UPLIFT PAYMENTS FUNCTIONAL DESIGN

PREPARED BY:	MARKETS
DOCUMENT REF:	UP FD
VERSION:	9.1
DATE:	25/10/2016
FINAL	

Contents

Version Release History

Version	Date	By	Status	Change from last version
v9.1	15 Apr 2016	Sara Atukorala	Final	- Modified to reflect the changes made to AMDQ rules in March 2016, - It is required to take AMDQ CC into account when calculating the uplift hedge at Longford CPP. (Clauses 4.1 & 4.6)
v9.0	12 Jul 2011	cdiep / lchen	Final	- Modified to recognise that: - IHN and AIHN are by close proximity injection point (CPP)[1], - IH & AIH at the CPP is apportioned to each injection point in accordance with the scheduled injection at that injection point, - AMIQ% for future scheduling intervals can be renominated.
v8.5	29 Oct 2010	lchen	Final	- Incorporated Tariff V AMDQ allocation formulae into the function design - Updated the algorithm to ensure that negative Tariff V AMDQ allocations will not occur
v8.4	17 Aug 2010	J Ge / smckelvie	Final	- Modified to include uplift rate caps set equal to the average rates for positive and negative ancillary payments in each schedule. - Amend headings for 4.5 & 4.6 - Changed VENCorp override to AEMO demand forecast override - Changed references to MSO Rules to the corresponding NGR sections - Changed Transmission Pipeline Owner to the declared transmission system service provider
v8.3	1 May 2009	rkealley	Final	Includes the daily apportionment of Tariff V AMDQ
v8.2	1 May 2008	cdiep	Final operat'n al	- Modified to recognise that the AP module now calculates a new total AP by schedule with large negative AP's cancelled against large positive AP's. This figure must be read and is used as the total uplift to be allocated for settlement calculations performed after the date of commencement of this feature. - Use of TAP(s), which reflects total APs, has been replaced with TUP(s) which more correctly reflects what the term is, i.e. total uplift. TAP(s) and TUP(s) will no longer be the same.
v8.1	1 Feb 2007	cpratt	Final	- Change from v8.0: Updated during gas market project to further clarify close proximity injection point in equations, new subscript "CPP" inserted into multiple equations in section 4 where "close proximity injection point" should be used instead of "point", also updated incorrect formulas in section 4.1, 4.3, 5.2, 6 and 8.4.2. and provided further clarifications in some sections - approved January 2007, effective 1 February 2007 - note, version 8.0 was superseded by this version before it was implemented
v8.0	1 Oct 2006	cpratt	Final	Change from v7.1:Updated following gas market project

---

[1] 'Close Proximity Point' has the same meaning as 'Close Proximity Injection Point' as defined in the NGR, and will be replaced by the latter to ensure consistency.

				• approved 11 November 2005, effective 1 October 2006
v7.1	4 Aug 2004	cpratt	Final	Change from v7.0 • minor definitional clarifications, including clearly specifying that compressor fuel usage will not be included in uplift calculations • Alter clause 5.1 and 5.2 so that calculation does not specify "by market participant" as this was erroneously inserted in a previous version of this document
v7.0	14 Feb 2002	jwilding	Final	change from v6.0 – functionality unchanged – editorial changes to improve clarity and to align clause numbering with Uplift Procedures v2.0
V6.0	20 Sep 2001	cpratt	final	change from v5.0 - functionality of allocation altered to allow AMDQ credits to be allocated to a site and a hub.(changes to functionality by v6.0 from v5.03 retained as highlighted in yellow).
v5.03	7 Jul 2001	cprice	final – GMCC 18 Jul 01	change from v5.0 - functionality of allocation not altered; changes involve re-formatting in accordance with current ancillary payment detailed functional description v4.1; inserted examples and extensive glossary to assist with explanations; greater specification of application interface requirements.
v5.0	20 Jun 2001	cpratt	draft – issued to GMCC 20/6/01	change from v4.0 - incorporated functionality to permit $AMDQ^D$ to be referred to the hub and applied as a global uplift exceedance hedge, following implementation of $AMDQ^D$ transfers.
v4.0	28 Sep 1999	cprice	final – operat'nal	change from v2.4 – added functionality to incorporate AMDQ credits for non-Longford injections

1. DEFINITIONS

Refer Schedule 2 for glossary and complete list of nomenclature and symbols, and other conventions in terminology adopted throughout.

2. REQUIREMENTS

Refer Schedule 1 for requirements for information storage, reporting, and broad requirements for the user interfaces to the application.

3 OUTLINE OF THE PROCESS

Following the end of the month, (utilising actual settlement data (metered or as allocated, from the metering database) and the AMDQ applicable at each location on the day in question), for each schedule for each day of the month:

1. for settlement run prior to the date of this procedure taking effect, determine total amount of uplift for a schedule = total ancillary payments for a schedule, otherwise read the total amount of uplift payments

2. determine AMIQ, applicable for each market participant

3. determine market participant effective forecast withdrawals and any residual AEMO demand forecast override

4. determine "surprise" quantities (GJ) for each market participant and AEMO

5. determine "congestion" quantities (GJ) for each market participant and the declared transmission system service provider

6. cap both positive and negative uplift rates to the corresponding average ancillary payments rates

7. Apportion total uplift ($) from (1) into "surprise" uplift ($) and "congestion" uplift ($) and "common" uplift ($) based on (4), (5) & (6)

8. Allocate "surprise" uplift ($) from (7) to each market participant based on their "surprise" quantities for that schedule as calculated under (4)

9. Allocate "congestion" uplift ($) from (7) to each market participant and the TPO for the schedule within the gas day based on the market participant and TPO quantities (GJ) from (5)

10. Allocate "common" uplift ($) from (7) to each market participant based on their share of total V and D withdrawals, excluding compressor fuel gas

4.   AMIQ QUANTITIES (GJ)

This section deals with the way in which AMIQ quantities are determined.

4.1   Determine Diversified AMDQ for each market participant

For the purposes of calculating uplift, all *authorised MDQ* held at a site and *AMDQ credit certificates* nominated to a site, must be adjusted to account for their diversity. This is achieved by multiplying the *authorised MDQ* allocated to a site and *AMDQ credit certificates* nominated to a site by the diversity factor specific to each site. However, a*uthorised MDQ* held at the hub and *AMDQ credit certificates* nominated to a hub do not need to be adjusted to account for their diversity. All these quantities must then be summed to a total figure for each participant at each close proximity injection point (which may be a single supply point, or a collection of supply points and is defined in defined in Appendix B of the Uplift Payments Procedures) as follows:

$$\text{Diversified AMDQ}^{cred}_{(x, CPP \neq Longford)} =$$

$$\sum_{site=1,n} \left(\text{site AMDQ}^{Nom}_{(x, CPP \neq Longford, site)} * DF_{(x, CPP, site)} \right) + \text{hub AMDQ}^{Nom}_{(x, CPP \neq Longford)}$$

$$\text{Diversified AMDQ}^{cred}_{(x, CPP = Longford)} =$$

$$\sum_{site=1,n} \left(\text{site AMDQ}^{Nom}_{(x, CPP = Longford, site)} * DF_{(x, CPP, site)} \right) + \text{hub AMDQ}^{Nom}_{(x, CPP = Longford)}$$

(note, the sum of all AMDQ^{nom} figures must be equal to or less than the AMDQ^{cert} $_{(x, CPP \neq Longford)}$ plus AMDQ^{cert} $_{(x, CPP = Longford)}$ amount, so the AMDQ^{nom} figures will be used)

$$\text{Diversified Authorised MDQ}_{(x, CPP = Longford)} =$$

$$\sum_{site=1,n} \left(\text{site Authorised MDQ}_{(x, CPP = Longford, site)} * DF_{(x, CPP, site)} \right) + \text{hub Authorised MDQ}_{(x, CPP = Longford)}$$

Table 1: example of diversifying site and hub authorised MDQ

Site/Hub ID	Hub/site authorised MDQ $_{(x, CPP, site)}$	$DF_{(x, CPP, site)}$	Diversified Hub/site authorised MDQ $_{(x, CPP, site)}$
Site 1	20	0	0
Site 2	20	0.75	15
Site 3	30	0.5	15
Site 4	20	1	20
Hub	50	NA	50
Diversified authorised MDQ $_{(x, CPP)}$			100

4.2   Apportionment of Tariff V Authorised MDQ (at Longford CPP) to Market Participants

4.2.1   An overview of the process

An annual allocation of Tariff V *authorised MDQ* is made available to *Market Participants* for use in supporting uplift hedges.   This allocation is determined by pro-rating the block of Tariff V *authorised MDQ* to each *Market Participant* based on their share of the total Tariff V customer load in peak Tariff V demand days in the previous winter which are defined as the ten gas days, between 1 May and 30 September each year, with the highest system Tariff V load.

The annual allocation applies on the fifth business day of November each year, after it has been adjusted for change in Tariff V customer numbers between winter and the end of October. The change in customer numbers is as supplied for the determination of full retail contestability (FRC) fees.

The allocation is adjusted monthly on the fifth business day of every month other than November, based on the change in Tariff V customer numbers. The change in Tariff V customer numbers is as supplied through FRC fees. Figure 1 shows the process for annual (November) and monthly adjustments of Tariff V AMDQ allocations.

Figure 1 – Tariff V AMDQ allocations - annual and monthly adjustments
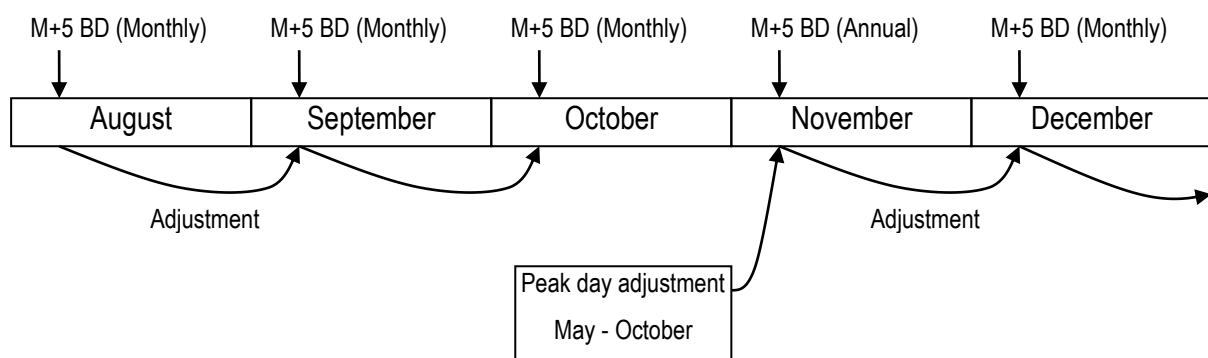
For every other gas day during the month, a daily adjustment is applied based on the estimated changes in customer numbers calculated as the net Tariff V customer transfers completed, plus any new sites received, less any site de-registrations received, since the previous gas day.

The daily adjustments are based on actual data for customer transfers, new and deregistered sites for Tier 2 retailers. As data will not typically be available for new and deregistered sites for Tier 1 retailers, they are ignored in the calculation, with an assumed negligible impact. This is then corrected at the beginning of each month to agree with the customer numbers associated with FRC fees sent by Distributors. This is shown in Figure 2.

Figure 2 – Tariff V AMDQ allocations - daily Adjustments

Daily Adjustments

Estimated change in customer numbers = net transfers in + new sites - de-registrations

Only if NOT M+5 BD
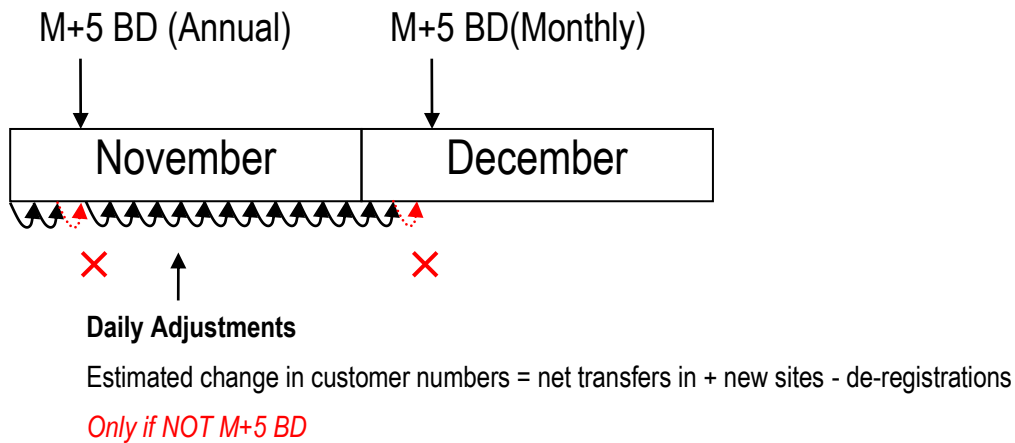
4.2.2   Determination of Tariff V winter peak day loads and AMDQ allocations

Each Market Participant's Tariff V winter peak day load in GJ is determined on the fifth business day in November each year as follows:

A Market Participant's Tariff V winter peak day load for the period 1 May and 30 September of the current year equals the sum of that Market Participants' Tariff V winter peak day load on the top ten winter peak days during this period.

$$TV\_LOAD^{PD}_{(x,Y)} = \sum_{PD=1}^{10} TV\_LOAD_{(x,Y,PD)}$$

Each Market Participants' percentage share of the total Tariff V winter peak day load is then calculated as follows:

A Market Participant's percentage share of Tariff V winter peak day load equals that Market Participant's Tariff V winter peak day load divided by

the sum of all Market Participants' Tariff V winter peak day loads.

$$TV\_PCNT_{(x,Y)} = \frac{TV\_LOAD^{PD}_{(x,Y)}}{\sum_{x=1}^{n} TV\_LOAD^{PD}_{(x,Y)}}$$

4.2.3   Annual Adjustment – On the fifth business day of November each year

On the fifth business day of November each year, each Market Participant's Tariff V AMDQ allocation is adjusted to reflect customer transfers between winter (as defined earlier) and the last gas day of October each year as follows:

A Market Participant's adjusted Tariff V AMDQ percentage share on the 5th business day of November is equal to:

> that Market Participant's adjusted number of Tariff V customers at the end of October divided by the total adjusted number of Tariff V customers of all Market Participants at the end of October – Note that the adjusted number of Tariff V customers must be greater than or equal to 0.

$$TV\_ADJ\_PCNT_{(x,Nov)} = \frac{TV\_ADJ\_NUM_{(x,Nov)}}{\sum_{x=1}^{n} TV\_ADJ\_NUM_{(x,Nov)}}$$

Where

> A Market Participant's adjusted number of Tariff V customers equals: that Market Participant's percentage share of Tariff V winter peak day load multiplied by
>
> the sum of all Market Participants' average Tariff V customer numbers over winter peak days plus
>
> the net change in the number of Tariff V customers for that Market Participant for the last gas day of October which is calculated as the difference between the number of Tariff V customers on that day and the average numbers of customers for that Market Participant over the top 10 Tariff V winter peak days. Note that the number of Tariff V customers must be greater than or equal to 0.

$$TV\_ADJ\_NUM_{(x,Nov)} = MAX \left\{ 0, \left[TV\_PCNT_{(x,Y)} \times \sum_{x=1}^{n} TV\_NUM_{(x,winter)} + \left(MAX(0,TV\_NUM_{(x,EO\ Oct)}) - MAX(0,TV\_NUM_{(x,winter)}) \right) \right] \right\}$$

Each Market Participant's Tariff V AMDQ allocation on the 5th business day of November is then calculated as follows:

Tariff V AMDQ allocation for a Market Participant at Longford CPP equals:

> the adjusted Tariff V AMDQ percentage share for that Market Participant for that day multiplied by
>
> the total Tariff V Authorised MDQ as adjusted by AEMO from time to time under NGR Part 19 Division 4 Subdivision 3 Rule 330.

$$V\ Auth\ MDQ_{(x,CPP=Longford)} = TV\_ADJ\_PCNT_{(x,Nov)} \times V\ Auth\ MDQ$$

4.2.4   Monthly Adjustment – Five business days after the end of every month (December current year to October following year)

On the fifth business day of each month from December of the current year to October of the following year, the % share of Tariff V winter peak day load is then adjusted for changes to customer numbers.

A Market Participant's adjusted Tariff V AMDQ percentage share on the 5th business day of each month where month ≠ November is equal to:

> that Market Participant's adjusted number of Tariff V customers for the month divided by

> the total adjusted number of Tariff V customers of all Market Participants for the month – Note that the number of adjusted Tariff V customers must be greater than or equal to 0.

$$\text{TV\_ADJ\_PCNT}_{(x,M\neq Nov)} = \frac{\text{TV\_ADJ\_NUM}_{(x,M\neq Nov)}}{\sum_{x=1}^{n}\text{TV\_ADJ\_NUM}_{(x,M\neq Nov)}}$$

Where

A Market Participant's adjusted number of Tariff V customers equals:

> that Market Participant's adjusted Tariff V AMDQ percentage share on the fifth business day of the previous month multiplied by

> the sum of all Market Participants' Tariff V customer numbers on the fifth business day of the previous month plus

> the net change in the number of Tariff V customers for that Market Participant for the month which is calculated as the difference between number of Tariff V customers on the fifth business day of the month and the number of Tariff V customers for that Market Participant on the fifth business day of the previous month. Note that the number of Tariff V customers must be greater than or equal to 0.

$$\text{TV\_ADJ\_NUM}_{(x,M\neq Nov)} = \text{MAX}\left\{0, \left[\begin{array}{l}\text{TV\_ADJ\_PCNT}_{(x,M-1)}\times\sum_{x=1}^{n}\text{TV\_NUM}_{(x,M-1)}+ \\ \left(\text{MAX}\left(0,\text{TV\_NUM}_{(x,M\neq Nov)}\right)-\text{MAX}\left(0,\text{TV\_NUM}_{(x,M-1)}\right)\right)\end{array}\right]\right\}$$

Each Market Participant's Tariff V allocation on the 5th business day of the month other than November is then calculated as follows:

Tariff V AMDQ allocation for a Market Participant at Longford CPP equals:

> the adjusted Tariff V AMDQ percentage share for that Market Participant for that day multiplied by

> the total Tariff V Authorised MDQ as adjusted by AEMO from time to time under NGR Part 19 Division 4 Subdivision 3 Rule 330.

$$\text{V Auth MDQ}_{(x,CPP=Longford)} = TV\_ADJ\_PCNT_{(x,M \neq Nov)} \times \text{V Auth MDQ}$$

4.2.5 Daily Adjustment – On every other gas day

On every gas day that is not the fifth business day of the month, a Market Participant's adjusted daily Tariff V AMDQ percentage share is calculated as follows:

that Market Participant's adjusted number of Tariff V customers for that gas day divided by

the total adjusted number of Tariff V customers of all Market Participants for that gas day – Note that the number of adjusted Tariff V customers must be greater than or equal to 0.

$$TV\_ADJ\_PCNT_{(x,GD)} = \frac{TV\_ADJ\_NUM_{(x,GD)}}{\sum_{x=1}^{n} TV\_ADJ\_NUM_{(x,GD)}}$$

Where

A Market Participant's adjusted number of Tariff V customers equals:

that Market Participant's adjusted Tariff V AMDQ percentage share for the previous gas day multiplied by

the sum of all Market Participants' Tariff V customer numbers for the previous gas day plus

the net change in the number of Tariff V customers for that Market Participant for that gas day which is calculated as the difference between number of Tariff V customers on that gas day and the number of Tariff V customers for that Market Participant for the previous gas day. Note that the number of Tariff V customers must be greater than or equal to 0.

$$TV\_ADJ\_NUM_{(x,GD)} = MAX \left\{ 0, \begin{bmatrix} TV\_ADJ\_PCNT_{(x,GD-1)} \times \sum_{x=1}^{n} TV\_NUM_{(x,GD-1)} + \\ \left(MAX\left(0, TV\_NUM_{(x,GD)}\right) - MAX\left(0, TV\_NUM_{(x,GD-1)}\right) \right) \end{bmatrix} \right\}$$

Each Market Participant's Tariff V allocation for a given gas day is then calculated as follows:

Tariff V AMDQ allocation for a Market Participant at Longford CPP equals:

the adjusted Tariff V AMDQ percentage share for that Market Participant for that gas day multiplied by

the total Tariff V Authorised MDQ as adjusted by AEMO from time to time under *NGR Part 19 Division 4 Subdivision 3 Rule 330*.

$$\text{V Auth MDQ}_{(x,CPP=Longford)} = TV\_ADJ\_PCNT_{(x,GD)} \times \text{V Auth MDQ}$$

4.3 Determination of Injection Hedge and Agency Injection Hedge

A *Market Participant* can nominate part or all of their injections for use by another *Market Participant* to generate an uplift hedge. The allocations of injection towards generating uplift hedge will occur in two phases, the first will be to allocate all the injection towards the injecting market participant until they satisfy their total nominated amount. The second step will be to allocate the remaining injection amongst other market participants on either a "preference system" or a "prorate system".

This stage of the calculation is performed for each supply point, not each close proximity injection point.

4.3.1   Determination of injection hedge for injecting Market Participant

Injection hedge nominations are by close proximity injection point and represent the quantity of a market participant's scheduled injections at that close proximity injection point that it intends to use to hedge against congestion uplift.

A market participant's injection hedge for a close proximity injection point is the lesser of its injection hedge nomination and the total scheduled injections at that close proximity injection point.

$$IH_{(x, CPP)} = Min [IH^{Nom}_{(x, CPP)} , \sum_{point=1,n} Qi^{LAOS}_{(x, point, cpp)}]$$

4.3.2   Determination of Agency injection hedge for Market Participants receiving uplift hedge nomination

If $\sum_{point=1,n} Qi^{LAOS}_{(x, point, cpp)} \geq [IH^{Nom}_{(x, CPP)} + \sum_{Rx=1,n} AIH^{Nom}_{(x, CPP, Rx\neq x)}]$

$\qquad$ Then $AIH_{(x,, CPP, Rx\neq x)} = AIH^{Nom}_{(x, CPP, Rx\neq x)}$

else if Prorate is the selected method

$\qquad$ then $AIH_{(x, CPP, Rx\neq x)} =$

$\qquad [\sum_{point=1,n} Qi^{LAOS}_{(x, point, cpp)} - IH_{(x, CPP)}] \times [AIH^{Nom}_{(x, CPP, Rx\neq x)} / \sum_{Rx=1,n} AIH^{Nom}_{(x, CPP, Rx\neq x)}]$

else if Preference is the selected method

$\qquad$ then $AIH_{(x, CPP, Rx\neq x)} = \sum_{Pref=1,n} AIH_{(x, CPP, Rx\neq x, Pref)}$

$\qquad$ where if

$\qquad \sum_{Pref=1, n-1} AIH^{nom}_{(x, CPP, Rx\neq x, Pref)} \geq \sum_{point=1,n} Qi^{LAOS}_{(x, point, cpp)} - IH_{(x, CPP)}$

$\qquad\qquad$ then $AIH_{(x, CPP, Rx\neq x, Pref)} = 0$

$\qquad$ else where if

$\qquad \sum_{Pref=1, n} AIH^{nom}_{(x, CPP, Rx\neq x, Pref)} \leq \sum_{point=1,n} Qi^{LAOS}_{(x, point, cpp)} - IH_{(x, CPP)}$

$\qquad\qquad$ then $AIH_{(x, CPP, Rx\neq x, Pref)} = AIH^{nom}_{(x, CPP, Rx\neq x, Pref)}$

$\qquad$ else $AIH_{(x, point, Rx\neq x, Pref)} =$

$\qquad\qquad [\sum_{point=1,n} Qi^{LAOS}_{(x, point, cpp)} - IH_{(x, CPP)}] - \sum_{Pref=1, n-1} AIH^{nom}_{(x, CPP, Rx\neq x, Pref)}$

The example in Table 2 shows the calculations of agency injection hedge allocated on a pro-rate basis. In this example, market participant X injects on behalf on market participants Y and Z. The injection and agency injection hedge nominations are assumed to be 20GJ for each market participant. Market participant X's scheduled injection is 30GJ, of which 20GJ is used towards satisfying its own injection hedge while the remaining 10GJ of scheduled injection is apportioned to market participants Y and Z resulting in 5GJ of agency injection hedge for each of the recipient market participants.

Table 2: example of prorate agency injection

Rx	$IH^{Nom}_{(x, CPP)}$ or $AIH^{Nom}_{(x, CPP, Rx \neq x)}$	$\sum_{point=1,n} Qi^{LAOS}_{(x, point, cpp)}$	$IH_{(x, CPP)}$ or $AIH_{(x, CPP, Rx \neq x)}$
X	20 GJ		IH = Min(20,30) = 20
Y	20 GJ	30 GJ	AIH =(30-20) * (20 / 40) = 5
Z	20 GJ		AIH =(30-20) * (20 / 40) = 5
Total	60 GJ		30

The example in Table 3 shows the calculations of agency injection hedge allocated on a preference basis. Under this scenario, the remaining 10GJ of scheduled injections are allocated to market participant Y while nothing is allocated to market participant Y.

Table 3: example of preference agency injection

Preference	Rx	$IH^{Nom}_{(x,CPP)}$ or $AIH^{Nom}_{(x, CPP, Rx \neq x, Pref)}$	$\sum_{point=1,n} Qi^{LAOS}_{(x, point, cpp)}$	$IH_{(x, CPP)}$ or $AIH_{(x, CPP, Rx \neq x, Pref)}$
1	X	20 GJ		Min(20,30) = 20
2	Y	20 GJ	30 GJ	Min(30-20, 20)=10
3	Z	20 GJ		Min(30-30-10,20) = 0
Total		60 GJ		30

4.4 Determination of participants scheduled injection quantity not entitled to Ancillary Payments

For each *Market Participant* injecting at each injection point at the relevant close proximity injection point, the quantities of scheduled injection that have been used to generate an *injection and/or an agency injection hedge* are not entitled to *ancillary payments.* This is equal to:

The sum of the total injection and agency injection hedge for the close proximity injection point apportioned to that injection point according to the amount of scheduled injection at that injection point as a proportion of the total scheduled injections from all the injection points at that close

proximity injection point. The scheduled injections are the quantities achieved at the final (10PM) operating schedule of the gas day.

This is calculated according to the following formula:

$APUH_{(x, point, CPP)} = (IH_{(x, CPP)} + \sum_{Rx=1,n} AIH_{(x, CPP, Rx \neq x)}) * Qi^{LAOS}_{(x, point, cpp)} / \sum_{point=1,n} Qi^{LAOS}_{(x, point, cpp)}$

Table 4: example calculation of gas not entitled to receive AP's for a participant at a MIRN

IH $_{(x,CPP)}$	20
or	10
AIH $_{(x, CPP, Rx \neq x)}$	0
UH $_{(x, CPP)}$	30

4.5   *Determination of uplift hedge for Non-Longford close proximity injection point*

For each *Market Participant* injecting at the non-Longford close proximity injection point, define the amount of AMDQ credit certificates available to that *Market Participant* to utilise as an *uplift hedge* as :

$UH_{(x, CPP \neq Longford)} = \min \begin{cases} \text{Diversified AMDQ}^{cred}_{(x, CPP \neq Longford)} \\ IH_{(x, CPP \neq Longford)} + \sum_{z=1,n} AIH_{(z \neq x, CPP \neq Longford, Rx=x)} \end{cases}$

where z denotes the injecting *Market Participants*.

4.6   *Determination of uplift hedge for Longford close proximity injection point*

For each *Market Participant* injecting at the Longford close proximity injection point, define the amount of Authorised MDQ and AMDQ credit certificates available to that *Market Participant* to utilise as an *uplift hedge* as:

$UH_{(x, CPP = Longford)} = \min \begin{cases} \text{Diversified Auth MDQ}_{(x, CPP=Longford)} + V \text{ Auth MDQ}_{(x, CPP=Longford)} + \text{Diversified AMDQ}^{cred}_{(x, CPP=Longford)} \\ IH_{(x, CPP=Longford)} + \sum_{z=1,n} AIH_{(z \neq x, CPP=Longford, Rx=x)} \end{cases}$

where z denotes the injecting Market Participants.

4.7   *No Retrospective Adjustment of Authorised MDQ or AMDQ Credit Quantities*

The available Authorised MDQ or AMDQ Credit Quantities available to a Market Participant is fixed at the recorded values at the beginning of a *gas day*. These quantities will not be adjusted to reflect any retrospective customer transfers or transfers that occur after the BoD *schedule*.

4.8   Calculation of AMIQ

The *AMIQ* for a *Market Participant* is calculated by multiplying the sum of the uplift hedge determined under clause 4.5 and 4.6 for each close proximity injection point that the *Market Participant* injects from by the *AMIQ profile* nominated for the final (10PM) schedule of the gas day by the *Market Participant* to AEMO under *NGR Part 19 Rule 211 (2A)*.

$$AMIQ_{(x,SI)} = (UH_{(x,\,CPP=Longford)} + \sum_{CPP\,=1,n} UH_{(x,\,CPP\neq Longford)}) * AMIQ\ Profile_{(X,SI,\,S=5)}$$

In the example shown in Table 5, the given Market Participant is assumed to have achieved a total of 285,000 GJ of uplift hedge from Longford, Iona and Culcairn close proximity injection points.

Table 5: total uplift hedge available to a participant on a gas day

$UH_{(x,\,CPP=Longford)}$	$UH_{(x,\,CPP=Iona)}$	$UH_{(x,\,CPP=Culcairn)}$	$UH_{(x,\,CPP=LNG)}$	Total
250,000 GJ	30,000 GJ	5,000 GJ	0 GJ	285,000 GJ

Table 6 shows how the total achieved uplift hedge is then allocated to each scheduling interval in accordance with the nominated AMIQ profile at the final operating schedule.

Note: *Market Participants* can re-nominate the AMIQ% for future scheduling intervals included in the re-schedules. The nominated AMIQ% for the scheduling intervals are subject to the set upper and lower limits.

Table 6: total AMIQ hedge available to a participant on a gas day

Schedule Interval	AMIQ Profile$_{(X,SI,S=5)}$	AMIQ hedge
6AM to 10AM	20%	57,000
10AM to 2PM	20%	57,000
2PM to 6PM	23%	65,550
6PM to 10PM	24%	68,400
10PM to 6AM	13%	37,050
Total	100%	285,000GJ

5.   CALCULATION OF MARKET PARTICIPANT EFFECTIVE DEMAND FORECAST

This section deals with the way in which the forecast demand of a *Market Participant* will, for the purpose of uplift calculations, be adjusted over the day to reflect any AEMO demand forecast overrides.

Note, in these procedures, the term demand forecast and forecast withdrawal are interchangeable

5.1   Calculation of an adjusted AEMO demand forecast override

An AEMO demand forecast override, for the purpose of overriding a *Participant* forecast to become an effective forecast withdrawal must be made positive or zero for each hour within each *scheduling interval* within each *scheduling horizon* for each schedule as follows:

If for a scheduling interval $\sum_{(h=1,n)} Qw^{VF}_{(h,SI,S)} \leq 0$

Then $Qw_{(h,SI,S)}^{AVF} = 0$ for all hours within the scheduling interval

Else if for an hour with a schedule interval $\sum_{(h=1,n)} Qw_{(h,SI,S)}^{VF} > 0$ and $Qw_{(h,SI,S)}^{VF} \leq 0$

Then each hour where $Qw_{(h,SI,S)}^{VF} < 0$, let $Qw_{(h,SI,S)}^{AVF} = 0$

Else if for an hour with a schedule interval $\sum_{(h=1,n)} Qw_{(h,SI,S)}^{VF} > 0$ and $Qw_{(h,SI,S)}^{VF} > 0$

Then for that hour within that schedule interval

$$Qw_{(h,SI,S)}^{AVF} = Qw_{(h,SI,S)}^{VF} \times \frac{\sum_{(h=1,n)} Qw_{(h,SI,S)}^{VF}}{\sum_{(h=1,n)} Max\left(0, Qw_{(h,SI,S)}^{VF}\right)}$$

Table 7: Calculation of an Adjusted AEMO demand forecast override

Schedule Interval	Hour	$Qw_{(h,SI,S)}^{VF}$	$\sum_{(h=1,n)} Qw_{(h,SI,S)}^{VF}$	$Qw_{(h,SI,S)}^{AVF}$
6AM to 10AM	6AM	-1,000 GJ		0 GJ
	7AM	2,000 GJ	9000 GJ	1800 GJ
	8AM	3,000 GJ		2700 GJ
	9AM	5,000 GJ		4500 GJ
10AM to 2PM	10AM	-1,000 GJ		0 GJ
	11AM	2,000 GJ	-1000 GJ	0 GJ
	Noon	3,000 GJ		0 GJ
	1PM	-5,000 GJ		0 GJ

5.2   *Allocation of adjusted AEMO demand forecast override amongst Market Participants*

For each hour in the *scheduling horizon* of each schedule, each *Participants* forecast withdrawal is to be adjusted upwards when the adjusted AEMO forecast is positive for that hour of that schedule as follows:

If $Qw_{(h,SI,S)}^{AVF} = 0$

Then $Qw_{(h,x,SI,S)}^{EF} = Qw_{(h,x,SI,S)}^{F}$

Else if $Qw_{(h,SI,S)}^{AVF} \leq \sum_{x=1,n} Max\left(0, Qw_{(h,x,SI)}^{A} - Qw_{(h,x,SI,S)}^{F}\right)$

$$\text{Then } Qw^{EF}_{(h,x,SI,S)} = Qw^{AVF}_{(h,SI,S)} \times \frac{Max\left(0, Qw^{A}_{(h,x,SI)} - Qw^{F}_{(h,x,SI,S)}\right)}{\sum_{x=1,n} Max\left(0, Qw^{A}_{(h,x,SI)} - Qw^{F}_{(h,x,SI,S)}\right)} + Qw^{F}_{(h,x,SI,S)}$$

$$\text{Else } Qw^{EF}_{(h,x,SI,S)} = Max\left(Qw^{A}_{(h,x,SI)}, Qw^{F}_{(h,x,SI,S)}\right)$$

Table 8: example of effective participants forecast calculation and residual AEMO demand forecast override

MP	$Qw^{VF}_{(h,SI,S)}$	$Qw^{AVF}_{(h,SI,S)}$	$Qw^{F}_{(h,x,SI,S)}$	$Qw^{A}_{(H,x,SI)}$	$Qw^{EF}_{(h,x,SI,S)}$	$Qw^{RVF}_{(h,SI,S)}$
A			100	120	120	(100+100+100+100)
B	100	100	100	130	130	− (120+130+100)
C			100	90	100	= 50
A			100	120	15*20/(20+30+0)+100 = 106	(15+100+100+100)
B	15	15	100	130	15*30/(20+30+0)+100 = 109	− (106+109+100)
C			100	90	15*0/(20+30+0)+100 = 100	= 0

5.3   Determination of residual AEMO demand forecast override

For each hour in the *scheduling horizon* of each *schedule*, the unallocated AEMO demand forecast override is equal to the system withdrawal forecast less the sum of the participant effective withdrawal forecast for that hour of that *schedule* for the *gas day* as follows:

$$Qw^{RVF}_{(h,SI,S)} = \left(\sum_{x=1,n} Qw^{F}_{(h,x,SI,S)} + Qw^{VF}_{(h,SI,S)}\right) - \sum_{x=1,n} Qw^{EF}_{(h,x,SI,S)}$$

See Table 8 or 9 for an example

Table 9: example of effective participants forecast calculation and residual AEMO demand forecast override

MP	$Qw^{VF}_{(h,SI,S)}$	$Qw^{AVF}_{(h,SI,S)}$	$Qw^{F}_{(h,x,SI,S)}$	$Qw^{A}_{(H,x,SI)}$	$Qw^{EF}_{(h,x,SI,S)}$	$Qw^{RVF}_{(h,SI,S)}$
A			100	120	120	(100+100+100+100)
B	100	100	100	130	130	− (120+130+100)
C			100	90	100	= 50
A	110	100	100	120	120	(100+100+100+110)
B			100	130	130	− (120+130+100)

C			100	90	100	= 60
A	15	15	100	120	106	(100+100+100+15) – (106+109+100) = 0
B			100	130	109	
C			100	90	100	
A	100	15	100	120	106	(100+100+100+100) – (106+109+100) = 85
B			100	130	109	
C			100	90	100	
A	-70	0	100	120	100	(100+100+100-70) – (100+100+100) = -70
B			100	130	100	
C			100	90	100	

6.   SURPRISE PAYMENT QUANTITIES

This section deals with the determination of the quantity of gas associated with the funding of "surprise" uplift for a schedule.

6.1   Determination of Adjusted Deviation Quantity

6.1.1   Determination of hourly deviation quantities

$$\left(Qi^{A}_{(h,x,SI)} - Qi^{LAOS}_{(h,x,SI)}\right) - \left(Qw^{A}_{(h,x,SI)} - Qw^{EF}_{(h,x,SI,S=5)}\right) - \left(Qcw^{A}_{(h,x,SI)} - Qcw^{LAOS}_{(h,x,SI)}\right)$$

where scheduled hourly quantities are from the last update of a schedule interval hourly quantities that occurred for that gas day

6.1.2   Determination of the Interval Deviation quantity

$DQ_{(x,SI,S)}$

$$= \sum_{h=1,n} \left[\left(Qi^{A}_{(h,x,SI)} - Qi^{LAOS}_{(h,x,SI)}\right) - \left(Qw^{A}_{(h,x,SI)} - Qw^{EF}_{(h,x,SI,S=5)}\right) - \left(Qcw^{A}_{(h,x,SI)} - Qcw^{LAOS}_{(h,x,SI)}\right) \right]$$

where scheduled hourly quantities are summed for each hour within each schedule interval that occurred just prior to the schedule.

6.1.3   Determination of the SIHDQ

$SIHDQ_{(x,SI,S)}$ =

$$\sum_{h=1,n} Min\left(0, \left[\left(Qi^{A}_{(h,x,SI)} - Qi^{LAOS}_{(h,x,SI)}\right) - \left(Qw^{A}_{(h,x,SI)} - Qw^{EF}_{(h,x,SI,S=5)}\right) - \left(Qcw^{A}_{(h,x,SI)} - Qcw^{LAOS}_{(h,x,SI)}\right) \right] \right)$$

where scheduled hourly quantities are summed for each hour within each schedule interval that occurred just prior to the schedule

6.1.4   Determination of increase in constrained up injection ad-hoc schedule

If an ad hoc schedule was performed within a schedule interval, determine the increase in constrained up injections for that ad hoc schedule by calculating for each participant at each supply source:

$$IncCUI_{(S)} = \sum_{MIRN=1,n} \sum_{x=1,n} Max\left(0, CUI_{(MIRN,x,AHS)} - CUI_{(MIRN,x,S)}\right)$$

Note:

- that the amount by which a participant is constrained up in a schedule is calculated in accordance with the ancillary payments procedures.

- If there was no ad hoc schedule performed in a schedule interval, then the increase in constrained up injections for that schedule will equal zero

- If there was more than one ad hoc schedule performed in a schedule interval, then the ad hoc schedule to be used will be the last ad hoc schedule approved in the schedule interval

6.1.5   Determination of the effective deviation quantity

If:

$IncCUI_{(S)} \leq 0$

then $EDQ_{(SI,S,X)}$ $= DQ_{(SI,S,X)}$

else if

$IncCUI_{(S)} > 0$

then $EDQ_{(SI,S,X)}$ $= SIHDQ_{(SI,S,X)}$

6.1.6   Determination of the allocation factor

If:

$IncCUI_{(S)} \leq 0$

then $AF_{(S)} = 0$

else if

$IncCUI_{(S)} > 0$

then $AF_{(S)} = Max(-IncCUI_{(S)}, \sum_{x=1,n} EDQ_{(SI,S,X)}) / \sum_{x=1,n} EDQ_{(SI,S,X)}$

note, this figure should only be greater than 0 if there was an ad hoc schedule and should always be less than 1.

6.1.7   Determination of the adjusted deviation quantity by participant by schedule

The adjusted deviation quantity for a market participant at a schedule equals

$ADQ_{(x,S)} = EDQ_{(x,SI=S-1,S)}$ $+ (EDQ_{(x,SI=S,S)} * AF_{(SI)}) - (EDQ_{(x,SI=S-1,S)} * AF_{(SI=S-1)})$

Note, SI=S-1 means that if a schedule was the second schedule for the day, then the Schedule interval was the first schedule interval for the day. Further, SI=S means that if a schedule was the second schedule for the day, then the Schedule interval was the second schedule interval for the day. A special case does occur however for the first schedule for the gas day because in this case the last schedule interval for the previous gas day should be used.

6.2   Determination of the surprise component for a market participant for a schedule

Where S=1,

$SC_{(x, S=1)} = - ADQ_{(x,S)}$

Else where S>1,

$$SC_{(x, S>1)} = (\sum_{SI=s,n} Qw^{EF}_{(x,SI,S)} - \sum_{SI=s,n} Qw^{EF}_{(x,SI,S-1)}) + (\sum_{SI=s,n} Qcw_{(x,SI,S)} - \sum_{SI=s,n} Qcw_{(x,SI,S-1)})$$
$$- ADQ_{(x,S)}$$

6.3   Determination of the Surprise uplift amount for unallocated AEMO demand forecast override

6.3.1   Determination of initial schedule Surprise uplift amount for unallocated AEMO demand forecast override

for S = 1 the initial surprise amount to be assigned to AEMO will equal

$$SC_{(s=1,VC)} = \sum_{h=1,24} Qw^{RVF}_{(h,S=1)}$$

6.3.2   Determination of reschedule Surprise uplift amount for unallocated AEMO demand forecast override

$$SC(s_{>1,VC}) =$$

$$\left[\left(\sum_{h=S,n} \sum_{x=1,n} Qw^{F}_{(h,x,S)} + \sum_{h=S,n} Qw^{VF}_{(h,S)} \right) - \left(\sum_{h=S,n} \sum_{x=1,n} Qw^{F}_{(h,x,S-1)} + \sum_{h=S,n} Qw^{VF}_{(h,S-1)} \right) \right] -$$

$$\left[\sum_{h=S,n} \sum_{x=1,n} Qw^{EF}_{(h,x,S)} - \sum_{h=S,n} \sum_{x=1,n} Qw^{EF}_{(h,x,S-1)} \right]$$

MP	$Qw^{VF}_{(h,SI,S)}$	$Qw^{F}_{(h,x,SI,S)}$	$Qw^{VF}_{(h,SI,S-1)}$	$Qw^{F}_{(h,x,SI,S-1)}$	$Qw^{EF}_{(h,x,SI,S)}$	$Qw^{EF}_{(h,x,SI,S-1)}$	$SC(s_{>1,VC})$
A		100		100	120	150	(400-450)-
B	100	100	150	100	130	150	(350-410) =-50 - -60
C		100		100	100	110	= 10
A		100		100	120	120	(450-400)-
B	150	100	100	100	130	130	(350-350) = 50 -0
C		100		100	100	100	= 50
A		100		100	100	100	(300-200)-
B	0	100	-100	100	100	100	(300-300) = 100-0
C		100		100	100	100	= 100
A	-100	100	0	100	100	100	(200-300)-

B		100		100	100	100	(300-300)
C		100		100	100	100	= -100-0 = -100
A		150		100	150	130	(400-400)-
B	0	150	100	100	150	130	(400-360) = 0-40
C		100		100	100	100	= -40
A		150		100	150	100	(400-300)-
B	0	150	0	100	150	100	(400-300) = 100-100
C		100		100	100	100	= 0
A		100		100	150	100	(400-300)-
B	100	100	0	100	150	100	(400-300) = 100-100
C		100		100	100	100	= 0

6.4 Determination of the total Surprise quantity for each schedule

Two values will be produced, one which is based on the sum of all positive SC values, and one for all negative SC values as follows:

$SC^P_{(S)} = \sum_{x=1,n} Max(0, SC_{(x, S)}) + Max(0, SC_{(S,VC)})$

$SC^N_{(S)} = \sum_{x=1,n} Min(0, SC_{(x, S)}) + Min(0, SC_{(S,VC)})$

7. CONGESTION QUANTITIES - EXCEEDANCE OF AMIQ

7.1 Calculation of exceedance of AMIQ

Calculate for each participant in each schedule interval for each schedule, the forecast exceedance of AMIQ as follows:

$$Q_{(x,SI,S)} = Max\left(0, Qw^{EF}_{(x,SI,S)} + Qcw_{(x,SI,S)} - AMIQ_{(x,SI)}\right)$$

Table 10: AMIQ exceedance calculation

Schedule Interval	$AMIQ_{(x,SI)}$	$Qw^{EF}_{(x,SI,S=1)} + Qcw_{(x,SI,S=1)}$	$Qw^{EF}_{(x,SI,S=2)} + Qcw_{(x,SI,S=2)}$	$Q_{(x,SI,S=1)}$	$Q_{(x,SI,S=2)}$	$Q'_{(x,SI,S=2)}$
6AM to 10AM	57,000 GJ	50,000 GJ	NA	0 GJ	NA	NA

10AM to 2PM	57,000 GJ	64,000 GJ	70,000 GJ	7,000 GJ	13,000 GJ	6,000 GJ
2PM to 6PM	65,550 GJ	65,550 GJ	65,550 GJ	0 GJ	0 GJ	0 GJ
6PM to 10PM	68,400 GJ	69,400 GJ	68,400 GJ	1000 GJ	0 GJ	-1000 GJ
10PM to 6AM	37,050 GJ	37,050 GJ	37,050 GJ	0 GJ	0 GJ	0 GJ
			$EC_{(x,S=1)}$	8,000GJ	$EC_{(x,S=2)}$	5000 GJ

7.2   Calculation of congestion caused by the failure of the declared transmission system service providers

In each schedule interval for each schedule, the forecast quantity of congestion caused by the failure of *the declared transmission system service providers* to fulfil their obligation under their respective *service envelope agreement* determined under *NGR Part 19 Rule 240* will equal:

$Q_{(TPO,SI,S)}$

This quantity is to be determined under a separate process.

7.3   Change in exceedance of AMIQ

Calculate for each participant in each *scheduling interval* following each *schedule*, the increase in the AMIQ exceedance as follows:

$Q'_{(x,SI,S)} = Q_{(x,SI,S)} - Q_{(x,SI,S-1)}$

Refer Table 10 for an example of this calculation.

7.4   Change in congestion caused by the failure of the declared transmission system service providers

$Q'_{(TPO,SI,S)} = Q_{(TPO,SI,S)} - Q_{(TPO,SI,S-1)}$

7.5   Determination of the total congestion quantity for each schedule

7.5.1   Determination of the total congestion quantity for the initial schedule

the total congestion quantity for the initial schedule (which can't be negative) is equal to:

$EC^P_{(S=1)} = \sum_{x=1,n} EC_{(x,S=1)} + EC_{(TPO,S=1)}$

Where

$EC_{(x,S=1)} = \sum_{SI=1,n} Q_{(x,SI,S=1)}$ (Refer Table 10 for an example of this calculation)

and

$EC_{(TPO,S=1)} = \sum_{SI=1,n} Q_{(TPO,SI,S=1)}$

7.5.2   Determination of the total congestion quantity for reschedule

Two values will be produced, one which is based on the sum of all positive EC values, and one for all negative EC values as follows:

$EC^P_{(S>1)} = \sum_{x=1,n} Max(0,EC_{(x,S>1)}) + Max(0, EC_{(TPO,S>1)})$

$EC^N_{(S>1)} = \sum_{x=1,n} Min(0,EC_{(x,S>1)}) + Min(0, EC_{(TPO,S>1)})$

Where

$EC_{(x,S>1)} = \sum_{SI>1,n} Q'_{(x,SI,S)}$ (Refer to Table 10 for an example of this calculation)

and

$EC_{(TPO,S>1)} = \sum_{SI>1,n} Q'_{(TPO,SI,S)}$

8 APPORTIONING TOTAL ANCILLARY PAYMENTS TO COMMON, SURPRISE AND CONGESTION

This section details the manner in which total ancillary payments are apportioned to "common", "surprise" and "congestion" to be recovered through uplift payments made by Participants at each schedule. Note, that from 1 May 2008 total uplift payments for a schedule will equal the ancillary payment quantity for that schedule after the AP flip flop algorithm has been completed.

For the avoidance of doubt a positive uplift payment value represents a payment from a *Market Participant* to the market.

A positive ancillary payment amount should be allocated amongst positive EC and SC values. A negative ancillary payment amount should be allocated amongst negative EC and SC values.

8.1 Total ancillary payments and uplift payments ($)

For settlement calculations pertaining to a date prior to 1 May 2008 total uplift Payment for a schedule is determined to be the aggregate of all Market Participants' ancillary payments at all injection and withdrawal points for a schedule as follows:

$TUP_{(S)} = TAP_{(S)} = \sum_{x=1,n} \sum_{point=1,n} AP_{(X,S, Point)}$

For settlement calculations pertaining to a date on or after 1 May 2008 total uplift Payment for a schedule ($TUP_{(S)} \neq TAP_{(S)}$) is read from the settlement database tables containing the outputs of the ancillary payment calculations.

8.2 Uplift rate caps

The positive and negative uplift rates for each schedule should be capped to be no more than the corresponding average ancillary payment rates in that schedule. This prevents market participants from paying more than what they need to pay to fund the corresponding ancillary payments on a $/GJ basis. The positive and negative average rates for ancillary payments are taken from the Ancillary Payment Functional Design v 8.2, section 8.5.7,

> Where the positive average rate for ancillary payments is $PAVAPR_{(S)}$,

> and the negative average rate for ancillary payments is $NAVAPR_{(S)}$.

Note: both rates will have **positive** values.

8.2.1 Determination of Initial Positive Uplift Rate Cap ($/GJ)

The positive uplift rate ($UPR^P_{(s)}$) for each schedule is calculated from the total uplift payment for that schedule (if it is positive), divided by the positive surprise and congestion quantities for that schedule, as calculated in sections 6.4 and 7.5 respectively.

$UPR^P_{(S)} =$

If $(SC^P_{(S)}+EC^P_{(S)}) = 0$ or $TUP_{(S)} < 0$, then 0

Else if $TUP_{(S)} \geq 0$, then $TUP_{(S)}/(SC^P_{(S)}+EC^P_{(S)})$

8.2.2 Determination of Revised Positive Uplift Rate ($/GJ)

The positive uplift rate ($UPR^P_{(s)}$) for each schedule calculated in 8.2.1 is then compared to the positive average ancillary payment rate for that schedule. If the positive uplift rate exceeds the positive average ancillary payment rate ($PAVAPR_{(S)}$), then the revised positive uplift rate ($RUPR^P_{(s)}$) will be calculated and set equal to the positive average ancillary payment rate. Otherwise it will remain equal to the positive uplift rate. This is calculated as per the formula below.

$RUPR^P_{(S)} = Min(UPR^P_{(S),} PAVAPR_{(S)})$

8.2.3 Determination of Initial Negative Uplift Rate Cap ($/GJ)

The negative uplift rate ($UPR^N_{(s)}$) for each schedule is calculated from the total uplift payment for that schedule (if it is negative), divided by the negative surprise and congestion quantities for that schedule, as calculated in sections 6.4 and 7.5 respectively.

$UPR^N_{(S)} =$

If $(SC^N_{(S)}+ EC^N_{(S)}) = 0$ or $TUP_{(S)} > 0$, then 0

Else If $TUP_{(S)} \leq 0$, then $TUP_{(S)} / (SC^N_{(S)} + EC^N_{(S)})$

8.2.4 Determination of Revised Negative Uplift Rate ($/GJ)

The negative uplift rate ($UPR^N_{(s)}$) for each schedule calculated in 8.2.3 is then compared to the negative average ancillary payment rate for that schedule. If the negative uplift rate exceeds the negative average ancillary payment rate ($NAVAPR_{(S)}$), then the revised negative uplift rate ($RUPR^N_{(S)}$) will be calculated and set equal to the negative average ancillary payment rate. Otherwise it will remain equal to the negative uplift rate. This is calculated as per the formula below.

Note, negative uplift rates will be **positive** numbers.

$RUPR^N_{(S)} = Min(UPR^N_{(S),} NAVAPR_{(S)})$

8.3   Determination of uplift payments attributable to congestion ($)

The total amount of uplift attributable to "congestion" at a schedule ($U^C_{(S)}$) is equal to:

If the total uplift payment for that schedule is positive, then the corresponding revised positive uplift rate multiplied by the corresponding positive total congestion quantity, otherwise the corresponding revised negative uplift rate multiplied by the corresponding negative total congestion quantity for that schedule.

$U^C_{(S)} =$

if $TUP_{(S)} = 0$, then 0

Else If $TUP_{(S)} > 0$, then $RUPR^P_{(S)} * EC^P_{(S)}$

Else if $TUP_{(S)} < 0$, then $RUPR^N_{(S)} * EC^N_{(S)}$

8.4   Determination of uplift payments attributable to surprise

The total amount of uplift attributable to "surprise" at a schedule is equal to:

If the total uplift payment for that schedule is positive, then the corresponding revised positive uplift rate multiplied by the corresponding sum of all non-AEMO participants positive surprise components for that schedule;

Otherwise the corresponding revised negative uplift rate multiplied by the corresponding negative uplift rate multiplied by the corresponding sum of all non-AEMO participants negative surprise components for that schedule.

$U^S_{(S)} =$

if $TUP_{(S)} = 0$, then 0

Else If $TUP_{(S)} > 0$, then $RUPR^P_{(S)} * \sum_{x=1,n} Max(0, SC_{(x \neq VC, s)})$

Else if $TUP_{(S)} < 0$, then $RUPR^N_{(S)} * \sum_{x=1,n} Min(0, SC_{(x \neq VC, s)})$

8.5   Determination of uplift payments attributable to common

8.5.1   Common uplift for unallocated AEMO forecast increase

If the average ancillary rate cap has been exceeded, the corresponding uplift payment above this cap has to be distributed into common uplift.

The total amount of uplift attributable to unallocated AEMO demand forecast override at a schedule ($U^{VC}_{(S)}$) is equal to :

If the total uplift payment is positive,

> the revised positive uplift rate multiplied by any positive surprise component due to unallocated AEMO demand forecast override, plus the difference between the original and the revised positive uplift rate multiplied by the total positive congestion quantity and the sum of all market participants' positive surprise quantities for that schedule;

else

> the revised negative uplift rate multiplied by any negative surprise component due to unallocated AEMO demand forecast override, plus the difference between the original and the revised negative uplift rate multiplied by the total negative congestion quantity and the sum of all market participants' negative surprise quantities for that schedule;

$U^{VC}_{(S)} =$

if $TUP_{(S)} = 0$, then 0,

Else if $TUP_{(S)} > 0$, then $RUPR^P_{(S)} * Max(0, SC_{(S,VC)}) + (UPR^P_{(S)} - RUPR^P_{(S)}) * (EC^P + \sum_{x=1,n} Max(0, SC_{(x \neq VC,s)}))$,

Else if $TUP_{(S)} < 0$, then $RUPR^N_{(S)} * Min(0, SC_{(S,VC)}) + (UPR^N_{(s)} - RUPR^N_{(S)}) * (EC^N + \sum_{x=1,n} Min(0, SC_{(x \neq VC,s)}))$

8.5.2 *Common uplift for the declared transmission system service provider's liability limit exceedance*

If $\sum_{S=1,5}$ (if $U^C_{(s)} > 0$, $U^C_{(s)} * Max(0, EC_{(TPO,S)}) / EC^P_{(s)}$, else $U^C_{(s)} < 0$, $U^C_{(s)} * Min(0, EC_{(TPO,S)}) / EC^N_{(s)}$)

$> LLR * \sum_{S=1,5} EC_{(TPO,S)}$ or

If $\sum_{DOY=1,n-1} U^{TPO}_{(DOY)} + \sum_{S=1,5}$ (if $U^C_{(s)} > 0$, $U^C_{(s)} * Max(0, EC_{(TPO,S)}) / EC^P_{(s)}$, else $U^C_{(s)} < 0$, $U^C_{(s)} * Min(0, EC_{(TPO,S)}) / EC^N_{(s)}$) $> LL$

Then $U^{TPOX}_{(GD)} =$

$Max\{[\sum_{S=1,5}$ (if $U^C_{(s)} > 0$, $U^C_{(s)} * Max(0, EC_{(TPO,S)}) / EC^P_{(s)}$, else $U^C_{(s)} < 0$, $U^C_{(s)} * Min(0, EC_{(TPO,S)}) / EC^N_{(s)}$) $- LLR * \sum_{S=1,5} EC_{(TPO,S)}]$, $[\sum_{DOY=1,n-1} U^{TPO}_{(DOY)} + \sum_{S=1,5}$ (if $U^C_{(s)} > 0$, $U^C_{(s)} * Max(0, EC_{(TPO,S)}) / EC^P_{(s)}$, else $U^C_{(s)} < 0$, $U^C_{(s)} * Min(0, EC_{(TPO,S)}) / EC^N_{(s)}$) $- LL$]$\}$

Else $U^{TPOX}_{(GD)} = 0$

8.5.3 *Remaining uplift*

The remaining uplift is calculated from the total uplift payment minus the congestion uplift payment, the surprise uplift payment, and the common uplift payment associated with AEMO demand forecast override.

$U^R_{(S)} = TUP_{(S)} - U^C_{(S)} - U^S_{(S)} - U^{VC}_{(S)}$

9.   ALLOCATION OF UPLIFT PAYMENTS TO PARTICIPANTS

9.1   *Surprise Uplift payable by a Market Participant*

$U^S_{(x,S)} =$

If $U^S_{(S)} = 0$, then 0

Else if $U^S_{(S)} > 0$, then $U^S_{(S)} * Max(0, SC_{(x \neq VC,s)}) / SC^P_{(S)}$

Else if $U^S_{(S)} < 0$, then $U^S_{(S)} * Min(0, SC_{(x \neq VC,s)}) / SC^N_{(S)}$

9.2   *Uplift payable by the declared transmission system service provider for failure to meet its Service Envelope Agreement obligations*

$U^{TPO}_{(GD)} = \sum_{S=1,5}$

(if $U^C_{(s)} > 0$, $U^C_{(s)} * Max(0, EC_{(TPO,S)}) / EC^P_{(s)}$

if $U^C_{(s)} < 0$, $U^C_{(s)} * Min(0, EC_{(TPO,S)}) / EC^N_{(s)}$)

$- U^{TPOX}_{(GD)}$

9.3   Congestion uplift payable by Market Participant

If $U^C_{(S)}$ = 0, then 0

Else f $U^C_{(S)}$ > 0, then $U^C_{(S)}$ * Max(0,$EC_{(x,s)}$) / $EC^P_{(S)}$

Else if $U^C_{(S)}$ < 0, then $U^C_{(S)}$ * Min(0,$EC_{(x,s)}$) / $EC^N_{(S)}$

9.4   Common Uplift payable by Market Participant for exceedance of the declared transmission system service provider's liability limit

Total liability limit exceedance uplift (U^{TPOX}) is to be smeared amongst market participant in proportion with their daily withdrawals as follows:

$$U^{TPOX}_{(x)} = U^{TPOX} \times \left(\frac{\sum_{site=1}^{N} Qw^{AD}_{(x,site)} + \sum_{zone=1}^{W} Qw^{AV}_{(x,zone)}}{\sum_{x=1}^{mp} \sum_{site=1}^{N} Qw^{AD}_{(x,site)} + \sum_{x=1}^{mp} \sum_{zone=1}^{W} Qw^{AV}_{(x,zone)}} \right)$$

9.5   Common Uplift payable by or to Market Participant for unallocated AEMO forecast increase

Total common uplift associated with AEMO demand forecast override is to be smeared amongst market participant in proportion with their daily withdrawals as follows:

$$U^{VC}_{(x,S)} = U^{VC}_{(S)} \times \left(\frac{\sum_{site=1}^{N} Qw^{AD}_{(x,site)} + \sum_{zone=1}^{W} Qw^{AV}_{(x,zone)}}{\sum_{x=1}^{mp} \sum_{site=1}^{N} Qw^{AD}_{(x,site)} + \sum_{x=1}^{mp} \sum_{zone=1}^{W} Qw^{AV}_{(x,zone)}} \right)$$

9.6   Residual Common Uplift payable by or to Market Participant

Total unallocated uplift is to be smeared amongst market participant in proportion with their daily withdrawals as follows:

$$U^R_{(X,S)} = = U^R_{(S)} \times \left(\frac{\sum_{site=1}^{N} Qw^{AD}_{(x,site)} + \sum_{zone=1}^{W} Qw^{AV}_{(x,zone)}}{\sum_{x=1}^{mp} \sum_{site=1}^{N} Qw^{AD}_{(x,site)} + \sum_{x=1}^{mp} \sum_{zone=1}^{W} Qw^{AV}_{(x,zone)}} \right)$$

9.7   Total uplift payable by each Market Participant

The total uplift payable by each market participant is equal to the sum of

- $\sum_{S=1,n} U^S_{(X,S)}$

- $\sum_{S=1,n} U^C_{(X,S}$

- $U^{TPOX}_{(x)}$

- $\sum_{S=1,n} U^{VC}_{(X,S)}$

- $\sum_{S=1,n} U^R_{(X,S)}$

$$----------------------------§----------------------------$$

Schedule 1. Requirements

- The application user must be able to submit an uplift allocation run by entering a gas date and a $Q^{TPO}_{(S)}$ for each schedule within that gas day and then initiating the run.

- The application must generate a unique identifier for each run and store this identifier in the Uplift database together with the gas day, the $Q^{TPO}_{(S)}$ and the date and time the run was submitted, and the information as listed below.

- It is critical that both AP's and uplift are calculated using exactly the same input data, such as metering, AMDQ, AMDQ credits etc (excluding $TAP_{(S)}$ and $TUP_{(S)}$ where these differ). If not, the results will be invalid and consequently the user needs to be notified by the application. Therefore, the uplift application must compare the check values for the validated energy transfer version id, and the check value for the validated AMDQ-AMDQ credits transfer version id, and notify user of results.

- the application must display the results to the user once the uplift allocation run is complete.

- All input data used in order to calculate uplift allocations must be retained in the Uplift database for auditing purposes. This data must be stored so that for each uplift allocation run it is possible to determine exactly what input data was used for the run.

- All output data must be retained in the Uplift database for auditing purposes. This data must be stored so that for each uplift allocation run data is recorded for each output noted in the table following associated with the run identifier.

- The outputs defined in the associated table are to be written to tables in the settlements database, and associated reports on the MIBB are to provide views into the tables, restricted for participants to that information relating to their own settlements only.

  ❑ notifications and associated information are to be provided to the AEMO user of the application at the culmination of a process run

  ❑ a view of all of the outputs is to be provided to AEMO

Table 1. status – permanent, updateable

The following table outlines what data is to be produced and the data type that is produced.

Outputs	type
$U^S{}_{(s,x)}$	$
$U^C{}_{(s,x)}$	$
$TAP_{(s,x)}$	$
$U^{TPO}{}_{(s,x)}$	$
$U^{VC}{}_{(s,x)}$	$
$U^R{}_{(s,x)}$	$
$U^{TPOX}{}_{(x)}$	$
$Qw^{AD}{}_{(h,x,site)}$	GJ
site $AMDQ^{Nom}{}_{(x, CPP,site)}$	GJ
site Authorised $MDQ_{(x, CPP,site)}$	GJ
$DF_{(x, CPP,site)}$	GJ
hub $AMDQ^{Nom}{}_{(x, CPP)}$	GJ
hub Authorised $MDQ_{(x, CPP)}$	GJ
$DF_{(x, CPP)}$	GJ
$Qw^{AV}{}_{(h,x,zone)}$	GJ
$AMIQ_{(x,SI)}$	GJ
V Auth $MDQ_{(x, CPP)}$	GJ
$Qw^{EF}{}_{(h,x,SI,S)}$	GJ
$Qw^{F}{}_{(h,x,SI,S)}$	GJ
$Qw^{A}{}_{(h,x,SI,S)}$	GJ
$SC_{(S,X)}$	GJ
$EC_{(S,X)}$	GJ
$U^S{}_{(S)}$	$
$U^C{}_{(S)}$	$
$TAP_{(S)}$	$
$U^{TPO}{}_{(S)}$	$
$U^{VC}{}_{(S)}$	$
$U^R{}_{(S)}$	$
U^S	$
U^C	$
$TUP_{(S)}$	$
U^{TPO}	$
U^{VC}	$
U^R	$

U^{TPOX}	$
warning	alpha
check value (validated AMDQ/AMDQ credits transfer version number)	Integer
check value (validated energy transfer version number)	Integer
warning – where check values are not same as in AP run.	Alpha

GJ quantities are required to be stored to nearest GJ.

$ quantities are required to be stored to nearest cent.

----------------------------§----------------------------

Schedule 2. Nomenclature

This schedule lists the inputs utilised by the uplift application, the sources of this information, and defines nomenclature for the functionality described in this document.

1.   General relationships

In TMM/MCE, the operational scheduled quantities are by pipeline point.

- A physical MIRN is currently associated with each pipeline point.

- At present, participants enter nominations or offers against a pipeline point (physical MIRN) for both injections and controllable withdrawals.

- Supplier and demand point constraints (SDPC) currently apply to pipeline points.

- The constraints in the offers and SDPC are modelled by the MCE formulation as applicable at pipeline points.

- Uncontrollable demand is modelled by node (input from the demand forecasting system by node).

- The results for pipeline points are summed at nodes for the purpose of reporting.

In TMM/MCE, the pricing schedule quantities are derived by pipeline point (the pricing schedule models all supply and demand at one node).

In settlements/metering database,

- the Tariff D AMDQ is stored by site,

- the block Tariff V Authorised MDQ is a system-wide number (portions are allocated to individual participants/retailers with Tariff V loads on a daily basis)

- Tariff D withdrawals are stored by MIRN by *Market Participant* who is FRO (i.e. host retailer) by day, and later grouped by all sites of a *Market Participant* who is FRO (i.e. host retailer).

- Tariff V withdrawals are stored by *Market Participant* who is FRO (i.e. host retailer) by day, across the system (NB it is calculated within the BMP by DB area).

- total injections at each system injection point are stored by physical MIRN (which corresponds to a pipeline point).

- injections allocated to a *Market Participant* by an allocation agent are stored by logical MIRN by market participant for the gas day

2. Conventions

2.1 Symbols

Qw	withdrawal energy quantities (GJ)
Qcw	Controllable withdrawal quantities (GJ)
Qi	injection energy quantities (GJ)
P	energy prices ($/GJ)
AMDQ	authorised Maximum Daily Quantities (GJ)
AMIQ	Authorised Maximum Interval Quantity (GJ)
U	uplift allocation ($)
AP	ancillary payment ($)
TAP	Total ancillary payment ($)
TUP	Total uplift payment ($)
UPR	Uplift rate ($/GJ)
RUPR	Revised uplift rate ($/GJ)
DF	Diversity factor applicable to each site Authorised MDQ (coefficient)
AMIQ Profile	Authorised Maximum interval quantity profile (%)
DQ	Deviation Quantity
SIHDQ	Schedule Interval Hourly Deviation Quantity
CUI	Constrained Up Injections
IncCUI	Increase in Constrained Up Injections
EDQ	Effective Deviation Quantity
ADQ	Adjusted Deviation Quantity
AF	Allocation Factor
SC	Surprise Component
Q	congestion quantity
Q'	change in congestion quantity
EC	Exceedance Component
BD	business days

2.2 Superscripts

D	Tariff D site
V	Tariff V site
OS	operating schedule (any)
VC	AEMO (previously VENCorp)
VF	AEMO Forecast
AVF	Adjusted AEMO Forecast

RVF	Residual AEMO Forecast	
F	Forecast	
EF	Effective Forecast	
LAOS	last approved operating schedule	
A	Actual – quantity as metered/allocated (adjusted for UAFG in case of withdrawals)	
Diversified	diversified AMDQ following application of the diversity factor	
Agency	refers to participant whose injections may generate an uplift hedge for another participant	
M	market (price)	
B	bid (market participant)	
hub	Tariff D AMDQ referred to the hub	
cert	certificated AMDQ credits (Longford and non-Longford AMDQ)	
nom	nominated amount of AMDQ credit certificate (Longford and non-Longford AMDQ credits)	
cred	AMDQ credits (Longford and non-Longford AMDQ)	
TPO	The declared transmission system service provider	
TPOX	The declared transmission system service provider Exceedance (meaning amount in exceedance of TPO's Liability limit)	
S	Surprise	
C	Congestion	
R	Residual	
P	Positive	
N	Negative	
PD	total winter peak days	

2.3   *Subscripts*

point	Supply point (TMM/MCE); up to n points
CPP	Close proximity injection point, which for AMDQ purposes may include one or more pipeline "points" and is defined in Appendix B of the Uplift Payments Procedures
node	node (TMM/MCE); up to n nodes
mirn	physical MIRN (metering identification registration number)
site	Tariff D physical site location; up to N sites
x	market participant; up to mp market participants
Rx	refers to the participant receiving benefit of agency injections
z	injecting market participants
zone	Tariff V withdrawal zone (TMM/MCE) – up to W zones
step	step of the offer (1,2,3,….10), (incl. step 0); up to 11 steps
h	hour of the gas day (1,2,3,…..24)
pref	preference – refers to the preference order of who is to receive benefit of agency injections

AHS	Ad Hoc Schedule – a schedule performed between set schedule times referred to in subscript "S". If there was more than one ad hoc schedule performed in a schedule interval, then the ad hoc schedule to be used will be the last ad hoc schedule approved in the schedule interval
S	Schedule where first schedule is S=1, second schedule is S=2 up to S=5 for the 10PM schedule
SI	Schedule Interval where first schedule interval is S=1, second schedule Interval is S=2 up to S=5 for the 10PM to 6AM schedule interval
DOY	day of year, where 1 January is the first day of calendar year
GD	Gas Day
Y	Year
M	Month
PD	A winter peak day
winter	The period between 1 May and 30 Sep each year

3. Specifics

3.1 Last Approved Operational Schedule

Source: TMM database - the last approved operational schedule for the gas day being processed

$Qi^{LAOS}_{(h,x,point)}$ — Injections scheduled in an hour in scheduling interval SI for market participant x at pipeline point (point), in the last approved operational schedule for the gas day

$Qi^{LAOS}_{(x,point)}$ — Injections scheduled for market participant x at pipeline point (point), in the last approved operational schedule for the gas day

$Qcw^{LAOS}_{(h,x,SI)}$ — controllable withdrawals scheduled in an hour in scheduling interval SI for market participant x at pipeline point (point), in the last approved operational schedule for the gas day

3.2 Actuals:

Source: Metering Database

$Qi^{A}_{(h,x,SI)}$ — Actual injections for an hour for market participant x for scheduling interval SI

$Qw^{AD}_{(h,x,mirn)}$ — Actual Tariff D withdrawals (including controllable) for an hour for market participant x for MIRN

$Qw^{AD}_{(h,x,site)}$ — Actual Tariff D withdrawals (including controllable) for an hour for market participant x by Tariff D site (by summing the MIRN's for the site)

$Qw^{AV}_{(h,x,zone)}$ — Actual Tariff V withdrawals (including controllable) for an hour of all Tariff V sites of market participant x in withdrawal zone (zone).

$Qw^{AV}_{(x)}$ — Actual Tariff V withdrawals (including controllable) for the gas day of all Tariff V sites of market participant x across the system.

$Qw^{A}_{(h,x,SI)}$ — Actual uncontrollable withdrawals for an hour for market participant x for scheduling interval SI

$Qcw^{A}_{(h,x,SI)}$ — Actual controllable withdrawals for an hour for market participant x for scheduling interval SI

Note: Actual withdrawals related to Tariff D sites do not include compressor fuel usage

3.3 Offers:

[section deleted intentionally – not applicable]

3.4 AMDQ:

Diversified Authorised MDQ $_{(x, CPP=Longford)}$ — Authorised MDQ allocation to either a site or hub for Tariff D customers of market participant x at close proximity injection point (CPP).

site Authorised MDQ $_{(x, CPP=Longford, site)}$ — Authorised MDQ allocation to a site for Tariff D customers of market participant x at close proximity injection point (CPP).

hub Authorised MDQ $_{(x, CPP=Longford)}$ — Authorised MDQ allocation to a hub for Tariff D customers of market participant x at close proximity injection point (CPP).

$\text{AMDQ}^{cert}{}_{(x,\ CPP \neq Longford)}$	Amount of AMDQ Credit Certificates at Non-Longford close proximity injection point (CPP) available for a market participant x to nominate to site(s) and/or a hub for the purpose of hedging against uplift payments.
$\text{AMDQ}^{cert}{}_{(x,\ CPP = Longford)}$	Amount of AMDQ Credit Certificates at Longford close proximity injection point (CPP) available for a market participant x to nominate to site(s) and/or a hub for the purpose of hedging against uplift payments.
$\text{site AMDQ}^{nom}{}_{(x,\ CPP \neq Longford,\ site)}$	Amount of AMDQ Credit Certificates at Non-Longford close proximity injection point (CPP) nominated to a site by market participant x to hedge uplift (where this market participant holds such certificates at this close proximity injection point as quantified by $\text{AMDQ}^{cert}{}_{(x,\ CPP \neq Longford)}$).
$\text{site AMDQ}^{nom}{}_{(x,\ CPP = Longford,\ site)}$	Amount of AMDQ Credit Certificates at Longford close proximity injection point (CPP) nominated to a site by market participant x to hedge uplift (where this market participant holds such certificates at this close proximity injection point as quantified by $\text{AMDQ}^{cert}{}_{(x,\ CPP = Longford)}$).
$\text{hub AMDQ}^{nom}{}_{(x,\ CPP \neq Longford)}$	Amount of AMDQ Credit Certificates at Non-Longford close proximity injection point (CPP) nominated to a hub by market participant x to hedge uplift arising from AMDQ exceedance (where this market participant holds such certificates at this close proximity injection point as quantified by $\text{AMDQ}^{cert}{}_{(x,\ CPP \neq Longford)}$).
$\text{hub AMDQ}^{nom}{}_{(x,\ CPP = Longford)}$	Amount of AMDQ Credit Certificates at Longford close proximity injection point (CPP) nominated to a hub by market participant x to hedge uplift arising from AMDQ exceedance (where this market participant holds such certificates at this close proximity injection point as quantified by $\text{AMDQ}^{cert}{}_{(x,\ CPP = Longford)}$).
$\text{Diversified AMDQ}^{cred}{}_{(x,\ CPP \neq Longford)}$	AMDQ Credits at Non-Longford close proximity injection point (CPP) for market participant x which is available (dependent on actual injections on the day) to hedge uplift.
$\text{Diversified AMDQ}^{cred}{}_{(x,\ CPP = Longford)}$	AMDQ Credits at Longford close proximity injection point (CPP) for market participant x which is available (dependent on actual injections on the day) to hedge uplift.
$\text{TV\_LOAD}_{(x,Y,PD)}$	A winter peak day Tariff V load for a market participant
$\text{TV\_LOAD}^{PD}{}_{(x,Y)}$	Total winter peak day Tariff V load for a market participant.
$\text{TV\_PCNT}_{(x,Y)}$	A market participant's percentage share of the total winter peak day Tariff V load
$\text{TV\_NUM}_{(x,winter)}$	Average number of Tariff V meters/customers for a market participant over winter peak days. Customer numbers are determined as part of the process to determine FRC fees.

$TV\_NUM_{(x,EO\ Oct)}$	Number of Tariff V meters/customers for a market participant at the end of October. Customer numbers are determined as part of the process to determine FRC fees.
$TV\_ADJ\_NUM_{(x,Nov)}$	Adjusted number of Tariff V meters/customers for a market participant at the end of October, taking account of its share of the average Tariff V meters/customers for the winter days.
$TV\_NUM_{(x,M\neq Nov)}$	Number of Tariff V meters/customers for a market participant at the end of the current month other than November. Customer numbers are determined as part of the process to determine FRC fees.
$TV\_ADJ\_NUM_{(x,M\neq Nov)}$	Adjusted number of Tariff V meters/customers for a market participant at the end of the current month other than November, taking account of its share of Tariff V meters/customers for the previous month.
$TV\_NUM_{(x,M-1)}$	Number of Tariff V meters/customers for a market participant at the end of previous month. Customer numbers are determined as part of the process to determine FRC fees.
$TV\_NUM_{(x,GD)}$	Estimated number of Tariff V meters/customers for a market participant on a given gas day. Customer numbers are determined as part of the process to determine FRC fees.
$TV\_ADJ\_NUM_{(x,GD)}$	Estimated number of Tariff V meters/customers for a market participant on a given gas day that has been adjusted for its share of previous day's estimated number of Tariff V meters/customers.
$TV\_NUM_{(x,GD-1)}$	Estimated number of Tariff V meters/customers for a market participant for the previous gas day. Customer numbers are determined as part of the process to determine FRC fees.
$TV\_ADJ\_PCNT_{(x,Nov)}$	Adjusted % share of Tariff V AMDQ for each individual Market Participant effective from the 5th business day in November.
$TV\_ADJ\_PCNT_{(x,M\neq Nov)}$	Adjusted % share of Tariff V AMDQ for each individual Market Participant at the end of the current month other than November.
$TV\_ADJ\_PCNT_{(x,M-1)}$	Adjusted % share of Tariff V AMDQ for each individual Market Participant at the end of the previous month.
$TV\_ADJ\_PCNT_{(x,GD)}$	Adjusted % share of Tariff V AMDQ for each individual Market Participant for a given gas day.
$TV\_ADJ\_PCNT_{(x,GD-1)}$	Adjusted % share of Tariff V AMDQ for each individual Market Participant for the previous gas day.
V Auth MDQ	Total Tariff V Authorised MDQ as adjusted by AEMO from time to time under *NGR Part 19 Division 4 Subdivision 3 Rule 330*.
V Auth MDQ$_{(x,CPP=Longford)}$	Portion of Block V AMDQ allocated to a market participant for hedging against uplift at the Longford close proximity injection point (CPP).
$DF_{(x,\ CPP,site)}$	Diversity Factor applicable to market participant X, at a close proximity injection point CPP, at a given site.
$IH^{Nom}_{(x,\ CPP)}$	Injection Hedge Nomination for market Participant X at a close proximity injection point CPP.
$IH_{(x,\ CPP)}$	Injection Hedge for market Participant X at a close proximity injection point CPP.
$AIH_{(x,\ CPP,\ Rx\neq x)}$	Agency Injection Hedge for market Participant X at a close proximity injection point CPP.

$AIH^{Nom}_{(x, CPP, Rx \neq x)}$	Agency Injection Hedge Nomination for market Participant X at a close proximity injection point CPP.
$AIH_{(x, CPP, Rx \neq x, Pref)}$	Agency Injection Hedge for market Participant X at a close proximity injection point CPP for preference step "pref".
$AIH^{nom}_{(x, CPP, Rx \neq x, Pref)}$	Agency Injection Hedge Nomination for market Participant X at a close proximity injection point CPP for preference step "pref".
LL	Liability Limit: The TPO liability cap (refer relevant Service Envelope Agreement). This should initially be set at $1,000,000 per calendar year
LLR	Liability Limit rate: The TPO liability cap (refer relevant Service Envelope Agreement). This should initially be set at 20$/GJ per event
$Q^{TPO}_{(S)}$	The quantity in GJ by which the forecast delivery capacity of the Longford to Melbourne pipeline is reduced due to the failure of the transmission pipeline operator to fulfil service envelope obligations at a schedule.
$UH_{(x, CPP)}$	Uplift Hedge for market Participant X at a close proximity injection point CPP
$APUH_{(x, point, CPP)}$	Ancillary Payment Uplift Hedge for market Participant X at a close proximity injection point CPP at pipeline point "point"

3.5 Forecast:

$Qw^{VF}_{(h,SI,S)}$	AEMO forecast for an hour h within a scheduling interval SI for a schedule s
$Qw^{AVF}_{(h,SI,S)}$	Adjusted AEMO forecast for an hour h within a scheduling interval SI for a schedule s. Forecast has been adjusted to make quantities greater than or equal to zero for each hour
$Qw^{EF}_{(h,x,SI,S)}$	Effective uncontrollable withdrawal forecast for market participant x for an hour h within a scheduling interval SI for a schedule s. this is equal to the forecast withdrawal plus any increase due to a AEMO demand forecast override
$Qw^{F}_{(h,x,SI,S)}$	uncontrollable withdrawal forecast for market participant x for an hour h within a scheduling interval SI for a schedule s
$Qw^{RVF}_{(h,SI,S)}$	residual AEMO forecast for an hour h within a scheduling interval SI for a schedule s. this quantity reflects whether there is any unallocated positive adjusted AEMO demand forecast override

3.6 Scheduled:

$CUI_{MIRN,x,S}$	equal the GJ amount by which a participant's injection is constrained up in the schedule prior to the ad hoc schedule
$CUI_{MIRN,x,AHS}$	equals the GJ amount by which a participant's injection is constrained up in the ad hoc schedule AHS that occurred just after schedule S. If there was more than one ad hoc schedule performed in a schedule interval, then the ad hoc schedule to be used will be the last ad hoc schedule approved in the schedule interval

IncCUI(S)	equals the increase in constrained up injections between schedule S and ad hoc schedule AHS
$Qcw_{(x,SI,S)}$	Scheduled controllable withdrawals for market participant x for scheduling interval SI for Schedule S

3.7 *other:*

$EDQ_{(x,SI,S)}$	effective deviation quantity for participant x in schedule interval SI for schedule S
$DQ_{(x,SI,S)}$	deviation quantity for participant x in schedule interval SI for schedule S
$SIHDQ_{(SI,S,X)}$	Schedule interval Hourly Deviation Quantity for participant x in schedule interval SI for schedule S
$AF_{(S)}$	Allocation factor for schedule S
$ADQ_{(S,X)}$	Adjusted Deviation Quantity for participant x in schedule interval SI for schedule S
$SC_{(x,S)}$	Surprise component for market participant x in schedule S
$SC_{(VC,S)}$	Surprise component for AEMO VC in schedule S
$EC_{(x,S)}$	exceedance component for market participant x in schedule S
$EC_{(TPO,S)}$	exceedance component for TPO in schedule S
$PAVAPR_{(S)}$	average rate for positive ancillary payments for schedule S
$NAVAPR_{(S)}$	average rate for negative ancillary payments for schedule S
$Q_{(TPO,SI,S)}$	forecast GJ amount in a schedule interval for a schedule by which TPO failed to provide capacity as defined in service envelope agreement
$Q'_{(TPO,SI,S)}$	change in forecast GJ amount in a schedule interval for a reschedule by which TPO failed to provide capacity as defined in service envelope agreement
$Q_{(x,SI,S)}$	forecast exceedance of AMIQ for each participant in each schedule interval for each schedule
$Q'_{(x,SI,S)}$	change in forecast exceedance of AMIQ for each participant in each schedule interval for each reschedule
$U^S_{(S,x)}$	Surprise Uplift ($) for each participant for each reschedule
$U^C_{(S,x)}$	Congestion Uplift ($) for each participant for each reschedule
$U^{TPO}_{(S,x)}$	TPO Uplift ($) for each participant for each reschedule
$U^{VC}_{(S,x)}$	AEMO Uplift ($) for each participant for each reschedule
$U^R_{(S,x)}$	Residual Uplift ($) for each participant for each reschedule
$U^{TPOX}_{(x)}$	TPO liability limit exceedance Uplift ($) for each participant for each reschedule
$U^{TPOX}_{(GD)}$	Total TPO liability limit exceedance Uplift ($) for a gas day
$U^{TPO}_{(DOY)}$	TPO Uplift ($) for that day of the calendar year, where DOY=1 refers to 1 January, DOY = 2 refers to 2 January etc