UNC Request 661R – Action 0802

Purpose

This document seeks to highlight the issue described in 661R.

It lays out the Imbalance and Reconciliation processes for Non-Daily Metered Gas Sites.

This document also highlights where System Marginal Sell/Buy Price is used and where System Average Price is used.

Finally, it aims to clarify where quantities used for each process come from.

References

Uniform Network Code – Transportation Principles Document - Section E

Uniform Network Code – Transportation Principles Document - Section H

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Daily Imbalance Process

The text below describes how each User's Daily Imbalance is calculated.

TPD Section E 5.1.1

The Daily Imbalance for each User shall be calculated in respect of each Day as the difference between:

(a) the sum of:

(i) the aggregate of the User's UDQIs;

(ii) the aggregate of the Trade Nomination Quantities under any Acquiring Trade Nominations made by the User; and

(b) the sum of:

(i) the aggregate of the User's UDQOs;

(ii) the aggregate of the Trade Nomination Quantities under any Disposing Trade Nominations made by the User; and

(iii) the User's Aggregate User Unidentified Gas.

TPD Section E 5.1.2

5.1.2 The Daily Imbalance is positive where the quantity under paragraph 5.1.1(a) is greater than the quantity under paragraph 5.1.1(b), and negative where the quantity under paragraph 5.1.1(b) is greater than the quantity under paragraph 5.1.1(a).

Where;

TPD Section E 5.1.3

5.1.3 For the purposes of the Code, in respect of any Day:

(a) the **"User Daily Quantity Input"** or **"UDQI"** is the quantity of gas treated as delivered by a User to the Total System on that Day at a System Entry Point;

(b) the **"User Daily Quantity Output"** or **"UDQO"** is the quantity of gas treated as offtaken by a User from the Total System on that Day at:

As our modification is looking at Non-Daily Metered Sites (Product Class 3 & 4), this means that the inputs for the Daily Imbalance calculation shall be the difference between:

(a) the sum of:

(i) the aggregate of the User's UDQIs; = Quantity of gas input to the Total System by the Shipper

(ii) the aggregate of the Trade Nomination Quantities under any Acquiring Trade Nominations made by the User; = Quantity of gas acquired through trade and nominated via Gemini (if applicable); and

(b) the sum of:

(i) the aggregate of the User's UDQO = Quantity of gas offtaken from the Total System by the Shipper; and

(ii) the aggregate of the Trade Nomination Quantities under any Disposing Trade

Nominations made by the User; = Quantity of gas sold through trades by the Shipper; and

(iii) the User's Aggregate User Unidentified Gas. = The Shipper's UIG, as calculated in accordance with UNC TPD Section H2.6.1.

TPD Section E 3.1.1

For a nominating User the UDQO in respect of a Registered Supply Point for the Gas Flow Day shall be:

(a) in the case of a NDM Supply Point, the NDM Supply Meter Point Demands (in accordance with Section H2) for the Class 3 or 4 Supply Meter Point comprised in that NDM Supply Point;

(b) in the case of a DM Supply Point, the User SPDQ in accordance with paragraph 3.1.2.[1]

As our request is looking at Product Class 3 and 4 sites, this means that the User's UDQO shall be equal to the NDM Supply Meter Point Demands.

TPD Section H 2.2.1

NDM Supply Meter Point Demand ('SPD') for a Day (Day 't') shall be determined according to the following formula:

$$SPD = \frac{AQ}{365} \times \overline{ALPt} \times (1 + (DAF_t \times WCF_t))$$

For the sake of simplicity and to isolate the issue described in 661R, we have assumed that the Shipper only has NDM supply points (Product Class 3 & 4) and therefore the value for 5.1.1 (b)(i) is equal to the sum of the User's NDM Supply Meter Point Demands

1.1.1 [1] The **"User SPDQ"** for a User in respect of a Registered DM Supply Point shall be the sum of:

(a) subject to paragraph (b), the Supply Meter Point Daily Quantity;

(b) in the case of a Shared Supply Meter Point, the portion of that Supply Meter Point Daily Quantity determined in respect of that User in accordance with the Shared Supply Meter Notification pursuant to Section G1.7.

NDM Imbalance Summary

The summary below describes the process for Product Class 3 and 4 Supply Points and omits any DM elements of the process.

The Shipper's Daily Imbalance Charge is calculated as:

Sum (Shipper's Gas Inputs + Acquiring Trades)

-

Sum (Shipper's NDM Supply Meter Point Demand (estimation calculation) + Disposing Trades + Shipper's Unidentified Gas)

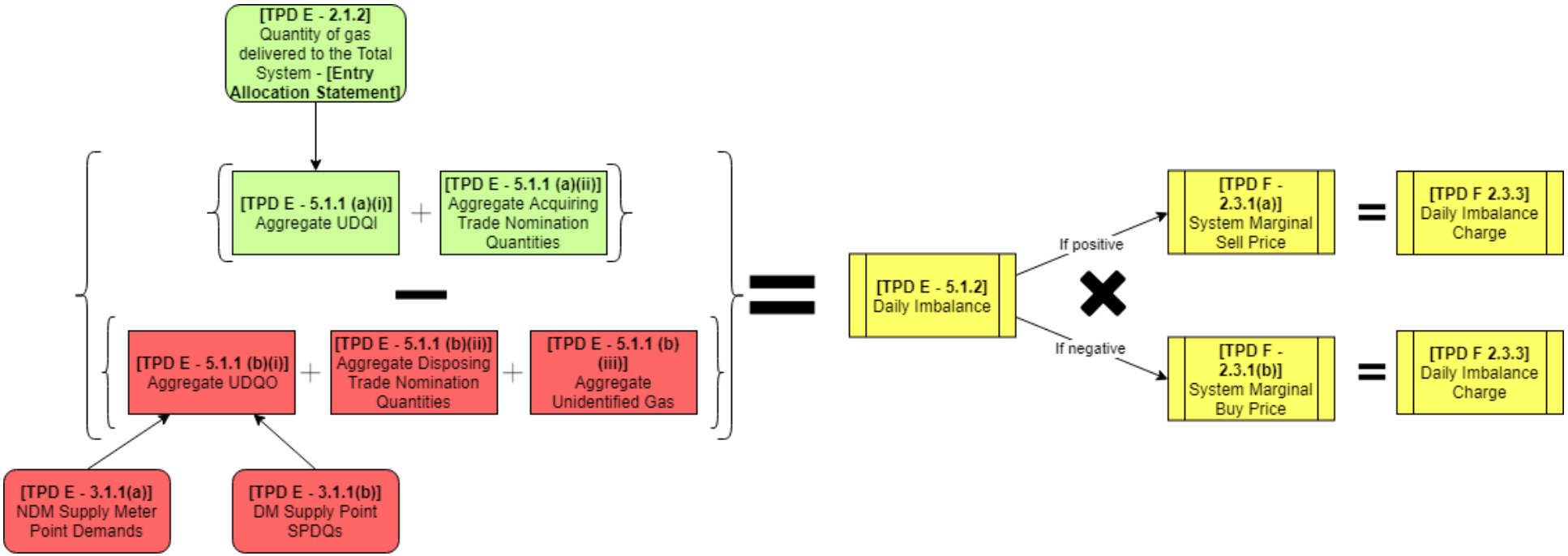
x

System Marginal Price

=

Daily Imbalance Charge

Daily Imbalance Charge Process Flow



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Reconciliation Process

The text below describes how each User's Offtake Reconciliation is calculated.

UNC TPD Section E 6.2.2

For the purposes of an Offtake Reconciliation in respect of a relevant System Exit Point, in relation to any Day (D) in the Reconciliation Metered Period:

(a) the **"Daily Reconciliation Quantity"** (DRQ_D) shall be determined as follows:

$$DRQ_D = PRDQO_D * (DRF_D - 1)$$

where:

$PRDQO_D$ is the Prevailing Reconciled Daily Quantity Offtaken for the Day (as determined prior to the Reconciliation Meter Reading)

DRF_D is the Daily Reconciliation Factor for the Day

(b) the **"Daily Reconciliation Factor"** (DRF_D) is a factor in respect of the Reconciliation Metered Period, calculated as:

$$DRF_D = RMV / PMV$$

where for that Reconciliation Metered Period:

RMV is the Reconciliation Metered Volume

PMV is the Prevailing Metered Volume

UNC TPD Section E 6.2.3

The **"Prevailing Metered Volume"** for a Reconciliation Metered Period is calculated as follows:

(a) if the Reconciliation Metered Period is a single Day

$$PMV = PRDQO_D / CV_D$$

(b) if the Reconciliation Metered Period is more than one Day:

$$PMV = \Sigma (PRDQO_D / CV_D)$$

where

Σ is the sum over all Days in the Reconciliation Metered Period

and where, for each Day in the Reconciliation Metered Period

CV_D is the relevant calorific value

$PRDQO_D$ is the Prevailing Reconciled Daily Quantity Offtaken.

TPD Section E 1.1.8

For the purposes of the Code, as at any time, the **"Prevailing Reconciled Daily Quantity Offaken"** (PRDQO) in respect of a Day and a System Exit Point is the quantity treated, pursuant to the applicable provisions of the Code and/or (in the case of a Connected System Exit Point) of the CSEP Network Exit Provisions, as having been offtaken at the System Exit Point on that Day, being

(a) in the case of a Class 1 or 2 Supply Meter Point, the Supply Meter Point Daily Quantity;

(b) in the case of a Class 3 or 4 Supply Meter Point, the NDM Supply Meter Point Demand;

(c) in the case of a Connected System Exit Point and a User, the UDQO;

(d) as adjusted (pursuant to paragraph 6.2.4) by all, if any, Offtake Reconciliations which have been carried out prior to that time.

NDM Reconciliation Summary

The summary below describes the Reconciliation process for Product Class 3 and 4 Supply Points and omits any DM elements of the process.

The Shipper's Reconciliation Clearing Value is calculated as:

Daily Reconciliation Quantity

X

System Average Price

=

Reconciliation Clearing Value

To calculate Daily Reconciliation Quantity:

NDM Supply Meter Point Demand (Estimation Calculation)

+

Shipper's Offtakes

/

Calorific Value

=

Prevailing Metered Volume

Reconciliation Metered Volume

/

Prevailing Metered Volume

=

Daily Reconciliation Factor

(NDM Supply Meter Point Demand (Estimation Calculation)

+

Shipper's Offtakes)

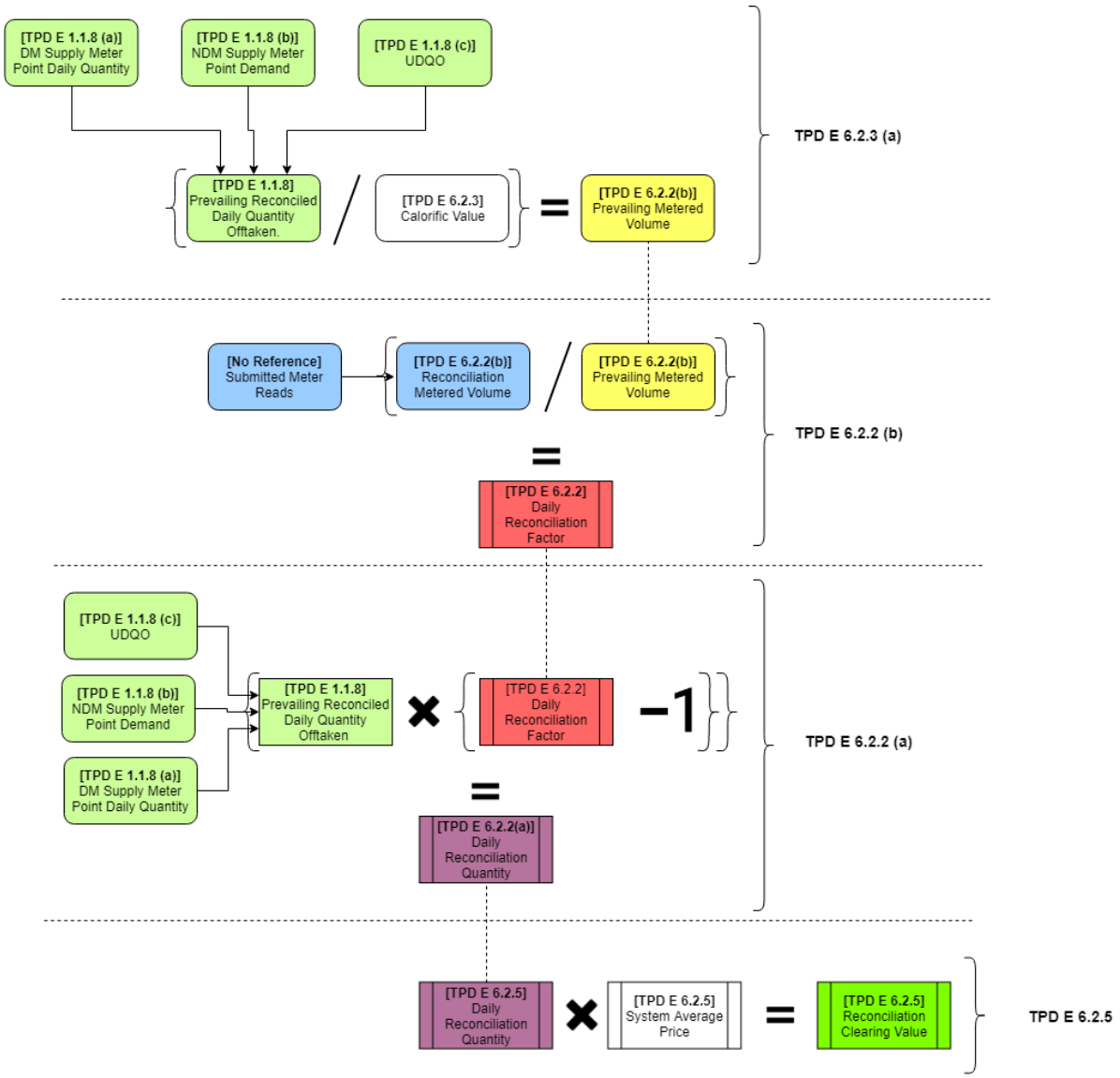
X

(Daily Reconciliation Factor – 1)

=

Daily Reconciliation Quantity

Reconciliation Clearing Value Process Flow



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661R Issue Summary

This document shows how the NDM Supply Meter Point Demand estimation is used in both the Imbalance and Reconciliation process for Product Class 3 and 4 supply points.

NDM Supply Meter Point Demand calculation:

$$SPD = \frac{AQ}{365} \times \bar{ALP}t \times (1 + (DAF_t \times WCF_t))$$

For the Imbalance process:

([Shipper's Gas Inputs + Acquiring Trades]

-

[**NDM Supply Meter Point Demand estimation** + Disposing Trades + UIG])

*

System Marginal Price

=

Daily Imbalance Charge

For the Reconciliation Process:

[**NDM Supply Meter Point Demand estimation** + Shipper's Offtakes]

*

(Reconciliation Metered Volume / [**NDM Supply Meter Point Demand estimation** + Shipper's Offtakes] / Calorific Value])

*

System Average Price

=

Reconciliation Clearing Value

The issue we seek to highlight is the creation of artificial winners and losers as the result of the use of different system prices for these processes.

Where a Shipper believes that their demand will not equal the quantity calculated by the NDM Supply Meter Point Demand estimation, they will input and/or acquire through trades a higher/lower quantity of gas. The difference between this quantity and the NDM Supply Meter Point Demand is defined as the Shipper's Daily Imbalance. This Daily Imbalance quantity will be multiplied by System Marginal Price to create the Shipper's Daily Imbalance Charge.

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Reconciliation Metered Volumes are calculated later through the submission of meter reads. The submitted read is divided by the NDM Supply Meter Point Demand[2] estimation to calculate the Daily Reconciliation Factor. This factor shows the percentage variance between the NDM Supply Meter Point Demand and the actual demand, as proven through submission of actual meter reads. The NDM Supply Meter Point Demand is then multiplied by this factor minus one[3], this gives us the Daily Reconciliation Quantity. This Reconciliation Quantity will be equal to the Daily Imbalance quantity, assuming the Shipper's acquiring trades and/or input exactly matched the subsequent Reconciliation Metered Volumes. This Daily Reconciliation Quantity[4] is multiplied by System Average Price to calculate the Reconciliation Clearing Value.

This presents a scenario where the Shipper has acquired the exact amount of gas required to meet their demand. The initial variance from their acquisition and the NDM Supply Meter Point demand estimation is multiplied by System Marginal Price. The meter reads submitted show that the Shipper has acquired the correct amount of gas to cover the variance. However, as part of the subsequent Reconciliation Process, this time the variance is multiplied by System Average Price. This means that the Shipper takes a financial hit equal to the difference between System Marginal Price and System Average Price multiplied by volume.

[2] for the sake of simplicity, it assumes this Shipper has no direct offtakes.

[3] this is to calculate the *difference* in volume

[4] The use of factors in this calculation makes it slightly harder to follow than the Imbalance Process. Essentially, the Reconciliation Quantity is equal to the difference between the NDM Supply Meter Point Demand estimation and the volume shown to have been demanded as the result of the submission of actual meter reads.