

Annex T-1: Final Ranked Set of System Actions

Part 1 – Derivation of Final Ranked Set of System Actions

1. Introduction

1.1 This Annex T-1 sets out:

- (a) in this Part 1, the basis on which, for each Settlement Period, the Final Ranked Set of System Actions will be determined for the purposes of calculating the System Buy Price or (as the case may be) the System Sell Price pursuant to Section T4.4;
- (b) in Part 2, detailed provisions for CADL Flagging, Arbitrage Flagging, NIV Tagging, determining the Replacement Price, and PAR Tagging for the purposes of Part 1;
- (c) in Part 3, the determination of certain terms for reporting purposes.

1.2 For the purposes of the Code, in relation to a Settlement Period:

- (a) in relation to a BM Unit and an Acceptance, an **"accepted Offer"** means the Period BM Unit Accepted Offer Volume (QAO_{ij}^{kn}), and an **"accepted Bid"** means the Period BM Unit Total Accepted Bid Volume (QAB_{ij}^{kn}) but excluding Offers and Bids where the value of Period BM Unit Accepted Offer Volume or Period BM Unit Accepted Bid Volume (as the case may be) is zero;
- (b) a **"System Buy Action"** (QSB_j^w) means:
 - (i) in relation to each BM Unit, an accepted Offer; and
 - (ii) in relation to each Balancing Services Adjustment Buy Action, the Balancing Services Adjustment Buy Volume ($QBSAB_j^m$);
- (c) a **"System Sell Action"** (QSS_j^w) means:
 - (i) in relation to each BM Unit, an accepted Bid; and
 - (ii) in relation to each Balancing Services Adjustment Sell Action, the Balancing Services Adjustment Sell Volume ($QBSAS_j^m$);
- (d) **"System Action"** means a System Buy Action or a System Sell Action;
- (e) in relation to a System Buy Action or a System Sell Action, the **"System Action Price"** (SAP_j^w) is:
 - (i) in the case of an accepted Offer, the Offer Price (PO_{ij}^n);
 - (ii) in the case of an accepted Bid, the Bid Price (PB_{ij}^n);
 - (ii) in the case of an Balancing Services Adjustment Action, the Balancing Services Adjustment Price ($BSAP_j^m$);
- (f) a **"Ranked Set"** is a set of System Actions ranked in accordance with the further provisions of this Part 1.

- 1.2 In this Annex T-1, references to summation over System Sell Actions or System Buy Actions are to summation (in relation to accepted Offers or accepted Bids) over all BM Units, Offers or Bids and Acceptances, and (in relation to Balancing Services Adjustment Actions) over all Balancing Services Adjustment Actions.
- 1.3 In any provision of this Annex T-1, a System Action is "**Flagged**" where it is a First-Stage Flagged System Action or (as the case may be) a Second-Stage Flagged System Action; and otherwise is "**Unflagged**".

2. Ranked Sets

- 2.1 In relation to each Settlement Period:
- (a) all System Buy Actions shall be ranked in order of System Action Price, lowest priced first, and numbered (from 1) accordingly;
 - (b) all System Sell Actions shall be ranked in order of System Action Price, highest priced expensive first, and numbered (from 1) accordingly;
 - (c) the sets of System Buy Actions and System Sell Actions so ranked are the Initial Ranked Sets of System Actions.
- 2.2 Any Balancing Services Adjustment Action for which BSAP^m_j has a NULL value shall be ranked last in the applicable Ranked Set.
- 2.3 Following the establishing of the Initial Ranked Sets of System Actions in relation to a Settlement Period, each of the steps in paragraphs 3 to 11 below shall be applied (in the order set out) to each such Ranked Set, and following any such step a System Action in the Ranked Set may be re-classified or modified, or excluded (in whole or in part) from the Ranked Set.
- 2.4 Following each step in paragraphs 3 to 11 below in relation to a Settlement Period:
- (a) each of the Ranked Sets of System Actions will be re-established (and where relevant the System Actions renumbered) on the basis of such step;
 - (b) in the application of the following step, references to System Actions in either Ranked Set are to the System Actions as re-classified or modified in, and exclude any System Action which has been excluded from, the Ranked Set pursuant to the application of each preceding step.
- 2.5 In cases where System Buy Actions or (as the case may be) System Sell Actions have the same System Action Price, or where more than one System Buy Action or (as the case may be) System Sell Action has a NULL value of System Action Price, the ordering of such System Buy Actions or (as the case may be) System Sell Actions in the Ranked Sets (or any other set required under this Annex T-1) shall be random, but subject to the further provisions of paragraphs 2.5, 3.2(f) and 5.1(e) of Part 2.
- 2.6 Where, following any of the steps in this Part 1 either of the Ranked Sets is empty, no further such step shall be taken in relation to such Ranked Set.

3. CADL Flagging

- 3.1 This paragraph 3 applies in relation to each accepted Offer and accepted Bid in the Initial Ranked Sets of System Actions.
- 3.2 Each accepted Offer and accepted Bid which is CADL-Flagged in accordance with paragraph 12 of Part 2 shall be a First-Stage Flagged System Action.

- 3.3 The Ranked Sets of System Actions following the application of this paragraph 3 are the CADL Flagged Ranked Sets of System Actions.

4. SO-Flagging

- 4.1 This paragraph 4 applies in relation to each System Action in the CADL Flagged Ranked Sets of System Actions.
- 4.2 Each accepted Offer and accepted Bid for which the Acceptance was classified by the Transmission Company as 'SO-Flagged' shall be a First-Stage Flagged System Action.
- 4.3 Each Balancing Services Adjustment Action which was classified by the Transmission Company as 'SO-Flagged' shall be a First-Stage Flagged System Action.
- 4.4 The Ranked Sets of System Actions following the application of this paragraph 4 are the SO-Flagged Ranked Set of System Actions.

5. Emergency Instructions

- 5.1 This paragraph 5 applies in relation to each System Action in the SO-Flagged Ranked Sets of System Actions.
- 5.2 Each accepted Offer and accepted Bid for which the Acceptance was an Emergency Acceptance classified by the Transmission Company as an 'Emergency-Flagged Acceptance' shall be a First-Stage Flagged System Action.
- 5.3 The Ranked Sets of System Actions following the application of this paragraph 5 are the Emergency Flagged Ranked Set of System Actions.

6. De Minimis Tagging

- 6.1 This paragraph 6 applies in relation to each System Action in the Emergency-Flagged Ranked Sets of System Actions.
- 6.2 Each accepted Offer for which, in relation to the relevant BM Unit and Offer, $QAO_{ij}^n < DMAT$ is a De Minimis Tagged System Buy Action.
- 6.3 Each accepted Bid for which, in relation to the relevant BM Unit and Bid, $|QAB_{ij}^n| < DMAT$ is a De Minimis Tagged System Sell Action.
- 6.4 Each Balancing Services Adjustment Buy Action for which $QABSB_j^m < DMAT$ is a De Minimis Tagged System Buy Action.
- 6.5 Each Balancing Services Adjustment Sell Action for which $|QABSS_j^m| < DMAT$ is a De Minimis Tagged System Buy Action.
- 6.6 Each De Minimis Tagged System Action shall be excluded from the applicable Ranked Set of System Actions.
- 6.7 The Ranked Sets of System Actions following the application of this paragraph 6 are the De Minimis Tagged Ranked Sets of System Actions.

7. Arbitrage tagging

- 7.1 This paragraph 7 applies in relation to each System Action in the De Minimis Tagged Ranked Sets of System Actions.

7.2 Each System Action which is Arbitrage Tagged in accordance with paragraph 13 of Part 2 shall be excluded from the Ranked Sets of System Actions.

7.3 The Ranked Sets of System Actions following the application of this paragraph 7 are the Arbitrage Tagged Ranked Sets of System Actions.

8. Classification

8.1 This paragraph 8 applies in relation to each First-Stage Flagged System Action in the Arbitrage Tagged Ranked Sets of System Actions.

8.2 For each First-Stage Flagged System Buy Action (w') in the Ranked Set of System Buy Actions:

- (a) if the System Action Price (SAP^{w'}_j) is greater than the System Action Price of the highest-priced Unflagged System Buy Action in the Ranked Set, the System Buy Action (w') shall become a Second-Stage Flagged System Action;
- (b) otherwise, the System Buy Action (w') shall become Unflagged, subject to paragraph 8.4.

8.3 For each First-Stage Flagged System Sell Action (w') in the Ranked Set of System Buy Actions:

- (a) if the System Action Price (SAP^{w'}_j) is less than the System Action Price of the lowest-priced Unflagged System Sell Action in the Ranked Set, the System Sell Action (w') shall become a Second-Stage Flagged System Action;
- (b) otherwise, the System Sell Action (w') shall become Unflagged, subject to paragraph 8.4.

8.4 Any Balancing Services Adjustment Action for which BSAP^m_j has a NULL value shall not become Unflagged under paragraph 8.2(b) or 8.3(b).

8.5 The Ranked Sets of System Actions following the application of this paragraph 8 are the Classified Ranked Sets of System Actions.

9. NIV Tagging

9.1 This paragraph 9 applies in relation to each System Action in the Classified Ranked Sets of System Actions.

9.2 Each System Action which is NIV Tagged in accordance with paragraph 14 of Part 2 shall be excluded from the Ranked Sets of System Actions.

9.3 In accordance with paragraph 14 of Part 2, one of the Ranked Sets of System Actions will necessarily be empty following the application of paragraph 9.2.

9.4 The Ranked Set of System Actions following the application of this paragraph 9 which is not necessarily empty is the NIV Tagged Ranked Set of System Actions.

10. Replacement Pricing of Second- Stage Flagged System Actions

10.1 This paragraph 10 applies in relation to Second-Stage Flagged System Actions (if any) in the NIV-Tagged Ranked Set of System Actions.

10.2 If NIV is positive:

- (a) the System Action Price of each Second-Stage Flagged System Buy Action in the NIV-Tagged Ranked Set of System Actions shall be reset to be equal to the Replacement Buy Price determined in accordance with paragraph 15 of Part 2; and for all further purposes of this Annex T and Section T4 the System Action Buy Price of such System Buy Actions shall be deemed to be the Replacement Buy Price, and such System Buy Actions shall become Unflagged;
- (b) the System Buy Actions in the Ranked Set shall be re-ranked in order of their System Action Prices as modified under paragraph (a), cheapest first.

10.3 If NIV is zero or negative:

- (a) the System Action Price of each Second-Stage Flagged System Sell Action in the NIV-Tagged Ranked Set of System Sell Actions shall be reset to be equal to the Replacement Sell Price determined in accordance with paragraph 15 of Part 2; and for all further purposes of this Annex T and Section T4 the System Action Sell Price of such System Sell Actions shall be deemed to be the Replacement Sell Price, and such System Sell Actions shall become Unflagged;
- (b) the System Sell Actions in the Ranked Set shall be re-ranked in order of their System Action Prices as modified under paragraph (a), most expensive first.

10.4 The Ranked Set of System Actions following the application of this paragraph 10 is the Replacement-Priced Ranked Set of System Actions.

11. PAR Tagging

11.1 This paragraph 11 applies to the System Actions in the Replacement-Priced Ranked Set of System Actions.

11.2 Each System Action which is PAR Tagged in accordance with paragraph 16 of Part 2 shall be excluded from the Ranked Set of System Actions.

11.3 The Ranked Set of System Actions following the application of this paragraph 11 is the Final Ranked Set of System Actions.

Part 2 - detailed provisions

12. CADL Flagging

- 12.1 In relation to each Acceptance, k, for a particular BM Unit, another Acceptance for the same BM Unit is "related" to Acceptance k where such other Acceptance has a Bid-Offer Acceptance Time that falls within the period:
- (a) from and including the spot time at the start of the Settlement Period which falls three Settlement Periods prior to the Settlement Period in which the Bid-Offer Acceptance Time for Acceptance k falls, and
 - (b) to and including the spot time at the end of the Settlement Period which falls three Settlement Periods after the Settlement Period in which the Bid-Offer Acceptance Time for Acceptance k falls.
- 12.2 In relation to each Acceptance k, another Acceptance is "continuous" with Acceptance k if it is related to Acceptance k, and:
- (a) the spot time associated with:
 - (i) the first Point Acceptance Volume of the Acceptance is earlier, and
 - (ii) the last Point Acceptance Volume of the Acceptance is not earlierthan the spot time associated with the first Point Acceptance Volume of Acceptance k; or
 - (b) the spot time associated with:
 - (i) the last Point Acceptance Volume of the Acceptance is later, and
 - (ii) the first Point Acceptance Volume of the Acceptance is not later thanthe spot time associated with the last Point Acceptance Volume of Acceptance k; or
 - (c) the Acceptance is continuous (in accordance with paragraph (a) or (b)) with another Acceptance which is determined (including, for the avoidance of doubt, by virtue of this paragraph (c)) to be a continuous Acceptance in relation to Acceptance k.
- 12.3 In relation to each Acceptance k, for a particular BM Unit, the Continuous Acceptance Duration (CAD^k_i) shall be the duration of the period:
- (a) commencing at the earliest spot time associated with:
 - (i) any value of Point Acceptance Volume for Acceptance k; or
 - (ii) any Point Acceptance Volume for any Acceptance that is a continuous Acceptance in relation to Acceptance k, and
 - (b) ending at the latest spot time associated with:
 - (i) any value of Point Acceptance Volume for Acceptance k; or
 - (ii) any Point Acceptance Volume for any Acceptance that is a continuous Acceptance in relation to Acceptance k.

- 12.4 In relation to each accepted Offer and accepted Bid in the Ranked Set of System Actions, if (for the associated Acceptance k) $CAD_i^k < CADL$, then the accepted Offer or accepted Bid shall be CADL Flagged.

13. Arbitrage Tagging

- 13.1 In respect of each Settlement Period, System Actions in the De Minimis Tagged Ranked Sets of System Actions will be defined as Arbitrage Tagged in the following way.

- 13.2 If, for the highest priced System Sell Action, QSS_{ij}^g (if any) which is not already an Arbitrage Tagged System Sell Action, there exists any System Buy Action QSB_j^w which is not already an Arbitrage Tagged System Buy Action for which it is true that $SAP_j^w \leq SAP_j^g$, then the following procedure will be carried out:

- (a) All System Buy Actions for which $SAP_j^w \leq SAP_j^g$ will be ranked in price order, lowest priced first.
- (b) The set of such System Buy Actions $\{QSB_{j_1}^{w_1}, QSB_{j_2}^{w_2}, \dots, QSB_{j_v}^{w_v}\}$ is then a ranked set of System Buy Actions for all of which it is true that $SBAP_j^w \leq SSAP_j^g$.
- (c) Then for all v such that:

$$\sum^v QSB_{j_v}^{w_v} \leq -QSS_j^g$$

where \sum^v is the sum over all ranked System Buy Actions up to v,

the $QSB_{j_v}^{w_v}$ will be defined as Arbitrage Tagged and the fraction ϕ of QSS_j^g which is equal to $\sum^v (-QSB_{j_v}^{w_v})$ will be defined as Arbitrage Tagged (this fraction may be one (1)).

- (d) If:

$$\sum^v QSB_{j_v}^{w_v} < -QSS_j^g$$

where \sum^v is the sum over all ranked System Buy Action up to v,

then, if a ranked System Buy Action, v+1 exists, the fraction γ of $QSB_{j_{v+1}}^{w_{v+1}}$ which satisfies

$$\sum^v QSB_{j_v}^{w_v} + \gamma * QSB_{j_{v+1}}^{w_{v+1}} = -QSS_j^g$$

will also be defined as Arbitrage Tagged and QSS_j^g will be defined as Arbitrage Tagged.

- 13.3 The process in paragraph 13.2 will then be repeated for the highest priced System Sell Action (if any) that remains not Arbitrage Tagged.

- 13.4 If, for the purposes of carrying out the procedure in paragraph 13.2:

- (a) there are two or more System Sell Actions that are not Arbitrage Tagged, that have the same highest System Action Price, or

- (b) there are two or more ranked System Buy Actions that have the same System Action Price

then one of the System Sell Actions or (as the case may be) System Buy Actions will be selected at random.

13.5 If the completed application of paragraphs 2.1 to 2.4 inclusive (the 'initial calculation') would result in there being any System Sell Action or ranked System Buy Action which:

- (a) is not Arbitrage Tagged, but
- (b) has the same price (including a NULL price) (other than merely by virtue of being a fraction $(1 - \gamma)$ or $(1 - \phi)$ pursuant to the initial calculation) as a System Sell Action or (as the case may be) ranked System Buy Action which is Arbitrage Tagged,

then:

- (i) all such System Sell Actions $QSS^{w_r}_{ij}$ or ranked System Buy Actions $QSB^{w_r}_{ij}$ (whether or not Arbitrage Tagged on the basis of the initial calculation) which have the same price are "threshold" System Actions;
- (ii) no threshold System Action shall be defined as Arbitrage Tagged pursuant to the relevant provision, but instead the fraction δ of each threshold System Sell Action $QSS^{w_r}_j$ or threshold System Buy Action $QSB^{w_r}_j$ which satisfies the following shall be defined as Arbitrage Tagged:

$$\delta * \sum^{w_r} QSS^{w_r}_j = \sum^{w_{r'}} QSS^{w_{r'}}_j$$

or (as the case may be)

$$\delta * \sum^{w_r} QSB^{w_r}_j = \sum^{w_{r'}} QSB^{w_{r'}}_j$$

where

\sum^{w_r} is the sum over all threshold System Sell Actions or (as the case may be) threshold System Buy Actions, and

$\sum^{w_{r'}}$ is the sum over all threshold System Sell Actions or (as the case may be) threshold System Buy Actions (including a fraction γ or ϕ) which, on the basis of the initial calculation would have been defined as Arbitrage Tagged.

14. NIV Tagging

14.1 In respect of each Settlement Period, the Net Imbalance Volume will be determined as follows:

$$NIV_j = \sum_w QSB^w_j - \sum_w (-QSS^w_j)$$

where \sum_w is the sum over all System Actions in the Classified Ranked Sets.

14.2 In respect of each Settlement Period, System Actions Classified Ranked Sets will be defined as NIV Tagged in the following way.

(a) If:

$$\sum^{w'} (-QSS^{w'}_j) = 0$$

where $\sum^{w'}$ is the sum over System Sell Actions in the Classified Ranked Set; or

$$\sum^{w^*} QSB^{w^*}_{ij} = 0$$

where \sum^{w^*} is the sum over System Buy Actions in the Classified Ranked Set:

then no System Actions will be NIV Tagged.

Otherwise, the following procedure will be carried out.

(b) If:

$$\sum^{w'} (-QSS^{w'}_j) \leq \sum^{w^*} QSB^{w^*}_j$$

where $\sum^{w'}$ is the sum over the System Buy Actions and \sum^{w^*} is the sum over the System Sell Actions in the Classified Ranked Sets,

then all the System Sell Actions (for all values of w') in the Ranked Set of System Sell Actions will be defined as NIV Tagged.

(c) Since $\sum^{w'} (-QSS^{w'}_j) \leq \sum^{w^*} QSB^{w^*}_j$ there must exist a number e and a number ϕ (which may be a fraction or zero) for which

$$\sum^{w'} (-QSS^{w'}_j) = \sum^{w^* v > e} QSB^{w^* v}_j + \phi * QSB^{w^* e}_j$$

where $\sum^{w'}$ is the sum over all System Sell Actions and $\sum^{w^* v > e}$ is the sum over those System Buy Actions for which v is greater than e .

Subject to paragraph (f), each System Buy Action numbered $e+1$ or higher in the Classified Ranked Set for which this is true will be defined as NIV Tagged. If ϕ is a fraction rather than zero, then the fraction ϕ of the System Buy Action numbered e will be defined as NIV Tagged.

(d) If:

$$\sum^{w'} (-QSS^{w'}_j) > \sum^{w^*} QSB^{w^*}_j$$

where $\sum^{w'}$ is the sum over the System Buy Actions and \sum^{w^*} is the sum over the System Sell Actions,

then all the System Buy Actions (for all values of w^*) in the Ranked Set of System Buy Actions will be defined as NIV Tagged.

(e) Since $\sum^{w'} (-QSS^{w'}_j) > \sum^{w^*} QSB^{w^*}_j$ there must exist a number e and a number ϕ (which may be a fraction or zero) for which

$$\sum^{w^*} QSB^{w^*}_j = \sum^{w' v > e} (-QSS^{w' v}_j) + \phi * -QSS^{w' e}_j$$

where \sum^{w^*} is the sum over all System Buy Actions and $\sum^{w' v > e}$ is the sum over those System Buy Actions for which v is greater than e .

Subject to paragraph (f), each System Sell Action numbered $e+1$ or higher in the Classified Ranked Set for which this is true will be defined as NIV Tagged. If ϕ is a fraction rather than zero, then the fraction ϕ of the System Sell Action numbered e will be defined as NIV Tagged.

- (f) However, for each paragraphs (c) and (e) (each a "relevant provision") separately, if the application of the relevant provision (the "initial calculation") would result in there being any System Action which:

- (1) is not defined as NIV Tagged, but
- (2) has the same price (including a NULL price) (other than merely by virtue of being a fraction $(1 - \phi)$ pursuant to the initial calculation) as, in the case of a System Buy Action, a System Buy Action which is NIV Tagged or, in the case of a System Sell Action, a System Sell Action which is NIV Tagged,

then:

- (i) all such System Buy Actions $QSB^{w'_r}_j$ or System Sell Actions $QSS^{w'_r}_j$ (whether or not NIV Tagged on the basis of the initial calculation) which have the same price are "threshold" System Actions;
- (ii) no threshold System Action shall be defined as NIV Tagged pursuant to the relevant provision, but instead the fraction δ of each threshold System Buy Action $QSB^{w'_r}_j$ or threshold System Sell Action $QSS^{w'_r}_j$ which satisfies the following shall be defined as NIV Tagged:

$$\delta * (\sum^{w'_r} QSB^{w'_r}_j = \sum^{w'_{r'}} QSB^{w'_{r'}}_j$$

or (as the case may be)

$$\delta * (\sum^{w'_r} QSS^{w'_r}_j = \sum^{w'_{r'}} QSS^{w'_{r'}}_j$$

where

$\sum^{w'_r}$ is the sum over all threshold System Buy Actions or (as the case may be) threshold System Sell Actions, and

$\sum^{w'_{r'}}$ is the sum over all threshold System Buy Actions or (as the case may be) threshold System Sell Actions (including a fraction ϕ thereof) which, on the basis of the initial calculation would have been defined as NIV Tagged.

15. Replacement Price

15.1 In respect of each Settlement Period, the Replacement Buy Price or Replacement Sell Price will determined as follows.

15.2 If NIV is positive:

- (a) if there are no Unflagged System Actions in the NIV Tagged Ranked Set, the Replacement Buy Price shall be the Market Price.
- (b) Otherwise, the Replacement Buy Price shall be determined as:

$$RBP_j = \sum^{w'} (QSB^{w'}_j * SAP^{w'}_j) / \sum^{w'} QSB^{w'}_j$$

where

$\Sigma^{w'}$ is the sum over all Qualifying Unflagged System Actions in the NIV Tagged Ranked Set

15.3 For the purposes of paragraphs 4.2:

- (a) if $\Sigma^w \text{QSB}_j^w \leq \text{RPAR}$, all Unflagged System Buy Actions in the NIV Tagged Ranked Set will be defined as Qualifying;
- (b) if $\Sigma^w \text{QSB}_j^w > \text{RPAR}$:
 - (i) the Unflagged System Buy Actions in the Classified Ranked Set shall be ranked in price order, lowest priced first;
 - (ii) as $\Sigma^w \text{QSB}_j^w > \text{RPAR}$ there must exist a number f and a number ϕ (which may be a fraction or zero) for which:

$$\text{RPAR} = (\Sigma^{w' v > f} \text{QSB}_j^{w'v} + \phi * ((\text{QSB}_j^{w'f}))$$

where $\Sigma^{w' v > f}$ is the sum over those System Buy Actions for which v is greater than f .

- (iii) Each of the System Buy Actions numbered $f+1$ or higher in the ranked set of Unflagged System Buy Actions for which this is true will be defined as Qualifying. If ϕ is a fraction rather than zero, then the fraction (ϕ) of the System Buy Action numbered f will be defined as Qualifying.

15.4 If NIV is negative or zero:

- (a) if there are no Unflagged System Actions in the NIV Tagged Ranked Set the Replacement Sell Price shall be the Market Price.
- (b) Otherwise, the Replacement Sell Price shall be determined as:

$$\text{RSP}_j = \Sigma^{w'} (\text{QSS}_j^{w'} * \text{SAP}_j^{w'}) / \Sigma^{w'} \text{QSS}_j^{w'}$$

where

$\Sigma^{w'}$ is the sum over all Qualifying Unflagged System Actions in the NIV Tagged Ranked Set

15.5 For the purposes of paragraphs 4.3:

- (a) if $\Sigma^w -\text{QSS}_j^w \leq \text{RPAR}$, all Unflagged System Sell Actions in the NIV Tagged Ranked Set will be defined as Qualifying;
- (b) if $|\Sigma^m -\text{QSS}_j^m| > \text{RPAR}$:
 - (i) the Unflagged System Sell Actions in the Classified Ranked Set shall be ranked in price order, highest priced first;
 - (ii) as $\Sigma^w \text{QSS}_j^w > \text{RPAR}$ there must exist a number f and a number ϕ (which may be a fraction or zero) for which:

$$\text{RPAR} = (\Sigma^{w' v > f} -\text{QSS}_j^{w'v} + \phi * ((-\text{QSS}_j^{w'f}))$$

where $\Sigma^{w' v > f}$ is the sum over those System Sell Actions for which v is greater than f .

- (iii) Each of the System Sell Actions numbered f+1 or higher in the Replacement-Priced Ranked Set for which this is true will be defined as Qualifying. If ϕ is a fraction rather than zero, then the fraction (ϕ) of the System Sell Action numbered f will be defined as Qualifying.

16. PAR Tagging

16.1 In respect of each Settlement Period, System Actions in the Replacement-Priced Ranked Set will be defined as PAR Tagged in the following way:

(a) If:

$$\sum^{w'} QSB^{w'}_j \leq PAR$$

where $\sum^{w'}$ is the sum over the System Buy Actions in the Replacement-Priced Ranked Set

then none of the System Buy Actions (for all values of w') will be defined as PAR Tagged.

(b) If $\sum^{w'} (QSB^{w'}_j) > PAR$ there must exist a number f and a number ϕ (which may be a fraction or zero) for which

$$PAR = \sum^{w' v > f} QSB^{w'v}_j + \phi * QSB^{w'f}_j$$

where $\sum^{w' v > f}$ is the sum over those System Buy Actions for which v is greater than f.

Subject to paragraph (f), each System Buy Action numbered 1 to f-1 in the Replacement-Priced Ranked Set for which this is true will be defined as PAR Tagged. If ϕ is a fraction rather than zero, then the fraction (1- ϕ) of the System Buy Action numbered f will be defined as PAR Tagged.

(c) If:

$$\sum^{w'} (-QSS^{w'}_j) \leq PAR$$

where $\sum^{w'}$ is the sum over the System Sell Actions in the Replacement-Priced Ranked Set

then none of the System Sell Actions (for all values of w') will be defined as PAR Tagged.

(d) If $\sum^{w'} (-QSS^{w'}_j) > PAR$ there must exist a number f and a number ϕ (which may be a fraction or zero) for which

$$PAR = (\sum^{w' v > f} (-QSS^{w'v}_j)) + \phi * ((-QSS^{w'f}_j))$$

where $\sum^{w' v > f}$ is the sum over those System Sell Actions for which v is greater than f.

Subject to paragraph (f), each of the System Sell Actions numbered 1 to f-1 in the Replacement-Priced Ranked Set for which this is true will be defined as PAR Tagged. If ϕ is a fraction rather than zero, then the fraction (1- ϕ) of the System Seller Action numbered f will be defined as PAR Tagged.

(e) However, for each of paragraphs (b) and (d) (each a "relevant provision") separately, if the application of the relevant provision (the "initial calculation") would result in there being any System Buy Action or System Sell Action which:

- (1) is not defined as PAR Tagged, but
- (2) has the same price (including a NULL price) (other than merely by virtue of being a fraction ϕ pursuant to the initial calculation) as a System Buy Action or (as the case may be) a System Sell Action which is PAR Tagged,

then:

- (i) all such System Buy Actions $QSB^{w'_r j}$ or System Sell Actions $QSS^{w'_r j}$ (whether or not PAR Tagged) which have the same price are "threshold" System Actions;
- (ii) no threshold System Action shall be defined PAR Tagged pursuant to the relevant provision, but instead the fraction δ of each threshold System Buy Action $QSB^{w'_r j}$ or threshold System Sell Action $QSS^{w'_r j}$ which satisfies the following shall be defined as PAR Tagged:

$$\delta * (\sum^{w'_r} QSB^{w'_r j} = \sum^{w'_r} QSB^{w'_r j})$$

or (as the case may be)

$$\delta * (\sum^{w'_r} QSS^{w'_r j} = \sum^{w'_r} QSS^{w'_r j})$$

where

$\sum^{w'_r}$ is the sum over all threshold System Buy Actions or (as the case may be) threshold System Sell Actions, and

$\sum^{w'_r}$ is the sum over all threshold System Buy Actions or (as the case may be) threshold System Sell Actions (including a fraction $1-\phi$ thereof) which, on the basis of the initial calculation would have been defined as PAR Tagged.

Part 3 – Terms for Reporting

17. Table of terms

For the purposes of reporting the following amounts shall be determined as set out below:

Term	Acronym	Basis of determination
1. Amounts by BM Unit and Bid Offer Pair (summed over all Acceptances k)		
Period BM Unit Total Accepted Offer Volume	QAO_{ij}^n	Defined in Section T3.9.1
Period BM Unit Total Tagged Accepted Offer Volume	$QATO_{ij}^n$	The amount (if any) of QAO_{ij}^n which was excluded from the Ranked Set of System Buy Actions by De Minimis Tagging, Arbitrage Tagging, NIV Taging and/or PAR Tagging under paragraphs 6, 7, 9 or 11 of Part 1.
Period BM Unit Total Repriced Accepted Offer Volume	$QARO_{ij}^n$	The amount (if any) of QAO_{ij}^n which was not Tagged and which was Second-Stage Flagged in the NIV Tagged Ranked Set (and accordingly subject to Replacement-pricing under paragraph 10.2(a) of Part 1).
Period BM Unit Total Originally-priced Accepted Offer Volume	$QAOP_{ij}^n$	The amount (if any) of QAO_{ij}^n which was not Tagged and which was Unflagged in the NIV Tagged Ranked Set (and accordingly not subject to Replacement-pricing under paragraph 10.2(a) of Part 1).
Period BM Unit Total Accepted Bid Volume	QAB_{ij}^n	Defined in Section T3.9.2
Period BM Unit Total Tagged Accepted Bid Volume	$QATB_{ij}^n$	The amount (if any) of QAB_{ij}^n which was excluded from the Ranked Set of System Sell Actions by De Minimis Tagging, Arbitrage Tagging, NIV Taging and/or PAR Tagging under paragraphs 6, 7, 9 or 11 of Part 1.
Period BM Unit Total Repriced Accepted Bid Volume	$QARB_{ij}^n$	The amount (if any) of QAB_{ij}^n which was not Tagged and which was Second-Stage Flagged in the NIV Tagged Ranked Set (and accordingly subject to Replacement-pricing under paragraph 10.3(a) of Part 1).
Period BM Unit Total Originally-priced Accepted Bid Volume	$QAOPB_{ij}^n$	The amount (if any) of QAB_{ij}^n which was not Tagged and which was Unflagged in the NIV Tagged Ranked Set (and accordingly not subject to Replacement-pricing under paragraph 10.3(a) of Part 1).
2. Amounts by Balancing Services Adjustment Action		
Balancing Services Adjustment Buy Volume	$QBSAB_j^m$	Defined in Section [7]
Balancing Services Adjustment Tagged Buy Volume	$QBSATB_j^m$	The amount (if any) of $QBSAB_j^m$ which was excluded from the Ranked Set of System Buy Actions by De Minimis Tagging, Arbitrage

		Tagging, NIV Taging and/or PAR Tagging under paragraphs 6, 7, 9 or 11 of Part 1.
Balancing Services Adjustment Repriced Buy Volume	$QBSARB_j^m$	The amount (if any) of $QBSAB_j^m$ which was not Tagged and which was Second-Stage Flagged in the NIV Tagged Ranked Set (and accordingly subject to Replacement-pricing under paragraph 10.2(a) of Part 1).
Balancing Services Adjustment Originally-priced Buy Volume	$QBSAOPB_j^m$	The amount (if any) of $QBSAB_j^m$ which was not Tagged and which was Unflagged in the NIV Tagged Ranked Set (and accordingly not subject to Replacement-pricing under paragraph 10.2(a) of Part 1).
Balancing Services Adjustment Sell Volume	$QBSAS_j^m$	Defined in Section [I]
Balancing Services Adjustment Tagged Sell Volume	$QBSATS_j^m$	The amount (if any) of $QBSAS_j^m$ which was excluded from the Ranked Set of System Sell Actions by De Minimis Tagging, Arbitrage Tagging, NIV Tagging and/or PAR Tagging under paragraphs 6, 7, 9 or 11 of Part 1.
Balancing Services Adjustment Repriced Sell Volume	$QBSARS_j^m$	The amount (if any) of $QBSAS_j^m$ which was not Tagged and which was Second-Stage Flagged in the NIV Tagged Ranked Set (and accordingly subject to Replacement-pricing under paragraph 10.3(a) of Part 1).
Balancing Services Adjustment Originally-priced Sell Volume	$QBSAOPS_j^m$	The amount (if any) of $QBSAS_j^m$ which was not Tagged and which was Unflagged in the NIV Tagged Ranked Set (and accordingly not subject to Replacement-pricing under paragraph 10.3(a) of Part 1).
3. Amounts by Total System – Bid-Offer Pairs		
Total System Accepted Offer Volume	$TQAO_j$	$\sum_i \sum^n QAO_{ij}^n$
Total System Tagged Accepted Offer Volume	$TQATO_j$	$\sum_i \sum^n QATO_{ij}^n$
Total System Repriced Accepted Offer Volume	$TQARO_j$	$\sum_i \sum^n QARO_{ij}^n$
Total System Originally-priced Accepted Offer Volume	$TQAOP_j$	$\sum_i \sum^n QAOP_{ij}^n$
Total System Accepted Bid Volume	$TQAB_j$	$\sum_i \sum^n QAB_{ij}^n$
Total System Tagged Accepted Bid Volume	$TQATB_j$	$\sum_i \sum^n QATB_{ij}^n$
Total System Repriced Accepted Bid Volume	$TQARB_j$	$\sum_i \sum^n QARB_{ij}^n$

Total System Originally-priced Accepted Bid Volume	$TQAOPB_j$	$\sum_i \sum^n QAOPB_{ij}^n$
4. Amounts by Total System – Balancing Services Adjustment Actions		
Total System Balancing Services Adjustment Buy Volume	$TQBSAB_j$	$\sum^m QBSAB_j^m$
Total System Balancing Services Adjustment Tagged Buy Volume	$TQBSATB_j$	$\sum^m QBSATB_j^m$
Total System Balancing Services Adjustment Repriced Buy Volume	$TQBSARB_j$	$\sum^m QBSARB_j^m$
Total System Balancing Services Adjustment Originally-priced Buy Volume	$TQBSAOPB_j$	$\sum^m QBSAOPB_j^m$
Total System Balancing Services Adjustment Sell Volume	$TQBSAS_j$	$\sum^m QBSAS_j^m$
Total System Balancing Services Adjustment Tagged Sell Volume	$TQBSATS_j$	$\sum^m QBSATS_j^m$
Total System Balancing Services Adjustment Repriced Sell Volume	$TQBSARS_j$	$\sum^m QBSARS_j^m$
Total System Balancing Services Adjustment Originally-priced Sell Volume	$TQBSAOPS_j$	$\sum^m QBSAOPS_j^m$
5. Amounts by Total System – all System Actions		
Total System Buy Volume	$TQSB_j$	$TQAO_j + TQBSAB_j$
Total System Tagged Buy Volume	$TQSTB_j$	$TQATO_j + TQBSATB_j$
Total System Repriced Buy Volume	$TQSRB_j$	$TQARO_j + TQBSARB_j$
Total System Originally-priced Buy Volume	$TQSOPB_j$	$TQAOPO_j + TQBSAOPB_j$
Total System Sell Volume	$TQSS_j$	$TQAB_j + TQBSAS_j$
Total System Tagged Sell Volume	$TQSTS_j$	$TQATB_j + TQBSATS_j$
Total System Repriced Sell Volume	$TQSRS_j$	$TQARB_j + TQBSARS_j$
Total System Originally-priced Sell Volume	$TQSOPS_j$	$TQAOPB_j + TQBSAOPS_j$

In the table above \sum_i represents the sum over all BM Units, \sum^n represents the sum over all Bid-Offer Pair Numbers for a BM Unit, and \sum^m represents the sum over all Balancing System Adjustment Actions.