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**Energy Acumen Ltd**

**Report to the  
Gas Industry Company**

**The Impact of Downstream  
Reconciliation Wash-ups on  
Upstream Balancing Arrangements**

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# Table of Contents

1. Executive Summary .....	3
2. Background .....	5
Scope .....	5
Background to the question .....	5
Linkage with other work streams .....	5
Methodology .....	5
Terminology .....	6
3. Introduction.....	8
4. Allocation Factual Matrix .....	9
Overview of Maui and Vector Regimes .....	9
Legacy gas issue.....	10
5. Balancing Factual Matrix .....	12
6. Wash-up Process.....	13
Corrections factual matrix.....	13
Example.....	13
7. Findings and Conclusions .....	16
Key Findings.....	16
Discussion .....	18
Conclusions .....	19

# 1. Executive Summary

This report investigates whether the proposal to provide for 4 and 12 month wash-ups of downstream allocations impacts on upstream balancing and reconciliation arrangements.

Balancing gas is used where the pipeline linepack has reached unacceptably low or high levels. In this circumstance the pipeline operator needs to step in and provide more gas or take surplus gas away in order to maintain transmission services to shippers.

The difference between a shipper's receipts and deliveries is their mismatch and the aggregate mismatch of all shippers is a primary driver for balancing gas. A shipper's contribution to aggregate mismatch is used by Vector transmission for allocating balancing gas costs.

If the aggregate quantity of gas allocated to all shippers or the aggregate of all shippers mismatch is unchanged by an ex-post wash-up then balancing is not impacted, just the allocation of its costs between shippers. However if an ex-post wash-up changes aggregate gas allocated or aggregate mismatch there is potential for the pipeline operator to have problems allocating balancing costs.

Maui shippers are unable to retrospectively adjust Maui pipeline allocations, except for the legacy Maui shipper. The legacy Maui shipper allocations can be adjusted up to the 7<sup>th</sup> business day of the month following gas flow and this can occur for the next 2 years. This means the legacy Maui shipper allocation can await the initial downstream allocations. However, Maui allocations are not able to be subsequently adjusted at the time of the proposed wash-ups.

Vector receipt allocations at Maui-Vector interface points are determined from Maui delivery allocations, combined with any transfers between shippers as defined in Gas Transfer Agreements. The Gas Transfer Code controls Gas Transfer Agreements and requires allocations by the 6<sup>th</sup> business day of the month following gas flow. The code does allow corrections to allocations after this date. However it also requires that all Maui deliveries must be allocated, no more and no less. As the Maui allocations cannot be adjusted there is limited room for downstream reconciliation wash-ups to impact Vector receipt allocations. Even if Vector receipt allocations were adjusted within these constraints this would not change the aggregate quantity of gas transferred or the aggregate mismatch on the Vector pipeline, but rather just the allocation of these amounts between shippers.

Imbalance in flow between the Maui pipeline and the Vector pipeline relative to shipper allocations is the responsibility of Vector Transmission. This flow can form part of the provision of Vector balancing gas. However the quantity of imbalance or any Maui cash-out of imbalance is not adjusted by downstream reconciliation wash-ups within the timescales proposed.

The other source of Vector gas is from producers connected to the Vector pipeline. The allocation of gas from these producers must equal the metered quantity. For this reason, any adjustment of this allocation resulting from downstream wash-up will only transfer gas and mismatch between shippers and not adjust aggregate mismatch or the quantity of balancing gas.

Downstream allocations at Vector delivery points are determined under the Reconciliation Code. This code allows for financially significant corrections of allocations or 'wash-ups' on an ad hoc basis. Gas Industry Co is proposing to replace the voluntary Reconciliation Code with a mandatory reconciliation regime which will include 4 and 12 month wash-ups. These are the wash-ups referred to in the brief.

Vector currently adjusts its shippers' deliveries for downstream wash-ups. This impacts Vector shipper mismatch, the allocation of balancing costs and shipper transmission fees. As the allocations must sum to the metered quantity, any wash-up, in the absence of a metering correction, just moves gas from one shipper to another. This does not impact the total quantum of balancing gas or balancing gas cost, just the portion of cost allotted to each shipper. However a wash-up can change the aggregate transmission fees payable.

Downstream parties could theoretically manage wash-up of gas and balancing costs between themselves without Vector Transmission involvement, however they could not manage wash-up of transmission fees. Vector has the right to manage wash-ups of transmission costs and mismatch through its contractual arrangements with shippers, and currently does so.

A potential indirect impact of ex-post wash-up on upstream balancing and allocation is any impact this may have on the accuracy of scheduling gas production. This is because if wash-ups retrospectively invalidate decisions made by shippers to manage their own mismatch or to participate in balancing gas tenders then balancing arrangements could be adversely affected. However, because wash-ups more accurately target costs to causers they should provide an incentive to causers of imbalance to improve the accuracy of their scheduling over time, which in turn will improve balancing decisions.

The conclusions are summarized as follows:

- The proposed wash-ups do not directly impact balancing arrangements although they do impact the allocation of gas and balancing costs between shippers.
- Wash-ups can impact upstream reconciliation on the Vector pipeline but only to the extent of shifting gas and mismatch between shippers, which is already provided for in Vector's transmission arrangements. The proposed wash-ups would not impact Maui pipeline allocations.
- Wash-ups have the potential to retrospectively invalidate shipper decisions to correct mismatch or to participate in balancing gas tenders and therefore can indirectly impact upstream balancing.
- Wash-ups target costs to causers more accurately providing an incentive for shippers to improve scheduling accuracy over time.
- There is no reason identified from upstream balancing or reconciliation that suggests Gas Industry Co should reconsider its proposal for 4 and 12 monthly wash-ups.
- The use of the "upstream" and "downstream" terminology has caused some confusion and could be clarified.

## **2. Background**

### **Scope**

The brief of this report is as follows:

**Determine whether:**

- 1. and the extent to which, the proposal to provide for 4 and 12 month “wash-ups” of allocations impacts upon upstream balancing and reconciliation arrangements;**
- 2. any such impacts require the Gas Industry Company to reconsider its proposal for wash-ups;**

**If necessary, assist with designing an alternative proposal.**

### **Background to the question**

Where parties share a gas meter there is a need to allocate quantities between the parties. For meters at the downstream end of the transmission pipeline system, feeding the distribution networks, the allocation and reconciliation process is discussed in the Gas Industry Co discussion paper “Reconciliation of Downstream Gas Quantities” dated 11 January 2007.

This report does not address or comment on the issues surrounding downstream reconciliation and wash-up other than to the extent they may impact upstream balancing and reconciliation arrangements.

### **Linkage with other work streams**

This report is specifically related to the downstream reconciliation work stream; however it also may have interest for any work on upstream allocation and gas trading.

### **Methodology**

The preparation of this report commenced with a review of the 11 January 2007 report ‘Reconciliation of Downstream Gas Quantities’ and certain aspects of submissions on that report.

Interviews were conducted with the following people to ascertain whether there were any pertinent upstream issues or facts missing:

1. Alex Love of Contact Energy
2. Charles Teichert of Nova Gas
3. Tom Tetenburg of Tetenburg and Associates
4. Paul Hodgson of Vector Transmission
5. Duncan Jared of Mighty River Power
6. Roger Johnson of Genesis Energy
7. Brian McLaughlin of Powerco

The balance of information comes from published terms for access to transmission pipelines and published codes.

The overview sections are intended to set out the factual matrix relevant to the question, hence the extensive references. While they potentially go a bit wider than

absolutely needed to reach the conclusions, they are designed to be understandable to someone not familiar with all aspects of the industry, thereby ensuring that the report is reasonably self contained.

## **Terminology**

Generally, unless otherwise stated, terminology is the same as in the Maui Pipeline Operating Code and the Vector Transmission Service Agreements. For ease of reference the following terms are explained briefly as follows.

**Allocation and reconciliation** is generally as per the definition in the paper "Reconciliation of Downstream Gas Quantities", i.e. allocation is the process of determining the initial quantity of gas a party is responsible for and reconciliation refers to the processes that verify the numbers and determine whether any adjustment needs to be made.

**Allocation Agent** means the person responsible to allocate gas at a shared Vector delivery point under the Reconciliation Code.

**Balancing** generally means the process of managing linepack within acceptable bounds.

**Balancing Gas** generally means gas injected into or removed from a pipeline by the pipeline operator in order to maintain linepack within acceptable bounds, excluding gas injected or removed by the pipeline customers. In this report the term generally excludes gas injected for operational reasons such as for UFG, compressor operation and line heaters etc, and rather refers to gas needed due to aggregate mismatch between inputs and outputs.

**Downstream** is generally used as per the definition in the paper Reconciliation of Downstream Gas Quantities, i.e. referring to allocation at exit points of the Vector transmission system into distribution networks.

**Gas Transfer Agent** means the person responsible to allocate gas at a Maui-Vector interface point under the Gas Transfer Code.

**Gas Transfer Agreement** is as defined in the Gas Transfer Code, which is an agreement between parties delivering gas at a Maui-Vector interface point, parties receiving gas at that point and the Gas Transfer Agent, in order to define how gas will be allocated between the parties.

**GTC or Gas Transfer Code** means the Gas Transfer Code as published on the Maui and Vector web sites in March 2007.

**Legacy Gas** means gas delivered under the Maui Legacy Contracts (as defined in the MPOC), which had terms and conditions pre-existing Maui open access.

**Linepack** means the total amount of gas within a pipeline.

**Mismatch** means a shipper's allocated receipt quantity minus their allocated delivery quantity on a pipeline, and is either a running mismatch balance over time or mismatch on a day.

**MPOC** means the Maui Pipeline Operating Code dated 8 August 2005.

**OATIS** means the information system and web based information exchange introduced to manage open access on Maui and Vector pipelines.

**Open access** means access arrangements enabling multiple users to share a gas pipeline.

**Reconciliation Code** means the Reconciliation Code dated 1 July 2000 as published on the Gas Industry Company web site in March 2007.

**UFG or Unaccounted For Gas** is the difference between metered gas into and out of a pipeline after accounting for change in linepack and known operational uses, and is generally a function of metering error.

**Upstream** is generally used as per the definition in the paper “Reconciliation of Downstream Gas Quantities”, i.e. referring allocation of quantities at points where gas enters the Vector transmission pipelines at the Maui-Vector interface points, but it also includes the Maui pipeline.

**Vector TSA** means the Vector standard Transmission Services Agreement as published on the Vector web site in March 2007.

**Wash-up** means reconciliation after the initial allocation date, involving reallocating quantities or costs between parties.

### 3. Introduction

Allocation and balancing issues are core to sharing a pipeline between multiple users. Whenever a pipeline is shared the actions of one user can impact another, resulting in 'balancing' issues. In addition wherever multiple users share a meter there needs to be an 'allocation agreement' between them, to determine what portion of the metered quantity each user gets allocated (i.e. gets title to or ownership of). Ownership of gas and allocation of costs sit at the heart of pipeline open access processes, and therefore it is necessary to have an overview of the entire open access process to see how they are linked and the effect of ex-post wash-up adjustments.

At the Vector delivery gate stations there are two types of adjustments.

The first type of adjustment is due to the timing of meter reading downstream of the gate station or other inaccuracies in information gathering processes. In this type of adjustment the allocation and any ex-post adjustment must sum to the total metered quantity and therefore any ex-post wash-up is limited to reallocation of gas between downstream participants.

The second type of adjustment is due to meter corrections at the gate station that arrive after the initial allocation. In this type of adjustment the allocation changes the total amount of gas allocated and therefore also reallocates gas between downstream participants and Vector transmission<sup>1</sup>.

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<sup>1</sup> Meter adjustments would turn up in Vector transmission UFG

## 4. Allocation Factual Matrix

### Overview of Maui and Vector Regimes

The Maui pipeline uses a nomination process to schedule flows and then later to allocate title to gas<sup>2</sup>. Prior to flowing gas, a Shipper requests how much gas they wish to flow using a 'Nominated Quantity'<sup>3</sup>. A nomination consists of a quantity of gas, a receipt point and a delivery point. The nominated quantities at each receipt and delivery point are aggregated and confirmed by the Welded Parties<sup>4</sup>. The totals are then checked against the pipeline capacity and final quantities are approved in the form of 'Approved Nominations'.

At the interconnection meters between Maui and its interconnected parties, a particular type of allocation agreement called an 'Operational Balancing Agreement'<sup>5</sup> applies. This means that title to gas is allocated on the basis of Approved Nominations<sup>6</sup> at that point, and any difference between the sum of Approved Nominations (called the Scheduled Quantity) and the metered quantity is a matter between Maui and the interconnected party (Welded Party) which does not involve the shippers<sup>7</sup>.

The Approved Nominations are daily quantities and are available daily hence the allocation is known to the shippers daily<sup>8</sup>. Approved Nominations are normally balanced (receipts equal deliveries) except potentially during a Contingency Event<sup>9</sup>. Welded Points are generally metered hourly and imbalance at the Welded Point is known in near to real time<sup>10</sup>.

On the Maui pipeline there is no ability for a shipper or Welded Party to retrospectively adjust Approved Nominations after the gas has flowed (with one Legacy Gas exception that is explained in the next section). For example, if a producer or consumer flows more than its Scheduled Quantity, rather than adjust shipper quantities the producer or consumer is obligated to settle the quantity over time directly with MDL<sup>11</sup>. Similarly with the Vector transmission system, as a Maui Welded Party, if too much or too little flows from the Maui pipeline then the surplus or deficit is the responsibility of Vector transmission. This does not impact shippers unless the flow is excessively out of step with gas entitlements and the pipeline operators need to intervene (see balancing section below).

As the Vector shippers are a different group than the Maui shippers and they might have traded gas at the pipeline interface points, there is a need to reconcile title to gas at these points. This is achieved by the Gas Transfer Code and associated Gas Transfer Agreements.

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<sup>2</sup> The nomination process is in sections 8 and 9 of the MPOC

<sup>3</sup> MPOC section 8.1

<sup>4</sup> MPOC section 9

<sup>5</sup> MPOC section 10.1

<sup>6</sup> MPOC section 10.2, 6.3 and the definition of Operational Balancing Agreement

<sup>7</sup> MPOC section 12, particularly 12.9, and the definition of Operational Balancing Agreement

<sup>8</sup> MPOC section 4.2

<sup>9</sup> MPOC section 8.2

<sup>10</sup> MPOC section 4.1

<sup>11</sup> MPOC section 12.9

At each Maui-Vector interface point there is an appointed Gas Transfer Agent<sup>12</sup>. The shippers are required to enter Gas Transfer Agreements with any trading party and with the Gas Transfer Agent<sup>13</sup>. The Gas Transfer Agreement essentially tells the Gas Transfer Agent how to allocate the gas delivered by the Maui pipeline (the Approved Nominations) to Vector shippers receiving that gas<sup>14</sup>.

The Gas Transfer Code requires all of the gas arriving to be allocated, no more and no less<sup>15</sup>. It also requires that the numbers are provided in a timely manner.

The receipts into the Vector system are daily quantities, but determined monthly on the 6<sup>th</sup> business day of the month following the gas flows<sup>16</sup>.

Essentially the combined Maui and Vector process means that at Maui interface points, the Vector receipt quantities are allocated from a combination of Maui nominations and Gas Transfer Agreements. Shippers should know their daily quantities on each day as they know their Approved Nominations on the Maui pipeline and the Gas Transfer Agreements they hold. While shippers should know their quantities on the day, Vector Transmission only finds out the daily numbers on the 6<sup>th</sup> day of the following month.

The other sources of gas are from producers directly connected to the Vector pipeline. The allocation of this gas must sum to the metered quantity and will be scheduled by shippers through their gas supply agreements.

The Vector pipeline delivery quantities are determined by metering. However where there are multiple shippers sharing a meter into a distribution network the allocation is determined under the Reconciliation Code<sup>17</sup>.

The daily downstream quantities are determined monthly by the Allocation Agent. These allocations must sum to each metered quantity.

## **Legacy gas issue**

Legacy Gas issues are discussed as this has been raised by parties as the link between downstream allocation and upstream balancing.

Legacy Gas is sold at the exit to the Maui pipeline. The gas price bundled gas supply, transmission and balancing costs into a single price.

Prior to Maui pipeline open access no costs were passed to downstream transmission pipeline owners.<sup>18</sup> The Maui gas contract allowed allocation of deliveries from the Maui pipeline retrospectively after the end of each month. While the Maui gas field dominated the market there was essentially monthly balancing available at no marginal cost and without cost allocation to causers.

The retrospective adjustment of Maui gas allocations enabled the so called 'simultaneous receipt and delivery' convention, whereby certain shippers could adjust their receipts into the Vector transmission pipeline to equal their deliveries out of the pipeline, thereby avoiding Vector mismatch.

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<sup>12</sup> GTC sections 5.3

<sup>13</sup> MPOC section 2.14, GTC section 4.1 and Vector TSA section 5.1

<sup>14</sup> MPOC section 10.3, GTC section 5.2 (a), 5.2 (f) and 6.2, and Vector TSA section 5.2 and 5.4

<sup>15</sup> GTC 6.1 and 6.2

<sup>16</sup> GTC table 1

<sup>17</sup> Vector TSA sections 5.6 to 5.8

<sup>18</sup> Maui "White Paper" 1985 and NGC presentation to customers 7 March 2005

Open access on the Maui pipeline introduced unbundling of balancing costs for new Maui shippers. Vector (then NGC) agreed to accept Maui balancing costs on the condition that they could pass these onto causers<sup>19</sup>. Vector introduced the Balancing and Peaking Pool as the mechanism to distribute balancing costs, whether incurred by Vector or passed on from Maui.

Maui Legacy Gas is not subject to the Maui Pipeline Operating Code<sup>20</sup> and its legacy rights are protected. This contract is of limited duration and the retrospective adjustment rights are noted in the Maui Pipeline Operating Code in section 3, which falls away not later than 27 June 2009<sup>21</sup>. The adjustments can be made prior to 1pm on the 7<sup>th</sup> Business Day of the following month<sup>22</sup>.

Ex-post linkage from downstream allocations to upstream allocations is therefore limited to the ability of the Legacy Gas shipper to await downstream allocations prior to adjusting upstream Maui delivery quantities<sup>23</sup>. The initial downstream allocations can then be used by Legacy Gas buyers to minimize mismatch on the Vector pipeline<sup>24</sup>.

While the retrospective adjustment rights of Maui Legacy gas creates significant balancing issues on the Maui pipeline, with flow on effects on the Vector pipeline, these issues are not the subject of this report as it would appear they are not impacted by downstream wash-ups after the 7<sup>th</sup> business day of the following month.

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<sup>19</sup> Various NGC presentations during negotiation of the MPOC and its impact on NGC

<sup>20</sup> MPOC section 3 and particularly 3.1

<sup>21</sup> MPOC section 3.1

<sup>22</sup> MPOC section 3.7

<sup>23</sup> This statement is limited insofar as Legacy Gas is bound by the MPOC, however it is not clear what other reading is possible given the MPOC is the interconnection agreement with receiving Welded Parties.

<sup>24</sup> See MPOC section 3.11 (c)

## 5. Balancing Factual Matrix

If the shippers are balanced (i.e. inputs equal outputs at all times), in aggregate, then linepack should remain relatively constant. In this situation the pipeline operator only needs to buy or sell gas to cover Unaccounted For Gas (UFG) and operational use.

Generally the pipeline access arrangements require parties to balance inputs and outputs<sup>25</sup>. If everyone does this then there are no problems.

The need for balancing gas arises when parties do not flow to nominations and the linepack reaches unacceptably low or high levels. When levels are outside acceptable limits the pipeline operator must step in to ensure the continuation of transmission services. They can do this by purchasing gas to make up the shortfall or selling surplus gas. Generally a pipeline owner would want to pass the cost of this to the causer of the problem to protect innocent customers.

To facilitate discussion we can conceptually separate gas used for operations from gas due to parties not sticking to nominations. In this report 'balancing' will normally refer to gas needed because of users not flowing to nominations rather than operational gas used for pipeline purposes.

On the Maui pipeline the balancing costs are either charged to the general tariff or via 'cash-out' of the Operating Imbalance with the relevant Welded Party. Cash-out is a forced sale of surplus or shortfall gas<sup>26</sup>.

On the Vector pipeline the party or parties responsible are not always known by Vector at the time of balancing, but this can be determined at the end of the month. Shippers should be in the best position to know their own supply and demand position at any time, i.e. their contribution to balancing issues.

Vector allocates any costs to shippers in proportion to their running mismatch balance that contributed towards the problem. This is done in the Balancing and Peaking Pool (BPP)<sup>27</sup>. OATIS will display the shipper mismatch position and BPP cost allocations after they are established. Hence ultimately the consequences are passed to the causers.

On the Vector transmission pipeline there are extensive controls on the balancing process<sup>28</sup>. If there is time Vector runs a tender process and the shipper gets warning of the potential for costs. They may be able to rectify their mismatch position prior to the commitment to balancing gas (and thereby help to avoid the cost altogether). If they do not know their mismatch position or cannot correct it prior to the commitment to balancing gas they can take part in the balancing gas tender to the extent of their liability exposure and thereby hedge the cost<sup>29</sup>.

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<sup>25</sup> MPOC sections 8.2, 9.1, 12.1 and 12.9 – Vector TSA section 10.11

<sup>26</sup> MPOC section 12.11

<sup>27</sup> Vector TSA section 10.19

<sup>28</sup> Vector TSA sections 10.1 to 10.10

<sup>29</sup> They receive the same price for providing balancing gas as the corresponding cash-out, adjusted for location

## 6. Wash-up Process

### Corrections factual matrix

The Maui Pipeline Operating Code provides for corrections to be made for metering errors<sup>30</sup>, but due to the Operational Balancing Agreement principles this only impacts Welded Parties through Operational Imbalance but does not change shipper Approved Nominations.

The Gas Transfer Code requires all affected parties to accept corrections identified prior to the 6<sup>th</sup> business day of the following month. After this time only the parties physically receiving and delivering gas are required to deal with the correction and other parties are not required to correct quantities<sup>31</sup>. With the Maui Approved Nominations not being subject to adjustment there is limited room to adjust receipt allocations without breaching the Gas Transfer Code requirement to transfer all of the gas, no more and no less<sup>32</sup>.

Any allocations from producers directly connected to the Vector pipeline must add to the metered quantity. This means any corrections to receipt allocations, other than metering corrections, just move gas and mismatch from one shipper to another and do not change aggregate quantities of all shippers.

For shared delivery meters, Vector requires allocation on the basis of the Reconciliation Code, which in turn requires corrections where the Allocation Agent considers the corrections are financially material. The administrative cost of making the changes is recoverable by Vector<sup>33</sup>. Vector Transmission's invoiced fees may be corrected up to 18 months after the date of the invoice<sup>34</sup>.

It is understood that wash-up corrections to Vector Transmission invoices and mismatch positions are common and are currently processed by Vector Transmission. OATIS also has the functionality to manage wash-ups using the Vector mismatch and invoicing provisions<sup>35</sup>.

The following example shows how a wash-up would flow through the current system according to the factual matrix.

### Example

- Assume two shippers, both shipping across the Maui and Vector pipelines. Neither has any trading at the Maui-Vector interface point.
- Shipper A has good information systems, a predictable customer base and nominates exactly its customers' consumption for the day of 1000 GJ.
- Shipper B, on the other hand, has poor forecasting or an unpredictable customer base or is trying to game the system. It nominates 1000 GJ even though its customers actually take 1500 GJ.

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<sup>30</sup> MPOC section 16.8

<sup>31</sup> GTC section 6.5

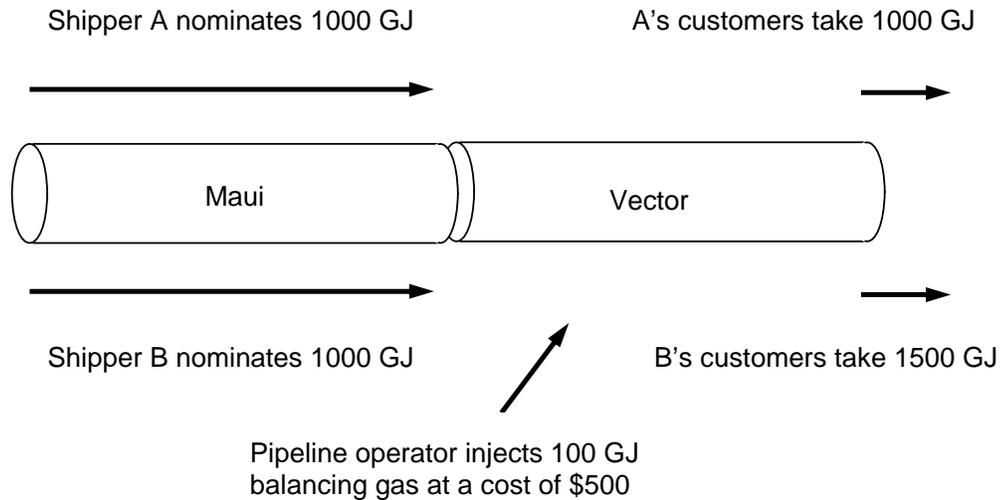
<sup>32</sup> GTC section 6.2 (a)

<sup>33</sup> Vector TSA section 9.5 and 13.5. Reconciliation Code section 12.1 (a), 12.1 (g) and 12.10 (in combination with Vector TSA 5.6 and 13.5)

<sup>34</sup> Vector TSA section 14.16

<sup>35</sup> Invoicing section of the training manual for OATIS, as published on the OATIS web site.

- On the day 2000 GJ is injected into the pipeline and 2500 GJ leaves the pipeline. The 500 GJ shortage reduces line-pack and in this example the pipeline operator must step in and provide balancing gas. It buys 100 GJ at \$500.



To illustrate the effect of a subsequent wash-up, it is assumed the initial month end allocation is not accurate, allocating 1100 delivery to shipper A and 1400 to shipper B. However at a later wash-up this is largely corrected. It is then fully corrected at a second wash-up.

	Shipper	Receipt	Delivery	Mismatch prior to allocating balancing gas	Allocation of balancing gas GJ	Mismatch after allocation of balancing gas	Allocation of balancing gas cost
Initial	A	1000	1100	-100	20	-80	\$100
	B	1000	1400	-400	80	-320	\$400
	Total	2000	1500	-500	100	-400	\$500
Wash-up 1	A	1000	1010	-10	2	-8	\$10
	B	1000	1490	-490	98	-392	\$490
	Total	2000	2500	-500	100	-400	\$500
Wash-up 2	A	1000	1000	0	0	0	0
	B	1000	1500	-500	100	-400	\$500
	Total	2000	2500	-500	100	-400	\$500

In addition to the mismatch and balancing cost adjustments, there would be an issue with Vector transmission fee adjustments. Let's assume shipper A has 1000 units of Reserved Capacity at a Capacity Reservation Fee of \$365/GJ. Shipper B has 1500 GJ of Reserved Capacity and is on a special deal of \$292/GJ (80% of Shipper A).

Both have a Throughput Fee of \$1/GJ and an Unauthorized Overrun Fee of 10 x the Capacity Reservation Fee.

	Shipper	Gas Delivered	Capacity Reservation Charge	Throughput Charge	Unauthorised Overrun Charge	Total transmission fee
Initial	A	1100	\$1000	\$1100	\$1000	\$3100
	B	1400	\$1200	\$1400	0	\$2600
	Total	2500	\$2200	\$2500	\$1000	\$5700
Wash-up 1	A	1010	\$1000	1010	\$100	\$2110
	B	1490	\$1200	1490	0	\$2690
	Total	2500	\$2200	2500	\$100	\$4800
Wash-up 2	A	1000	\$1000	1000	0	\$2000
	B	1500	\$1200	1500	0	\$2700
	Total	2500	\$2200	2500	0	\$4700

Initially shipper A would pay transmission fees on 1100 GJ of gas at a cost of \$3100. In this example the wash-up decreased shipper A's bill by \$1100 and increased shipper B's bill by \$100.

If Vector did not participate in the wash-ups then Shipper A would need to provide 80 GJ to shipper B at a price of \$100 (72 GJ in the first wash-up and 8 GJ in the second), using some other mechanism than an adjustment of Vector mismatch. However shipper A is unable to retrieve its Vector transmission fee correction fully from shipper B.

In this example:

- The wash-up did not effect the Maui allocations, the Vector receipt quantities, the quantum of excess gas taken on the day, the need for balancing gas or the quantum of the balancing cost.
- The wash-up did impact the mismatch on the Vector pipeline and the Vector transmission fees.
- The shippers could theoretically correct their gas entitlements and balancing gas costs bilaterally without Vector's involvement.
- The shippers would not be in a position to bilaterally correct transmission fees without Vector involvement.

## 7. Findings and Conclusions

### Key Findings

The question addressed by this report is whether downstream wash-ups of allocations impact upstream balancing and reconciliation arrangements.

Relevant findings are summarised from the factual matrix as follows:

1. In the January Gas Industry Co report, 'upstream' refers to allocation and reconciliation at the receipt points on the Vector pipelines. 'Downstream' refers to allocation and reconciliation at Vector delivery points. This use of terminology is limiting as the Maui pipeline is upstream of the Vector receipt points and often in the industry Maui activity is considered 'upstream'. This use of terms also leaves it unclear as to whether Vector mismatch is upstream or downstream.
2. Maui pipeline gas allocations are determined from approval of nominations made prior to the flow of gas. The shippers and welded parties are unable to retrospectively adjust these Approved Nominations and therefore they cannot adjust Maui gas allocations. There is one exception to this for Maui Legacy Gas (see next paragraph). Maui shipper allocations are also not impacted by Maui-Vector interface metering adjustments due to the type of allocation agreement used on the Maui pipeline.
3. The Maui Legacy Gas shipper (STOS as agent for the MMCs) can adjust Approved Nominations prior to the 7<sup>th</sup> business day of the month following gas flow. This mechanism will terminate by 27 June 2009. Therefore the Legacy Gas shipper can await the initial downstream allocation before determining upstream allocations. While this impacts balancing arrangements within the month, the Legacy Gas shipper cannot adjust Maui allocations after the proposed subsequent wash-ups.
4. The Vector shipper receipt allocations at Maui interface points are determined by Gas Transfer Agreements under the Gas Transfer Code, which specify how the quantities of gas received by Vector shippers will be calculated. The Gas Transfer Code requires that all gas is allocated, no more and no less. While this is completed by the 6<sup>th</sup> business day of the month following gas flow there is a requirement to accept corrections identified at a later date.
5. As the Maui delivery allocations cannot be adjusted at the time of a wash-up the ability to adjust Vector receipt quantities is limited to moving gas allocations between one Vector shipper and another Vector shipper. This only transfers mismatch between shippers and does not impact upon balancing gas activities.
6. Imbalance in flow at the Maui-Vector interface points is the responsibility of Vector Transmission (as the Welded Party) and does not impact Maui shipper delivery allocations or Vector shipper receipt allocations. Any imbalance in flow can form part of the balancing arrangements for shippers but the imbalance quantity and any balancing transaction between Maui and Vector are not impacted by the proposed wash-ups.
7. Vector shipper receipt allocations from producers connected to the Vector pipeline must sum to the metered quantity and any linkage of the downstream proposed wash-up is therefore restricted to moving gas and mismatch between shippers.

8. On the Vector pipeline, delivery quantities at shared delivery points are determined by the Allocation Agreement under the Reconciliation Code. The Reconciliation Code in turn enables ex post wash-ups of delivery quantities on an ad hoc basis where they are financially significant. These adjustments are not new and already occur regularly.
9. In its current standard transmission service agreement Vector has the ability to adjust invoices and shipper mismatch for wash-ups of delivery quantities. It is understood this already occurs and is established practice. The new OATIS information system provides for this functionality.
10. Balancing is provided on the basis of actual linepack and aggregate real imbalance between input and output flows to the pipeline networks. The need for, and the quantum of, balancing gas transactions are therefore not impacted by the wash-ups proposed.
11. Aggregate mismatch and aggregate balancing cost recovery on the Vector pipeline is not impacted by the wash-ups proposed, other than where metering corrections at the delivery point can allocate more or less gas to Vector UFG.
12. The allocation of the aggregate mismatch and balancing cost as between shippers on the Vector pipeline is impacted by the proposed wash-ups. Therefore, to the extent that this process of apportionment is considered a 'balancing arrangement', then upstream balancing arrangements are impacted by the proposed wash-ups.
13. Aggregate transmission costs and the allocation of transmission costs between shippers on the Vector pipeline are impacted by the wash-ups proposed.
14. Downstream parties could theoretically manage wash-up of gas and balancing costs between themselves without Vector Transmission involvement, and therefore not impact upstream arrangements. However, downstream parties would be unable to manage adjustments of Vector transmission fees without Vector Transmission involvement due to the total amount of fees changing. Vector currently provides this service under its contractual arrangements with its shippers.
15. Shippers can correct their own mismatch position by adjusting nominations or they can hedge the potential for cash-out costs by participating in balancing gas tenders. A potential indirect impact of ex-post wash-ups is the possibility of invalidating prior decisions to correct a mismatch position (self balance) or to participate in a balancing gas tender. Therefore, to the extent that wash-ups reduce participation in self balancing or balancing gas tenders, then wash-ups indirectly impact upstream balancing arrangements.
16. Wash-ups more accurately target costs to causers and therefore provide an incentive to improve nomination accuracy over time which in turn impact upon upstream balancing arrangements.

## Discussion

The objectives of Gas Industry Co under the Gas Act and Government Policy Statement include efficiency, encouraging competition and signaling full costs to consumers. These objectives favour an outcome where costs go to causers, unless the transaction cost outweighs the benefit. Also they favour risks lying with parties who have the ability to manage those risks.

Wash-ups are currently common practice. The issue being considered by the industry is really about whether the practice can be improved. It is not in the brief to comment on the optimum practice in total, but rather to establish if there are upstream balancing factors that may influence the decision on how to improve the current arrangements. I have identified the following impacts of wash-ups on upstream balancing arrangements:

1. Wash-ups target costs to causers more accurately and hence send the correct signals to each market participant to optimize between incurring balancing costs and investing in business processes to improve estimation and nomination accuracy. This investment could include such things as more frequent meter reading, better forecasting practices or better communications between the retailer and the party making their upstream nominations.
2. A lack of wash-ups may reduce incentives and may even provide the potential for gaming of nominations with adverse impacts upon upstream balancing.
3. Wash-ups may indirectly impact the incentives for shippers to self-balance (by correcting their own mismatch position) or to participate in balancing gas tenders if wash-ups are frequently invalidating their decisions at a later date.

The only Maui pipeline allocation that is adjusted ex-post is the Legacy Gas adjustment, which must occur by the 7<sup>th</sup> business day in the month after the gas flow. This impacts upstream balancing at the time, but as it is well outside of the proposed wash-up dates I do not consider this is impacted by the proposed wash-ups.

The mechanism to transfer gas quantities between shippers resulting from a downstream wash-up is currently to adjust shipper mismatch on the Vector pipeline. The mechanism to wash-up transmission costs is also currently to correct Vector invoicing. Vector Transmission has the right to deal with these adjustments resulting from wash-ups and is currently doing this service for the downstream parties.

The Vector receipt quantities could theoretically be adjusted for a wash-up but they are constrained by the inability to adjust Maui deliveries or direct connected producer meter readings. This means the total quantum of gas allocated would not change and any wash-up adjustment to Vector receipt point allocations would just move gas allocated quantities and therefore mismatch between Vector shippers.

It is my understanding that wash-ups do not generally impact wholesale gas trading, particularly at producer receipt points, however if trading was occurring at the downstream Vector delivery point then this would be impacted. As wash-ups already occur it is anticipated that any downstream gas sales agreement would already accommodate wash-ups.

Strictly allocation of mismatch between Vector shippers is upstream of the Vector delivery point. This means that adjustment of mismatch could be considered an upstream balancing arrangement. However I suggest reallocation of mismatch for a wash-up is not considered an impact on upstream balancing arrangements as the process does not impact the need for or the quantum of balancing gas or the quantum of mismatch, and only the portion each Vector shipper is allotted.

## Conclusions

1. The proposal to provide for 4 and 12 month wash-ups of downstream allocations only impacts upon upstream balancing arrangements to the extent that:
  - a. Allocation of balancing costs and mismatch between shippers on the Vector pipeline is considered a balancing arrangement, however this does not impact aggregate gas or mismatch in the pipeline and is already provided for in Vector's transmission arrangements with its shippers;
  - b. Wash-ups may indirectly impact shipper decisions to correct mismatch positions near the time of gas flow or to participate in balancing gas tenders; or
  - c. Wash-ups correctly allocate the cost of inaccurate estimation and nomination to causers and therefore provide an incentive to improve estimation and nomination accuracy over time.
2. While there is a risk of some indirect impact upon shippers' incentives to correct their mismatch positions near the time of gas flow or participate in balancing gas tenders, the need for such action by shippers is likely to be minimised by incentivising shippers to improve the accuracy of their estimations and nominations over time.
3. For completeness, I note that the proposal to provide for 4 and 12 month wash-ups of downstream allocations could theoretically impact upstream reconciliation through shifting allocations between shippers. However, this would not impact upon aggregate gas or mismatch in the pipeline.
4. I have therefore not identified any reason suggesting that Gas Industry Co should reconsider its proposal for wash-ups due to upstream balancing gas arrangements.
5. In the January Gas Industry Company report, 'upstream' refers to allocation and reconciliation at the receipt points on the Vector pipelines. 'Downstream' refers to allocation and reconciliation at Vector delivery points. It would be clearer if 'upstream' referred to allocation and reconciliation at gas producers and on the Maui pipeline, 'midstream' referred to allocation and reconciliation at the Vector-Maui interconnection points (i.e. under the Gas Transfer Code) and 'downstream' referred to allocations at Vector pipeline delivery points. Mismatch on the Vector pipeline is therefore impacted by both downstream and midstream allocations but in itself is neither downstream or midstream.