

UNC Request	At what stage is this document in the process?
<h1>UNC 0XXX:</h1> <h2>Reconciliation and Imbalance Cash Out Prices</h2>	<div style="display: flex; flex-direction: column; align-items: flex-start;"> <div style="border: 1px solid #800040; padding: 5px; margin-bottom: 5px; width: 100%;"> <span style="background-color: #800040; color: white; padding: 2px 5px; border-radius: 5px;">01</span> Request         </div> <div style="border: 1px solid #0070C0; padding: 5px; margin-bottom: 5px; width: 100%;"> <span style="background-color: #0070C0; color: white; padding: 2px 5px; border-radius: 5px;">02</span> Workgroup Report         </div> <div style="border: 1px solid #FF8C00; padding: 5px; margin-bottom: 5px; width: 100%;"> <span style="background-color: #FF8C00; color: white; padding: 2px 5px; border-radius: 5px;">03</span> Final Modification Report         </div> <div style="border: 1px solid #ccc; width: 100%; height: 30px; margin-bottom: 5px;"></div> </div>
<p><b>Purpose of Request:</b></p> <p>This Requests aims to seek a method of incentivising Shippers to purchase the correct amount of gas for NDM sites, in advance of the gas day and support de-risking Shipper imbalance costs.</p>	
	<p>The Proposer recommends that this request should be assessed by a Workgroup This request will be presented by the Proposer to the Panel on XX</p>
	<p>High Impact: Shippers</p>
	<p>Medium Impact: CDSP</p>
	<p>Low Impact:</p>

<b>Contents</b>		 <b>Any questions?</b>
<b>1 Request</b>	<b>3</b>	Contact: <b>Joint Office of Gas Transporters</b>
<b>2 Impacts and Costs</b>	<b>4</b>	 <a href="mailto:enquiries@gasgovernance.co.uk">enquiries@gasgovernance.co.uk</a>
<b>3 Terms of Reference</b>	<b>8</b>	 <b>0121 288 2107</b>
<b>4 Recommendation</b>	<b>8</b>	Proposer: <b>George MacGregor</b>
<b>About this document:</b>		 <a href="mailto:georgemacgregor@utilita.co.uk">georgemacgregor@utilita.co.uk</a>
This document is a Request, which will be presented by the Proposer to the panel on 17 May 2018.		 <b>07392866735</b>
The Panel will consider the Proposer's recommendation, and agree whether this Request should be referred to a Workgroup for review.		Transporter: <b>Insert name</b>
		 <b>email address.</b>
		 <b>telephone</b>
		Systems Provider: <b>Xoserve</b>
		 <a href="mailto:commercial.enquiries@xoserve.com">commercial.enquiries@xoserve.com</a>
		 <b>telephone</b>
		Additional contacts: <b>Insert name</b>
		 <b>email address.</b>
		 <b>telephone</b>

## 1 Request

### Why is the Request being made?

The CDSP estimate Shippers' daily offtakes using the NDM Deemed Allocation. Shippers provide their daily NDM nomination information to the CDSP via UKLink. CDSP calculate the difference between this nomination and the NDM Deemed Allocation and the Shipper is then subject to an Imbalance Payment.

Imbalance payments pay out the difference between the Shipper's Nomination and the NDM Deemed Allocation at SMSP/SMBP.

Shippers can then submit actual NDM meter reads into UKLink. The difference between the actual meter reads and the NDM Deemed allocation is then calculated and a reconciliation payment is made to the Shipper. These payments are made at SAP.

The fact that different system prices are used for these calculations creates a financial disincentive for Shipper's to submit accurate forecasts. Purchasing over or under your NDM Deemed allocation creates artificial winners and losers, due to the usage of different system prices in Imbalance and Reconciliation processes.

### Scope

The NDM Imbalance and Reconciliation processes are within the scope of this request, specifically the system prices used to make the respective payments.

Daily Metered sites are not within the scope of this request.

### Impacts & Costs

Shippers stand to be most impacted, particularly those with a majority of NDM sites. Shippers forecasting processes may have to change. Shippers will also need to be made aware of any potential changes to the Imbalance and Reconciliation processes. There will be direct financial impacts to Shippers if either the Imbalance or Reconciliation process change.

There is also likely to be some CDSP impact, depending on the nature of the solution.

### Recommendations

The request aims to identify a means of alleviating the impact of using different system prices for the Imbalance and Reconciliation processes.

We believe the proposal should be issued to a Workgroup for multiple reasons:

- Identify the best solution to be taken forward as a modification
- Ensure other Shippers are not inadvertently penalised
- Help identify other impacted areas

### Additional Information

We have produced many charts and tables to illustrate the issue as we currently see it. For the sake of readability, these are attached as APPENDIX A.

We have also produced many potential solutions. These are attached as APPENDIX B.

## 2 Impacts and Costs

### Consideration of Wider Industry Impacts

None identified.

### Impacts

Impact on Central Systems and Process	
Central System/Process	Potential impact
UK Link	<ul style="list-style-type: none"> <li>• NDM Imbalance</li> <li>• NDM Reconciliation</li> </ul>
Operational Processes	<ul style="list-style-type: none"> <li>• NDM Imbalance</li> <li>• NDM Reconciliation</li> </ul>

Impact on Users	
Area of Users' business	Potential impact
Administrative and operational	<ul style="list-style-type: none"> <li>• NDM Forecasting</li> </ul>
Development, capital and operating costs	<ul style="list-style-type: none"> <li>• NDM Imbalance</li> <li>• NDM Reconciliation</li> </ul>
Contractual risks	<ul style="list-style-type: none"> <li>• None</li> </ul>
Legislative, regulatory and contractual obligations and relationships	<ul style="list-style-type: none"> <li>• None</li> </ul>

Impact on Transporters	
Area of Transporters' business	No impact
System operation	<ul style="list-style-type: none"> <li>• None</li> </ul>
Development, capital and operating costs	<ul style="list-style-type: none"> <li>• None</li> </ul>
Recovery of costs	<ul style="list-style-type: none"> <li>• None</li> </ul>
Price regulation	<ul style="list-style-type: none"> <li>• None</li> </ul>
Contractual risks	<ul style="list-style-type: none"> <li>• None</li> </ul>
Legislative, regulatory and contractual obligations and relationships	<ul style="list-style-type: none"> <li>• None</li> </ul>
Standards of service	<ul style="list-style-type: none"> <li>• None</li> </ul>

Impact on Code Administration	
Area of Code Administration	No impact
Modification Rules	<ul style="list-style-type: none"> <li>• None</li> </ul>

Impact on Code Administration	
UNC Committees	<ul style="list-style-type: none"> <li>None</li> </ul>
General administration	<ul style="list-style-type: none"> <li>None</li> </ul>
DSC Committees	<ul style="list-style-type: none"> <li>None</li> </ul>

Impact on Code	
Code section	Potential impact
	<ul style="list-style-type: none"> <li>E6.2.5 – Reconciliation Clearing Value; and/or</li> <li>Other areas of TPD Section E</li> </ul>

Impact on UNC Related Documents and Other Referenced Documents	
Related Document	No impact
Network Entry Agreement (TPD I1.3)	<ul style="list-style-type: none"> <li>None</li> </ul>
General	No Impact
Legal Text Guidance Document	<ul style="list-style-type: none"> <li>None</li> </ul>
UNC Modification Proposals – Guidance for Proposers	<ul style="list-style-type: none"> <li>None</li> </ul>
Self Governance Guidance	<ul style="list-style-type: none"> <li>None</li> </ul>
TPD	No Impact
Network Code Operations Reporting Manual (TPD V12)	<ul style="list-style-type: none"> <li>None</li> </ul>
UNC Data Dictionary	<ul style="list-style-type: none"> <li>None</li> </ul>
AQ Validation Rules (TPD V12)	<ul style="list-style-type: none"> <li>None</li> </ul>
AUGE Framework Document	<ul style="list-style-type: none"> <li>None</li> </ul>
Customer Settlement Error Claims Process	<ul style="list-style-type: none"> <li>None</li> </ul>
Demand Estimation Methodology	<ul style="list-style-type: none"> <li>None</li> </ul>
Energy Balancing Credit Rules (TPD X2.1)	<ul style="list-style-type: none"> <li>None</li> </ul>
Energy Settlement Performance Assurance Regime	<ul style="list-style-type: none"> <li>None</li> </ul>
Guidelines to optimise the use of AQ amendment system capacity	<ul style="list-style-type: none"> <li>None</li> </ul>
Guidelines for Sub-Deduct Arrangements (Prime and Sub-deduct Meter Points)	<ul style="list-style-type: none"> <li>None</li> </ul>

Impact on UNC Related Documents and Other Referenced Documents	
LDZ Shrinkage Adjustment Methodology	• None
Performance Assurance Report Register	• None
Shares Supply Meter Points Guide and Procedures	• None
Shipper Communications in Incidents of CO Poisoning, Gas Fire/Explosions and Local Gas Supply Emergency	• None
Standards of Service Query Management Operational Guidelines	• None
Network Code Validation Rules	• None
	•
OAD	No Impact
Measurement Error Notification Guidelines (TPD V12)	• None
EID	No Impact
Moffat Designated Arrangements	• None
IGTAD	No Impact
DSC / CDSP	No Impact
Change Management Procedures	• None
Contract Management Procedures	• None
Credit Policy	• None
Credit Rules	• None
UK Link Manual	• None

Impact on Core Industry Documents and other documents	
Document	No impact
Safety Case or other document under Gas Safety (Management) Regulations	• None

Impact on Core Industry Documents and other documents	
Gas Transporter Licence	<ul style="list-style-type: none"><li>• None</li></ul>

Other Impacts	
Item impacted	No impact
Security of Supply	<ul style="list-style-type: none"><li>• None</li></ul>
Operation of the Total System	<ul style="list-style-type: none"><li>• None</li></ul>
Industry fragmentation	<ul style="list-style-type: none"><li>• None</li></ul>
Terminal operators, consumers, connected system operators, suppliers, producers and other non code parties	<ul style="list-style-type: none"><li>• None</li></ul>

## 3 Terms of Reference

### Background

The CDSP estimate Shippers' daily offtakes using the NDM Deemed Allocation. Shippers provide their daily NDM nomination information to the CDSP via UKLink. CDSP calculate the difference between this nomination and the NDM Deemed Allocation and the Shipper is then subject to an Imbalance Payment.

Imbalance payments pay out the difference between the Shipper's Nomination and the NDM Deemed Allocation at SMSP/SMBP.

Shippers can then submit actual NDM meter reads into UKLink. The difference between the actual meter reads and the NDM Deemed allocation is then calculated and a reconciliation payment is made to the Shipper. These payments are made at SAP.

The fact that different system prices are used for these calculations creates a financial disincentive for Shipper's to submit accurate forecasts. Purchasing over or under your NDM Deemed allocation creates artificial winners and losers, due to the usage of different system prices in Imbalance and Reconciliation processes.

### Topics for Discussion

- Understanding the objective
- Assessment of alternative means to achieve objective
- Development of Solution (including business rules if appropriate)
- Assessment of potential impacts of the Request
- Assessment of implementation costs of any solution identified during the Request
- Assessment of legal text.

### Outputs

Produce a Workgroup Report for submission to the Modification Panel, containing the assessment and recommendations of the Workgroup including a draft modification where appropriate.

### Composition of Workgroup

The Workgroup is open to any party that wishes to attend or participate.

A Workgroup meeting will be quorate provided at least two Transporter and two User representatives are present.

### Meeting Arrangements

Meetings will be administered by the Joint Office and conducted in accordance with the Code Administration Code of Practice.

## 4 Recommendation

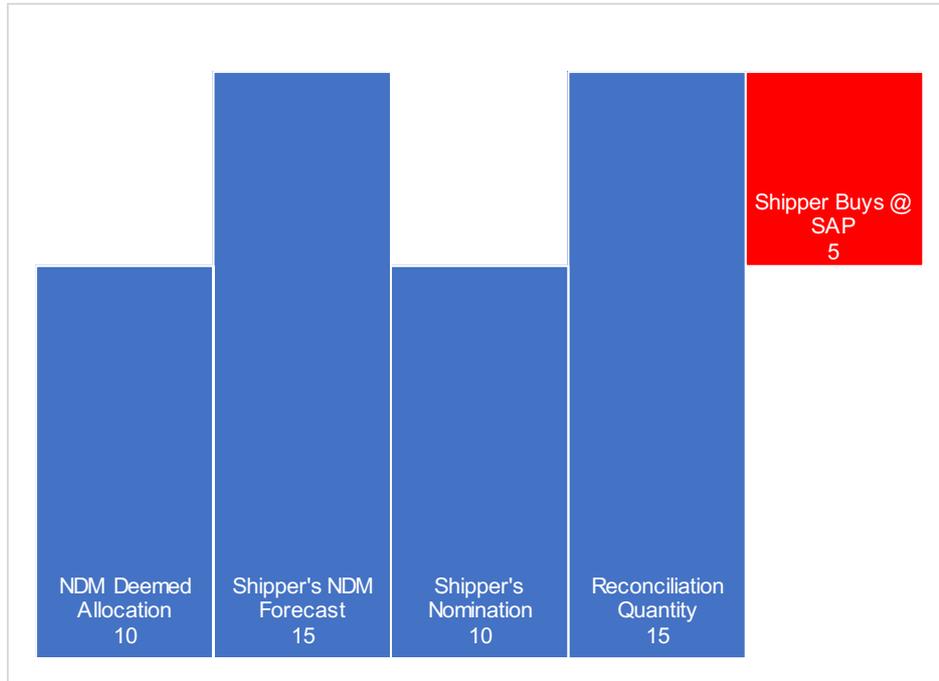
The Proposer invites the Panel to:

- DETERMINE that Request 0XXX progress to Workgroup for review

# APPENDIX A: Current Issue

## Example One- For Information Only

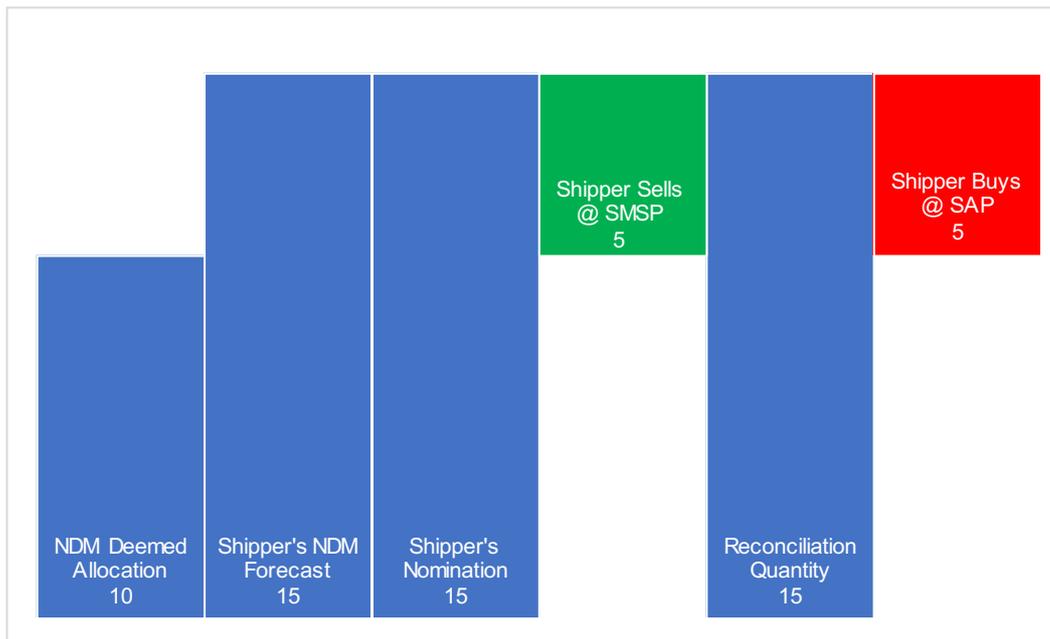
The graph below shows the behaviour encouraged by using different system prices at Imbalance and Reconciliation.



1. An initial NDM Deemed Allocation is calculated by Xoserve using the forecasting algorithm
2. The Shipper creates their own forecast and believes they will require more than the Deemed Allocation
3. The Shipper acquires and contracts as per the NDM Deemed Allocation
4. There is no difference between the Shipper's contracted volume and the NDM Deemed Allocation, therefore no Imbalance payment is made.
5. Meter Reads are submitted and a Daily Reconciliation Quantity is calculated
6. The reconciliation quantity shows the Shipper's own forecast was correct
7. The Shipper Buys the Reconciliation quantity at System Average Price

## Example Two- For Information Only

The example below shows the current processes if a Shipper were to contract above their NDM Deemed Allocation. Submission of Reconciliation metered volumes shows this volume forecast to be accurate, however the use of SMP and SAP at distinct stages results in a monetary loss to the Shipper.



1. An initial NDM Deemed Allocation is calculated by Xoserve using the forecasting algorithm
2. The Shipper creates their own forecast and believes they will require more gas than the NDM Deemed Allocation suggests
3. The Shipper contracts volume as per their own Forecast
4. The Imbalance process results in the Shipper being cashed out to their initial NDM Deemed Allocation level. In this example the Shipper is “long” and therefore sells the volume difference at System Marginal Sell Price.
5. Meter Reads are submitted and a Daily Reconciliation Quantity is calculated. The reconciliation quantity shows the Shipper’s own forecast was correct.
6. The reconciliation quantity is the same volume as sold during the Imbalance process, however the Shipper must pay at SAP.

This means that two separate payments have been made:

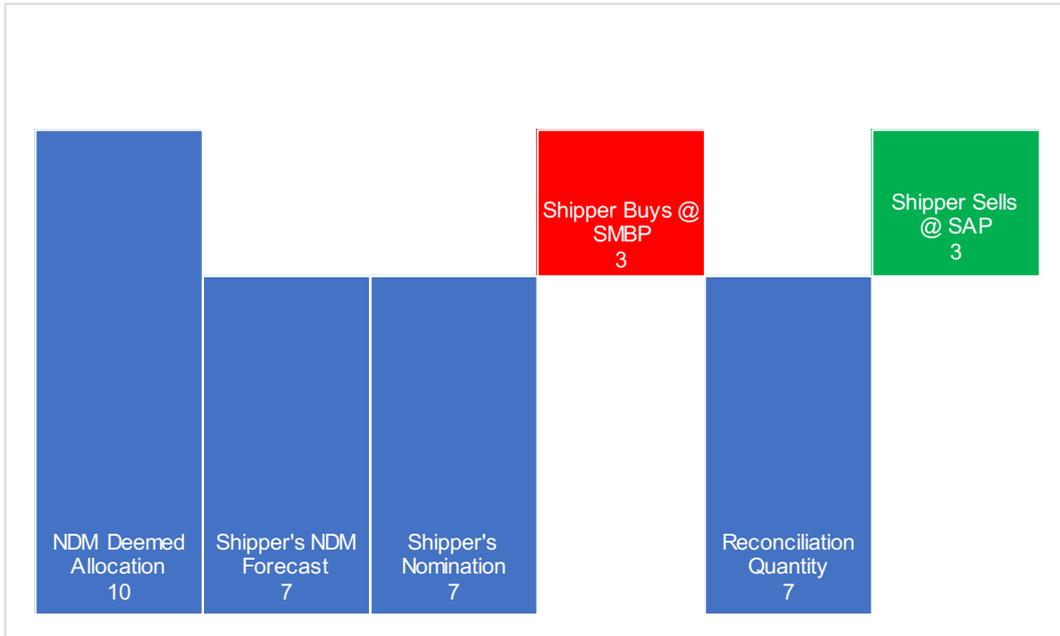
1. The difference between the NDM Deemed Allocation and the Shipper’s Nomination, paid to the Shipper at SMSP.
2. The difference between the NDM Deemed Allocation and the final Reconciliation Quantity, paid by the Shipper at SAP.

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	15		
Shipper's Nomination	15		
Shipper Sells @ SMSP	5	1.4	7
Reconciliation Quantity	15		
Shipper Buys @ SAP	-5	1.5	-7.5
Differential			-0.5

In this example, as a result of the Shipper's accurate forecast, the volumes settled in each process are equal but opposite. However, the Shipper takes a financial hit equal to the difference between SMSP and SAP multiplied by the reconciled volume.

### Example Three- For Information Only

The example below shows the current processes if a Shipper were to submit a forecast below their NDM Deemed Allocation. Submission of Reconciliation metered volumes shows this volume forecast to be accurate, however the use of SMP and SAP results in a monetary loss to the Shipper.



1. An initial NDM Deemed Allocation is calculated by Xoserve using the forecasting algorithm
2. The Shipper creates their own forecast and believes they will require less gas than the NDM Deemed Allocation suggests
3. The Shipper acquires and Nominates volume as per their own Forecast
4. The Imbalance process results in the Shipper being cashed out to their initial NDM Deemed Allocation level. In this example the Shipper is “short” and therefore Buys at SMBP.
5. Meter Reads are submitted and a Daily Reconciliation Quantity is calculated. The reconciliation quantity shows the Shipper’s own forecast was correct.

The reconciliation quantity is the exact same volume as paid out as a result of the Imbalance process, however here the Shipper Sells at SAP.

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	7		
Shipper's Nomination	7		
Shipper Buys @ SMBP	-3	1.6	-4.8
Reconciliation Quantity	7		
Shipper Sells @ SAP	3	1.5	4.5
Differential			-0.3

## APPENDIX B: Potential Solutions

Below are the solutions explored and identified during the development of this proposal.

Solution A proposes using SMPB and SMPS for the reconciliation calculations.

Solution A2 proposes using SAP for all imbalance prices, i.e. both the reconciliation calculations and the imbalance calculations.

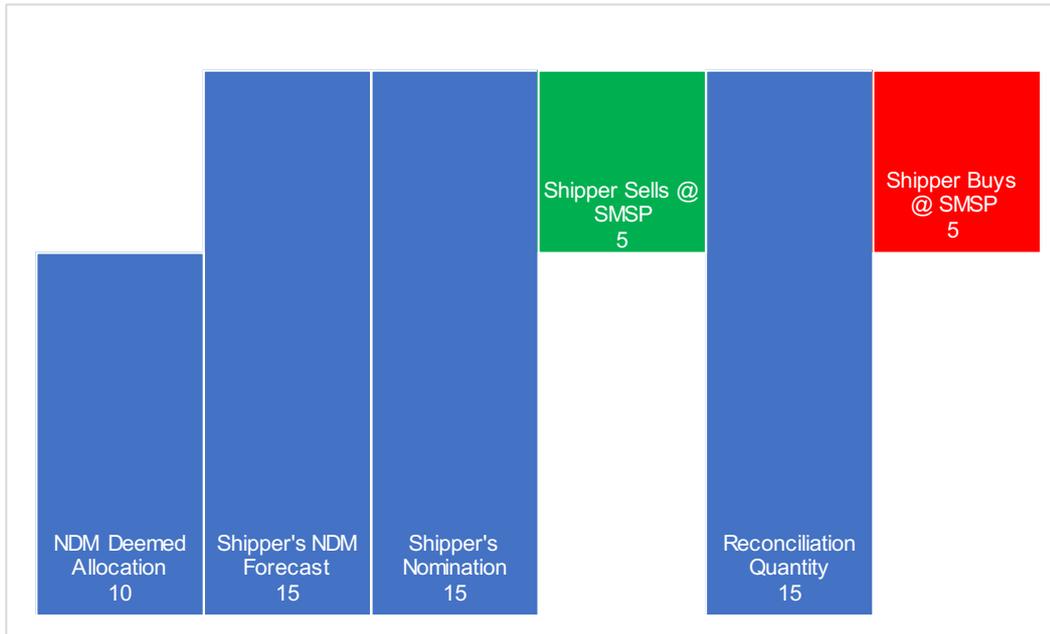
Solution B proposes to make SMPB and SMPS the same. This would make it the same as the electricity model

Solution C proposes to introduce a new process after the reconciliation process to balance the books using SMPB and SMPS. This is similar to Solution A but does not happen in real time but after the event.

# Worked Examples - For Information Only

## Solution A – Worked Examples – For Information Only

### Solution A Scenario A – Shipper Purchases above NDM Deemed Allocation

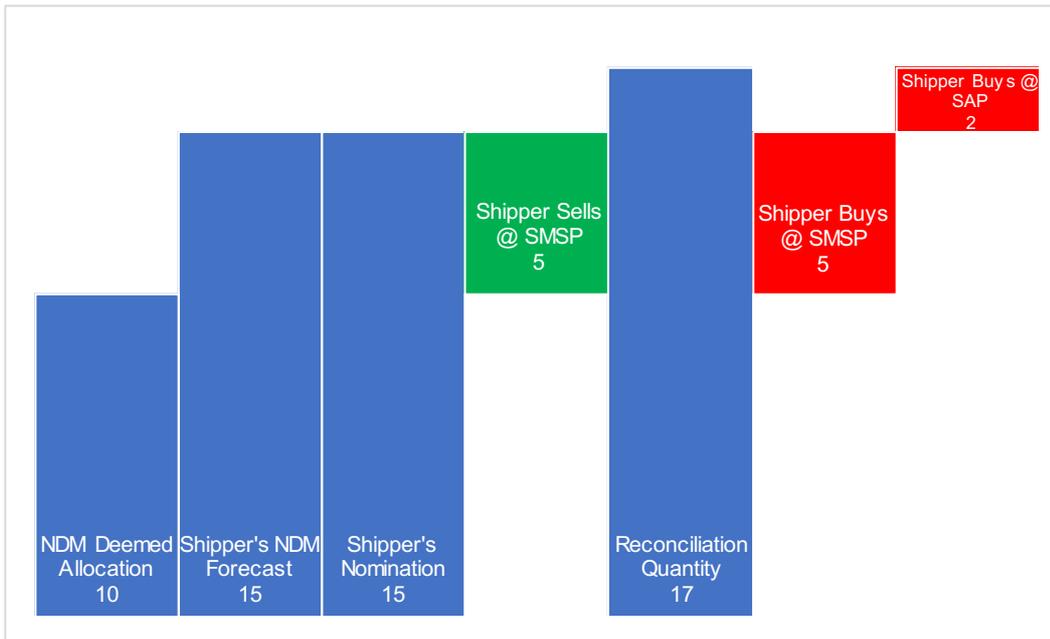


In the diagram above the Shipper is cost neutral for the gas it purchased in advance of the Gas Day.

1. The NDM Deemed Allocation is produced by Xoserve using the forecasting algorithm
2. The Shipper creates their own forecast and believes they will require more gas than the NDM Deemed Allocation suggests
3. The Shipper acquires and Nominates volume as per their own Forecast
4. The Imbalance process results in the Shipper being cashed out to their initial NDM Deemed Allocation level. In this example the Shipper is “long” and therefore Sells at SMSP.
5. Meter Reads are submitted and a Daily Reconciliation Quantity is calculated. The reconciliation quantity shows the Shipper’s own forecast was correct.
6. The reconciliation quantity is the exact same volume as paid out as a result of the Imbalance process. The shipper Buys at SMSP.

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	15		
Shipper's Nomination	15		
Shipper Sells @ SMSP	5	1.4	7
Reconciliation Quantity	15		
Shipper Buys @ SMSP	-5	1.4	-7
Differential			0

**Solution A Scenario B – Shipper Purchases above NDM Deemed Allocation but below Reconciled Usage – For Information Only**

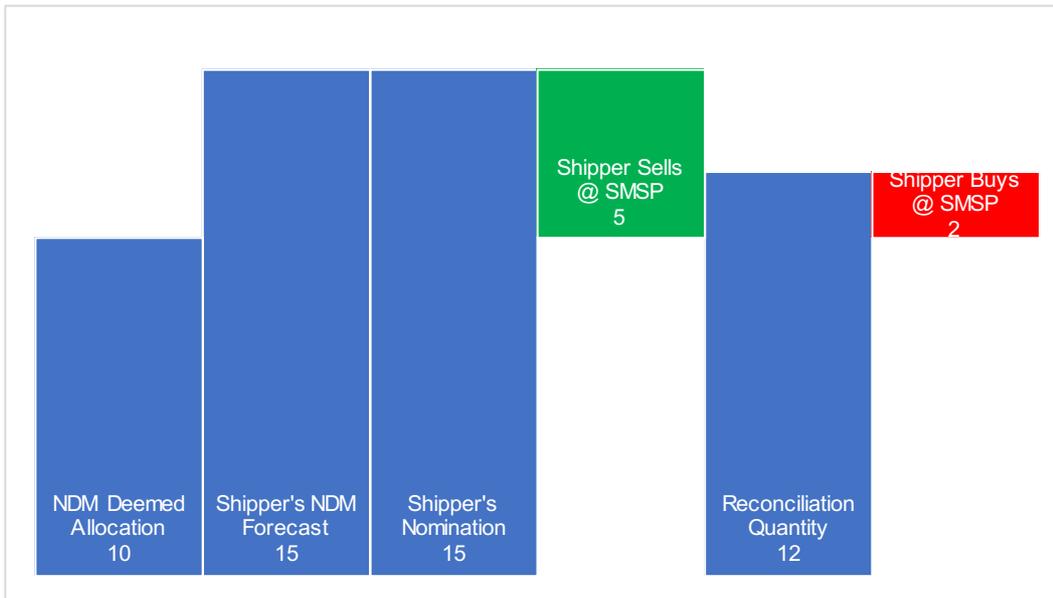


In the graph above the Shipper is not punished for purchasing above the NDM Deemed Allocation however they are still penalised for underforecasting.

1. The NDM Deemed Allocation is produced by Xoserve using the forecasting algorithm
2. The Shipper creates their own forecast and believes they will require more gas than the NDM Deemed Allocation suggests
3. The Shipper acquires and Nominates volume as per their own Forecast
4. The Imbalance process always results in the Shipper being cashed out back to their initial NDM Deemed Allocation level. In this example the Shipper is “long” and therefore Sells SMSP.
5. Meter Reads are submitted and a Daily Reconciliation Quantity is calculated. The reconciliation quantity shows the Shipper’s own forecast was too low.
6. The reconciliation quantity is the higher than the volume as paid out as a result of the Imbalance process. The shipper Buys SMSP up to the level of their submitted NDM Nomination. The volume above that forecasted by the Shipper is paid by them at SAP.

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	15		
Shipper's Nomination	15		
Shipper Sells @ SMSP	5	1.4	7
Reconciliation Quantity	17		
Shipper Buys @ SMSP	-5	1.4	-7
			0
Shipper Buys @ SAP	-2	1.5	-3
<b>Differential</b>			<b>-3</b>

**Solution A Scenario C – Shipper Purchases above NDM Deemed Allocation but Reconciled Usage is in-between – For Information Only**

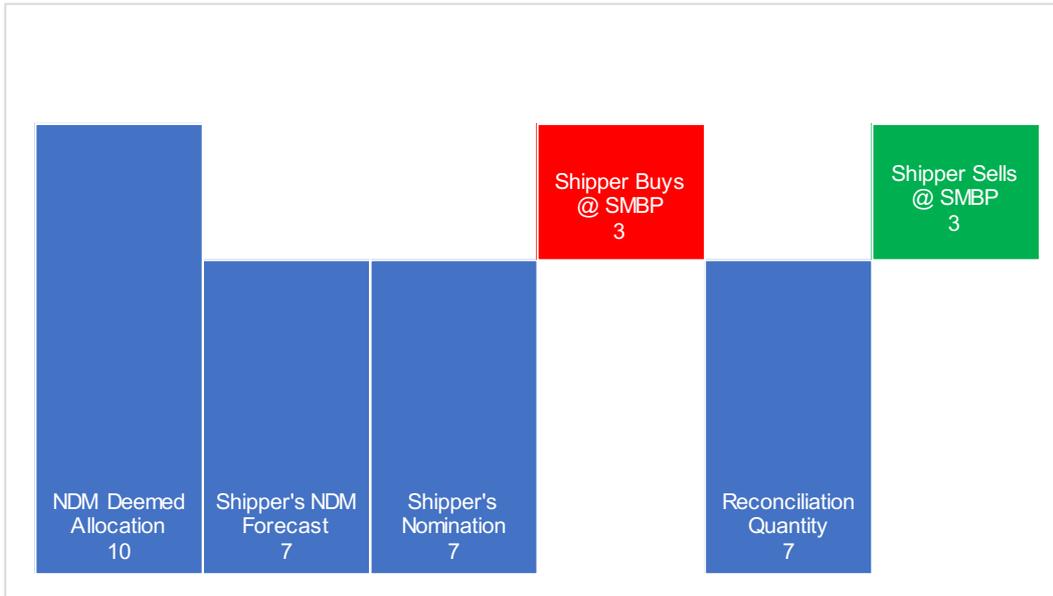


In the diagram above the Shipper is penalised for over purchasing gas but not penalised for purchasing more gas than the National Grid forecast.

1. The NDM Deemed Allocation is produced by Xoserve using the forecasting algorithm
2. The Shipper creates their own forecast and believes they will require more gas than the NDM Deemed Allocation suggests
3. The Shipper acquires and Nominates volume as per their own Forecast
4. The Imbalance process always results in the Shipper being cashed out back to their initial NDM Deemed Allocation level. In this example the Shipper is long and therefore Sells at SMSP.
5. Meter Reads are submitted and a Daily Reconciliation Quantity is calculated. The reconciliation quantity shows the Shipper's own forecast was too high.
6. The reconciliation quantity is the lower than the volume as paid out as a result of the Imbalance process but higher than the NDM Deemed Allocation. The shipper Buys at SMSP up to the Reconciliation Quantity

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	15		
Shipper's Nomination	15		
Shipper Sells @ SMSP	5	1.4	7
Reconciliation Quantity	12		
Shipper Buys @ SMSP	-2	1.4	-2.8
<b>Differential</b>			<b>4.2</b>

**Solution A Scenario D – Shipper Purchases Below NDM Deemed Allocation – For Information Only**



In the diagram above the Shipper is penalised for under purchasing gas but not penalised for purchasing less gas than the National Grid forecast.

1. The NDM Deemed Allocation is produced by Xoserve using the forecasting algorithm
2. The Shipper creates their own forecast and believes they will require less gas than the NDM Deemed Allocation suggests
3. The Shipper acquires and Nominates volume as per their own Forecast
4. The Imbalance process always results in the Shipper being cashed out back to their initial NDM Deemed Allocation level. In this example the Shipper is short and therefore must pay at SMBP.
5. Meter Reads are submitted and a Daily Reconciliation Quantity is calculated. The reconciliation quantity shows the Shipper's own forecast was correct.
6. The reconciliation quantity is the same as the Shipper's own NDM forecast and their initial submitted nomination. The shipper Sells SMBP.

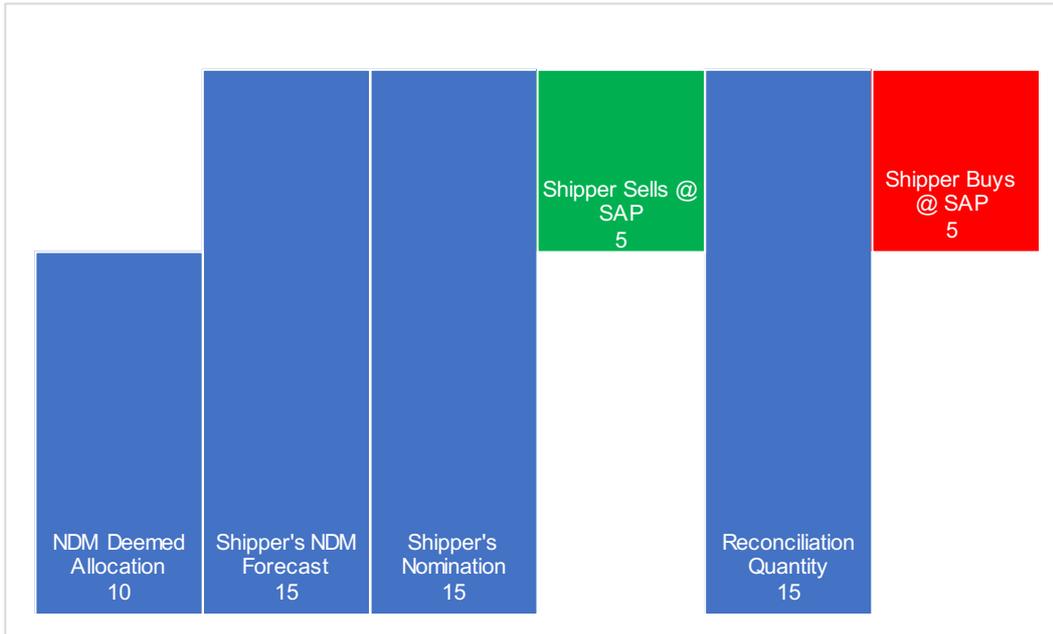
	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	7		
Shipper's Nomination	7		
Shipper Buys @ SMBP	-3	1.6	-4.8
Reconciliation Quantity	7		
Shipper Sells @ SMBP	3	1.6	4.8
<b>Differential</b>			<b>0</b>

## **Solution A2 – Adjust Imbalance Payments to be made at SAP**

This solution proposes that all Imbalance payments are made at SAP (regardless of whether the Shipper is long/short or has over/under forecasted.) This would be a slightly less punitive model than Solution A1.

**Solution A2 – Worked Examples – For Information Only**

**Solution A2 Scenario A – Shipper Purchases above NDM Deemed Allocation – For Information Only**

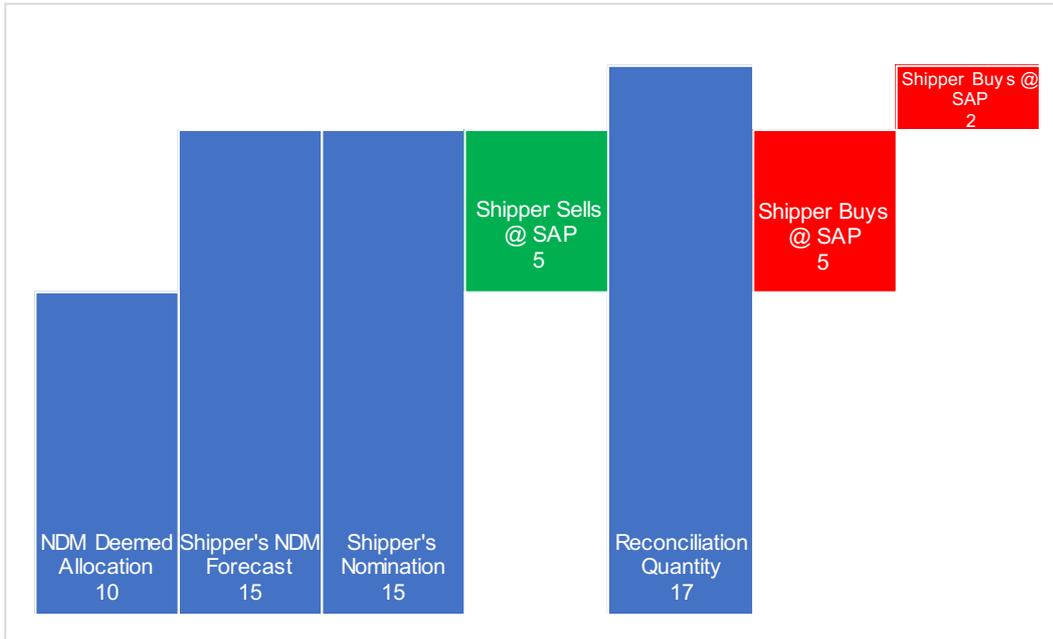


In the diagram above the Shipper is cost neutral for the gas it purchased in advance of the Gas Day.

1. The NDM Deemed Allocation is produced by Xoserve using the forecasting algorithm
2. The Shipper creates their own forecast and believes they will require more gas than the NDM Deemed Allocation suggests
3. The Shipper acquires and Nominates volume as per their own Forecast
4. The Imbalance process results in the Shipper being cashed out to their initial NDM Deemed Allocation level. In this example the Shipper is “long” and therefore Sells at SAP.
5. Meter Reads are submitted and a Daily Reconciliation Quantity is calculated. The reconciliation quantity shows the Shipper’s own forecast was correct.
6. The reconciliation quantity is the exact same volume as paid out as a result of the Imbalance process. The shipper Buys at SAP.

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	15		
Shipper's Nomination	15		
Shipper Sells @ SAP	5	1.5	7.5
Reconciliation Quantity	15		
Shipper Buys @ SAP	-5	1.5	-7.5
Differential			0

**Solution A2 Scenario B – Shipper Purchases above NDM Deemed Allocation but below Reconciled Usage – For Information Only**

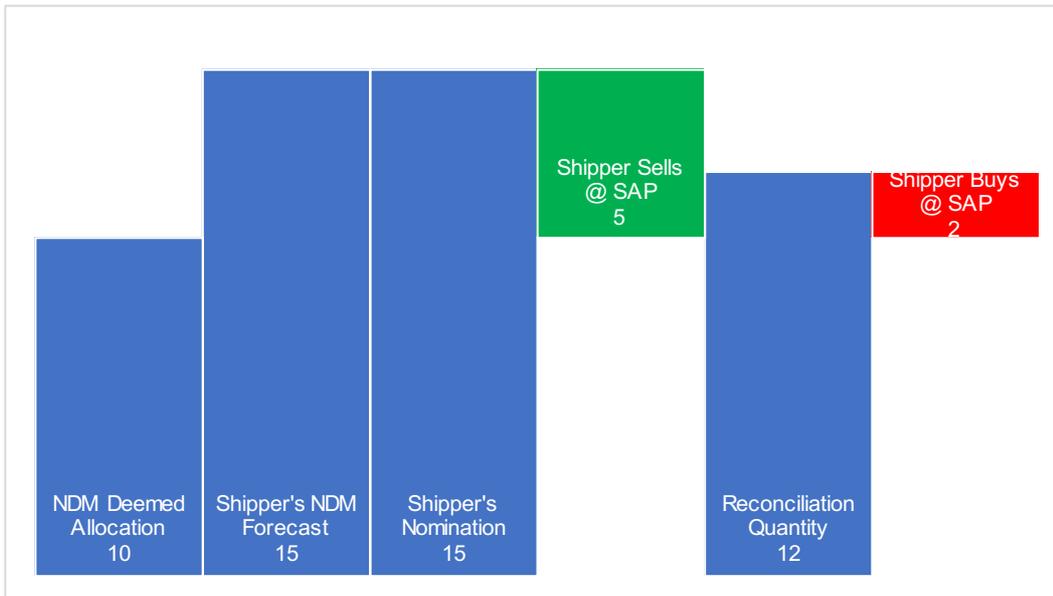


In the graph above the Shipper is not punished for purchasing above the NDM Deemed Allocation however they are still penalised for underforecasting.

1. The NDM Deemed Allocation is produced by Xoserve using the forecasting algorithm
2. The Shipper creates their own forecast and believes they will require more gas than the NDM Deemed Allocation suggests
3. The Shipper acquires and Nominates volume as per their own Forecast
4. The Imbalance process always results in the Shipper being cashed out back to their initial NDM Deemed Allocation level. In this example the Shipper is “long” and therefore Sells SAP.
5. Meter Reads are submitted and a Daily Reconciliation Quantity is calculated. The reconciliation quantity shows the Shipper’s own forecast was too low.
6. The reconciliation quantity is the higher than the volume as paid out as a result of the Imbalance process. The Shipper buys all of the volume at SAP.

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	15		
Shipper's Nomination	15		
Shipper Sells @ SAP	5	1.5	7.5
Reconciliation Quantity	17		
Shipper Buys @ SAP	-5	1.5	-7.5
Shipper Buys @ SAP	-2	1.5	-3
<b>Differential</b>			<b>-3</b>

**Solution A2 Scenario C – Shipper Purchases above NDM Deemed Allocation but Reconciled Usage is in-between – For Information Only**



In the diagram above the Shipper is penalised for over purchasing gas but not penalised for purchasing more gas than the National Grid forecast.

1. The NDM Deemed Allocation is produced by Xoserve using the forecasting algorithm
2. The Shipper creates their own forecast and believes they will require more gas than the NDM Deemed Allocation suggests
3. The Shipper acquires and Nominates volume as per their own Forecast
4. The Imbalance process always results in the Shipper being cashed out back to their initial NDM Deemed Allocation level. In this example the Shipper is long and therefore Sells at SAP.
5. Meter Reads are submitted and a Daily Reconciliation Quantity is calculated. The reconciliation quantity shows the Shipper's own forecast was too high.
6. The reconciliation quantity is the lower than the volume as paid out as a result of the Imbalance process but higher than the NDM Deemed Allocation. The shipper Buys at SAP up to the Reconciliation Quantity

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	15		
Shipper's Nomination	15		
Shipper Sells @ SAP	5	1.5	7.5
Reconciliation Quantity	12		
Shipper Buys @ SAP	-2	1.5	-3
<b>Differential</b>			<b>4.5</b>

**Solution A2 Scenario D – Shipper Purchases Below NDM Deemed Allocation – For Information Only**



In the diagram above the Shipper is penalised for under purchasing gas but not penalised for purchasing less gas than the National Grid forecast.

1. The NDM Deemed Allocation is produced by Xoserve using the forecasting algorithm
2. The Shipper creates their own forecast and believes they will require less gas than the NDM Deemed Allocation suggests
3. The Shipper acquires and Nominates volume as per their own Forecast
4. The Imbalance process always results in the Shipper being cashed out back to their initial NDM Deemed Allocation level. In this example the Shipper is short and therefore must pay at SAP.
5. Meter Reads are submitted and a Daily Reconciliation Quantity is calculated. The reconciliation quantity shows the Shipper's own forecast was correct.
6. The reconciliation quantity is the same as the Shipper's own NDM forecast and their initial submitted nomination. The shipper Sells at SAP.

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	7		
Shipper's Nomination	7		
Shipper Buys @ SAP	-3	1.5	-4.5
Reconciliation Quantity	7		
Shipper Sells @ SAP	3	1.5	4.5
<b>Differential</b>			<b>0</b>

**Solution B – Mirror Electricity Settlement/Imbalance Arrangements and set SBP equal to SSP within each Settlement Period**

This solution would seek to mirror the Electricity imbalance arrangements and seek to set a single marginal price for all transactions based on the net imbalance of the system.

- When the system as a whole is short, take the current SBP as the single cash out price
- When the system as a whole is long, take the current SSP as the single cash out price.

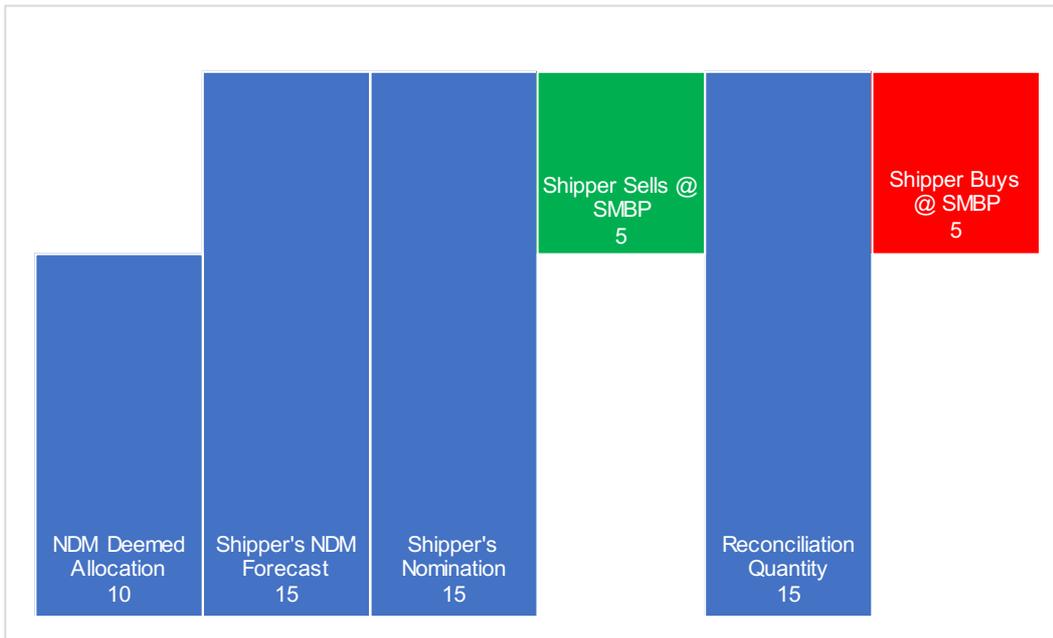
This solution provides a greater incentive for shippers to balance their own position but it will result in a more volatile cash out price. We believe this solution would have the greatest impact on the gas market, as it would introduce a new set of incentives to market participants.

For the purposes of this solution we envisage a settlement period being one gas day.

**Legal Text to be developed through workgroup development.**

**Solution B – Example One – For Information Only**

In this example, the entire gas system is short, therefore all transactions are made at SMBP.

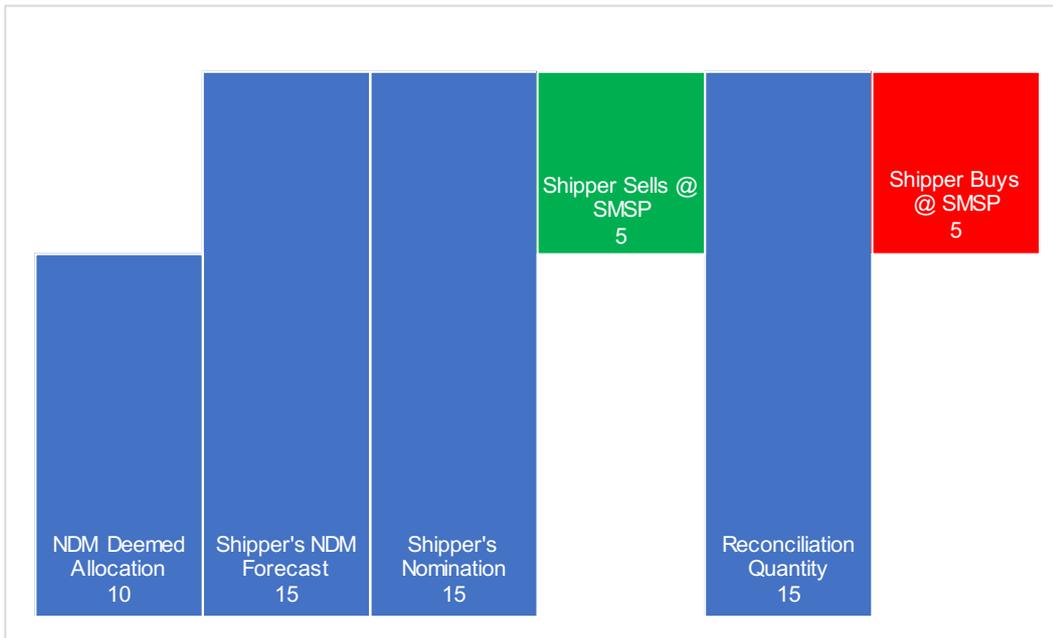


1. The NDM Deemed Allocation is produced by Xoserve using the forecasting algorithm
2. The Shipper creates their own forecast and believes they will require more gas than the NDM Deemed Allocation suggests
3. The Shipper acquires and Nominates volume as per their own Forecast
4. The Imbalance process results in the Shipper being cashed out to their initial NDM Deemed Allocation level. In this example the entire system is short, therefore the shipper sells at SMBP.
5. Meter Reads are submitted and a Daily Reconciliation Quantity is calculated. The reconciliation quantity shows the Shipper's own forecast was correct.
6. The reconciliation quantity is the exact same volume as paid out as a result of the Imbalance process. The shipper Buys at SMBP.

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	15		
Shipper's Nomination	15		
Shipper Sells @ SMBP	5	1.6	8
Reconciliation Quantity	15		
Shipper Buys @ SMBP	-5	1.6	-8
Differential			0

**Solution B – Example 2 – For Information Only**

In this example, the entire gas system is long, therefore all transactions are made at SMSP.



1. The NDM Deemed Allocation is produced by Xoserve using the forecasting algorithm
2. The Shipper creates their own forecast and believes they will require more gas than the NDM Deemed Allocation suggests
3. The Shipper acquires and Nominates volume as per their own Forecast
4. The Imbalance process results in the Shipper being cashed out to their initial NDM Deemed Allocation level. In this example the entire system is “long” and therefore the Shipper sells at SMSP.
5. Meter Reads are submitted and a Daily Reconciliation Quantity is calculated. The reconciliation quantity shows the Shipper’s own forecast was correct.
6. The reconciliation quantity is the exact same volume as paid out as a result of the Imbalance process. The shipper Buys at SMSP.

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	15		
Shipper's Nomination	15		
Shipper Sells @ SMSP	5	1.4	7
Reconciliation Quantity	15		
Shipper Buys @ SMSP	-5	1.4	7
Differential			0

### **Solution C - Imbalance Reconciliation Process**

This solution would see no changes to the existing Imbalance and Reconciliation processes.

A new process could be introduced which would calculate a credit or debit to the Shipper:

- 1) Take the Shipper's Imbalance Quantity and the SMP at which the imbalance was cashed-out (SMPB or SMPS)
- 2) Take the Shipper's Reconciliation Quantity and Imbalance Quantity. Provided both are in the same direction (long/short) then take the lower of the two quantities as the Imbalance Reconciliation Quantity.
- 3) Calculate the difference between the applicable SMP and SAP
- 4) Multiply the difference between the Reconciliation Quantity and the Imbalance Quantity by the price differential between SMP and SAP

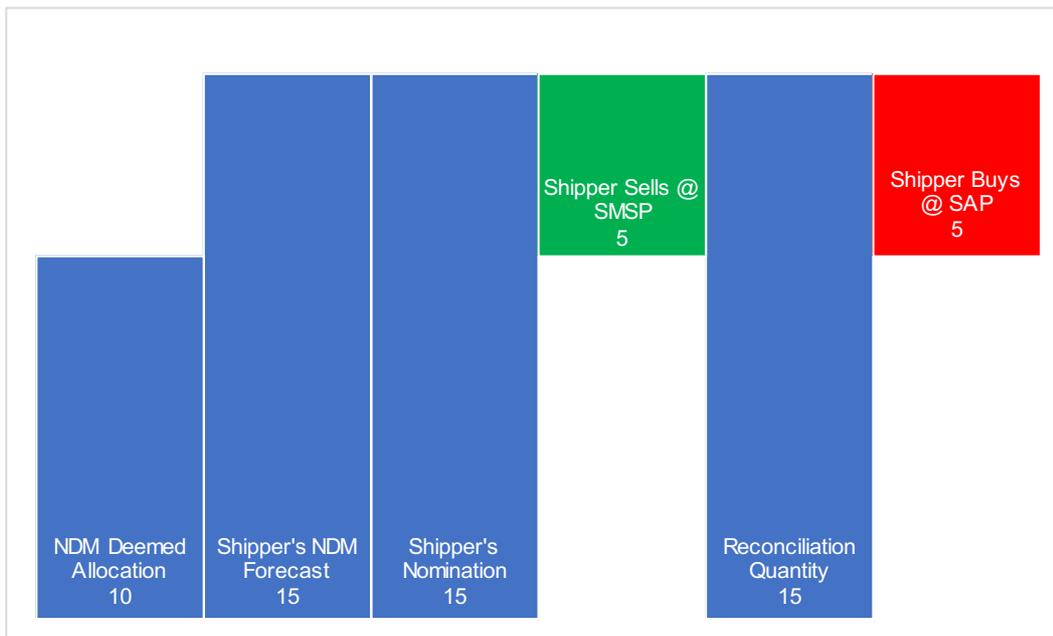
There would be **no** anticipated changes required to the following processes:

- Daily energy imbalance
  - SMP Buy/Sell used for energy imbalance calculation
  - Daily energy imbalance (closed-out) position – not updated as a consequence of meter point reconciliation
- UIG (charged at SAP)
- Meter point reconciliation charged at SAP

This solution requires no changes to any of the processes above yet incentivises shippers to forecast accurately.

**Legal text to be developed through workgroup development.**

**Solution C – Example One – For Information Only**



The existing Imbalance and Reconciliation processes would still occur, as in current arrangements:

1. An initial NDM Deemed Allocation is calculated by Xoserve using the forecasting algorithm
2. The Shipper creates their own forecast and believes they will require more gas than the NDM Deemed Allocation suggests
3. The Shipper contracts volume as per their own Forecast
4. The Imbalance process results in the Shipper being cashed out to their initial NDM Deemed Allocation level. In this example the Shipper is “long” and therefore sells the volume difference at SMSP
5. Meter Reads are submitted and a Daily Reconciliation Quantity is calculated. The reconciliation quantity shows the Shipper’s own forecast was correct.
6. The reconciliation quantity is the same volume as sold during the Imbalance process, however the Shipper must pay at SAP.

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	15		
Shipper's Nomination	15		
Shipper Sells @ SMSP	5	1.4	7
Reconciliation Quantity	15		
Shipper Buys @ SAP	-5	1.5	-7.5
Differential			-0.5

The new imbalance reconciliation process would not impact any of the existing processes and therefore the above would occur as it does under current arrangements.

**Applying the New Imbalance Reconciliation Process**

- 1) Take the Shipper’s Imbalance Quantity, direction and associated system price

**Shippers Imbalance Quantity = 5 Units**

**Associated System Price = SMSP**

2) Take the Shipper's Reconciliation Quantity and associated system price

Shippers Reconciliation Quantity = 5 Units

Associated System Price = SAP

3) Calculate the price differentials (between the daily SMP (buy/sell) and SAP)

System Marginal Sell Price (SMSP) = 1.4

System Average Price (SAP) = 1.5

(SAP – SMSP) = 0.1

4) Calculate the Imbalance Reconciliation Quantity, using the Shipper's Imbalance Quantity and Reconciliation Quantity:

Shipper's Reconciliation Quantity = 5 Units

Shipper's Imbalance Quantity = 5 Units

Therefore, Imbalance Reconciliation Quantity = 5 Units

5) Multiply the Imbalance Reconciliation Quantity by the price differential:

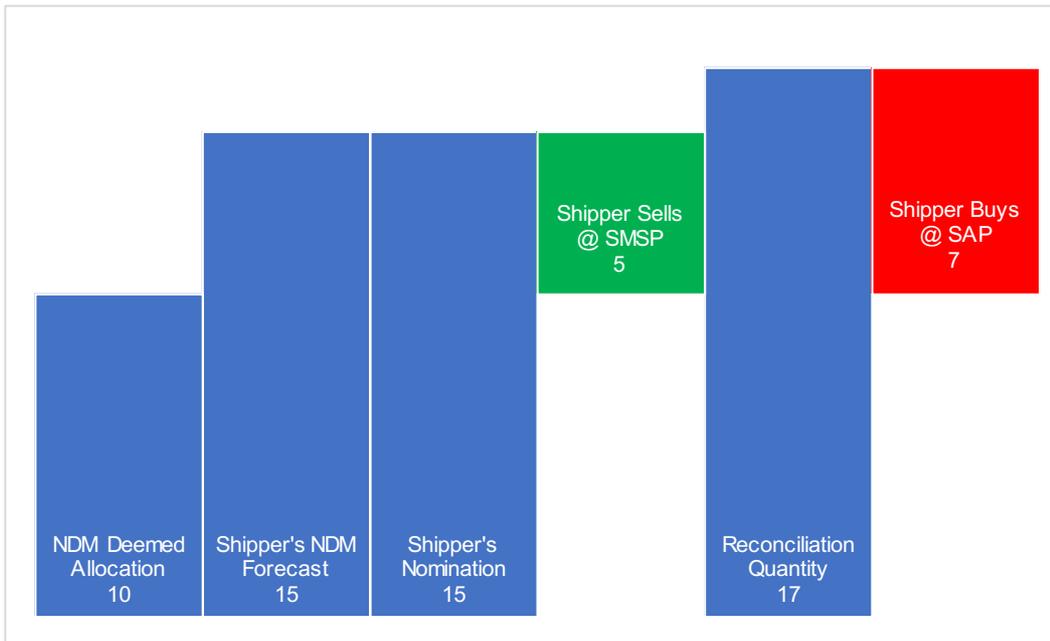
Shipper's Imbalance Reconciliation Quantity = 5 Units

Price Differential = 0.1

Imbalance Reconciliation Payment = 5 x 0.1 = 0.5

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	15		
Shipper's Nomination	15		
Shipper Sells @ SMSP	5	1.4	7
Reconciliation Quantity	15		
Shipper Buys @ SAP	-5	1.5	-7.5
<b>Differential</b>			<b>-0.5</b>
Imbalance Reconciliation Quantity	5	0.1	0.5
<b>Outturn</b>			<b>0</b>

**Solution C Example Two – For Information Only**



**Standard Imbalance and Reconciliation Process Still Applies**

1. The NDM Deemed Allocation is produced by Xoserve using the forecasting algorithm
2. The Shipper creates their own forecast and believes they will require more gas than the NDM Deemed Allocation suggests
3. The Shipper acquires and Nominates volume as per their own Forecast
4. The Imbalance process always results in the Shipper being cashed out back to their initial NDM Deemed Allocation level. In this example the Shipper is “long” and therefore Sells SMSP.
5. Meter Reads are submitted and a Daily Reconciliation Quantity is calculated. The reconciliation quantity shows the Shipper’s own forecast was too low.
6. The Shipper then Buys the Daily Reconciliation Quantity at SAP

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	15		
Shipper's Nomination	15		
Shipper Sells @ SMSP	5	1.4	7
Reconciliation Quantity	17		
Shipper Buys @ SAP	-7	1.5	-10.5
<b>Differential</b>			<b>-3.5</b>

The new imbalance reconciliation process would not impact any of the existing processes and therefore the above would occur as it does under current arrangements.

**Applying the New Imbalance Reconciliation Process**

- 1) Take the Shipper’s Imbalance Quantity, direction and associated system price

**Shippers Imbalance Quantity = 5 Units**

**Associated System Price = SMSP**

2) Take the Shipper's Reconciliation Quantity and associated system price

Shippers Reconciliation Quantity = 7 Units

Associated System Price = SAP

3) Calculate the price differentials (between the daily SMP (buy/sell) and SAP)

System Marginal Sell Price (SMSP) = 1.4

System Average Price (SAP) = 1.5

(SAP – SMSP) = 0.1

4) Calculate the Imbalance Reconciliation Quantity, using the Shipper's Imbalance Quantity and Reconciliation Quantity:

Shipper's Reconciliation Quantity = 7 Units

Shipper's Imbalance Quantity = 5 Units

Therefore, Imbalance Reconciliation Quantity = 5 Units

5) Multiply the Imbalance Reconciliation Quantity by the price differential:

Shipper's Imbalance Reconciliation Quantity = 5 Units

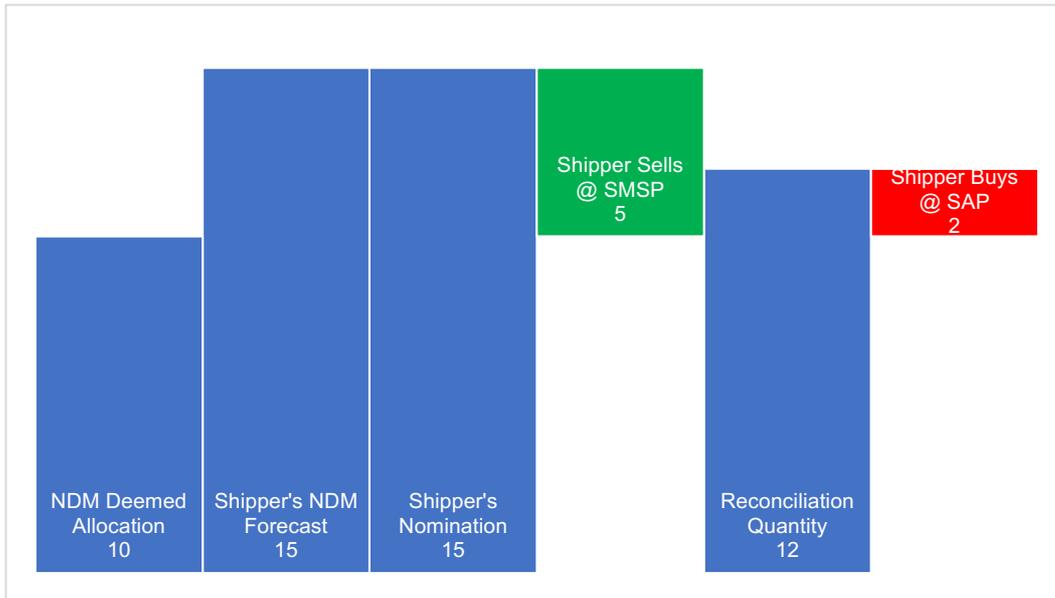
Price Differential = 0.1

Imbalance Reconciliation Payment = 5 x 0.1 = 0.5

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	15		
Shipper's Nomination	15		
Shipper Sells @ SMSP	5	1.4	7
Reconciliation Quantity	17		
Shipper Buys @ SAP	-7	1.5	-10.5
<b>Differential</b>			<b>-3.5</b>
Imbalance Reconciliation Quantity	5	0.1	0.5
<b>Outturn</b>			<b>-3</b>

Here, the Shippers final outturn is equivalent to 2 units at SAP (i.e. the difference between Imbalance volumes and Reconciliation volumes at SAP,  $2 \times 1.50 = 3$ ). This means that the Shipper is financially neutral for correctly forecasting and nominating their usage above the NDM Deemed Allocation but is still penalised as reconciliation shows they were short on the gas day.

**Solution C – Example Three – For Information Only**



1. The NDM Deemed Allocation is produced by Xoserve using the forecasting algorithm
2. The Shipper creates their own forecast and believes they will require more gas than the NDM Deemed Allocation suggests
3. The Shipper acquires and Nominates volume as per their own Forecast
4. The Imbalance process always results in the Shipper being cashed out back to their initial NDM Deemed Allocation level. In this example the Shipper is long and therefore Sells at SMSP.
5. Meter Reads are submitted and a Daily Reconciliation Quantity is calculated. The reconciliation quantity shows the Shipper's own forecast was too low.
6. The reconciliation quantity is the lower than the volume as paid out as a result of the Imbalance process but higher than the NDM Deemed Allocation. The Shipper Buys at SAP up to the Reconciliation Quantity

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	15		
Shipper's Nomination	15		
Shipper Sells @ SMSP	5	1.4	7
Reconciliation Quantity	12		
Shipper Buys @ SAP	-2	1.5	-3
<b>Differential</b>			<b>4</b>

The new imbalance reconciliation process would not impact any of the existing processes and therefore the above would occur as it does under current arrangements.

**Applying the new Imbalance Reconciliation Process**

- 1) Take the Shipper's Imbalance Quantity, direction and associated system price

**Shippers Imbalance Quantity = 5 Units**

**Associated System Price = SMSP**

- 2) Take the Shipper's Reconciliation Quantity and associated system price

Shippers Reconciliation Quantity = 2 Units

Associated System Price = SAP

3) Calculate the price differentials (between the daily SMP (buy/sell) and SAP)

System Marginal Sell Price (SMSP) = 1.4

System Average Price (SAP) = 1.5

(SMSP – SAP) = 0.1

4) Calculate the Imbalance Reconciliation Quantity, using the Shipper's Imbalance Quantity and Reconciliation Quantity:

Shipper's Reconciliation Quantity = 2 Units

Shipper's Imbalance Quantity = 5 Units

Therefore, Imbalance Reconciliation Quantity = 2 Units

5) Multiply the Imbalance Reconciliation Quantity by the price differential:

Shipper's Imbalance Reconciliation Quantity = 2 Units

Price Differential = 0.1

Imbalance Reconciliation Payment = 2 x 0.1 = 0.2

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	15		
Shipper's Nomination	15		
Shipper Sells @ SMSP	5	1.4	7
Reconciliation Quantity	12		
Shipper Buys @ SAP	-2	1.5	-3
<b>Differential</b>			<b>4</b>
<b>Imbalance Reconciliation Quantity</b>	<b>2</b>	<b>0.1</b>	<b>0.2</b>
<b>Outturn</b>			<b>4.2</b>

Here, the Shipper's final outturn is equivalent to 3 units at SMSP (i.e. the difference between Imbalance Quantity and Reconciliation Quantity at SMSP, 3 \* 1.4 = 4.2). This means that the Shipper is financially neutral for correctly forecasting and nominating their usage above the NDM Deemed Allocation but is still penalised as reconciliation shows they were long on the gas day.

**Solution C – Example Four – For Information Only**



1. An initial NDM Deemed Allocation is calculated by Xoserve using the forecasting algorithm
2. The Shipper creates their own forecast and believes they will require less gas than the NDM Deemed Allocation suggests
3. The Shipper acquires and Nominates volume as per their own Forecast
4. The Imbalance process results in the Shipper being cashed out to their initial NDM Deemed Allocation level. In this example the Shipper is “short” and therefore Buys at SMBP
5. Meter Reads are submitted and a Daily Reconciliation Quantity is calculated. The reconciliation quantity shows the Shipper’s own forecast was correct
6. The reconciliation quantity is the same as the Shipper’s own NDM forecast and their initial submitted nomination. The shipper Sells at SAP.

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	7		
Shipper's Nomination	7		
Shipper Buys @ SMBP	-3	1.6	-4.8
Reconciliation Quantity	7		
Shipper Sells @ SAP	3	1.5	4.5
<b>Differential</b>			-0.3

The new imbalance reconciliation process would not impact any of the existing processes and therefore the above would occur as it does under current arrangements.

**Applying the New Imbalance Reconciliation Process**

- 1) Take the Shipper’s Imbalance Quantity, direction and associated system price

**Shippers Imbalance Quantity = 3 Units**

**Associated System Price = SMBP**

- 2) Take the Shipper’s Reconciliation Quantity and associated system price

**Shippers Reconciliation Quantity = 3 Units**

**Associated System Price = SAP**

3) Calculate the price differentials (between the daily SMP (buy/sell) and SAP)

System Marginal Sell Price (SMBP) = 1.6

System Average Price (SAP) = 1.5

(SMBP – SAP) = 0.1

4) Calculate the Imbalance Reconciliation Quantity, using the Shipper's Imbalance Quantity and Reconciliation Quantity:

Shipper's Reconciliation Quantity = 3 Units

Shipper's Imbalance Quantity = 3 Units

Therefore, Imbalance Reconciliation Quantity = 3 Units

5) Multiply the Imbalance Reconciliation Quantity by the price differential:

Shipper's Imbalance Reconciliation Quantity = 3 Units

Price Differential = 0.1

Imbalance Reconciliation Payment = 3 x 0.1 = 0.3

	kWh	p/kWh	Cost
NDM Deemed Allocation	10		
Shipper's NDM Forecast	7		
Shipper's Nomination	7		
Shipper Buys @ SMBP	-3	1.6	-4.8
Reconciliation Quantity	7		
Shipper Sells @ SAP	3	1.5	4.5
<b>Differential</b>			-0.3
Imbalance Reconciliation Quantity	3	0.1	0.3
<b>Outturn</b>			0

Here, the Shipper's final outturn is cost neutral. This means that the Shipper is financially neutral for correctly forecasting and nominating their usage below the NDM Deemed Allocation.