GUIDE TO PARTICIPANT IMBALANCE AMOUNTS (PIA)

NSW & ACT GAS RETAIL MARKET

PREPARED BY: MARKETS

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FINAL

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Introduction

Purpose of this Guide

AEMO is committed to ensuring that AEMO participants are provided with adequate and ongoing education and support in regards to the Retail Market Procedures.

Historical Context:

In response to a request from the GMC Board, in November 2005, the Rules Administrator prepared and published a Guide to participants for the purpose of enhancing their understanding of the PIA/nominations process and, in turn, promoting the smooth and efficient operation of the Market through the reduced likelihood of compliance investigations.

At the time, the GMC Board became aware that there was potential for some users to become confused about the way in which they could manage their cumulative imbalance via the application of a PIA. A good understanding of the PIA/nominations process is vital for successful matching of PIAs between users for a nomination day. The potential for confusion was compounded by the reconciliation process for non-daily metered delivery points whereby users are required to apply a user reconciliation adjustment amount (**URAA**) so as to reduce their reconciliation account balance. During the process of notifying the network operator of their respective PIAs and URAAs for a nomination day, there was potential for some users to inadvertently report a PIA as a URAA, and vice versa, resulting in the rejection of all PIAs and URAAs for the nomination day (as all users' PIAs are required to sum to zero and URAAs are also required to sum to zero for a network section).

More recently, the Rules Administrator noted a small increase in the number of PIA-related rule breaches relating to users having nominated incorrect PIA values to the network operator. Although these rule breaches were generally attributable to minor administrative errors, the Rules Administrator recommended that all participants consider the robustness of their PIA processes to ensure that they operate in conformity with the Business Rules as continued breaches could lead to a systemic breach of the rules. As a result, to assist participants with their understanding of the Business Rules, the Rules Administrator has re-issued it's Guide to PIAs.[1]

On the 1 July 2009 the Australian Energy Market Operator (AEMO) took over the responsibilities of the GMC. This document has been edited to reflect this change.

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[1] First published 23 July 2007.

About this Guide

This Guide to PIAs should not be treated as a substitute for the Retail Market Procedures – NSW & ACT which set out participants' obligations in full. References to the relevant Procedures have been provided. The Procedures are available for download from the AEMO website (www.aemo.com.au)

Background

Daily imbalance

A user's daily imbalance means the difference between a user's input and withdrawal quantity plus the user's share of operational balancing gas.

Under **clause 8.8.1**, the network operator provides AEMO with information on each user's daily imbalance for each network section for a nomination day.

AEMO then calculates, for each user in each network section, the user's (provisional) cumulative imbalance for a nomination day (in megajoules) by adding the user's cumulative imbalance for the nomination day to its cumulative imbalance from the day before the nomination day.

Cumulative imbalance

The cumulative imbalance continues from one month to the next. Under **clause 8.8.2**, a user must use its reasonable endeavours to maintain a cumulative imbalance of zero for each network section.

Under **clause 8.8.6(a)**, if a user's cumulative imbalance at the end of a month exceeds the limit referred to in **clause 8.8.6(b)** outlined below, AEMO may, by notice to the user, require the user to increase, limit or suspend deliveries of gas into, or withdrawals of gas from, the network section so as to return the user's cumulative imbalance to within that limit.

Clause 8.8.6(b) states that the cumulative imbalance limit is the greater of:

- 30% of the average daily quantity withdrawn from the network section by or on behalf of a user during the relevant month; and

- 5 terrajoules of gas.

AEMO issues monthly letters to users advising of their cumulative imbalance and whether any specific action is required by the user so as to reduce their cumulative imbalance.

Two ways to reduce a cumulative imbalance

Under the Retail Market Procedures – NSW & ACT, there are two mechanisms by which a user can reduce its cumulative imbalance — these are "trades" and "swaps":

- Trade: A user can trade all or part of its cumulative imbalance with another user by the users making off-market arrangements with each other, in accordance with **clause 8.8.3**; or

- Swap: A user can apply to AEMO for a PIA, in accordance with **clause 30.4**.

The next section describes these two mechanisms in greater detail.

Trades and Swaps

Trades

A "trade" is an off-market zero net gain adjustment of (at least) two users' cumulative imbalance position.

As a result, a financial transaction is required to compensate a user with a positive cumulative imbalance for the loss of an asset (i.e. gas it has already delivered to the market). The other user with the negative cumulative imbalance, which has a liability cancelled by the trade, provides the compensation to the counterparty. A trade has no impact on physical supply.

Users may contact other users to determine whether parties wish to enter into a trade. A contact list of user representatives is available on the **AEMO website** to assist users with this process.

Clause 8.8.3 sets out the process for implementing a successful trade, including the key communications between users and AEMO. A user may trade all or part of its cumulative imbalance in a network section on a nomination day with another user. A trade may be proposed by a user at any time on a day for the next nomination day. The "buying" user and the "selling" user must notify AEMO of:

- the identity of the buying user and selling user;

- the relevant network section;

- the relevant nomination day; and

- the quantity of cumulative imbalance traded (in whole megajoules).

AEMO will then confirm to users the validity of the trade. Trades are permitted based on a user's provisional cumulative imbalance for a nomination day and will remain valid irrespective of whether the user's revised cumulative imbalance for that nomination day is different from its provisional cumulative imbalance.

Swaps (PIAs)

When a user applies for a PIA (or "swap") for a day, AEMO will allocate a PIA via a 'Notification of PIA Amount' only if a request for an offsetting PIA has also been received from another user for the day. That is, if a user seeks to reduce their positive cumulative imbalance, there must be a request to AEMO from another user to reduce their negative cumulative imbalance so that the total net adjustment to nominations on a day is zero. That is, a user may apply to AEMO for a PIA however whether or not an offsetting amount is available will not be confirmed until the user receives a notification from the AEMO of the confirmed amount.

As the PIA forms part of a user's nomination, the adjustment is made through changes to the physical supply of gas and, hence, no financial transaction is required. The two requests do not have to exactly offset.

For example, if one user requests a PIA of +10 units, but the other party requests a PIA of -6 units, the first user will be allocated a PIA of +6 units. For the user with the positive cumulative imbalance, the inclusion of a PIA would reduce their nomination on the day, and
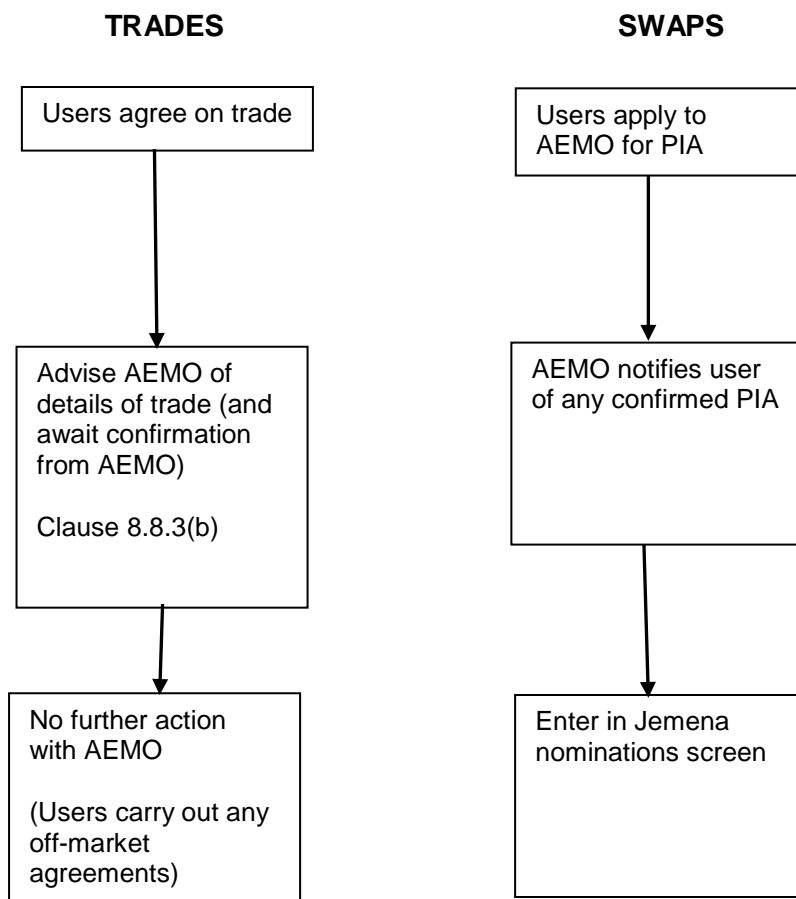
the other user (with the negative cumulative imbalance) would be required to increase its nomination to offset the adjustment. Therefore, if the user with the positive cumulative imbalance had a total nomination on a day of +20 units, and were allocated a PIA of +6 units, they would have actually delivered only +14 units of gas on the day.

Example: Adjusting nominations to account for a PIA on the Jemena website

Provided below is a clarification on how to enter nominations into the Jemena nominations website after a user has either completed a trade of cumulative imbalances with another user under **clause 8.8.3** or when a user a has received a PIA (swap) from the AEMO under **clause 8.8.4**:

- Trade: If a user has entered into a trade that has been confirmed by the AEMO under **clause 8.8.3(c)**, no amount should be included by that user in their nomination or entered into the nominations screen on the Jemena website; and

- Swap: If a user has applied for, and been granted, a PIA by the AEMO under **clause 8.8.4(d)**, the amount notified to the user by the AEMO must be entered into the PIA box for the relevant nomination day on the nominations screen on the Jemena website.

The flowchart below summarises the two mechanisms ("trades" and "swaps") a user can utilise to reduce its cumulative imbalance.

TRADES

```
┌─────────────────────┐
│ Users agree on trade │
└─────────────────────┘
            │
            ▼
┌─────────────────────┐
│ Advise AEMO of       │
│ details of trade (and│
│ await confirmation   │
│ from AEMO)           │
│                      │
│ Clause 8.8.3(b)      │
└─────────────────────┘
            │
            ▼
┌─────────────────────┐
│ No further action    │
│ with AEMO            │
│                      │
│ (Users carry out any │
│ off-market           │
│ agreements)          │
└─────────────────────┘
```

SWAPS

```
┌─────────────────────┐
│ Users apply to       │
│ AEMO for PIA         │
└─────────────────────┘
            │
            ▼
┌─────────────────────┐
│ AEMO notifies user   │
│ of any confirmed PIA │
│                      │
└─────────────────────┘
            │
            ▼
┌─────────────────────┐
│ Enter in Jemena      │
│ nominations screen   │
│                      │
└─────────────────────┘
```

Participant Imbalance Amounts

Overview of the "swapping" (PIA) process

Provided below is a summary on how the "swapping" (PIA) process to manage user cumulative imbalances under **clause 8.8** works.

- A user applies for a PIA (i.e. starts the swapping process). Swapping of cumulative imbalance amounts refers to the process set out in **clause 8.8.4**. Under this process, users (including self-contracting users) may apply to AEMO for a PIA (via an electronic aseXML transaction called "IAITParticipantImbalanceAmountRequest").

- A PIA will automatically reduce a user's cumulative imbalance towards zero, as AEMO is required to ensure this prior to providing PIAs to users.

- Users can request all or part of their cumulative imbalance to be swapped with another user. If AEMO is able to provide users with PIAs, the requesting user will receive an aseXML ("IAITParticipantImbalanceAmountNotification") response showing the amount to include in their nomination.

- A PIA provided by AEMO should be included in the user's nomination for the day, which would be "eight days after" receiving, a PIA notification from AEMO.

What is a PIA?

Users apply to the AEMO for a PIA, in accordance with **clause 8.8.4(a)**:

> "By 12.00 noon on *nomination day* -8, a *User* may, by notice, apply to *AEMO* to include in the *User*'s *forecast requirement* for a *network section* on the *nomination day* an amount for imbalance correction purposes (a *participant imbalance amount*) (in whole *MJ*). A *User* may not request a *participant imbalance amount* that is negative and could reasonably be expected to be greater in magnitude than the *User*'s *forecast withdrawal* for the *network section* on the *nomination day*."

The PIA means the amount determined under **clause 8.8.4(b)**:

> "Upon receipt of a notice from a *User* under paragraph (a), *AEMO* must determine a *participant imbalance amount* that the *User* may include in its *forecast requirement* for a *network section* on the *nomination day*, on the basis that:
> (a) the amount for the *User* in a *network section* does not exceed the amount applied for under paragraph (a); and
> (b) the total of the *participant imbalance amounts* for all *Users* in a *network section* for a *nomination day* equals zero."

How is a PIA calculated?

In accordance with **clause 8.8.4(c)**:

> "*AEMO* will determine the *participant imbalance amount* in accordance with an algorithm approved by *AEMO*."

For days when at least one user with a positive cumulative imbalance and at least one user with a negative cumulative imbalance have applied to AEMO for a PIA, the following approved algorithm is applied:

- For each network section, take the user's PIA and assign it to a group containing positive amounts or a group containing negative amounts;

- Sum each group and compare the absolute values:
  - The group with the lesser amount will be identified as group "GA" with the absolute sum of the PIAs of "A:;
  - The group with the greater amount will be identified as group ⸢GB" with the absolute sum of the PIAs of "B";
- Sort the users in group "GB" in descending order of magnitude of percentage imbalance (percentage is expressed to 4 decimal places):
  - GB_1- is the imbalance of the member of "GB" with the largest magnitude of percentage imbalance;
  - Where two users have identical percentage imbalances, sort the identical users in alphabetical order;
- For i=1 to the number of members in group "GB":
  - $GB_{i\ revised}$ = lower of (GB_i or A)
    - Where $GB_{i\ revised}$ is the revised imbalance for member i of group "GB";
  - Subtract $GB_{i\ revised}$ from A;
  - Repeat for each user in group "GB" until "A"=0;

In summary, users with the largest percentage cumulative imbalances in group "GA" will be adjusted downward to zero first. Any additional available offsetting amounts in group "GB" will then be applied to the remaining users in group ⸢GA".

PIA versus URAA

Do not confuse PIA with URAA

For certain nominations days, a user may be required to notify the network operator of both its PIA and URAA for the network section.

For example, the user may have applied for, and been granted, a PIA by AEMO. In addition, AEMO may have advised the user of a URAA that must be combined with its daily nominations for 28 days as a result of the user having a non-zero reconciliation account balance for the network section, and there being other users with reconciliation account balances of opposite sign (i.e. enabling equal and opposite URAAs to exist for users).

Users are reminded to take extra care to ensure that they do not inadvertently mix up their PIA with their URAA, and vice versa, when notifying the network operator of their PIA and URAA. This has the potential to result in all users' URAAs being rejected by the network operator for the nomination day in question, as well as PIAs being rejected by the network operator. In addition, this will result in the user breaching the Retail Market Procedures on two accounts — first, for not combining their correct URAA to their gas nomination for the day and, secondly, for not advising the network operator of their correct PIA for the nomination day.

Users are advised to ensure that they have current training manuals and adequate staff training programs in place in respect of managing PIAs and URAAs so as to protect against inadvertent mix ups between the two.

Further Information

Contact details

If you have any questions or would like further information on this Guide, please contact AEMO:

Australian Energy Market Operator (AEMO)
Email: grcf@aemo.com.au