarding the collateral must be sent to OeKB in the original. It is recommended to send a scanned version in advance to office@apcs.at.

Ad 4 Consequences in the Event of a Shortfall

A differentiation is made between a shortfall that results from the classifications of the **collateral table** and/or from **historic imbalance energy cleared** and shortfalls that

result from the **valuation of open positions**. The former type of shortfall (collateral table and/or historic imbalance energy clearing) is assessed as non-critical. The second type (open positions shortfall) is assessed as critical and calls for immediate action, and as a last resort, also the blocking of the balance group and the termination of the BGR contract.

Blocking of balance groups:

When balance groups are blocked, a difference is made between balance groups without and with an annual energy consumption of less than 200,000 MWh and balance groups with an annual consumption of equal to or more than 200,000 MWh.

The blocking of balance groups without annual energy consumption or with an annual energy consumption of less than 200,000 MWh is done at the end of the subsequent day. This means that a nomination as of D+2 is no longer possible after blocking (declared at around 9:00 hrs., D+1, valid as of D+1 24:00 hrs.). In cases of shortfall due to open positions, the BGR is granted a period until 09:00 hrs. of the subsequent day (D+1 09:00 hrs.). If the collateral is not deposited by this point in time, the Balance Group Coordinator (APCS) may block the balance group effective as of the close of the subsequent day (registered and thus displayed D+1 09:10 hrs., blocking active D+1 24:00 hrs.). Thus, the balance group is blocked for trading on the exchange and on the OTC as of and including D+2.

The 9:00 hrs. deadline is determined by the exchange auction of EXAA held at 10:15 hrs. as well as by any confirmed external control area schedules.

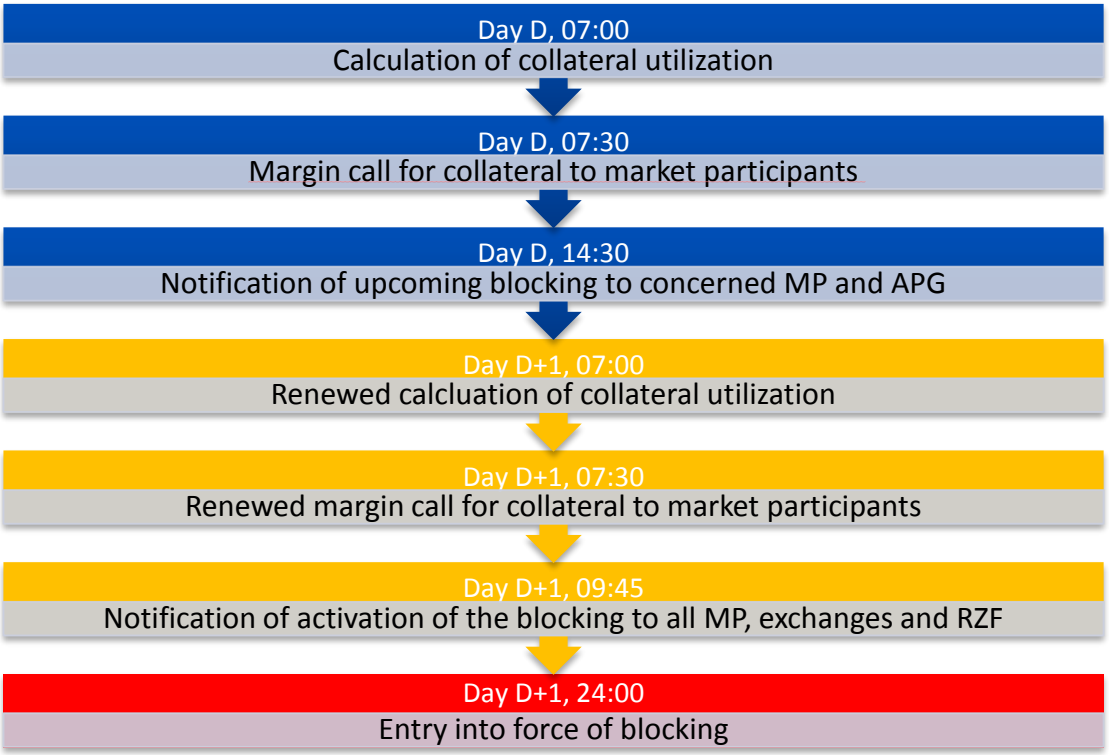

Figure 1: Diagram – Blocking of balance groups

If sufficient collateral is deposited at a later time, the block is lifted.

The blocking of balance groups of the BGR is done after notification of the regulatory authority that has the right to object to the blocking.

In the case of balance groups with an annual consumption equal to or greater than 200,000 MWh, the blocking of balance group and termination of contract may be instituted at the earliest four days after deadline to provide additional collateral.

Ad 5 Release of Collateral

If the collateral deposited is higher than the collateral requirement, the BGR may request a reduction or release of collateral by sending an application via the corresponding form. APCS reviews the collateral requirement and collateral on deposit, and after a positive review forwards the request for release to OeKB. If a guarantee is reduced, the BGR or its bank must send a modification document to OeKB. Pledged accounts are released by a letter sent by OeKB (SWIFT or regular mail) on the release of the amount exceeding the collateral requirements to the BGR's bank that maintains the account.

After termination of the BGR contract, the collateral of the BGR may be released in phases. In this context, a distinction is made between the release of collateral for BGRs with balance groups without metering value components and for balance groups with metering value components.

The release of collateral for balance groups without metering value components may be done as of the sixth month after the termination of the contract. The General Terms and Conditions of Business of the Balance Group Coordinator (APCS) include the option of subsequent charging up to six months after the 1st Clearing. Therefore, collateral must be maintained for this period.

The release of the collateral for balance groups with metering value components can only be done after the close of the last final settlement, because claims may arise from every final settlement that have to be covered by the BGR.

Ad 6 Realization of Collateral

If a BGR does not meet its payment obligations, the Balance Group Coordinator (APCS) will first realize the individual collateral assets of the BGR in default. If receivables are still open after realization, the Balance Group Coordinator (APCS) will use the basic collateral of the active BGRs (joint and several liability).

Ad 6.1 Joint and Several Liability

In order to avoid the realization of collateral, the Balance Group Coordinator (APCS) offers the BGR who is jointly and severally liable, as an alternative to the utilization of the collateral, the option of transferring the amount from the joint and several liability to an account of the Balance Group Coordinator (APCS).

Ad 6.2 Increasing Collateral

Every instance of utilization of collateral reduces the collateral on deposit and may trigger a margin call for collateral. If the BGR has a shortfall due to the realization of collateral under the title of joint and several liability, this collateral must be increased again.

ANNEXES

Annex 1 Indicative Price Calculation

The clearing prices for imbalance energy per quarter hour are calculated after the costs become known for secondary and tertiary balancing, and for the unintentional energy exchange at the time of clearing near the end of the delivery period of the subsequent month.

In order to obtain an assessment of imbalance energy prices in a timely manner, quarter-hour indicative prices are calculated daily for the day preceding the delivery day for which all already available data are used.

The calculation of the imbalance energy price and of the indicative price per quarter-hour is explained below: The formula for the calculation of the clearing price is:

$$P_{Clearing,t} = P_{Basis,t} \begin{Bmatrix} + \\ - \end{Bmatrix} \min\left(U_{min} + \frac{U_{max} - U_{min}}{V_{max}^2} \cdot V_t^2, U_{max}\right) \begin{matrix} in\ case\ V_t > 0 \\ in\ case\ V_t < 0 \end{matrix}$$

where

$$P_{Basis,t} = \begin{matrix} \max(P_{EXAA,t}, P_{TRL,t})\ in\ case\ V_t > 0 \\ \min(P_{EXAA,t}, P_{TRL,t})\ in\ case\ V_t < 0 \end{matrix}$$

with $P_{EXAA,t}$, being the price on EXAA for the hourly product, which contains the quarter hour t, and, $P_{TRL,t}$, being the volume-weighted mean of the call price for tertiary balancing (see description of the price model for more details).

$P_{EXAA,t}$ is known to the Balance Group Coordinator (APCS) already on the preceding day, $P_{TRL,t}$ is known on the subsequent day of validity. $U_{min} = 3\ €/MWh$ and $V_{max} = 75\ MWh$ are fixed parameters and V_t is the state of imbalance of the control area ($V_t > 0$ means the control area is undersupplied), which is also approximately known just after it occurs [1].

The only parameter still unknown on the subsequent day is U_{max}, which depends on the monthly costs for secondary and tertiary balancing and for unintentional power exchange. U_{max} is selected as far as possible by the clearing algorithm within the limits $U_{max,MIN} =$

[1] The state of imbalance of the system ascertained and published by APG is not identical with the state of imbalance relating to clearing (which at present can only be calculated at clearing) as the cross-border unintentional exchange is not considered in an identical manner.

$40\ €/MWh$ and $U_{max,MAX} = 200\ €/MWh$ in such a manner that 80% of the costs allocated via the Balance Group Coordinator (APCS) are redeemed by the imbalance energy prices.

Therefore, it is possible to predict a price range for the imbalance price (see Figure 2). This range is – due to the quadratic form of the equation – for the smaller amounts V_t relatively small, and in the case of very large V_t may have a maximum width of $U_{max,MAX} - U_{max,MIN} = 160\ €/MWh$.

For the **calculation of the indicative price to valuate the open position**, U_{max} is assumed as the mean value derived from $U_{max,s}$ values in the last three 1st clearings.

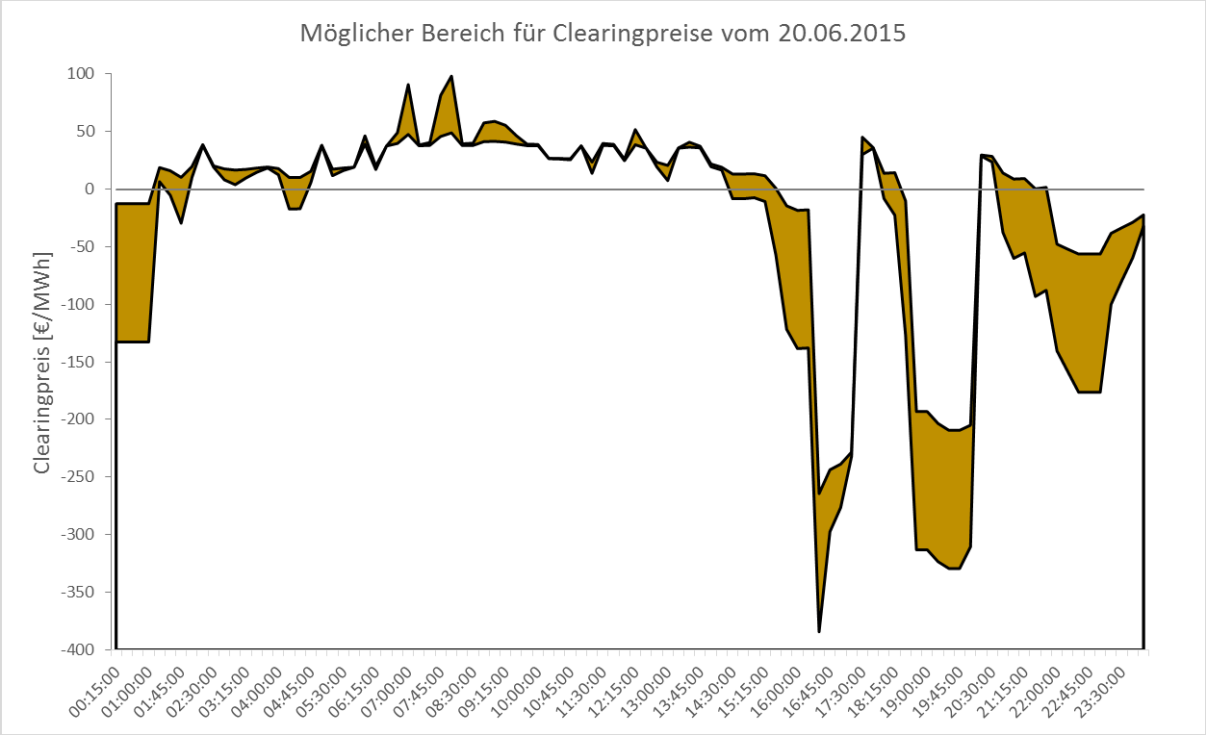

Figure 2: Indicative price range

The actual prices (except for possible errors in the Delta control area, etc.) are within the range highlighted in color. The range was calculated based on parameters of Umax = 200 and Umax = 40.

Annex 2 Open Positions Calculation & Replacement Value Method

When determining open positions, a differentiation must be made between balance groups with metering value components and balance groups without metering value components. For those balance groups that have metering value components, the replacement value method is applied, as at the time of valuation the metering values are not yet available. For balance groups without metering components, the open position can be calculated simply as the schedule balance (buy – sell).

Balance groups with metering value components

The method for determining the open positions for balance groups with metering value components is described in four steps:

Step 1: Replacement value method

The basic concept for the replacement value method is based on the monthly calculation of confidence intervals $I_{V-E} = [a, b]$ per balance group based on the historic ¼-hour metering value balance of the balance group.

$$\text{Metering value balance } (S_M) = \text{ Consumption } (C) - \text{Production (P)}$$

The calculation is done using the metering value data of the last 12 months cleared. This means, for example, that the confidence interval to be applied in July 2015 will be calculated on the basis of the metering values from April 2014 to May 2015.

To account for weekday effects, the quantile calculation was refined further and the quantile is calculated per type of day. The types of days are defined as workdays (WT) and weekend (WE), with holidays being defined as type WE.

The limits of the intervals per type of day $I_{V-E}^{WT} = [a_{WT}, b_{WT}]$ and $I_{V-E}^{WE} = [a_{WE}, b_{WE}]$ are thus determined as follows

$a_{WT} = 5\%$-quantile of the ¼-hour metering value balance of the workdays of the last 12 months cleared

$b_{WT} = 95\%$-quantile of the ¼-hour metering value balance of the workdays of the last 12 months cleared

a_{WE} = 5%-quantile of the ¼-hour metering value balance of the weekends of the last 12 months cleared

b_{WE} = 95%-quantile of ¼-hour metering value balance of the weekends of the last 12 months cleared.

To illustrate this, the 5% quantile and the 95% quantile per type of day of a fictitious balance group is depicted in red. The metering value balance of the balance group is depicted in blue on the basis of which the quantiles were calculated.

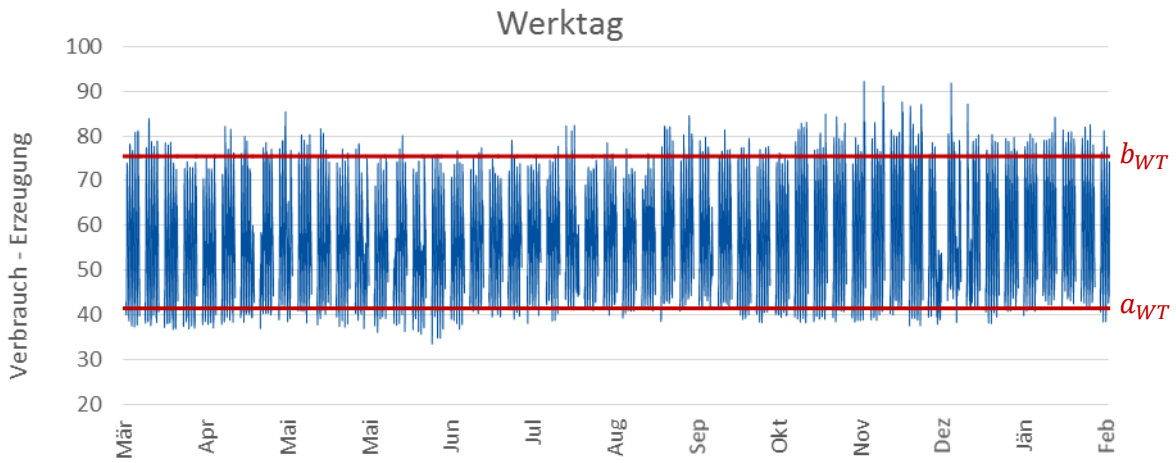

Figure 3: Confidence interval for the day type workday

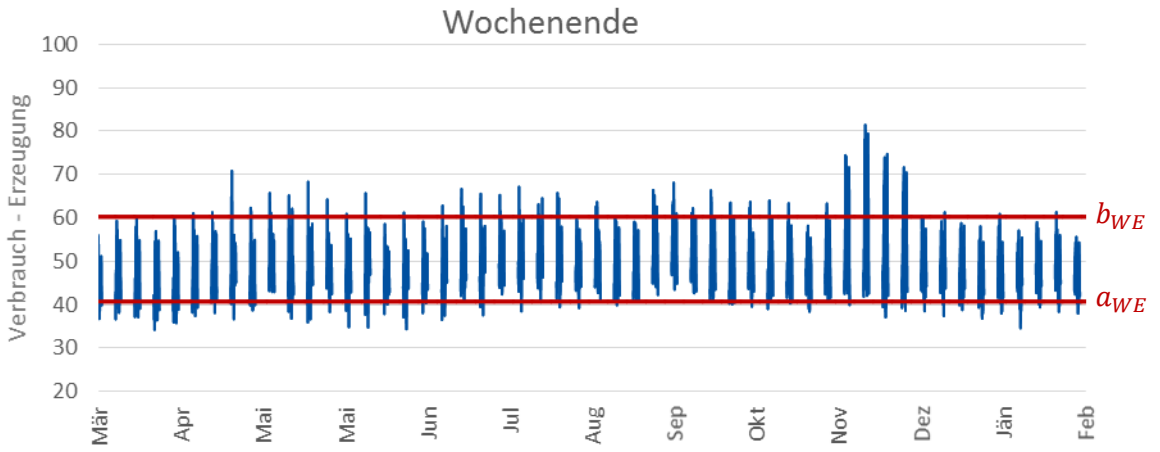

Figure 4: Confidence interval for day type weekend

5% of the values are below the lower limit and 5% of the values are above the upper limit.

Step 2: Open Positions

A balance group has an open position when the ¼-hour schedule balance

$$\text{Schedule balance } (S_{FP}) = \text{Schedule buy} - \text{Schedule sell}$$

is outside of the confidence band. The open position is defined as the difference to the next closest interval limit. This means that an open position in a ¼-hour can be described as follows

$$\text{open position} = \begin{cases} S_{FP} - a, S_{FP} < a \\ b - S_{FP}, S_{FP} > b, \end{cases}$$

with a being the lower limit and b the upper limit of the confidence band.

As an illustration, the open positions shown here (red shading) represent a fictitious pure consumption balance group that covers its consumption (production=0) via scheduled buying. For the sake of simplicity, the confidence band, indicated by the black broken lines, does not differentiate here between weekend and workdays. You can see that all schedules outside the bands are declared to be open positions.

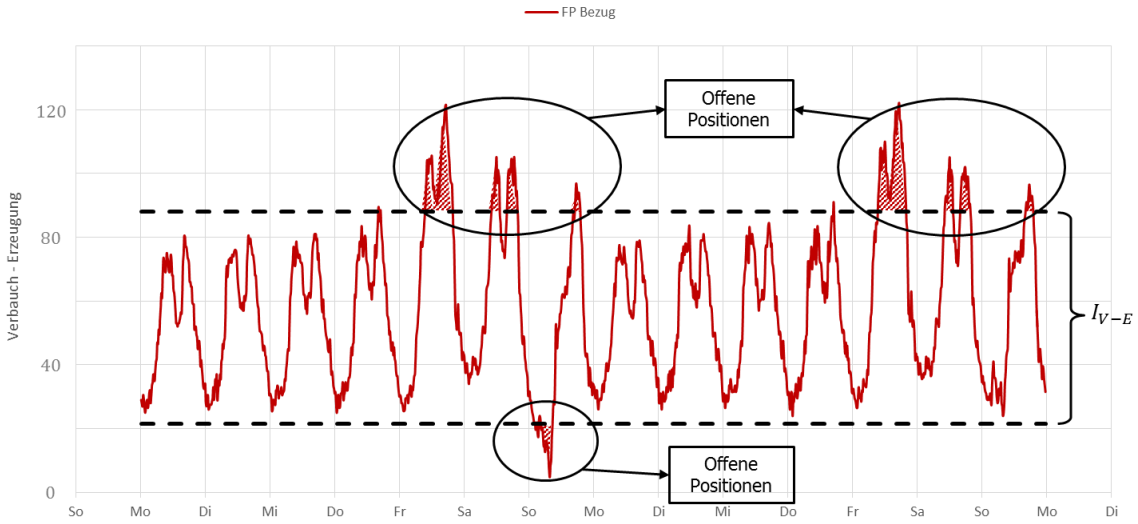

Figure 5: Determining open positions using confidence intervals

Step 3: Valuation of open positions

In order to obtain a valuation of the open positions, the open positions per ¼-hour are multiplied by a valuation price, aggregated over the valuation period (see Ad 2.3) and additionally weighted. As the valuation price may be either positive or negative, this generates costs and revenues. Hereinafter, we refer to the valuation day by D. The open positions assessed can now be displayed as follows

$$\text{Valuation of open position} =$$
$$\Sigma \text{ costs until (D} - 2) - \Sigma \text{ proceeds until (D} - 2)$$
$$+ 4 * \Sigma \text{ costs } (D - 1) - \Sigma \text{ proceeds (D} - 1)$$
$$+ \Sigma \text{ costs (D)},$$

with Σ costs (D) designating the sum of the costs of day D and Σ costs until (D − 2) designating the sum of all costs from the start of the valuation period until and including day (D-2).

The formula above calculates the costs and proceeds (D-1) using indicative prices (see Annex 1) and assesses the open positions on day D using $\max(3 * EXAA_{hourly}, 75)$. On day D, all open positions are assessed as costs in order to account for the uncertainty of not knowing if the imbalance energy prices are positive or negative.

The weighting factor 4 applied to the costs of the preceding day of the valuation day covers the uncertainty that a balance group may submit schedules as of Friday for Monday (four days). This means that the costs of the day (D-1) are carried forward to the next four days.

Step 4: Utilization of the Collateral

The open positions assessed are compared at the end of the procedure with the collateral deposited and a percentage of utilization of the collateral is determined, this means

$$\text{Utilization of collateral (\%)} = \frac{\text{valuation open positions}}{\text{collateral deposited}} * 100$$

Balance groups without metering value components

For the balance groups without metering value components, the procedure for determining the open positions is described in three steps:

Step 1: Open Positions

A balance group without metering values has an open position when the ¼-hour schedule balance

$$\text{Schedule balance } (S_{FP}) = \text{Schedule buy} - \text{Schedule sell } \neq 0.$$

Therefore

$$\text{open position} = S_{FP}.$$

Step 2: Valuation of open positions

The same as in Step 3 for balance groups with metering value components.

Step 3: Utilization of the Collateral

The same as in Step 4 for balance groups with metering value components.

Diagram of the overall concept

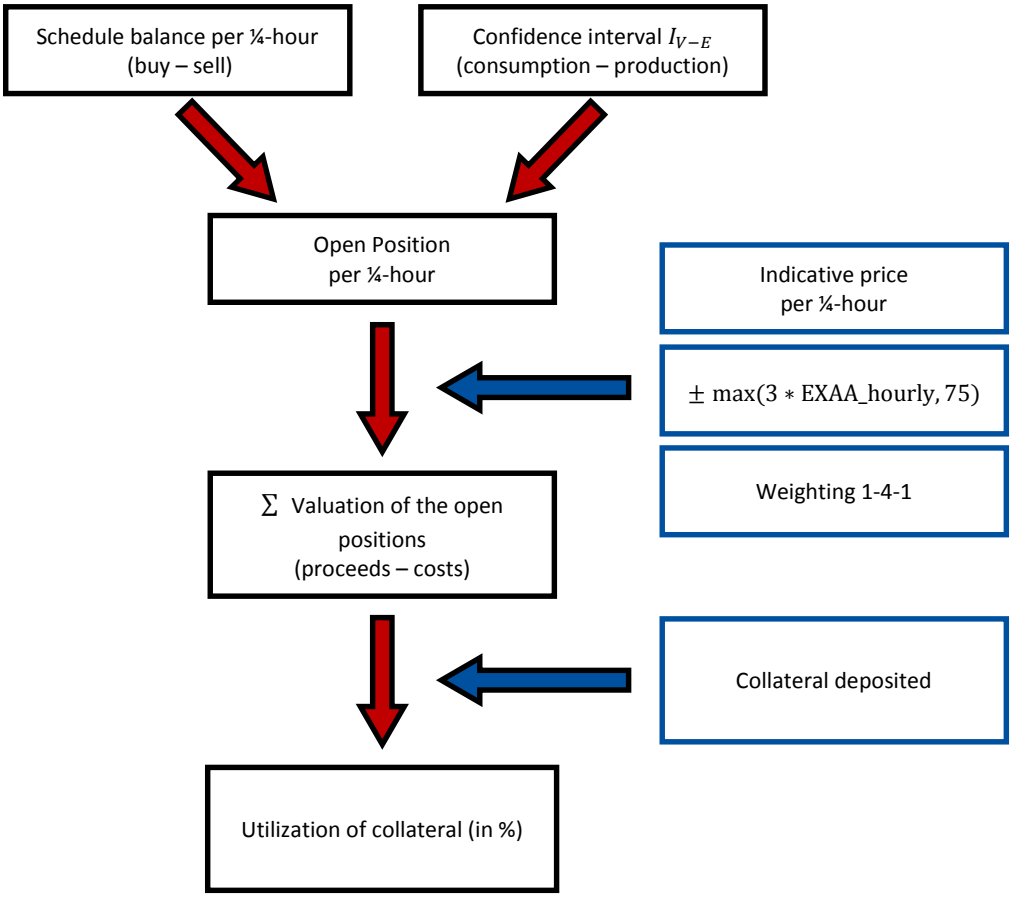

Figure 6: Diagram – Determining open positions

List of Abbreviations

Abbreviations	**Meaning**
BG	Balance Group
BGR	Balance Group Representative
BGC	Balance Group Coordinator