



Consultation Paper

Options for Handling Long-Term Consumption Adjustments in the Wholesale SEM

16 May 2007

AIP/SEM/07/186

1 Introduction

1.1 Background

On 30 March 2007, the Regulatory Authorities published version 1.3 of the Trading & Settlement Code (the “Code”) detailing the operation of the Single Electricity Market (SEM). The Single Electricity Market (SEM) requires the provision of wholesale-aggregated metered data under new challenging timeframes for price setting and market settlement. This work involves the interaction with developing retail market designs in both jurisdictions, governed under a project known as SIMDRACS (SEM Implementation of Metered Data Reading, Aggregation, Communication and Storage).

The Code is silent on the handling of consumption adjustments of meter data that do not get communicated via the standard Metered Data Provider to Single Market Operator (SMO) channels, yet must be accounted for in wholesale settlement. The requirement to make adjustments can arise, for example, through meter faults or tampering or, in certain circumstances, from actual readings received after the last settlement run.

1.2 Executive Summary

The purpose of this consultation paper is to seek comment on a series of recommendations for both short-term (under the context of a design freeze of central market systems) and long-term enduring design options of how both pre- and post-13 months consumption adjustments can be captured and settled in a pragmatic manner in the SEM.

This consultation paper proposes:

- A manual business-process to be put in place for SEM go-live to handle consumption adjustments, leveraging existing systems, processes and publications where possible but not impacting system build of neither the SMO nor the Meter Data Providers (MDPs);
- That there will be an Outside Settlement Determination performed by the SMO under certain circumstances where Meter Data is not ever, or not yet updated through the formal SMO-MDP communication channels;

- That this manual process becomes the enduring solution;
- That the resulting design for the settlement of consumption adjustment be drafted as a working practice, until the Modifications Committee can formally consider it as a change request to the Code and associated Agreed Procedures.

1.3 Scope

The scope of this consultation paper is confined to the identification of design options for the settlement rectification of pre- and post-13 month consumption errors.

Transmission Use of System (TUoS), Distribution Use of System (DUoS) and customer billing adjustments required as a result of consumption errors are out of scope.

1.4 Consultation Process

The Regulatory Authorities request comments from interested parties on the nature of the consumption adjustment design both for SEM go-live and on an enduring basis. Alternative proposals contrary to the recommended design are welcomed within the context of the principles and assumptions contained within the paper. The Regulatory Authorities intend to publish all comments received - those respondents wishing for certain sections of their submission to remain confidential should submit the relevant sections in an appendix marked confidential. Comments on this paper should be forwarded to Hugh Mullany, preferably in electronic form by 5.00pm on the 25th June 2007:

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2 Objectives, Assumptions and Definitions

2.1 Objectives

The objectives are – in order of priority - to:

- deliver a cost effective and robust method of
 - determining that an error warrants a consumption adjustment
 - processing consumption adjustments – resulting in appropriate payment adjustments;
- provide a solution that can be in place by 1st November 2007, minimising the impact on MDPs and the SMO;

Long term solutions are not constrained by the second objective. Should a long-term solution not meet both objectives, short term options will also be required – albeit that they might not meet the first objective to the same extent.

2.2 Assumptions

Key assumptions that underpin this consultation paper are:

- the data query process already described in the Code handles errors discovered during the Data Validation Period on single Settlement Statements;
- consumption adjustments will never require system prices to be re-calculated;
- consumption adjustments for NIE Supply (in Northern Ireland) and ESB Customer Supply (in the Republic of Ireland) as registrants of the Error Supplier Units are out of scope as their volumes are determined through differencing; any corrected error in individual meter reads for NIE Supply or ESB Customer Supply represent a reduction in the difference between these supplier's retail and wholesale positions;

- volumes for NIE Supply (in Northern Ireland) and ESB Customer Supply (in the Republic of Ireland) are determined from loss adjusted generation volumes less loss adjusted volumes for other suppliers. Consequently – NIE Supply is the counter party to any consumption adjustment in Northern Ireland and ESB Customer Supply is in the Republic of Ireland;
- DUoS, TUoS and customer billing will be robust to manual business processes which inform wholesale consumption adjustments.

Comments are welcome from respondents on the appropriateness of these key assumptions.

2.3 Definitions

2.3.1 Consumption Adjustments

Consumption Adjustments refer to the energy adjustments in meter data necessary because of errors in consumption data that would not (ordinarily) be rectified through MDP aggregation and subsequent SEM settlement under Standard Settlement Processes. Such errors can arise through:

- illegal abstraction; both pre- and post-13 months;
- meter faults; both pre- and post-13 months; and
- actual readings replacing estimates; post-13 months only.

The Consumption Adjustment process refers to the process of examining the level of required energy adjustment, the method of settlement of these errors, which may include Standard Settlement Processes, Outside Settlement Determinations, or potentially, both.

2.3.2 Standard Settlement Processes

Standard Settlement Processes refer to the Initial Settlement, and the M+4 and M+13 Resettlements, and ad hoc Settlements defined in Section 6 of the Code. Any energy

adjustments run through Standard Settlement Processes must be reflected in the Meter Data values provided to the SMO by the MDP under Agreed Procedure 16 of the Code.

2.3.3 Outside Settlement Determination

An Outside Settlement Determination is a calculation performed outside of the settlement systems and processes (usually using simple office tools such as spreadsheets) that is designed to achieve approximately the same cash flows as a settlement run based on correct data would. The adjusted energy requiring an Outside Settlement Determination normally would not be included in the Meter Data values provided to the SMO by the MDP under Agreed Procedure 16 of the Code.

3 Existing Consumption Adjustment Processes

All four MDPs currently have processes for dealing with consumption adjustments. In order that any solution has a minimum impact on them, it is desirable to utilise these processes if at all possible. The following sections describe the processes that are currently in place.

3.1 Retail Market Operators

3.1.1 ESB Networks

ESB Networks currently use the consumption adjustment method specified in Modification PM185 for errors within the 13th month settlement window and Modification PM179 for errors outside this window.

3.1.1.1 PM185

Consumption Adjustments within the settlement window (13 months) are treated as follows:

- Half yearly, ESB Networks provide the Settlement System Administrator (SSA) with details of consumption differences with distribution losses applied. This is communicated via email in an excel attachment with a copy being sent to the Supplier.
- The SSA price this energy using Supplier Misallocated Amount (SMAM) pricing methodology, which is based on a single (weighted) price applied to all energy for a particular month.

3.1.1.2 PM179

Settlement Differences outside the settlement window (13 months) are treated as follows:

- In the event of there being single individual errors greater than 40,000 kWh for quarter hourly sites and / or consumption adjustments on non quarter hourly sites, the SSA is advised of the error and they proceed with manual settlement of these amounts.
- Six Months after final non quarter hourly read site re-aggregation for a particular month (i.e. M+19) ESB Networks reviews all subsequent differences. Where the aggregate difference is greater than 30,000 kWh for a Supplier, the SSA is advised of this and proceeds with manual settlement for the difference.
- The data with distribution losses applied is provided by ESB Networks to the SSA via an email and excel attachment with a copy being sent to the relevant Supplier
- The SSA prices this energy using a Supplier Misallocated Amount (SMAM) pricing methodology, which is based on a single (weighted) price per month.

3.1.2 NIE T&D

The error volume is identified and agreed with the customer by the Revenue Protection Unit (RPU) on the Supplier's behalf. A single volume rather than a series of different volumes over specific time-periods is agreed. Agreement can be within 13 months but is usually outside this timeframe.

The agreed volume adjustments are fed into settlements by the Power Procurement Business.

3.2 System Operators

3.2.1 EirGrid

EirGrid employ a similar process as that described above for ESB Networks.

It is highly unlikely that System Operators will require a Post 13 Month Adjustment process.

3.2.2 SONI

All incidences of volume error within SONI's responsibility have been corrected within 13-months through standard substitution techniques within the 13 month settlement timeframe.

It is highly unlikely that System Operators will require a Post 13 Month Adjustment process.

4 Consumption Adjustment Considerations

The following section considers options in relation to matters that are relevant to the design of a Consumption Adjustment solution. In each case a preferred option is suggested and the rationale provided.

Comments are welcome from respondents on all elements of these considerations.

4.1 Process and Responsibilities

The following principles of process and responsibility underpin the Consumption Adjustment Process:

- All queries from Participants (or Parties) on Meter Data will be sent in the first instance to the SMO. Therefore, the Consumption Adjustment Process is intrinsically a method for correction of wholesale volumes, even though the individual errors may be on a meter level.
- MDPs shall notify the SMO on discovery of an error.
- It is assumed that the Data Query Process and the Settlement Query Process as described in Section 6 of the Code and Agreed Procedure 13 will endure, being used for large errors identifiable on single Settlement Statements.
- The MDPs will calculate changes in Meter Data. It is the SMO's responsibility to calculate the materiality of these errors, i.e. to apply System Marginal Prices to the errors to determine the materiality of the error.

4.2 Materiality

Any process required to rectify an error (an ad hoc Settlement Rerun under Standard Settlement Processes, or an Outside Settlement Determination) has an additional cost associated with it. Furthermore, many small independent errors are to be expected across the market when there are many customers. It is not practical or cost effective to

attempt to resolve every error. Consequently, it is suggested that Consumption Adjustment will only trigger Outside Settlement Determinations (or in rare events ad hoc Settlement Reruns) if errors are in excess of a specified Materiality Threshold (MT) for a single Participant. Furthermore, it is suggested that, for consistency, the threshold be the same as that for a Dispute, this threshold currently being €50,000 (or sterling equivalent).

4.3 Individual Error / Multiple Errors

As described above many small independent errors are to be expected across the market when there are many customers. Consequently, it is suggested that the Consumption Adjustment process will maintain a record of, and aggregate all non-material errors, until the MT is breached for a single Participant and an Outside Settlement Determination is required. Therefore the Consumption Adjustment process will process individual errors, and will resolve cumulatively material consumption adjustments (that have not been determined to be captured in Standard Settlement Processes) with a single Outside Settlement Determination.

4.4 Interval Metering / Advance Metering

The impact of an error in a Supplier's or Generator's wholesale volume is independent of the related measurement equipment. Specifically, the impact is independent of whether the error relates to interval metering or advance metering. Consequently, it is suggested that the applicability of Consumption Adjustment be equitable for interval and advance metering.

4.5 Decision Making and Appeals Process

The overhead of having a committee to consider and rule on each case of Consumption Adjustment would be significant. Consequently, it is suggested that the process be embodied in rules that MDPs and the SMO are required to follow in much the same way that they are required to follow other rules under the SEM, and that these be included in Agreed Procedure 13.

For the same reason, it is also suggested that there is no dedicated Appeals body – and that Participants who disagree with the processing of their Consumption Adjustment

pursue the matter through Agreed Procedure 14 as a non compliance in exactly the same way they would if one of the other MDP or SMO rules had not been complied with.

4.6 Rectification of Errors

4.6.1 Error within the 13 Month Settlement Window

Errors within the 13th month settlement window could be rectified using the Standard Settlement Processes. This is attractive in that it minimises the costs and operational overhead of performing ad-hoc settlement re-runs or of rectifying errors outside of the settlement processes. To effect this, MDPs would be required to establish (or deem according to rules) the volume and duration of the error and provide the revised (correct but probably estimated) consumption into the settlement process (SEM) in the usual way via their timetabled data aggregation processes.

This is practical for interval metering where substitution of actual with estimated data is an existing practice when the actual data proves to be incorrect. However, whilst processing of Consumption Adjustments relating to interval data using the Standard Settlement Processes and timetable would have the effect of rectifying the error, it could create significant cash flow issues – particularly for small Participants – as the error would not be fully rectified until the next scheduled settlement re-run of each Settlement Day in the error duration. In extreme cases this could be 9 months (errors detected immediately after the 1st settlement re-run for example). Performing an ad-hoc settlement re-run would address this cash flow issue but the operational overhead would be significant – particularly when the error spanned multiple Settlement Days, as they often do.

Processing of Consumption Adjustments relating to advance data using the Standard Settlement Processes is not practical for several reasons. Firstly, unlike interval metering, the consumption on a given Settlement Day is dependent on previous readings and subsequent readings as they give rise to the Actual Annualised Consumption (AAC) or the Estimated Annual Consumption (EAC) used in settlement. Consequently adjusting for consumption errors by changing the reading or annualised consumption has undesirable and complex secondary effects. Secondly, multi-register metering would require the error volume to be apportioned across the registers. And

finally, there would be a high risk that the subsequent processing of a reading would have the effect of backing out the consumption adjustment.

Consequently, it is suggested, for advance metering, an Outside Settlement Determination be undertaken to effect all Consumption Adjustments; and that, for interval data, the standard settlement systems and processes are used to effect Consumption Adjustments – unless:

- the MDP cannot feed the correct estimated data into the aggregation process; or
- the cash flow implications for the Participant are unacceptable.

When rectifying an error using the Standard Settlement Processes, it is suggested that MDPs produce estimates of the correct interval data by determining the fraction the total error is of the existing total volume and then applying this fraction to each interval value over the error duration.

It is also suggested that Outside Settlement Determinations be run no more frequently than once a quarter unless the cash flow implications are unacceptable to the Participant.

Cash flow implications should be considered unacceptable for the Participant when all of the following are true:

- the Participant requests an Outside Settlement Determination; and
- the average daily materiality of the error on the Participant multiplied by the Sum of the days wait before the next settlement re-run across each Settlement Day in the error duration is greater than the Cash Flow Impact (CFI) threshold; and
- the total error volume is greater than a threshold Percentage Impact (PI) of the Participant's correct volume over the error duration.

It would be important to ensure that the settlement systems and processes were not updated with the correct consumption when it had been accounted for in an Outside Settlement Determination – otherwise any subsequent settlement re-run would incorrectly implement the adjustment for a second time. If the MDP did update the data,

the payment adjustment in respect of the Outside Settlement Determination would have to be made cash neutral during the next settlement re-run of each Settlement Day in the error period. It is proposed that to avoid the complexity to central market systems that in the event an Outside Settlement Determination is made, that it is prohibited for an MDP to update the central core database that informs future resettlements with the CA.

4.6.2 Errors outside the 13 Month Settlement Window

Errors outside the 13th month settlement window cannot be rectified using the standard settlement process and timetable. Consequently there is always a cost and operational overhead of rectifying them. Performing a post final settlement re-run is likely to result in more accurate settlement but the operation overhead is significant – particularly when errors span multiple Settlement Days, as they often do. An Outside Settlement Determination is likely to be less of an operational overhead and less costly and can more readily be applied to errors that span multiple Settlement Days.

It is therefore suggested that Outside Settlement Determination is the technique used to address all Consumption Adjustments outside the 13 month settlement window.

Again, it is also suggested that Outside Settlement Determinations be run no more frequently than once a quarter unless the cash flow implications for the Participant are unacceptable.

It is proposed that each Meter Data Provider agrees within its own Jurisdiction with Suppliers, if required at all:

- the levels of material change (in MWh) post 13-months where the MDP should send the errors to the SMO for consideration in the process
- when the errors should be examined post-13 months.

It would be important to ensure that the settlement systems and processes were not updated with the correct consumption when it had been accounted for in an Outside Settlement Determination – otherwise any post final settlement re-run (for example, because of an upheld Dispute) would implement the adjustment for a second time. Again, if the MDP did update the data, the payment adjustment in respect of the Outside Settlement Determination would have to be made cash neutral during the next

settlement re-run of each Settlement Day in the error period. If this did happen - it is suggested that each settlement re-run adjustment takes the form of: the Outside Settlement Determination payment / the number of Settlement Days in the error-period.

4.6.3 Errors Spanning the 13 Month Settlement Window

For errors that span the 13 month settlement window, it is suggested that the part of the error within the 13 month window is rectified in accordance with section 4.6.1 above; and the part of the error outside of the 13 month window is rectified in accordance with section 4.6.2 above). However the assessment of materiality described in section 4.2 would not consider the respective proportions inside and outside the 13 month settlement window.

4.7 Payment and Payment Redistribution Calculations

Errors rectified using a settlement run (whether it be one in accordance with the settlement timetable or an ad-hoc run) would naturally result in standard settlement calculations, payment notification and payment transactions.

Outside Settlement Determinations will require rules for determining the materiality and duration of the volume error. It is suggested that MDPs be authorised to determine on the volume and duration of the errors based on information provided by Participants, Revenue Protection Units, the outcome of any legal proceedings and application of average distribution / transmission losses (as appropriate).

Furthermore it is suggested that the Materiality (MT) be determined from this volume and duration and system prices in accordance with a calculation performed by the SMO. This calculation will be based against a simple average of the SMP in each Trading Period over each month, applied to the volume error in each particular month.

It is suggested that the SMO notifies affected Participants and utilises existing finance and payment processes to effect transactions – possibly including the SMO's facility to manually place additional line items on invoices.

4.8 Transition

It is inevitable that some errors will span Settlement Days pre and post SEM. Post SEM, it is suggested that the entire error is considered (pre and post SEM) for the purposes of determining the materiality (see section 4.2) but that only post SEM Settlement Days are subject to rectification (under the SEM arrangements) in accordance with section 4.6; and pre-SEM Settlement Days are subject to the pre-SEM arrangements.

4.9 Audit and Control

It is important that the process of Consumption Adjustments is controlled and auditable. It is therefore suggested that control features – such as the allocation of a Consumption Adjustment Reference Number; standard forms and sign off processes; audit trail; and record retention requirements as required under the Code – all be considered in the governance documentation associated with the process.

4.10 Communications

In order to provide for a simple process, it is suggested that, when utilising Standard Settlement Processes, the standard communication method associated with this process be used; and when utilising bespoke processes, email communications, supported by fax in line with the Code transitional arrangements are used.

4.11 Governance

The rules associated with Consumption Adjustment should be embodied within the Trading and Settlement Code or within an Agreed Procedure subsidiary document. It is suggested that they are placed within the subsidiary documents wherever possible. Prior to market go-live, it is proposed that the outcomes of this consultation are formed into a working practice document for consideration of the Modifications Committee post market go-live. Consequently, given the timescales for the formalisation of this process, this will not be tested during market trial.

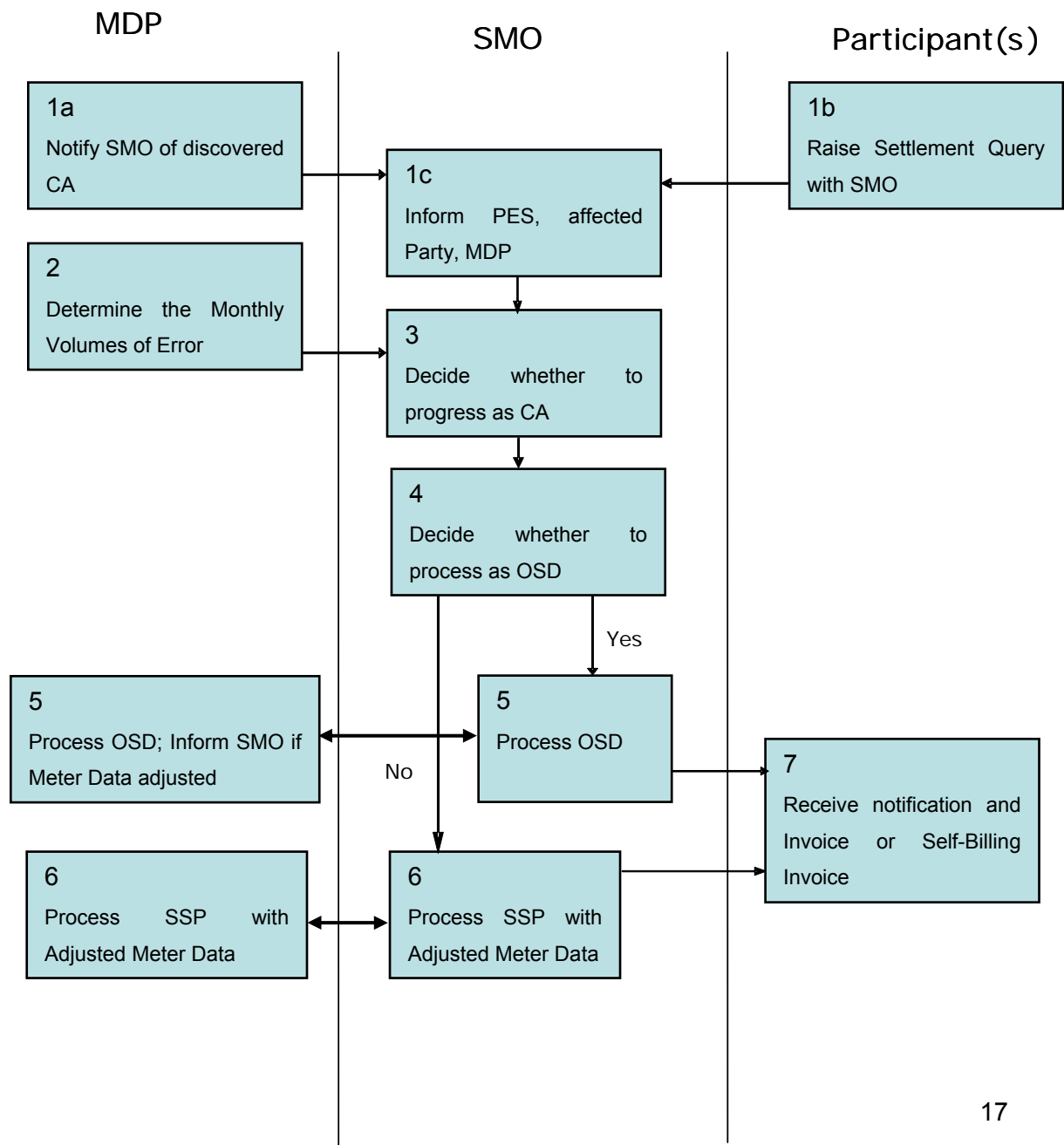
5 Design Options

5.1 Base Option

The following sub-sections document the Base Option which is drawn from section 4.

Comments are welcome from respondents on all elements of this design based on the Base Option from section 4.

5.1.1 Process Diagram



5.1.2 Process Description

5.1.2.1 1a – Notify SMO of CA

The MDP discovers or becomes aware of a CA in Meter Data exists and informs the SMO through a manual communication to the Help Desk.

5.1.2.2 1b – Raise Settlement Query with SMO

The Participant(s) raises a Settlement Query against several Settlement Statements covering the period over which the CA relates. This Settlement Query will be raised manually with the Help Desk. The Participant advises the SMO whether they want the adjustment progressed via an ad-hoc Outside Settlement Determination because of cash flow implications.

5.1.2.3 1c – Inform PES, Affected Party, MDP

If the SMO is informed of the existence of the CA from the MDP (1a), the SMO informs the affected Participant and the PES in that Jurisdiction. If the SMO is informed of the CA from the Participant (1b), the SMO informs the appropriate MDP and PES in that Jurisdiction. Note that the SMO will handle the processing of how and when CAs will be processed through settlement.

5.1.2.4 2 – Determine the Monthly Volumes of Error

The MDP deems the volume and duration of the error based upon information from the Participant(s), their own Revenue Protection Unit (or equivalent) if applicable, the outcome of any legal proceedings, and average distribution / transmission losses (as appropriate). The MDP manually notifies the SMO and relevant Participants of the potential Consumption Adjustment. The Consumption Adjustment takes the form of a series of monthly errors in MWh, along with a start date and an end date for the errors. The MDP will provide this information in the form of a spreadsheet, and the MDP will maintain a log of all such spreadsheets for audit purposes.

5.1.2.5 3 – Decide Whether to Progress as Consumption Adjustment

The SMO determines whether the value of the potential Consumption Adjustment exceeds the Materiality Threshold (€50k or Sterling equivalent) for progression (in accordance with the calculation in section A.1) and advises the MDP and relevant Participants. If it does, the SMO proceeds to the next step. If it does not, the SMO records the value of the potential Consumption Adjustment to a historical register of all other Consumption Adjustments that have not yet been processed. If the total cash value of this historical register exceeds the Materiality Threshold, the SMO proceeds to the next step. If it does not, stop the process, informing the MDP, the PES, and the affected Parties.

5.1.2.6 4 – Decide Whether to Process as Outside Settlement Determination

If the Participant has advised that they want the adjustment progressed via an ad-hoc Outside Settlement Determination because of cash flow implications, the SMO determines whether it meets the criteria for progressing in this way (i.e. CFI threshold and PI threshold exceeded). The MDP notifies the SMO and Participants of the rectification means (Standard Settlement Processes or Outside Settlement Determination) by a manual communication. The SMO should also take into account any historical errors which did not reach

The Participant(s) provides facts relating to the Consumption Adjustment claim to the MDP via email. The Participant advises the MDP whether they want the adjustment progressed via an ad-hoc Outside Settlement Determination because of cash flow implications.

5.1.2.7 5 – Process Outside Settlement Determination (OSD)

In the event that the Consumption Adjustment is being effected by an Outside Settlement Determination, this will be processed by the addition of the relevant payment adjustments to the invoices or self-billing invoices of Participant(s). The Outside Settlement Determination will take into account all errors in the event it is being carried out due to the summation of the historical errors crossing the relevant materiality thresholds.

The Outside Consumption Adjustment value is the multiple of each monthly error multiplied simple average of the SMP in each Trading Period in that month.

In the event of an Outside Consumption Adjustment, it is proposed that the MDP is prohibited from adjusting the metered data in line with the CA in advance of the last settlement re-run for Settlement Days. Otherwise, the SMO would be required to negate the effect of the Outside Settlement Determination by making the necessary adjustments to the invoices for resettlements that naturally rectify the Consumption Adjustment for these Settlement Days. The magnitude of the adjustment for each such Settlement Day would be the negative of the Settlement Determination payment divided by the number of Settlement Days in the error duration.¹

5.1.2.8 6 – Process Standard Settlement Process with Adjusted Metered Data

If the decision was to effect the Consumption Adjustment using the Standard Settlement Processes and timetable, the MDP estimates the correct consumption. This is done by adjusting all interval data over the error duration by the factor given by the total error volume divided by total pre-existing volumes between the start and end of the CA.

The MDP provides the Meter Data for the appropriate Settlement Days under the timelines indicated in Agreed Procedure 16.

The SMO will settle the Participant's updated data under the standard Settlement Timetable. Participant's In the event that the Consumption Adjustment is being effected using the Standard Settlement Processes and timetable, this will not require any special processing and will simply be settlement of the relevant Settlement Days.

5.1.2.9 7 – Receive notification and Invoice or Self-Billing Invoice

The Participants receive their adjustment invoices along with the supporting information.

In the event that the Consumption Adjustment is being effected using the Standard Settlement Processes and timetable, this will be a normal settlement invoice.

¹ The use of the simple-average of SMP would ensure that in the event that meter data is corrected and resettled for all days during the CA, the Participant will be revenue neutral.

In the event that the Consumption Adjustment is being effected by an Outside Settlement Determination, this may be an additional line item on a settlement invoice or a separate invoice or self-billing invoice raised by the Market Operator.

The Participants make / receive the payments in relation to their invoice.

5.1.3 Rules

5.1.3.1 Rectification

Consumption Adjustments in relation to errors associated with advance metering should always be rectified using an Outside Settlement Determination.

Errors (or part of errors) inside the 13 month settlement window that are associated with interval metering should normally be rectified using the Standard Settlement Processes and timetable.

The exception to this is if:

- the MDP cannot feed the correct estimated data into the aggregation process; or
- the cash flow implications are unacceptable to the Participant.

In these circumstances the errors (or part of errors) inside the 13 month settlement window that are associated with interval metering should be rectified using an Outside Settlement Determination.

Errors (or part of errors) outside the 13 month settlement window that are associated with interval metering should be rectified using an Outside Settlement Determination.

Outside Settlement Determinations should be run no more frequently than once a quarter unless the cash flow implications for the Participant are unacceptable.

Cash flow implications should be considered unacceptable for the Participant when all of the following are true:

- the Participant requests an Outside Settlement Determination; and

- the average daily materiality of the error on the Participant multiplied by the Sum of the days wait before the next settlement re-run across each Settlement Day in the error duration is greater than the Cash Flow Impact (CFI) threshold (see Appendix A.2); and
- the total error volume is greater than a threshold Percentage Impact (PI) of the Participant's correct volume over the error duration.
 - The Cash Flow Impact (CFI) threshold should be 10,000,000 € days.
 - The Percentage Impact (PI) threshold should be 5%.

5.1.3.2 Audit and Control

All parties involved in Consumption Adjustment processes must keep a full audit trail of their participation. Furthermore, they must ensure that the processes are undertaken diligently and that decisions are made impartially and are in the spirit of achieving just rectification. Sign off of processes must be by a suitably authorised senior manager.

5.1.3.3 Transition

When establishing the materiality of the error, the entire duration of the error should be considered (pre and post SEM). Only post SEM Settlement Days should be subject to Consumption Adjustment rectification (under the SEM arrangements).

5.1.4 Governance

The processes and rules associated with Consumption Adjustment should be documented in Agreed Procedure 13 (Query Generation).

Participants who disagree with the processing of their Consumption Adjustment should pursue the matter as a non compliance through Agreed Procedure 14 (Disputes).

The inclusion of this process into Agreed Procedure 13 would need careful delineation as to when a participant would raise a Settlement Query or utilise the Consumption Adjustment process.

5.2 Alternatives

5.2.1 Thresholds

Alternatives to the following thresholds could be considered:

- Materiality Threshold (MT) of €50,000;
- Cash Flow Impact (CFI) of 10,000,000 € days;
- Percentage Impact (PI) of 5%.

5.2.2 Calculations

One could consider only related errors at one time for the purposes of Consumption Adjustment materiality calculations, i.e. removing the process whereby a log of unsettled consumption adjustments are included in the process.

In addition, alternative algorithms for the following parameters detailed in sections A.1 and A.2 could be considered:

- Materiality (M) – possibly applying a standard half hourly shape to the error volume and multiplying this by relevant half hourly System Marginal Prices;
- Monthly Price (MP) – possibly dispensing with the concept of a monthly price in its entirety and instead using half hourly prices;
- Cash Flow Impact (CFI) possibly dispensing with the concept of cash flow impact in its entirety.

5.2.3 Rectification

Given that an Outside Settlement Determination capability is required for errors associated with advance metering and interval metering alike, one could consider always using this as the basis of rectification and never correcting the data for use in settlement re-runs. This would be less accurate and would leave incorrect settlement data in place but would mean that MDPs did not have to estimate the correct data. Broadly speaking, as the development work has gone into the creation of automated

systems, a process which intends to circumnavigate those systems would need to be strongly justified.

5.2.4 Schedule

One could consider alternative frequencies to quarterly for Outside Settlement Determinations. If they are run more frequently the cash flow implications on Participants are reduced, but the administrative burden of conducting the processes increases; if they are run less frequently the extent to which Consumption Adjustments can be batched for rectification purposes is increased.

5.2.5 Determination and Governance

One could consider a Disputes Committee hearing Consumption Adjustment cases and administering the process on principles and precedence rather than the SMO making determinations according to rules. The advantage would be that the treatment of Consumption Adjustments would be on a case by case basis; the disadvantage would be that it would be overly bureaucratic and would place an unacceptable burden on this committee.

6 Recommendation

It is recommended that, subject to consultation responses and costs, the base options be selected for the day 1 (short term) and enduring (long term) solution.

Comments are welcome from respondents on all elements of this overall recommendation.

A APPENDIX A – CALCULATIONS

A.1 Materiality

The objective of the materiality calculation is to approximate the materiality associated with the error. It is determined as the sum over months containing the error of: the error volume in the month * demand weighted average System Marginal Price in the month.

The algorithm is:

$$M = \sum_{m=i}^j \text{MEV}_m * \text{MP}_m$$

Where:

- M is the materiality associated with the error;
- MEV is the line loss adjusted error volume in month m;
- i is the first month with the error;
- j is the last month with the error;
- MP is the monthly price calculated as:

$$\text{MP}_m = \text{Avg} \left(\frac{\sum_{h=a}^b \text{SMP}_h * \text{TG}_h}{\sum_{h=a}^b \text{TG}_h} \right)$$

- SMP is the System Marginal Price for half hour h;
- TG is the total generation for half hour h;

- a is the first half hour in month m;
- b is the last half hour in month m.

A.2 Cash Flow Impact

The objective of the cash flow calculation is to quantify, in relative terms, the cash flow impact on a Participant of waiting until: the next settlement re-run of each Settlement Day in the error duration to correct the error; or the next scheduled Outside Settlement Determination to correct the error (as appropriate).

The algorithm is:

$$CFI = \sum_{d=a}^b ADM * WD_d$$

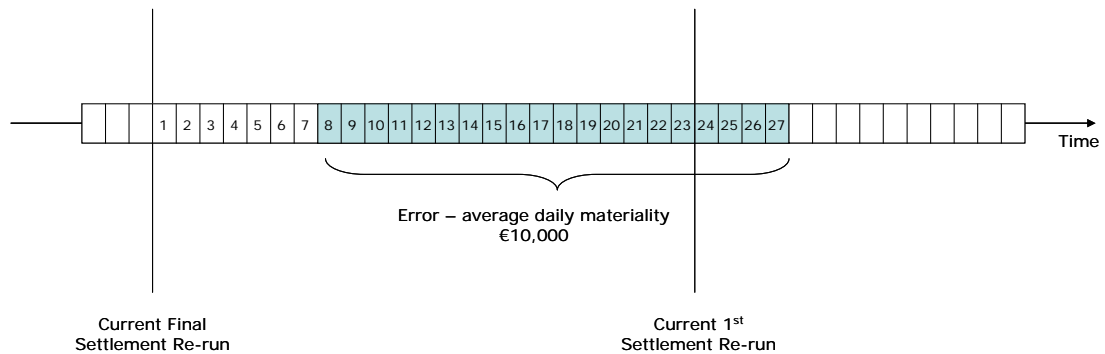
Where:

- CFI is the relative quantification of the cash flow impact;
- ADM is the average daily materiality in the error duration;
- WD (“wait days”) is:
 - the number of days before Settlement Day d is subject to its next settlement re-run (in the case of Consumption Adjustment errors associated with interval metering inside the 13 month settlement window);
 - the number of days before the next scheduled Outside Settlement Determination dues to take place (in the case of Consumption Adjustment errors associated with interval metering outside the 13 month settlement window and all errors associated with advance metering);
- d is the Settlement Day;
- a is the first Settlement Day in the error duration;

- b is the last Settlement Day in the error duration.

The diagram below shows a compressed settlement timetable by way of an example. Blue cells show where the error exists and the average daily materiality is €10,000.

Settlement Day 8 has to wait 8 days for its next settlement re-run, which happens to be the final settlement re-run; Settlement Day 9 has to wait 9 days and so on up to Settlement Day 23 that has to wait 23 days. Settlement Day 24 however has to wait 1 day for its next settlement re-run, which happens to be the 1st settlement re-run; Settlement Day 25 has to wait 2 days and so on up to Settlement Day 27 that has to wait 4 days.



Consequently the cash flow impact would be quantified as:

$$10,000 * [(8 + 9 + 10 + 11 \dots + 23) + (1 + 2 + 3 + 4)] = 2,580,000 \text{ € days.}$$