Business Requirements Document

For

Meter Read Submission and Processing and Settlement Arrangements for All Gas Meter Points

Xoserve Project Nexus

Author (for this version):	**Xoserve**
Version:	**0.5**
Filename:	
Date:	**20/06/2011**

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1. Introduction

1.1 Document Purpose

The purpose of this document is to ensure that the business requirements associated with the referenced change have been accurately captured, and to clearly specify these requirements to the Project Nexus Settlement Workgroup and Project Nexus UNC Workgroup (PN UNC). Adequate information should be provided to enable the industry to approve the documented requirements for Cost Benefit Analysis at a later stage.

The contents refer to the business scope of the change, and provide descriptions of the business requirements and the relevant 'As Is' and 'To Be' process maps.

This version of the document contains draft business rules for the different options identified by the AMR Workgroup and the Settlement Workgroup around meter reading processes and Settlement arrangements. These options have been documented for further discussion and clarification at the Settlement Workgroup.

The first version of this document is an amalgamation of two documents describing business requirements for the AMR Workgroup and the Settlement Workgroup. The document contains tracked versions of both the mentioned documents. This version and any future versions will contain business requirements for all gas meter points (see section 2.7 for clarification of the scope).
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1.2 Related Documents

Documents held on the Joint Office website under Project Nexus, in particular:

- AMR Workgroup meetings
- Settlement Workgroup meetings

http://www.gasgovernance.co.uk/nexus

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2. Executive Summary

2.1 Introduction to the Change

This document defines the processes for the submission and processing of Meter Readings and Settlement arrangements for all gas meter points.

The document has been based on presentations and discussions at the Project Nexus AMR Workgroup and Settlement Workgroup and considering the high level principles agreed at the Allocation Workgroup. The options have been documented for further discussion and clarification. All areas within the document are yet to be agreed and finalised. They are intended to assist discussions in future meetings rather than be a conclusive statement of requirements at this stage.

All square brackets – [ ] – represent areas for clarification which must be resolved by the Workgroup or by the Project Nexus Workgroup prior to the Business Rules being finalised.

2.2 Change Drivers and Business Goals

2.2.1 Drivers

The drivers detailed below are those identified by the Settlement Workgroup and the AMR Workgroup specifically for the submission and processing of meter readings and settlement arrangements in the gas industry.

- To reduce the difference between gas nomination, actual consumption and gas allocation.
- Reduce the changes in forecasting & allocations between D-5 to D+5.
- Improve existing allocation processes
- Implement a fairer smearing mechanism
- Visibility of the value of un-allocated energy
- Provide services to enable Shippers to submit more reads for utilising in downstream processes
- Appropriate incentives & obligations on parties for both remotely read metered & dumb metered sites
- To utilise the reads obtained from remotely read meters to improve energy allocation
- Improve the existing meter reading processes and remove the constraints relating to the current system
- Develop solutions appropriate for 'smart' meters

2.2.2 Goals

- In the long term Shippers/Suppliers may choose to have all sites utilising actual daily reads for energy allocation (after the day), energy balancing and settlement processes, dependent on a robust cost benefit analysis.
  - However, this regime is only achievable in a fully 'remote metered' world (or when 'critical mass' of remote meters has been achieved).
  - The requirements and rules described in this document are therefore the arrangements for all directly connected sites during the Smart meter roll-out. These arrangements provide the platform for progression to a daily settlement regime for all gas meter points at a point in the future.
- The goal for the Workgroup is therefore to develop a robust regime for meter reading processes and settlement arrangements and a potential 'stepping-stone' towards the ultimate goal of daily settlement based on daily reads at a point in the future.

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2.3 Change Background

- The changes have been identified as a result of Xoserve's Project Nexus consultation for the replacement of UKLink systems and following DECC's consultation on Smart metering and Supplier licence obligation for the installation of advanced meters.

2.4 Process Issues

At the AMR Workgroup meeting on the 31st March 2010, attendees identified issues and constraints with the existing meter reading processes. The discussions were based on the processes designed for the Daily Metered Elective (DME) regime. The following issues were raised:

- Calculation & provision of estimated reads
- Deadline for receipt of daily reads
- Replacement of reads (actual or estimated)
- Limits on volumes
- Backstop where no reading provided (estimated or actual)
- Transfer reading - Close out of an estimated reading where an actual is available

The following issues were identified in the Settlement Workgroup during March 2011;

- Difference in values between gas nominations, actual consumption and allocations
- Profiling and Scaling Factors are not appropriate
- Estimation methodology
- Unfair smearing mechanism
- Current regime does not reflect changes in site consumption quickly

The following issues were raised during the Project Nexus Consultation (taken from the Initial Requirements Register):

IRR Ref.	Issue
4.1	Removal of volumes quotas and the ability to support half-hourly reads
4.2	Use of a data aggregator to reduce volume of data received by Xoserve
4.3	Additional and more accurate energy consumption information
4.4	Allow more frequent reads from AMR to feature in daily reconciliation
4.5	All energy consumption data should be used to ensure that costs are targeted at those that incur them on the system
4.6	Daily energy allocations for a large part, if not all, of the metering points
7.1	Submit volumes as an alternative to meter readings
10.7	Use energy consumption data to develop an additional SSP profile for I&C sites
10.8	Shipper demand allocation data split out by market sector (SSP & LSP) and by LDZ on a daily basis
10.10	Create a new EUC band for Small Supply Points
10.11	Review of the process of Winter Annual Ratio calculation, and the subsequent allocation of EUC and thus load profile
13.9	Meter read window preferably abolished or at least extended significantly from its current 15 days

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2.5 Benefits

The benefits will need to be aligned with the Transporters relevant objectives.

- Improve accuracy of the energy allocated
- More appropriate way for allocating energy in a 'smart' world
- Utilise the reads from remotely reads meters
- Industry will have a better understanding of the value of unallocated energy.
- Utilising up-to-date information
- More reflective of actual consumption

2.6 Scope

In Scope

Function:

- Receipt and processing of meter readings
- After the day gas allocations
- Share of un-allocated energy
- Estimation methodology for allocation purposes
- Estimation methodology for missing reads
- Read validation
- Incentives & obligations

Market Sectors:

- All remotely read metered (Smart & AMR) sites
- All dumb metered sites
- DM CSEPs

Out of Scope

Function:

- Reconciliation processes
- Shrinkage calculation
- AQ processes
- Transportation Invoicing

Market Sectors:

- Receipt and processing of meter reads for;
  - NTS Telemetered sites
  - [NDM CSEPs]

2.7 UNC & Licence Impacts

- Uniform Network Code Validation Rules
- UNC Section G
  - 1.5 Daily Read Metering
  - 2. Supply Point Registration
- UNC Section H
- UNC Section M
  - 1.5 Validation
  - 3. Meter Reading: Non Daily Read Supply Meters
  - 4. Daily Read Supply Meters
  - 5. Provision of Daily Read Meter Readings to Users
  - 6. Provision of User Daily Read Meter Readings to Transporters

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2.8 UNC Process Impacts

A high level assessment has been carried out on the following processes;

- Demand Estimation is likely to be impacted by the processes described in this document although a larger population of sites with the ability to submit daily reads may improve the size of the sample available for the Demand Estimation processes.

A full process assessment was not conducted. Other processes will be assessed as and when potential interactions are identified.

2.9 Interaction with Project Nexus High Level Principles

- The following draft business rules are not in alignment with the preferred option for Allocation as described in the Allocation Principles report, which envisages settlement based on daily reads for all 21m gas customers, whether Smart or AMR. Processes 3 and 4 are not consistent with this Principle.

- The requirement for regular daily estimation of site consumption, particularly those where only periodic readings are received, will probably necessitate the continuing use of an AQ, which is not in alignment with the preferred outcome of the AQ Principles workgroup of a 'No AQ' regime.

2.10 Summary of the 4 Meter Reading and Settlement Processes

The following table is a summary of the four processes for future meter reading submission and processing and Settlement regime which were agreed at the AMR Workgroup and Settlement Workgroup. The detailed business requirements are documented under section 5.

Note:

- All these processes will be available in the future solution; they are not alternative solutions.
- GFD+1 is the day following the Gas Flow Day
- For Process 1; Daily Metered Time Critical sites; these are Daily Metered Supply Points as defined in UNC (G1.5) or; where the GT specifies the Supply Point is DM Mandatory for network operation activities or the Shipper nominates the site as 'critical' due to the impacts on Allocation and Energy Balancing.
- All 'days' specified within this document refer to calendar days except where stated 'business days'.

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Summary of the 4 Meter Reading and Settlement Processes

Process – Description	Day Ahead Gas Nomination	Process for initial Allocation	Process for Energy Balancing close-out	Read Submission Timescales	Type of Read Submission	Read Submission Performance Target	Read Submission Deadline	Must Read Trigger	Check Read Obligation
1 – Daily Metered Time Critical Readings	Shipper nominates (singly or in aggregations)	Uses daily read	Uses daily read	By 10am on GFD+1	All reads – daily on GFD+1	99% daily target	5 days following the read date	4 consecutive months	12 months
2 - Daily Metered not Time Critical Readings	Shipper nominates (in aggregations)	Transporter estimate	Uses daily read	By end of GFD+1 (05.59 am)	All reads – daily by end of GFD+1	97.5% daily target	5 days following the read date	4 consecutive months	12 months
3 – Batched Daily Readings	Shipper nominates (in aggregations)	Transporter estimate	Transporter estimate	Daily Reads in batches	All reads – in batches – to an agreed frequency	90% monthly target	[40] days following the read date	4 consecutive months	24 months
4 – Periodic Readings	Shipper nominates (in aggregations)	Transporter estimate	Transporter estimate	Periodic	Periodic reads – to an agreed frequency	70% monthly target	[25] days following the read date	4 consecutive months for weekly or monthly MRF, 24 months for 6 monthly or annual MRF	[36] months

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3. Design Considerations

3.1 Implementation Timescales:

- Implementation of the developed solution will be confirmed once all requirements are captured following the Project Nexus Requirements Definition Phase.

3.2 Dependencies:

- Use of Process 1; Daily Metered Time Critical sites, for DM Mandatory sites (as per Section G1.5) is dependent on the unbundling of DM services.
- Approval of the requirements by PN UNC.
- Approval by Ofgem following the appropriate UNC Modification process.

3.3 Risk & Issues:

- Any incorrect reads loaded into the system for processes 1 & 2 will have an impact on the existing Allocation regime. This is as per the current process however, with the potential increase of sites moving to a daily metered regime the effects and impacts may be far greater on the energy allocated to non daily read sites.
- A concern was raised by workgroup members regarding the D-7 estimate for Process 2 sites (Section 5.6.2). It was felt that the D-7 estimate may not be appropriate for smaller/weather sensitive I&C sites as it does not take into account any fluctuations in the weather.
- Not all Shippers/Suppliers attend the Workgroups or are represented therefore there may be opposition to any potential Modifications raised.
- DCC scope and services may be different to that expected by the workgroup and so could change the business requirements.

3.4 Constraints:

- Allocation processes commence at 1pm on the day following the Gas Day (GFD+1). Any new/amended processes identified in this document must co-ordinate with the existing Allocation timescales.
- Final Calorific Value (CV) is not known until GFD+5; CV is used for the calculation of energy.

3.5 Assumptions:

- Shippers will submit validated meter readings; not energy (kWh) or volume (consumption)
- The requirement for aggregate reconciliation is expected to diminish or be replaced with meter point reconciliation.
- Some LDZ sites will continue to be daily metered (and reads received daily) and their consumption is deducted from the allocation process
- A smearing mechanism for un-allocated energy will continue to be required
- AUGE role and/or methodology may require amending via a Modification as a result of the revised settlement arrangements
- These business rules will need to be appropriate for dumb metered sites as well as remotely read sites

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- Continual monitoring to take place of SMIP developments to ensure alignment with parties obligations and DCC services
- Energy allocation processes will continue to run at 1pm on GFD+1
- Shippers will continue to have the obligation to submit reading data to the GT
- Any additional Gas Transporters charges will be billed in line with User Pays principles where appropriate
- "Must Reads" will continue to be a Gas Transporters responsibility.
- There will continue to be a requirement in the gas industry to have Daily Metered sites where reads are obtained and submitted daily for the following two scenarios;
  - System critical (for network operation activities)
  - Process critical (for energy balancing & allocation processes)
- The existing UNC requirements for a "Valid Meter Read" (M3.1.4) will continue to apply for the purposes of the Must Read requirement. A "Valid Meter Read" is an actual or transmitted reading where the following conditions are satisfied:
  - Meter Reading provided by a Meter Reader
  - Customer Reading
  - Meter Reading provided by means of a Remote Read
- A re-synchronisation is only required on certain types of metering equipment capable of transmitting derived daily reads.
- All meter readings submitted to the GT will be subject to 'logic checks'. Any readings that fail these checks will be notified to the Shipper along with those reads that have been successful, as per existing UNC rules (Section M). Validation of meter readings will remain the responsibility of the Shipper.
- Obligations on Shippers will need to continue to ensure that validation of the meter reading is carried out and only accurate reads are submitted to the GT.
  - The UNC Validation Rules document will need to be amended to reflect the changes.
  - The validation rules described under section 5.13 are the minimum requirement of validation that must be undertaken.
- 'Exit Close Out' (GFD+5) continues as per existing UNC rules (Section E1.8):
  - 5th calendar day after the gas flow day.
- To enable validation of reads it is acceptable that an average CV value is used to calculate the energy in order to validate the read

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3.6 Design Considerations

- For Processes 1, 2 & 3 (daily read sites); Shippers can either elect to provide their own estimates for a site or for the Gas Transporters to produce an estimate on their behalf. This would not apply to Process 4 sites as the 'Allocation' arrangements apply to missing reads.
- For Process 2 sites (Daily Metered Not Time Critical Readings), where a valid read is received before 10.00 am the read can be used for Allocation purposes instead of the estimated energy calculated for the purposes of Allocation. The solution will need to consider if the Allocation process should check for a read before estimating the allocation of energy for the site or check after the estimate has been calculated and override if a read from the Shipper has been loaded.
- It is not presently feasible for Shippers to submit gas energy values (kWh) in a timely manner since calorific value (CV) is not available until after close-out at GFD+5. It would therefore not be possible at present for Shippers to submit kWh to meet the deadlines specified in Processes 1. and 2. below. Whatever system solution is developed it should be flexible enough to cope

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eventually with the provision of either a meter reading, a volume reading, or an energy value. However, there are potential cost implications relating to the level of system complexity.

3.7 Volumes

During discussions at the Workgroups it is anticipated that larger I&C sites will adopt Processes 1, 2 or 3 where daily reads are submitted. Smaller I&C sites and domestic sites will mainly use Processes 3 & 4. Based on this the following volumes are only an estimated guide at this time of the potential volumes for each process. A more accurate view of possible volumes will be required for cost benefit analysis and system design at a later stage;

Process 1: Daily Metered Time Critical	1,000 to 2,000 meter points
Process 2: Daily Metered not Time Critical	1,500 to 29,000 meter points
Process 3: Batched Daily Readings	1,500 to 10,000,000 meter points
Process 4: Periodic Readings	upto 21,500,000 meter points

3.8 Costing Options

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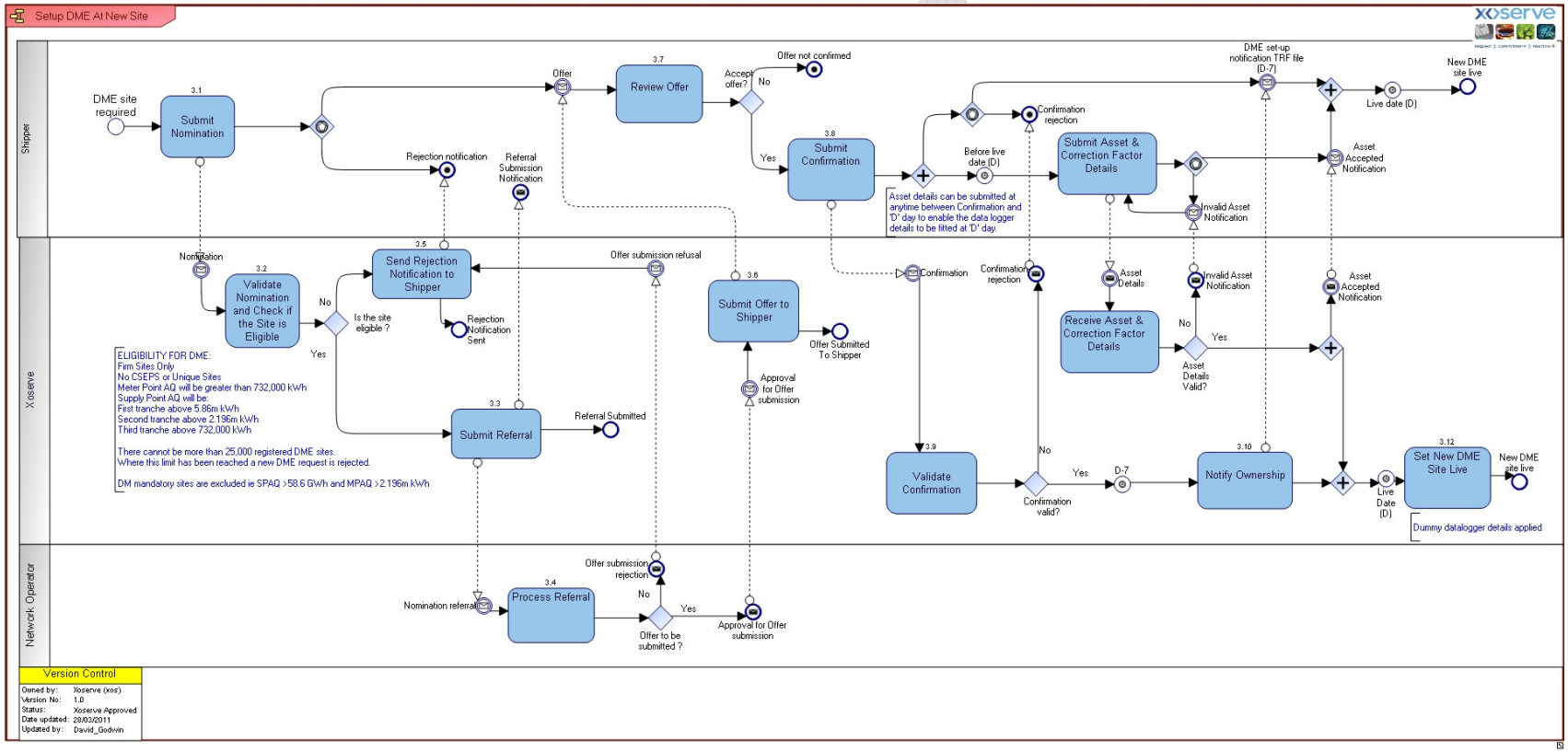
4. Business Process

4.1 Current Process & Process Maps



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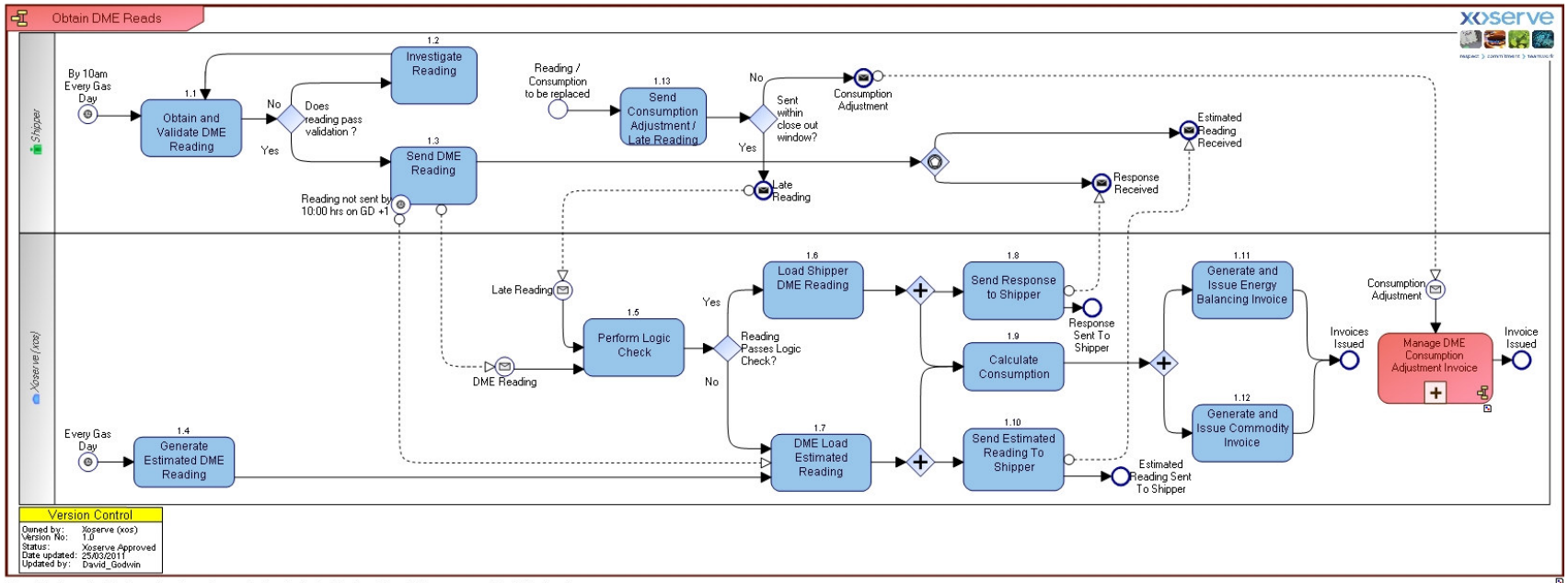

Reads to be submitted by a deadline. Any read submitted after the deadline will be processed the following day.

Validations carried out by xoserve on the read is a sense check only: 1. Whether the shipper is the Registered User, 2. Whether the reading has the correct number of digits

Zero consumptions will not be subject to validation, will be accepted based on the Shipper completing the validation prior to submission

Existing DM read estimation process is used: D-7 or AQ/365

Estimated reads can be replaced with an Actual read upto D+5

Actual reads can not be replaced

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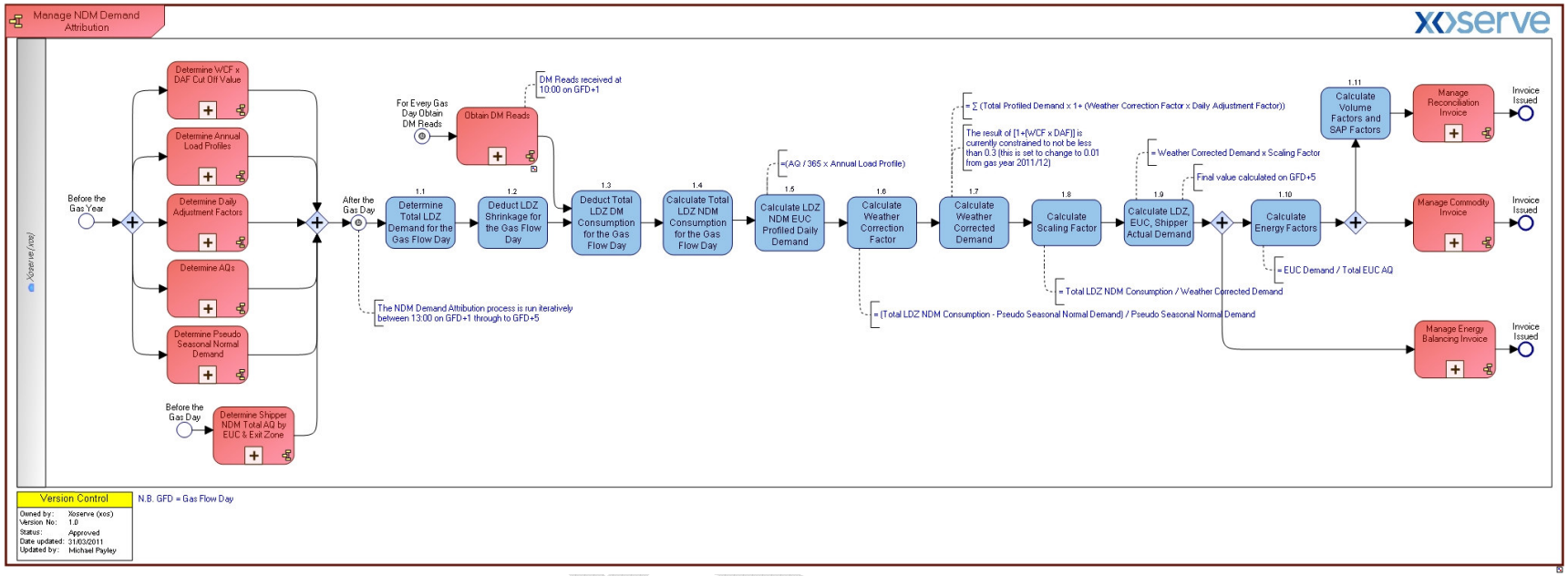

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4.2 To Be Process & Process Map

Under development.

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5. Business Requirements Definition

5.1 Gas Nominations (before the day)

There are a number of approaches for managing 'before the day gas nominations', two of which are documented below;

1. [Obligations for submitting Gas Nominations are unchanged;
   a. Shippers submit Nominations for sites where meter reads are submitted daily
   b. GT calculates gas nominations on behalf of Shippers in aggregate for sites where daily reads are not submitted daily and used for allocation processes]

   or
2. [Shippers will nominate energy for all of their sites ahead of the day. This nomination will be in aggregate for many of these sites.]
3. [Total Shipper gas nominations will be subject to a 'Nominations Scaling Adjustment' (smear) to ensure that total gas nominations match forecast gas demand.]
4. A 'Nominations Scaling Adjustment' (Smear) will be applied at LDZ and Shipper portfolio level and will be visible to Shippers.

5.2 Energy Allocation and Balancing

5.2.1 For 'Daily Metered Time Critical' sites (Process 1) the reading loaded before 10.00 am on GFD +1 by the Shipper will be used for allocation purposes. Where a valid read is not received the GT will generate an estimate which can be replaced before the end of GFD+5 by the Shipper.

5.2.2 For 'Daily Metered not Time Critical' sites (Process 2) if a valid read is received before 10.00 am on GFD+1 this will be used for allocation purposes. Where a read is not loaded by the Shipper the GT will generate an estimate for allocation purposes.

5.2.3 For both 'Daily Metered Time Critical' sites and 'Daily Metered not Time Critical' sites the closed out energy balancing position will be based on the last valid read loaded (actual or estimate) before Close Out (GFD+5).

5.2.4 For sites within 'Batched Daily Readings' and Periodic Readings' (Processes 3 & 4) the following rules will apply

5.2.4.1. Daily energy allocation will be calculated on GFD+1 by the GT, the estimates will be refined as additional data is received until GFD+5 at close out.

5.2.4.2. The estimate generated for energy allocation is described below under 'Estimation Methodology'

5.2.4.3. For Batched Daily Readings' and Periodic Readings' (Processes 3 & 4) sites the final closed out energy balancing position at GFD+5 will be based on the estimate calculated by the GT

5.3 Estimation Methodology for GFD+1 Allocation

Workgroup agreed that a robust estimate is required for allocation purposes. The current algorithms used for NDM allocations may not be appropriate for Smart metered sites or a mix of smart and dumb metered sites.

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Workgroup agreed that a Modification should be raised which proposes an expert group to be set up to review current methodology and, where appropriate, develop new algorithms for after the day allocations. The expert group should be a sub-group of either DESC or PN UNC Workgroup with the appropriate DECS members.

5.4 Share of Un-Allocated Energy

5.4.1 Each LDZ is balanced separately. The 'Allocations Scaling Adjustment' is calculated daily and applied to all sites within the LDZ

5.4.2 Shrinkage is deducted before un-allocated energy is calculated

5.4.3 The share of un-allocated energy is calculated as follows;

- Total of all site consumptions (daily read sites) and the total of all estimates will be combined daily to give the total LDZ consumption.
- Compare total LDZ consumption to the total actual LDZ offtake (after Shrinkage deduction).
- Allocation Scaling Adjustment % is calculated as:

$$\frac{\text{(Actual LDZ offtake - Total LDZ site level consumption)}}{\text{Total LDZ site level consumption}}$$

5.4.4 The difference between the two could be a positive or negative and will be apportioned equally to all sites within the LDZ; smart metered, DM, AMR and dumb meters.

5.4.5 All sites within the LDZ would receive the same % correction applied to the site's consumption for the day.

5.4.6 The Allocation Scaling Adjustment will be applied at LDZ and Shipper portfolio level, not at individual site level.

5.4.7 A positive value denotes an increase to site level consumption and a negative value would decrease the site level consumption.

Example:

Actual LDZ offtake	=	1,010,000 kWh
Total of individual Site level consumptions	=	1,000,000 kWh
Difference	=	10,000 kWh
Allocation Scaling Adjustment	=	+1%

+1% Allocation Scaling Adjustment (smear) applied to the consumption of all sites within the LDZ

5.5 Process 1 – Daily Metered Time Critical Readings

5.5.1 This process applies to large sites where daily balancing is currently mandatory due to size/location or other factors. Timely receipt of reads is critical to the accuracy of the Allocation process for non daily read sites. This includes all Supply Points with an AQ >58.6m kWh or NTS sites. Other sites may be elected to use this service by the GT due to network operations or by the Shipper.

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5.5.2 A reading must be submitted to the GT by the Shipper by 10am each day for the previous gas day (GFD+1).

5.5.3 The reading submitted may be an actual read (obtained from the device) or an estimated read. The read notification must specify whether the reading is actual or estimated.

5.5.4 All estimated reads (calculated by the GT or the Shipper) will use a standard methodology under this process. This standard is described in 5.5.8.

5.5.5 On receipt of a read the GT will perform 'Logic Checks'. Notification will be issued by the GT to the Shipper detailing the meter readings that have failed the 'logic checks'.

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5.5.6 If a valid reading (actual or estimated) is not received by 10am on GFD+1, the GT will estimate a reading and notify the Shipper of the details by 1pm on GFD+1.

5.5.7 The estimated reading will be calculated from the previous day's reading to produce an identical gas volume to the gas day 7 days earlier (a "D-7" estimate) or, if no previous consumption recorded for the site, the estimate will be calculated by AQ / 365.

5.5.8 An estimated read, GT or Shipper estimate, can be replaced with an actual reading by the Shipper before Close Out (GFD+5).

5.5.9 Any actual readings (including an actual which replaced an estimate) can be replaced before end of GFD+5 with a new actual or estimated reading

5.5.10 The closed-out energy balancing position will be based on the last valid reading supplied (or calculated) before Close Out (GFD+5).

5.5.11 Replacement of reads after GFD+5 will be covered by the Retrospective Updates Business Rules.

5.6 Process 2 – Daily Metered Not Time Critical Readings

5.6.1 Sites for which Process 1 above is compulsory cannot use this process.

5.6.2 Between 10.00 am and 1.00 pm on GFD+1 the GT will estimate a reading for the purposes of Allocation. This reading will be calculated from the previous day's reading to produce an identical gas volume to the gas day 7 days earlier (a "D-7" estimate) or, if no previous consumption recorded, the estimate will be calculated by AQ / 365.

5.6.3 Where a valid read is loaded before 10.00 am on GFD+1 by the Shipper the reading will be used for Allocation, the estimate described in section 5.6.2 will not be utilised for the purposes of Allocation.

5.6.4 If a reading has not been loaded by 10.00 am a valid reading must be submitted by the Shipper before the end of the day on GFD+1 (05.59 am following the gas day the meter reading relates to), see figure below for clarification of the timeline;

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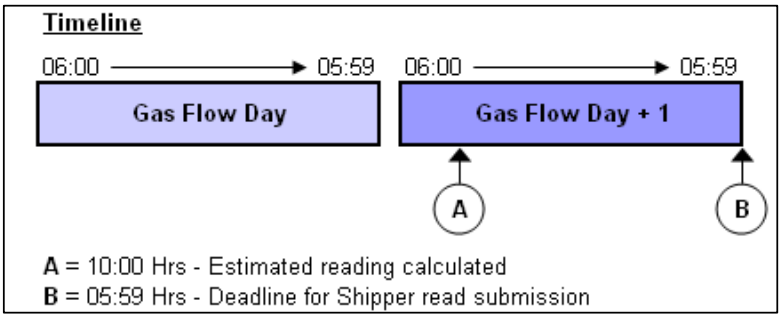

5.6.5 The reading submitted by the Shipper may be an actual read (obtained from the device) or an estimated read. The read notification must specify whether the reading is actual or estimated.

5.6.6 If a valid reading (actual or estimate) is not received by the GT by end of the gas day on GFD+1 the GT will estimate the reading (this is the estimate calculated for Allocation purposes as described in 5.6.2) & notify the Shipper of the details after the read submission window closes.

5.6.7 The estimate can be replaced with an actual reading before close out (GFD+5)

5.6.8 All estimated reads (calculated by the GT or the Shipper) will use a standard methodology under this process. The estimation methodology is described in section 5.6.2.

5.6.9 Notification will be issued by the GT to the Shipper detailing the meter readings that have failed system checks.

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5.6.10 If the first Shipper read submission is an estimate, it can be replaced with an actual reading,

5.6.11 Any actual Shipper readings (including an actual which replaced an estimate) can be replaced with a new actual reading or estimated reading before end of GFD+5.

5.6.12 The closed-out energy balancing position will be based on the last reading supplied (or calculated) before end of GFD+5.

5.6.13 Replacement of reads after GFD+5 will be covered by the Retrospective Updates Business Rules.

5.7 Process 3 – Batched Daily Readings

5.7.1 Sites for which Process 1.above is compulsory cannot use this process.

5.7.2 Daily readings are not routinely submitted daily or within GFD+5 under this process.

5.7.3 Readings for each gas day are submitted periodically in batches, to a pre-notified frequency. These frequencies are weekly, fortnightly or monthly.

5.7.4 The maximum planned interval between the end dates of read batches under this process is monthly. There is no specified deadline for submitting a batch of reads except as described in section 5.17.

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5.7.5 Each reading submitted within a batch may be an actual read (obtained from the device) or an estimated read. The read notification must specify whether the reading is actual or estimated.

5.7.6 All estimated reads calculated & submitted by the Shipper will use a standard methodology under this process

5.7.7 The standard methodology for the estimated reading to be determined during Reconciliation topic.

5.7.8 A read file can contain reads for a mix of MPRN's with different read frequencies, for example, file contains 5 days consecutive reads for site A, 30 days consecutive reads for site B etc.

5.7.9 System 'Logic checks' will be carried out by the GT on the reads received from the Shipper. A 'completeness' check shall also be performed on receipt of the communication to ensure all reads expected (as per 5.14) have been received.

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5.7.10 For an MPRN, if there is a gap between the last reading date of the previous batch and the first reading date of the new batch, energy will be apportioned across the missing days . The apportionment methodology will be determined under the Reconciliation Topic.

5.7.11 For an MPRN, if there is a gap of one or more days within the sequence of reads in a batch, energy will be apportioned across the missing days. The apportionment methodology will be determined under the Reconciliation Topic.

5.7.12 A notification will be sent to the Shipper by the GT detailing the rejected reads and any days where a read was missing within a read communication file.

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5.7.13 Where the GT has calculated energy for reconciliation purposes due to a missing read or rejected read, the energy will be converted to an estimated reading & issued to the Shipper.

5.7.14 Shippers can submit meter reads for previously rejected reads or missing read days within D+? of receipt by the GT of the reads. To be determined during Reconciliation.

5.7.15 Replacement of readings after GFD+5 will be covered by the Retrospective Updates Business Rules.

5.7.16 On receipt of a batch of accepted reads the GT will perform individual daily reconciliations for each gas day up to and including the date of the last reading in the batch (see 5.7.11 and 5.7.12 above regarding filling in of gaps).

5.7.17 Note: under this approach some readings are received within GFD+5, however these are not used for allocation & daily settlement, see diagram below:

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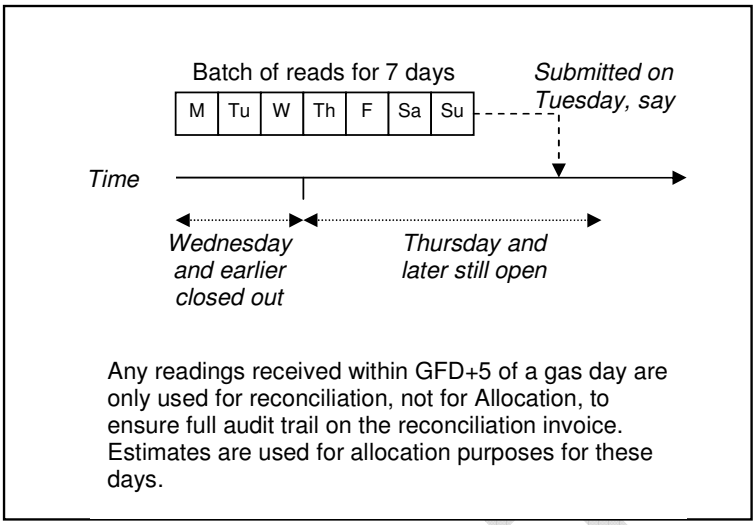

5.7.18 Treatment of the resulting reconciliation will be determined under the Reconciliation Topic.

5.8 Process 4 – Periodic Readings

5.8.1 Sites for which Process 1. above is compulsory cannot use this process.

5.8.2 Daily readings are not submitted to the GT under this process, although the supplier and shipper may chose to receive these reads from the metering equipment.

5.8.3 A single actual meter reading is submitted periodically to a pre-notified frequency. The frequency can be weekly, monthly, quarterly, six-monthly or annually.

5.8.4 The maximum planned interval for submission of readings under this process is annual.

5.8.5 The reads that are submitted will be actual reads and not estimated reads.

5.8.6 Notification will be issued by the GT to the Shipper detailing the meter readings that have failed the 'logic checks'.

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5.8.7 Replacement of readings will be covered by the Retrospective Updates Business Rules.

5.8.8 On receipt of a valid reading the GT will perform reconciliation for each gas day since the last read date up to and including the date of the current reading.

5.9 Change of Shipper

5.9.1 A Proposing Shipper can submit a Supply Point Enquiry to identify the regime (Process) and (for Processes 3 & 4) the Meter Reading Frequency the site is registered under.

5.9.2 The Proposing Shipper to be notified of which Process currently applies and the current read frequency (where applicable) as well as the

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elected/proposed via the Nomination response and the Confirmation response

5.9.3 A Proposing Shipper will need to specify on the existing Nomination and Confirmation communication the election of which regime (Process) and, for Processes 3 & 4, the Meter Reading Frequency.

5.9.4 To ensure the relevant fields are populated the records submitted by the Shipper will be mandatory on the Nomination and Confirmation request; a default will not be applied.

5.9.5 The Outgoing Shipper may continue to submit reads for D-1 of the transfer registration date upto;

- GFD+5 for Process 1 and 2 sites
- [D+4] for Process 3 and 4 sites

5.9.6 The Incoming Shipper can not submit a batch of reads (Process 3) or periodic read (Process 4) until;

- A valid transfer read is loaded or
- receipt of the GT estimated opening read where a valid read is not loaded

5.10 Change of Shipper Transfer Readings

5.10.1 For all Shipper transfers the following will apply for the submission and processing of the opening and closing meter reading.

5.10.2 The following three options have been identified and a preferred option will be agreed following a review in August when more clarity on frequency of reads and services from DCC is known.

5.10.3 Option A: D+5 Close out for the transfer read

5.10.3.1. The Incoming Shipper obtains and submits the transfer read.

5.10.3.2. The transfer read to be obtained on the transfer date and submitted by D+5.

5.10.3.3. The transfer read submitted by the Incoming Shipper can be an actual or an estimated read.

5.10.3.4. A valid transfer read submitted by the Incoming Shipper will be issued to the Outgoing Shipper by the GT as the closing read by [D+6] at the latest.

5.10.3.5. For all sites where a transfer read is not submitted by D+5 the GT will calculate an estimated transfer read and submit to both the Outgoing & Incoming Shipper as the closing/opening read on [D+6]. The estimate to be calculated as per the methodology for the relevant Process

5.10.3.6. A transfer read (actual or estimate) can be replaced if submitted & accepted within D+5.

5.10.3.7. The Incoming or Outgoing Shipper can challenge the transfer read using the existing Shipper Agreed Read process (UNC M3.8). It will be the Incoming Shippers responsibility to submit the Shipper Agreed Read.

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5.10.3.8. The transfer read (read taken on the transfer effective date) may be contained within the read communication containing the batch of reads and will be accepted as the transfer read if valid and received within D+5 of the transfer date

5.10.4 Option B: As Is Timescales

5.10.4.1. For Processes 1 & 2 the submission of the transfer read is described under Option A.

5.10.4.2. For Processes 3 & 4:

- The transfer read to be obtained between D-5 and D+5 (11 day period) of the transfer date as per UNC Section 3.8.
- The transfer read must be submitted within D+[7/10] business days of the transfer date as per UNC Section 3.8.
- Where a read has been loaded by the Outgoing Shipper with a read date later than the transfer read date obtained by the Incoming Shipper the Incoming Shippers read will not be used as the transfer read and will be rejected and notification issued by the GT.
- Where a read has not been loaded by the Incoming Shipper for the transfer date the GT will estimate the read based on the estimation methodology for the process and submit the estimate to the Incoming and Outgoing Shipper as the Opening/Closing read on [D+15} business days.
- A batch of reads or periodic read for dates after the transfer read window can not be submitted until a valid transfer read is loaded. Where a communication is received containing a batch of reads or periodic read it will be rejected by the GT.
- To clarify, if a transfer read is not loaded by the Shipper a batch of reads or periodic read can not be submitted until [D+16] when the estimate generated by the GT has been loaded and notified to the Shipper.
- A transfer read (Shipper read or GT estimate) can be replaced if submitted & accepted within D+10.
- The Incoming or Outgoing Shipper can challenge the transfer read using the existing Shipper Agreed Read process (UNC M3.8).It will be the Incoming Shippers responsibility to submit the Shipper Agreed Read.
- The transfer read (read taken on the transfer effective date) may be contained within the read communication containing the batch of reads and will be accepted as the transfer read if valid and received within D+10 of the transfer date

5.10.5 Option C: Hybrid

5.10.5.1. For dumb meter sites a combination of both Option A & B may need to be considered; i.e. retain current UNC rules for the transfer read where a dumb meter is installed.

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5.11 Election for change in regime where there is no change in Shipper

5.11.1 Change in read frequency: The GT needs to know [2] business days before the gas day of the elected read frequency (Processes 3 & 4 only) for planning and estimation purposes. A change in Meter Reading Frequency can only be effective [2 months] after the current Meter Reading Frequency effective date, except where;

- There has been a change of Shipper.
- There has been a meter exchange or change of equipment (i.e. dumb to Smart)

5.11.2 Change in regime: An election for a change of regime must be received and accepted by [2] business days before the gas day of the elected regime. A change in regime can only be effective [2 months] after the current regime effective date.

5.11.3 Only the Registered User or a Confirming User (with a confirmation about to become effective after D-7) can submit an election described in section 5.11.1 or 5.11.2. If the requesting User will not be the Registered User on the day to which the election refers, the election will be rejected.

5.11.4 A meter reading (actual or estimated) will be obtained on the effective date of the change in regime and submitted within [D+5]. Where a read is not loaded the GT will estimate a read and submit to the Shipper on [D+6].

5.12 Read Communication Content

5.12.1 Information exchange from the Shipper to the GT;

- MPRN
- Meter Serial Number
- Reading
- Date of Reading
- Through the Zero Count
- Actual or Estimated Reading
- Derived or Actual Read
- Read Reason Code (includes but not limited to Opening Read, Replacement Reading, Check Read)
- Converter Reading
- Read Verified Indicator

5.12.2 All records will be Mandatory fields except 'Converter Reading' & 'Read Verified Indicator' which will be Optional fields and 'Derived or Actual' which will be conditional if the reading is an actual read.

5.12.3 Existing validations on the data within the read communication will be carried out by the GT on receipt of the communication, any fields that fail the validations will be rejected and notified to the Shipper.

5.12.4 Where replacement read(s) are submitted the relevant field will need to be populated with 'R' else the read will be rejected as a 'duplicate'

5.12.5 Information Exchange from the GT to the Shipper;

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- Response: 'File' Level
  - Total Number of Reads Received
  - Total Number of Accepted Reads
  - Total Number of Rejected Reads
- Response: At MPRN Level for rejected or missing reads only:
  - MPRN
  - Reading
  - Date of Reading
  - Rejected Indicator
  - Rejected reason Code
- Estimated Read Notification;
  - Estimated Reading
  - Date of Estimated Reading
  - Reason Code for Estimated Reading (e.g. read failed validation, no read received)

5.13 Shipper Read Validation

5.13.1 Existing validation of the read communication 'file' formats and standing data within the file will continue, for example mandatory fields are populated, Shipper exists as a Registered User, field lengths, 'fuzzy match' on the meter serial number etc.

5.13.2 Shipper validation on receipt of a daily read(s);

- Shipper validation carried out for all sites where a daily read is received, either a read received daily or daily reads received at set intervals;
- A completeness check to ensure that all readings expected have been received, including Converter readings where installed.
- Tolerance check to ensure the energy derived from the reading is within the specified tolerance for the AQ band, as per the table below;
- A reading which produces a negative energy will only be accepted following an estimated read

Tolerances on Actual Reads

Lower AQ band (kWh)	Upper AQ band (kWh)	Accepted Tolerance for Daily energy in kWh on Actual Reads
0	73,200	between 0 and 73,200 kWh
73,201	732,000	[between 0 and100% of Meter Point SOQ]
732,001	5,860,000	[between 0 and 100% of Meter Point SOQ]
5,860,001	29,300,000	[between 0 and 100% of Meter Point SOQ]
29,300,001	and above	[between 0 and 100% of Meter Point SOQ]

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Tolerances on Estimated Reads

Lower AQ band (kWh)	Upper AQ band (kWh)	Accepted Tolerance for Daily energy in kWh on Estimated Reads
0	73,200	No greater than + or - 73,199 kWh
73,201	732,000	[+ or -100% of Meter Point SOQ]
732,001	5,860,000	[+ or -100% of Meter Point SOQ]
5,860,001	29,300,000	[+ or -100% of Meter Point SOQ]
29,300,001	and above	[+ or -100% of Meter Point SOQ]

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5.13.3 Shipper validation on receipt of a periodic read

- Shipper validation carried out for all sites where a periodic read is received;
- Tolerance check to ensure the energy from the reading is within the specified tolerance for the AQ band, as per the table below;

Lower AQ Band (kWh)	Upper AQ band (kWh)	Accepted Tolerance for energy in kWh on Periodic Reads
0	73,200	[Between 0 - 300% of Meter Point AQ/365 x no. of days]
73,201	732,000	[Between 0 - 250% of Meter Point AQ/365 x no. of days]
732,001	5,860,000	[Between 0 - 200% of Meter Point AQ/365 x no. of days]
5,860,001	29,300,000	[Between 0 - 150% of Meter Point SOQ x no. of days]
29,300,001	and above	[Between 0 - 100% of Meter Point SOQ x no. of days]

5.14 GT Read Validation

5.14.1 GT validation carried out at read receipt of the Shipper readings, actual or estimated. The validation will include the existing 'logic checks' plus the following validations;

- A meter read submitted which is outside of the read submission deadline (see section 5.16) will be rejected
- For sites in Processes 1, 2 & 3, a completeness check to ensure that all readings expected have been received. Where a read is not received an estimate will be generated as described under the relevant process.
- For sites in Processes 1, 2 & 3, reject if the read produces a negative energy except after an estimated read.
- For sites in Processes 4, reject if the read produces a negative energy except after an estimated transfer read
- The GT validations on the read will mimic the minimum Shipper read validations described above in 5.13.

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- Where the read has failed any of the above validations the read will be rejected and a notification issued to the Shipper.
- A rejected read can be re-submitted by the Shipper and will be accepted by the GT where the flag on the read communication has been set to confirm the read is correct.
- Where the Shipper identifies that a read will fail the GT validations the Shipper has the facility to flag the read as correct via the read communication.

And / or

- For all sites (Processes 1, 2, 3 & 4), a tolerance check based on the reconciliation energy calculated at read receipt against the AQ for the meter point, as per the table below:

Lower AQ band	Upper AQ band	Tolerance
0	73,200	Rec energy + or – Y% x AQ / read period
73,201	732,000	Rec energy + or – Y% x AQ / read period
732,001	5,860,000	Rec energy + or – Y% x AQ / read period
5,860,001	29,300,000	Rec energy + or – Y% x AQ / read period
29,300,001	and above	Rec energy + or – Y% x AQ / read period

Comment [m1]: Values to be determined during reconciliation discussions

- Any reads that fail the GT tolerance check above will be rejected & a notification issued to the Shipper.
- A rejected read can be re-submitted if the Shipper confirms that the read is correct.

Note: The GT validations are aimed at protecting the industry & allocation processes and to significantly reduce the potential number of 'Filter Failure' rejections.

5.15 Read Submission Performance Targets

5.15.1 Read Submission targets will continue to be required for the submission and acceptance of actual valid meter readings by Shippers.

5.15.2 This will be based on a percentage of the shipper's portfolio per day/calendar month as described below;

- Process 1 :[99%] of sites in the Shippers portfolio per day
- Process 2: [97.5%] of sites in the Shippers portfolio per day
- Process 3: [90%} of sites in the Shippers portfolio per calendar month
- Process 4: [70%] of sites in the Shippers portfolio per calendar month

5.15.3 Reports will be produced monthly showing the achieved read performance per Shipper.

5.16 Read Submission Deadline

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5.16.1 A read submission deadline will ensure valid readings are submitted within a set period after the meter read date. This does not include transfer reads.

5.16.2 Meter readings submitted after D+5 of the date of the meter read for processes 1 & 2 will be used for reconciliation

5.16.3 A meter reading not received within the following deadline for processes 3 & 4 will be rejected unless they are replacement reads.

- Process 3: [40] days (D+40) following the date of the meter read
- Process 4: [40] days (D+40) following the date of the meter read

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<#>Process 2: 5 days (D+5) following the date of the meter read ¶

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5.17 Must Reads

5.17.1 The Must Read requirement will apply where an actual 'Valid Meter Read' is not received for a consecutive period of time as per 5.17.2

5.17.2 A Must Read will be initiated when;

- Process 1: a read has not been loaded for 4 consecutive months
- Process 2: a read has not been loaded for 4 consecutive months
- Process 3: a read has not been loaded for 4 consecutive months
- Process 4:
  - where the read frequency is weekly or monthly and a read has not been loaded for 4 consecutive months
  - where the read frequency is quarterly, six-monthly or annually and a read has not been received for 24 consecutive months

5.18 Check Read

5.18.1 Check Read obligations will continue to apply to detect any drift between the meter & AMR equipment. Check Read requirement will only apply to sites fitted with metering equipment that derive reads;

- Process 1: Every 12 months
- Process 2: Every 12 months
- Process 3: Every 24 months
- Process 4: Every [36] months

5.18.2 The GT will notify the Registered User of the MPRN and date the Check Read was due [1] month after the Check Read due date.

- In order to do this the relevant data items to monitor the Check Read requirement will need to be recorded by the GT.

5.19 Other requirements

5.19.1 Because third parties may also be submitting readings on behalf of the Shipper, an audit trail is required to identify which party submitted the reading.

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6. Non-Functional Business Requirements

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7. Appendices

Transfer timelines for Change of Shipper & Change of Regime

(Add timeline presentation once agreed at workgroup)

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8. Glossary

Term / Acronym	Definition
Actual read	Where the read transmitted or procured is an actual read and not an estimated read
Allocation	Determination of daily gas offtaken for all sites
Derived read	Where a read is derived or calculated using pulses from the kit attached to the meter
DESC	Demand Estimation Sub Committee
DM Mandatory	As defined in UNC Section G1.5. Daily Read requirement applies where the Supply Point AQ is greater than 58,600,000 kWh.
DM Unbundling	Current obligations are on the GT to provide daily read equipment & daily reads to Shippers. 'Unbundling' is the term used for transferring the obligations from the GTs to the Shippers/Suppliers.
GFD	Gas Flow Day
GFD+5	Exit Close Out which is 5 calendar days after the Gas Flow Day. Also known as D+5.
Incoming Shipper	Newly appointed Shipper to take ownership for the Supply Point
NDM Allocation	Determination of daily gas offtaken for NDM sites by using standard profiles & factors
Nominations Scaling Adjustment	Value applied daily to each Shipper for the daily imbalance of forecast gas inputs to ensure that total gas nominations match forecast total gas demand.
NTS Sites	Those sites directly connected to the National Transmission System.
Outgoing Shipper	Shipper who has lost or about to lose ownership of the Supply Point
Remotely read meters	These can be either 'Smart meters' or 'Advanced Meters' (AMR) which transmit digital reads.
Shipper Agreed Read	Transfer reading agreed by both the Outgoing and Incoming Shipper.

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9. Document Control

Version History

Version	Status	Date	Author(s)	Summary of Changes
0.1	Initial Draft	20/04/2011	Xoserve	Merged content of the AMR Meter Reading Business Requirements document with the Interim Settlement Business Requirements document as agreed in the Settlement Workgroup on 13th April 2011.
0.2	Draft	04/05/2011	Xoserve	Updated as agreed in the PNUNC (AMR) Workgroup on 04/05/2011
0.3	Draft	24/05/2011	Xoserve	Updated as agreed in the PNUNC Workgroup (Settlement) on 24/05/2011
0.4	Draft	01/06/2011	Xoserve	Updated as agreed in the PNUNC Workgroup (Settlement) on 01/06/2011

Reviewers

Name	Version	Date
Workgroup attendees		

Approval

Name	Role	Date
Settlement Workgroup		
PN UNC		

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