Notice to Participants of AEMO's decision on making the STTM Procedures version 10.0

This Notice advises all Registered Participants (Participants) and other interested stakeholders that AEMO has completed its consultation on changes to the Short Term Trading Market (STTM) Procedures in relation to STTM deviations and settlement surplus and shortfall under the ordinary procedure change consultative process in rule 135EE of the National Gas Rules (NGR).

AEMO proposed changes to the STTM Procedures to implement the National Gas Amendment (STTM Deviations and the Settlement Surplus and Shortfall) Rule 2013 No. 4 and the National Gas Amendment (Settlement Surplus and Shortfall) Rule 2014 No. 2.

Taking into account the assessment provided in the Impact and Implementation Report (IIR), and comments received on the proposed STTM Procedures, AEMO has decided to make amendments to the STTM Procedures as shown in Attachment B, effective from 1 November 2014.

The changes will be incorporated in version 10.0 of the STTM Procedures and are summarised as follows:

- Modify section 1.2 (Definitions), section 10.1 (Settlement Equation Definitions) and section 10.8 (Deviations) to reflect the removal of the percentage method and the quantity method from deviation payment and charge calculations.

- Modify section 10.1 (Settlement Equation Definitions) and section 10.8 (Deviations) to reflect the introduction of the cost of MOS into the deviation pricing calculations.

- Modify section 10.10 (Settlement Shortfall Charges and Payments) to reflect the modification of the surplus and shortfall allocation methodology to allocate shortfalls on the basis of withdrawals in accordance with rule 464(2A).

AEMO received two submissions from stakeholders in response to the Proposed Procedure Change (PPC) and the IIR. A summary of the comments is shown at Attachment A.

Since the conclusion of the IIR a minor error has been corrected in the MOS decrease cost equation (10.8.4b), the change is highlighted in Attachment B.

AEMO considers that this Procedure change meets the requirements of the National Gas Objective for efficient operation and use of, natural gas services for the long term benefit of consumers of natural gas by improving the alignment of deviations with the resulting MOS costs.

As required by Rule 135EE(5), AEMO informs Participants that version 10.0 of the STTM Procedures will be effective from 1 November 2014.

Notice Date: 26 September 2014

Attachment A: Summary of stakeholder comments on the PPC and IIR consultation for STTM Procedures

Organisation	Summary of comment	AEMO's Response
AGL	AGL was comfortable with the proposed drafting of version 10.0 of the STTM Procedures.	Noted.
GDF SUEZ	GDF SUEZ was supportive of elements of the proposed changes but raised concerns in relation to the complexity of the new equations and the determination of the Average MOS Cost.	Noted.
	GDF SUEZ raised a concern in relation to the complexity of the proposed procedure change.	AEMO acknowledges the complexity of the proposed Average MOS Cost equations. The Average MOS Cost calculation has three core components: 1. Total MOS settlement amounts, 2. Total MOS quantity allocated, and 3. The calculation of a MOS price (Average MOS Cost). The Technical Guide to the STTM will be updated to provide guidance on each of the components of the calculation. Worked examples of the new settlement equations will also be added to the Technical Guide.
	GDF SUEZ raised a concern in relation to the determination of the Average MOS Cost stating that 'the proposal may not be entirely compliant with the new requirements, particularly in the case of allocating the costs incurred from counteracting MOS'.	The AEMC outlined principles for the STTM procedures to adhere to, for the calculation of deviation settlement (r462) and the calculation of settlement surplus and shortfall (r464[2A]). As noted by GDF SUEZ, the AEMC's principles covered the pricing of deviations as well as the funding of MOS costs in the event of counteracting MOS.

		The proposed settlement equations were developed in consultation with the STTM CF (Sept-13 STTM-CF meeting and Sept-13 workshop). AEMO believes that the proposed settlement equations adhere to the principles outlined by the AEMC:
		• *462(a)(ii):* the calculation of the MOS price (Average MOS Cost) is representative of the cost of balancing the hub on a gas day.
		  ○ The total settlement amount and the total MOS quantity are included in the calculation so that the Average MOS Cost is representative of the balancing costs at the hub on the gas day.
		  ○ On a gas day, the Average MOS Cost is calculated for the direction (increase or decrease) of the net MOS allocation only.
		  ○ The Average MOS Cost is applied to deviations in the same direction as the net MOS allocation (e.g. short deviations when there is a net allocation of increase MOS).
		  ○ Alternative MOS pricing methods were considered by AEMO and the STTM-CF but were assessed as overly complex.
		• *464(2A)(b)(ii):* settlement shortfall amounts related to MOS settlement that are beyond the reasonable control of the Trading Participants are distributed to all Trading Participants.
		  ○ Settlement shortfalls, as may occur with a counteracting MOS event, will be distributed to all trading participants based on their withdrawals for a billing period.

Attachment B: Marked up changes (exclude formatting changes) to STTM Procedures

Blue represents additions, Red and strikeout represents deletions.

Text highlighted in yellow reflects the correction to the minor error in the MOS decrease cost equation (10.8.4b) following the conclusion of the IIR.

CHAPTER 1 – PRELIMINARY

1.2 Definitions

~~***negative deviation range*** means that part of the *deviation settlement function* applied to negative valued deviations.~~

percentage method means a method for determining *variation charges*~~, *deviation charges or deviation payments*~~ which processes variation quantities ~~or *deviation quantities* (as applicable)~~ as percentages of a reference quantity.

~~***positive deviation range*** means that part of the *deviation settlement function* applied to positively valued deviations.~~

quantity method means a method for determining *variation charges*~~, *deviation charges or deviation payments*~~ which processes variation quantities ~~or *deviation quantities* (as applicable)~~ as GJ quantities.

CHAPTER 10 – SETTLEMENT

10.1 Settlement Equation Definitions

10.1.1 Terms

The following table defines the indices used to identify different terms in the settlement equations.

Term	Definition
~~g~~	~~Denotes a step of the *deviation settlement function*. A finite number of steps are defined for each direction of deviation (the *positive deviation range* and the *negative deviation range*). Each step of the *positive deviation range* corresponds to a deviation percentage range and deviation quantity range described in rule 462 with a positive percentage or positive GJ deviation, though only includes the positive range of the deviation percentage range and deviation quantity range that includes a zero percentage or zero GJ deviation. Each step of the *negative deviation range* corresponds to a deviation percentage range and deviation quantity range described in rule 462 with a negative percentage or negative GJ deviation, though only includes the negative range of the deviation percentage range and deviation quantity range that includes a zero percentage or zero GJ deviation. For the *percentage method*, each step of the *positive deviation range* must have a PDevPR(g) value and a PDevPF(g) value and each step of the *negative deviation range* must have a PDevNR(g) value and a PDevNF(g) value. For the *quantity method*, each step of the *positive deviation range* must have a GDevPR(g) value and a GDevPF(g) value and each step of the *negative deviation range* must have a GDevNR(g) value and a GDevNF(g) value. When comparing one step with another, the term g' may be used to indicate a step other than g.~~
~~g'~~	~~Denotes a step of the *deviation settlement function*. See g.~~

10.1.3 Mathematical Terms

The following table defines all the mathematical terms used in the settlement equations.

Term	Definition
AllCAP	The settlement surplus cap. The settlement surplus cap is $0.14/GJ.
DPFlag(d)	The DPFlag(d) can be 0 or 1 for a *hub* and a *gas day*. It is set by AEMO in accordance with clause 8.2.2(c). If it is 0, then settlement calculations are unaffected. If it is 1, then all ~~positive deviations~~ *long deviation quantities* are settled at the *ex ante market price*, while all ~~negative deviations~~ *short deviation quantities* are settled at the maximum price applicable to *gas day* d (MAXP(d)).
~~GDevNF(g)~~	~~The factor for step g of the *quantity method negative deviation range* of the *deviation settlement function*. This equals GRefDevNF(g) if the *ex ante market price* for the *hub* is positive or zero (≥0), otherwise it equals GRefDevPF(g). This value is determined in clauses 10.8.7(a) and 10.8.7(b).~~
~~GDevNFA(p,d,k)~~	~~The *quantity method* deviation settlement amount for *Trading Participant* p for negative deviations which increase withdrawal from the *hub* on *market facility* k on *gas day* d. This value is determined in clause 10.8.10(b)~~

Term	Definition
~~GDevNQF(p,d,k,g)~~	~~The *deviation quantity* (in GJ) of negative deviation step g for *Trading Participant* p on *gas day* d for withdrawals from the *hub* on *market facility* k determined using the *quantity method*. This term is greater than or equal to zero. This value is determined in clause 10.8.8(b).~~
~~GDevNQT(p,d,k,g)~~	~~The *deviation quantity* (in GJ) of negative deviation step g for *Trading Participant* p on *gas day* d for supply to the *hub* on *market facility* k determined using the *quantity method*. This term is greater than or equal to zero. This value is determined in clause 10.8.8(d).~~
~~GDevNR(g)~~	~~The GJ boundary between step g and step g+1 of the *quantity method negative deviation range* of the *deviation settlement function*. This equals GRefDevNR(g) if the *ex ante market price* is positive or zero (≥0), otherwise it equals -1 × GRefDevPR(g). This term is neither defined nor used for g=Maxg. This value is determined in clauses 10.8.7(a) and 10.8.7(b).~~
~~GDevNTA(p,d,k)~~	~~The *quantity method* deviation settlement amount for *Trading Participant* p for negative deviations which decrease supply to the *hub* on *market facility* k on *gas day* d. This value is determined in clause 10.8.10(d).~~
~~GDevPF(g)~~	~~The factor for step g of the *quantity method positive deviation range* of the *deviation settlement function*. This equals GRefDevPF(g) if the *ex ante market price* is positive or zero (≥0), otherwise it equals GRefDevNF(g). This value is determined in clauses 10.8.7(a) and 10.8.7(b).~~
~~GDevPFA(p,d,k)~~	~~The *quantity method* deviation settlement amount for *Trading Participant* p for positive deviations which decrease withdrawal from the *hub* on *market facility* k on *gas day* d. This value is determined in clause 10.8.10(a).~~
~~GDevPQF(p,d,k,g)~~	~~The *deviation quantity* (in GJ) of positive deviation step g for *Trading Participant* p on *gas day* d for withdrawals from the *hub* on *market facility* k determined using the *quantity method*. This term is greater than or equal to zero. This value is determined in clause 10.8.8(a).~~
~~GDevPQT(p,d,k,g)~~	~~The *deviation quantity* (in GJ) of positive deviation step g for *Trading Participant* p on *gas day* d for supply to the *hub* on *market facility* k determined using the *quantity method*. This term is greater than or equal to zero. This value is determined in clause 10.8.8(c).~~
~~GDevPR(g)~~	~~The GJ boundary between step g and step g+1 of the *quantity method positive deviation range* of the *deviation settlement function*. This equals GRefDevPR(g) if the *ex ante market price* is positive or zero (≥0), otherwise it equals -1 × GRefDevNR(g). This term is neither defined nor used for g=Maxg. This value is determined in clauses 10.8.7(a) and 10.8.7(b).~~
~~GDevPTA(p,d,k)~~	~~The *quantity method* deviation settlement amount for *Trading Participant* p for positive deviations which increase supply to the *hub* on *market facility* k on *gas day* d. This value is determined in clause 10.8.10(c).~~

Term	Definition
~~GPDevNF(p,d,k,g)~~	~~The deviation price of *quantity method negative deviation range* step g for *Trading Participant* p on *gas day* d for withdrawals from the *hub* on *market facility* k. This value is determined in clause 10.8.9(b).~~
~~GPDevNT(p,d,k,g)~~	~~The deviation price of *quantity method negative deviation range* step g for *Trading Participant* p on *gas day* d for supply to the *hub* on *market facility* k. This value is determined in clause 10.8.9(d).~~
~~GPDevPF(p,d,k,g)~~	~~The deviation price of *quantity method positive deviation range* step g for *Trading Participant* p on *gas day* d for withdrawals from the *hub* on *market facility* k. This value is determined in clause 10.8.9(a).~~
~~GPDevPT(p,d,k,g)~~	~~The deviation price of *quantity method positive deviation range* step g for *Trading Participant* p on *gas day* d for supply to the *hub* on *market facility* k. This value is determined in clause10.8.9(c).~~
~~GRefDevNF(g)~~	~~The factor for step g of the *quantity method negative deviation range* of the *deviation settlement function* (assuming the *ex ante market price* is positive or zero). These factors increase with increasing negative deviation and are the factors for the deviation quantity range (specified in GJ) in rule 462 corresponding to step g.~~
~~GRefDevNR(g)~~	~~The GJ boundary between step g and step g+1 of the *quantity method negative deviation range* of the *deviation settlement function* (assuming the *ex ante market price* is positive or zero). These terms are negative valued and correspond to the most negative values specified in the deviation quantity range (specified in GJ) in rule 462 corresponding to step g. This term is neither defined nor used for g=Maxg.~~
~~GRefDevPF(g)~~	~~The factor for step g of the *quantity method positive deviation range* of the *deviation settlement function* (assuming the *ex ante market price* is positive or zero). These factors decline with increasing positive deviation and are the factors for the deviation quantity range (specified in GJ) in rule 462 corresponding to step g.~~
~~GRefDevPR(g)~~	~~The GJ boundary between step g and step g+1 for the *quantity method positive deviation range* of the *deviation settlement function* (assuming the *ex ante market price* is positive or zero). These terms are positive valued and correspond to the most positive values specified in the deviation quantity range (specified in GJ) in rule 462 corresponding to step g. This term is neither defined nor used for g=Maxg.~~
~~Maxg~~	~~The last step (g= Maxg) of the *deviation settlement function*, being the step with the most extreme values of PDevNF(g) and PDevPF(g) (for the *percentage method*) and GDevNF(g) and GDevPF(g) (for the *quantity method*).~~
MAXP(d)	The maximum *deviation price* to be applied in the settlement of *gas day* d for a *hub*. This will normally be *MPC* plus MCAP but will be the *administered price cap* when either an *administered price cap state, administered ex post pricing state, market administered scheduling state* or *market administered settlement state* applies to *gas day* d.

Term	Definition
MCAP	The *MOS cost cap*.
MINP(d)	The minimum *deviation price* to be applied in the settlement of *gas day* d for a *hub*. This will normally be *MMP* less the MCAP for that *gas day*~~.~~ but will be equal to ~~the~~ *MMP* when either an *administered price cap state*, *administered ex post pricing state*, *market administered scheduling state* or *market administered settlement state* applies to *gas day* d.
MOSXI(d)	The MOS increase cost for a *hub* for *gas day* d. This term is null (i.e. has no impact on settlement) unless the net quantity of *MOS gas* allocated on all *STTM facilities* supplying the *hub* on *gas day* d is positive (increase *MOS*). This value is determined in clause 10.8.4A.
MOSXD(d)	The MOS decrease cost for a *hub* for *gas day* d. This term is null (i.e. has no impact on settlement) unless the net quantity of *MOS gas* allocated on all *STTM facilities* supplying the *hub* on *gas day* d is negative (decrease *MOS*). This value is determined in clause 10.8.4B.
~~PDevNF(g)~~	~~The factor for step g of the *percentage method negative deviation range* of the *deviation settlement function*. This equals PRefDevNF(g) if the *ex ante market price* is positive or zero (≥0), otherwise it equals PRefDevPF(g). This value is determined in clauses 10.8.3(a) and 10.8.3(b).~~
~~PDevNFA(p,d,k)~~	~~The *percentage method* deviation settlement amount for *Trading Participant* p for negative deviations which increase withdrawal from the *hub* on *market facility* k on *gas day* d. This value is determined in clause 10.8.6(b).~~
~~PDevNQF(p,d,k,g)~~	~~The *deviation quantity* (in GJ) of negative deviation step g for *Trading Participant* p on *gas day* d for withdrawals from the *hub* on *market facility* k determined using the *percentage method*. This term is greater than or equal to zero. This value is determined in clause 10.8.4(b).~~
~~PDevNQT(p,d,k,g)~~	~~The deviation (in GJ) of negative deviation step g for *Trading Participant* p on *gas day* d for supply to the *hub* on *market facility* k determined using the *percentage method*. This term is greater than or equal to zero. This value is determined in clause 10.8.4(d).~~
~~PDevNR(g)~~	~~The percentage boundary between step g and step g+1 of the *percentage method negative deviation range* of the *deviation settlement function*. These equal PRefDevNR(g) if the *ex ante market price* is positive or zero (≥0), otherwise it equals -1 × PRefDevPR(g). This term is neither defined nor used for g=Maxg. This value is determined in clauses 10.8.3(a) and 10.8.3(b).~~
~~PDevNTA(p,d,k)~~	~~The *percentage method* deviation settlement amount for *Trading Participant* p for negative deviations which decrease supply to the *hub* on *market facility* k on *gas day* d. This value is determined in clause 10.8.6(d).~~

Term	Definition
~~PDevPF(g)~~	~~The factor for step g of the *percentage method positive deviation range* of the *deviation settlement function*. This equals PRefDevPF(g) if the *ex ante market price* is positive or zero (≥0), otherwise it equals PRefDevNF(g). This value is determined in clauses 10.8.3(a) and 10.8.3(b).~~
~~PDevPFA(p,d,k)~~	~~The *percentage method* deviation settlement amount for *Trading Participant* p for positive deviations which decrease withdrawal from the *hub* on *market facility* k on *gas day* d. This value is determined in clause 10.8.6(a).~~
~~PDevPQF(p,d,k,g)~~	~~The *deviation quantity* (in GJ) of positive deviation step g for *Trading Participant* p on *gas day* d for withdrawals from the *hub* on *market facility* k determined using the *percentage method*. This term is greater than or equal to zero. This value is determined in clause 10.8.4(a).~~
~~PDevPQT(p,d,k,g)~~	~~The *deviation quantity* (in GJ) of positive deviation step g for *Trading Participant* p on *gas day* d for supply to the *hub* on *market facility* k determined using the *percentage method*. This term is greater than or equal to zero. This value is determined in clause 10.8.4(c).~~
~~PDevPR(g)~~	~~The percentage boundary between step g and step g+1 of the *percentage method positive deviation range* of the *deviation settlement function*. This equals PRefDevPR(g) if the *ex ante market price* is positive or zero (≥0), otherwise it equals -1 × PRefDevNR(g). This term is neither defined nor used for g=Maxg. This value is determined in clauses 10.8.3(a) and 10.8.3(b).~~
~~PDevPTA(p,d,k)~~	~~The *percentage method* deviation settlement amount for *Trading Participant* p for positive deviations which increase supply to the *hub* on *market facility* k on *gas day* d. This value is determined in clause 10.8.6(c).~~
~~PPDevNF(p,d,k,g)~~ PDevNF(p,d,k)	The *deviation price* for ~~of *percentage method*~~ a *short deviation quantity* ~~negative deviation step g~~ for *Trading Participant* p on *gas day* d for withdrawals from the *hub* on *market facility* k. This value is determined in clause 10.8.5(b).
~~PPDevNT(p,d,k,g)~~ PDevNT(p,d,k)	The *deviation price* for ~~of *percentage method*~~ a *short deviation quantity* ~~negative deviation step g~~ for *Trading Participant* p on *gas day* d for supply to the *hub* on *market facility* k. This value is determined in clause 10.8.5(d).
~~PPDevPF(p,d,k,g)~~ PDevPF(p,d,k)	The *deviation price* for ~~of *percentage method*~~ a *long deviation quantity* ~~positive deviation step g~~ for *Trading Participant* p on *gas day* d for withdrawals from the *hub* on *market facility* k. This value is determined in clause 10.8.5(a).
~~PPDevPT(p,d,k,g)~~ PDevPT(p,d,k)	The *deviation price* for ~~of *percentage method*~~ a *long deviation quantity* ~~positive deviation step g~~ for *Trading Participant* p on *gas day* d for supply to the *hub* on *market facility* k. This value is determined in clause 10.8.5(c).

Term	Definition
~~PRefDevNF(g)~~	~~The factor for step g of the *percentage method negative deviation range* of the *deviation settlement function* (assuming the *ex ante market price* is positive or zero). These factors increase with increasing negative deviation and are the factors for the deviation percentage range in rule 462 corresponding to step g.~~
~~PRefDevNR(g)~~	~~The percentage boundary between step g and step g+1 of the *percentage method negative deviation range* of the *deviation settlement function* (assuming the *ex ante market price* is positive or zero). These are negative values and correspond to the most negative values specified in the deviation percentage range in rule 462 corresponding to step g. This term is neither defined nor used for g=Maxg.~~
~~PRefDevPF(g)~~	~~The factor for step g of the *percentage method positive deviation range* of the *deviation settlement function* (assuming the *ex ante market price* is positive or zero). These factors decline with increasing positive deviation and are the factors for the deviation percentage range in rule 462 corresponding to step g.~~
~~PRefDevPR(g)~~	~~The percentage boundary between step g and step g+1 for the *percentage method positive deviation range* of the *deviation settlement function* (assuming the *ex ante market price* is positive or zero). These are positive values and correspond to the most positive values specified in the deviation percentage range in rule 462 corresponding to step g. This term is neither defined nor used for g=Maxg.~~
WDA(p)	The settlement shortfall or surplus amount for a *hub* for a *billing period* allocated to *Trading Participant* p as a result of its allocated withdrawals from the *hub* over the *billing period* (whether as an *STTM Shipper* or as an *STTM User*). This amount includes a share of *variation charge*s applied to *Trading Participant*s over the *billing period* and any settlement shortfall or surplus not included in the value of DVA(p) ~~as a result of application of the AllCAP limit (i.e. *settlement surplus cap*)~~. This is determined in clause 10.10.4.

10.8 Deviations

Explanatory Note

This clause describes how AEMO determines the *deviation payment* and *deviation charge* for a *Trading Participant* at a *hub* for the purposes of rule 461(2)(g). They are calculated in accordance with clauses 10.8.1 to 10.8.11 by:

(a) calculating the *modified market schedule quantity* for the *Trading Participant* for each *STTM facility* and flow direction, and the *hub*, being the aggregate of the relevant:

(i) *market schedule quantities*; and

(ii) allocations of *MOS* and *overrun MOS*; and

(iii) *scheduled* quantities of *contingency gas;* and

(iv) *market schedule variations*; and

(b) calculating *deviation quantities* for the *Trading Participant* for each *STTM facility* and flow direction, and the *hub*, being the difference between the relevant *modified market schedule quantity* and the corresponding *allocation quantity*; and

(c) calculating payments or charges for each *deviation quantity* using *deviation prices*, where: ~~both the percentage method and the quantity method under which~~:

(i) [Deleted] ~~the deviation price for a *short deviation quantity* increases as that *deviation quantity* increases, and the deviation price for a *long deviation quantity* decreases as that *deviation quantity* increases; and~~

(ii) *deviation prices* are calculated by reference to:

(A) the *ex ante market price* ~~as modified by the factors in the tables in rule 462~~; and

(B) the *ex post imbalance price*; and

(C) the applicable *high contingency gas price* or *low contingency gas price* (if any); and

(D) the applicable MOS increase cost or MOS decrease cost, where a MOS increase cost will apply if the net *MOS gas* requirement at the hub was positive (increase MOS), and a MOS decrease cost will apply if the net *MOS gas* requirement at the hub was negative (decrease MOS);

for the *gas day*; and

(iii) an exception is made where an *administered price cap state* applies by reason of *material involuntary curtailment*, in which case *deviation charges* are priced at the *administered price cap* and *deviation payments* are priced at the *ex ante market price* for the *gas day*; and

~~(d) determining, for each *short deviation quantity* at the *hub*, the lesser of the charge calculated using the percentage method and the charge calculated using the quantity method, the sum of those lesser charges being the *deviation charge* for that *Trading Participant* at that *hub*; and~~

~~(e) determining, for each *long deviation quantity* at the *hub*, the greater of the payment calculated using the percentage method and the payment calculated using the quantity method, the sum of those greater payments being the *deviation payment* for that *Trading Participant* at that *hub*.~~

10.8.1 Modified market schedule quantities

<Unchanged>

10.8.2 Deviation quantities

<Unchanged>

10.8.3 Deleted ~~Definition of steps – Percentage method~~

10.8.4 Deleted ~~Allocation to steps – Percentage method~~

10.8.4A MOS Increase Cost

(a) The MOS increase cost for *gas day* d is:

If $(\Sigma_p \Sigma_{k \in SP} \Sigma_{cf(k)} (MAQ^S(p,d,cf(k)) + OMAQ^S(p,d,cf(k))) + \Sigma_p \Sigma_{k \in SP} \Sigma_{ct(k)} (MAQ^S(p,d,ct(k)) + OMAQ^S(p,d,ct(k)))) > 0$ then

$$MOSXI(d) = [\ \Sigma_p \Sigma_{k \in SP} \Sigma_{m(k)} \Sigma_j (MOSIC^S(p,d,m(k),j) \times MOSAI^S(p,d,m(k),j)) + \Sigma_p \Sigma_{k \in SP} (ORPI(d,k) \times \Sigma_{c(k)} \{ MAX(0,OMAQ^S(p,d,ct(k))) + MAX(0,OMAQ^S(p,d,cf(k))) \}) + \Sigma_p MCCP(p,d+2) + \Sigma_p MCOP(p,d+2)\ ]\ /\ \Sigma_p \Sigma_{k \in SP} \Sigma_{c(k)} \{ MAX(0,MAQ^S(p,d,ct(k))) + MAX(0,MAQ^S(p,d,cf(k))) + MAX(0,OMAQ^S(p,d,ct(k))) + MAX(0,OMAQ^S(p,d,cf(k))) \}$$

ELSE

$$MOSXI(d) = NULL$$

Note: The MOS increase cost is only calculated if the net *MOS gas* requirement at the hub is positive (increase MOS). The MOS increase cost is the sum of *MOS* and *overrun MOS* payments for *gas day* d, and *MOS* cash-out payments from *gas day* d+2 (for *MOS* provided on *gas day* d) for all increase MOS allocated on *gas day* d at the hub, divided by the quantity of all increase MOS allocated on *gas day* d at the hub.

10.8.4B MOS Decrease Cost

(a) The MOS decrease cost for *gas day* d is:

If $(\Sigma_p \Sigma_{k \in SP} \Sigma_{cf(k)} (MAQ^S(p,d,cf(k)) + OMAQ^S(p,d,cf(k))) + \Sigma_p \Sigma_{k \in SP} \Sigma_{ct(k)} (MAQ^S(p,d,ct(k)) + OMAQ^S(p,d,ct(k)))) < 0$ then

$$MOSXD(d) = [\ \Sigma_p \Sigma_{k \in SP} \Sigma_{m(k)} \Sigma_j (MOSDC^S(p,d,m(k),j) \times MOSAD^S(p,d,m(k),j)) + \Sigma_p \Sigma_{k \in SP} (ORPD(d,k) \times (-1 \times \Sigma_{c(k)} \{ MIN(0, OMAQ^S(p,d,ct(k))) + MIN(0, OMAQ^S(p,d,cf(k))) \})) - \Sigma_p MCCC(p,d+2) - \Sigma_p MCOC(p,d+2)\ ]\ /\ \Sigma_p \Sigma_{k \in SP} \Sigma_{c(k)} \{ MIN(0,MAQ^S(p,d,ct(k))) + MIN(0,MAQ^S(p,d,cf(k))) + MIN(0, OMAQ^S(p,d,ct(k))) + MIN(0, OMAQ^S(p,d,cf(k))) \}$$

ELSE

$$MOSXD(d) = NULL$$

Note: The MOS decrease cost is only calculated if the net *MOS gas* requirement at the hub is negative (decrease MOS). The MOS decrease cost is the sum of *MOS* and overrun *MOS* payments for *gas day* d and *MOS* cash-out charges from *gas day* d+2 (for *MOS* provided on *gas day* d) for all decrease MOS allocated on *gas day* d at the hub, divided by the quantity of all decrease MOS allocated on *gas day* d at the hub.

The MOS decrease cost may be a positive or negative value.

10.8.5 Deviation prices ~~– Percentage method~~

(a) For *Trading Participant* p with a ~~positive deviation~~ *long deviation quantity* for withdrawals from the *hub* (i.e. lower withdrawal than expected) on *market facility* k on *gas day* d, the *deviation price* ~~on deviation step g~~ is:

If DPFlag(d) = 0

IF CGPH(d) ≥ 0

PDevPF(p,d,k) = MAX(MINP(d), MIN(MAXP(d), HP(d), IHP(d), CGPL(d)))

ELSE

~~PPDevPF(p,d,k,g)~~

PDevPF(p,d,k) = MAX(MINP(d), MIN(MAXP(d), HP(d) ~~× PDevPF(g)~~, IHP(d), CGPL(d), MOSXD(d)))

If DPFlag(d) = 1

~~PPDevPF(p,d,k,g)~~

PDevPF(p,d,k) = HP(d)

(b) For *Trading Participant* p with a ~~negative deviation~~ *short deviation quantity* for withdrawals from the *hub* (i.e. higher withdrawal than expected) on *market facility* k on *gas day* d, the *deviation price* ~~on deviation step g~~ is:

If DPFlag(d) = 0

IF CGPL(d) ≥ 0

PDevNF(p,d,k) = MIN(MAXP(d), MAX(MINP(d), HP(d), IHP(d), CGPH(d)))

ELSE

~~PPDevNF(p,d,k,g)~~

PDevNF(p,d,k) = MIN(MAXP(d), MAX(MINP(d), HP(d) ~~× PDevNF(g)~~, IHP(d), CGPH(d), MOSXI(d)))

If DPFlag(d) = 1

~~PPDevNF(p,d,k,g)~~

PDevNF(p,d,k) = MAXP(d)

(c) For *Trading Participant* p with a ~~positive deviation~~ *long deviation quantity* for gas supplied to the *hub* (i.e. higher supply than expected) on *market facility* k on *gas day* d, the *deviation price* ~~on deviation step g~~ is:

If DPFlag(d) = 0

IF CGPH(d) ≥ 0

PDevPT(p,d,k) = MAX(MINP(d), MIN(MAXP(d), HP(d), IHP(d), CGPL(d)))

ELSE

~~PPDevPT(p,d,k,g)~~

PDevPT(p,d,k) = MAX(MINP(d), MIN(MAXP(d), HP(d) ~~× PDevPF(g)~~, IHP(d), CGPL(d), MOSXD(d)))

If DPFlag(d) = 1

~~PPDevPT(p,d,k,g)~~

PDevPT(p,d,k) = HP(d).

(d) For *Trading Participant* p with a ~~negative deviation~~ *short deviation quantity* for gas supplied to the *hub* (i.e. lower supply than expected) on *market facility* k on *gas day* d, the *deviation price* ~~on deviation step g~~ is:

If DPFlag(d) = 0

IF CGPL(d) ≥ 0

PDevNT(p,d,k) = MIN(MAXP(d), MAX(MINP(d), HP(d), IHP(d), CGPH(d)))

ELSE

~~PPDevNT(p,d,k,g)~~

PDevNT(p,d,k) = MIN(MAXP(d) , MAX(MINP(d), HP(d) ~~× PDevNF(g)~~, IHP(d), CGPH(d), MOSXI(d)))

If DPFlag(d) = 1

~~PPDevNT(p,d,k,g)~~

PDevNT(p,d,k) = MAXP(d)

10.8.6 Deleted ~~Percentage method deviation payments and charges~~

10.8.7 Deleted ~~Definition of steps – Quantity method~~

10.8.8 Deleted ~~Allocation to steps – Quantity method~~

10.8.9 Deleted ~~Deviation prices – Quantity method~~

10.8.10 Deleted ~~Quantity method deviation payments and charges~~

10.8.11 Deviation payments and charges

(a) The *deviation payment* ~~settlement amount~~ for *Trading Participant* p for a *long deviation quantity* ~~positive deviations~~ in withdrawals from the *hub* (i.e. lower withdrawal than expected) on *market facility* k on *gas day* d is:

~~DevPFA(p,d,k) = MAX(PDevPFA(p,d,k) , GDevPFA(p,d,k))~~

DevPFA(p,d,k) = MAX(0 , DQF(p,d,k)) × PDevPF(p,d,k)

(b) The *deviation charge* ~~settlement amount~~ for *Trading Participant* p for a *short deviation quantity* ~~negative deviations~~ in withdrawals from the *hub* (i.e. higher withdrawal than expected) on *market facility* k on *gas day* d is:

~~DevNFA(p,d,k) = MIN(PDevNFA(p,d,k) , GDevNFA(p,d,k))~~

DevNFA(p,d,k) = MAX(0, -1 × DQF(p,d,k)) × PDevNF(p,d,k)

(c) The *deviation payment* ~~settlement amount~~ for *Trading Participant* p for a *long deviation quantity* ~~positive deviations~~ in gas supplied to the *hub* (i.e. higher supply than expected) on *gas day* d is:

~~DevPTA(p,d,k) = MAX(PDevPTA(p,d,k) , GDevPTA(p,d,k))~~

DevPTA(p,d,k) = MAX(0 , DQT(p,d,k)) × PDevPT(p,d,k)

(d) The *deviation charge* ~~settlement amount~~ for *Trading Participant* p for a *short deviation quantity* ~~negative deviations~~ in gas supplied to the *hub* (i.e. lower supply than expected) on *gas day* d is:

~~DevNTA(p,d,k) = MIN(PDevNTA(p,d,k) , GDevNTA(p,d,k))~~

DevNTA(p,d,k) = MAX(0 , -1 × DQT(p,d,k))× PDevNT(p,d,k)

(e) The *total deviation payment* to *Trading Participant* p for the *hub* for *gas day* d is:

$$DevP(p,d) = \Sigma_k\{DevPFA(p,d,k) + DevPTA(p,d,k)\}$$

(f) The *total deviation charge* to *Trading Participant* p for the *hub* for *gas day* d is:

$$DevC(p,d) = \Sigma_k\{ DevNFA(p,d,k) + DevNTA(p,d,k)\}$$

10.10 Settlement Shortfall Charges and Payments

Explanatory Note

This clause describes how AEMO determines the *settlement surplus payment* and *settlement shortfall charge* for a *Trading Participant* at a *hub* for the purposes of rule 464(2)(b)(i). They are calculated in accordance with clauses 10.10.1 to 10.10.5 by:

(a) calculating the settlement shortfall or settlement surplus for the *hub*, excluding *variation charges*; and

(b) calculating the billing period deviation quantity for the *Trading Participant* for the relevant *billing period*, which excludes any *gas days* for which an *administered price cap state* applied by reason of *material involuntary curtailment* ; and

(c) allocating the ~~settlement shortfall or~~ settlement surplus in proportion to the *Trading Participant's* share of the total billing period deviation quantity for all *Trading Participants*, but subject to a cap equal to the settlement surplus cap multiplied by the *Trading Participant's* billing period deviation quantity; and

(d) allocating any settlement shortfall, any residual settlement surplus, and any surplus resulting from *variation charges*, to *Trading Participants* in proportion to their share of withdrawals from the *hub* in the *billing period*.

Fees are retained by AEMO and are not part of the settlement surplus or shortfall.

10.10.1 Shortfall or surplus

No change

10.10.2 Billing period deviation quantities

No change

10.10.3 Surplus and shortfall allocation based on billing period deviations

The shortfall/surplus allocation based on deviations for *Trading Participant* p for the *hub* for the *billing period* is:

If $\Sigma_{p'}$ DQB(p') = 0

DVA(p) = 0

Otherwise

DVA(p) = MAX(0,(MIN(AllCAP × DQB(p) , NMB × {DQB(p) / ($\Sigma_{p'}$ DQB(p')) }))

Note: The last term allocates NMB in proportion to deviations over the billing period, while the first term caps the allocation for positive NMB values at a rate of AllCAP, the $/GJ cap on positive allocations. This cap is intended to stop Trading Participants who deviated getting a high proportion of their deviation charges returned to them. Negative NMB values are allocated based on withdrawals in 10.10.4.

10.10.4 Residual surplus and shortfall allocation based on withdrawals

The shortfall/surplus allocation to *Trading Participant* p based on withdrawals for the *hub* for the *billing period* is:

If $\Sigma_{p'} \Sigma_{d \in BP} \{ \Sigma_{k \in SN} \Sigma_{cf(k)} AQ^{U}(p',d,cf(k)) + \Sigma_{k \in SP} \Sigma_{cf(k)} AQ^{S}(p',d,cf(k)) \} = 0$

$$WDA(p) = 0$$

Otherwise

$$WDA(p) = \{NMB - \Sigma_{p'} DVA(p') + \Sigma_{d} \Sigma_{p'} VarC(p',d)\}$$
$$\times \ [\Sigma_{d \in BP} \{ \Sigma_{k \in SN} \Sigma_{cf(k)} AQ^{U}(p,d,cf(k)) + \Sigma_{k \in SP} \Sigma_{cf(k)} AQ^{S}(p,d,cf(k)) \}$$
$$/ (\Sigma_{p'} \Sigma_{d \in BP} \{ \Sigma_{k \in SN} \Sigma_{cf(k)} AQ^{U}(p',d,cf(k)) + \Sigma_{k \in SP} \Sigma_{cf(k)} AQ^{S}(p',d,cf(k)) \})]$$

10.10.5 Net surplus and shortfall payments and charges

(a) The *settlement surplus payment* to *Trading Participant* p for the *hub* for the *billing period* is:

$$SSP(p) = MAX(0, DVA(p)) + MAX(0,WDA(p))$$

(b) The *settlement shortfall charge* to *Trading Participant* p for the *hub* for the *billing period* is:

$$SSC(p) = MAX(0, -1 \times DVA(p)) + MAX(0, -1 \times WDA(p))$$