Business Requirements Document

For

AMR Meter Reading

xoserve Project Nexus

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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 AMR Workgroup and Project Nexus UNC Workstream (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.

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

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1.2 Related Documents

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

- AMR Workgroup 9 on the 20th July 2010
- AMR Workgroup 10 on 17th August 2010.
- AMR Workgroup 11 on 3rd September 2010
- AMR Workgroup 12 on 29th September 2010
- AMR Workgroup 13 on 15th October 2010
- AMR Workgroup 14 on 1st November 2010
- AMR Workgroup 15 on 16th November 2010

http://www.gasgovernance.co.uk/nexus/2010

2. Executive Summary

2.1 Background

This document describes options for draft business rules for the suggested Meter Reading processes for Project Nexus future state AMR sites. The document has been based on presentations and discussions at the Project Nexus AMR Workgroup. It is 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 AMR Workgroup or by the Project Nexus Workstream prior to the Business Rules being finalised.

2.2 Reads/volume

[Throughout this document, reference is made to "reads" or "readings". This terminology is used as a working assumption only. In order to finalise this document, the Workgroup must determine whether meter readings, gas volumes or energy (kWh) are to be submitted.

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 D+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 eventually with provision of either a meter reading, a volume reading, or an energy reading. However, there are potential cost implications relating to the level of system complexity. The final decision would be reviewed once the DCC design in this area is known.

2.3 Summary of 4 AMR Meter Reading Processes

Note: all these processes will be available in the future solution; they are not alternative solutions.

Process – Description	Day Ahead Gas Nomination process	Process for initial Allocation	Process for Energy Balancing close-out	Read Submission timescales	Type of Read Submission
1 – Daily Balanced: Time Critical for Allocation purposes	Shipper nominates (singly or in aggregations)	Uses daily read	Uses daily read	By 10am on D+1	All reads – daily on D+1
2 - Daily Balanced: Not Time Critical	Shipper nominates (in aggregations)	Transporter estimate	Uses daily read	By end of D+1 (05.59 am)	All reads – daily by end of D+1
3 – Daily Reconciled	Shipper nominates (in aggregations)	Transporter estimate	Transporter estimate	Periodic	All reads – in batches – to an agreed frequency
4 – Periodic Reconciliation	Shipper nominates (in aggregations)	Transporter estimate	Transporter estimate	Periodic	Periodic reads – to an agreed frequency

Note: For Process 1; Daily Balanced Time Critical sites, these are DM Mandatory 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.

Treatment of gas nominations is as defined in the Project Nexus Allocations Principle. Shippers will nominate energy for all sites ahead of the day. This nomination will be in aggregate for many of these sites. Total Shipper gas nominations will be subject to a balancing correction to ensure that total gas nominations match forecast gas demand.

All sites elected into one of the processes described within this document will not be included in Reconciliation by Difference (RbD) processes.

2.3 Issues

At the AMR meeting on the 31st March 2010, the AMR Workgroup identified issues and constraints with the existing meter reading processes. The issues 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 raised during the Project Nexus Consultation (taken from the IRR):

- 4.1 Removal of volumes quotas
- 4.1 Ability to support half-hourly reads
- 4.2 Use of a data aggregator to reduce volume of data received by xoserve
- 7.1 Submit volumes as an alternative to meter readings
- 13.9 Abolish or extend meter reading window

2.4 Benefits

[Benefits have not yet been identified for the proposed solution. Once identified these will need to be aligned with the Transporters relevant objectives.]

2.5 Scope

In Scope:

- Sites which have or which will have AMR equipment fitted, including:
  - Current DM sites (DM Mandatory sites are subject to DM unbundling discussions)
  - Current NDM sites
  - Current Unique sites, both NTS and LDZ sites (those covered under DM Mandatory criteria will be subject to DM Unbundling discussions)
  - iGT sites (subject to approval of the appropriate modifications and licence changes)

Out of Scope:

- Sites mandated to use DCC communication access to Smart metering services

2.6 UNC & Licence Impacts

[To be identified when the list of processes and their features has been confirmed in the form of agreed requirements.]

2.7 UNC Process Impacts

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

- Demand Estimation is not impacted by any of 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.

2.8 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 High Level Principles, which envisages balancing 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 outcome of the High Level AQ Principles of a 'No AQ' regime.

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:

- Details described in Process 1; Daily Balanced Time Critical sites, are dependent on the DM Unbundling discussions at the UNC Distribution Workstream.
- Approval of the requirements by PN UNC.
- Approval by Ofgem following the appropriate UNC Modification process.

3.3 Risks:

- Any incorrect reads loaded into the system for processes 1 & 2 will have an impact on the existing NDM Allocation regime. This is as per the current process however, with the potential increase of sites moving to a daily balancing regime the effects and impacts may be far greater on the energy allocated to NDM sites.

3.4 Constraints:

- NDM Allocation processes commence at 1pm on the day following the Gas Day (D+1). Any new/amended processes identified in this document must co-ordinate with the existing NDM Allocation processes, at least for a transitional period until a fully Smart solution is in place.

3.5 Assumptions:

- NDM Allocation processes are unchanged
- It is not currently feasible for Shippers to submit energy values (kWh) to the Gas Transporter within D+5 due to close-out constraints. Once clarity is gained from SMIP on DCC scope and services further consideration will need to be given on whether reads, volume or energy is submitted.
- Shippers will have the obligation to submit consumption data although the role could be fulfilled by other parties (e.g. DCC, consumer, AMR operators). This will need to be re-visited once clarity is gained from SMIP.
- Any additional Gas Transporter charges will be billed in line with User Pays principles
- "Must Reads" will continue to be a Gas Transporter responsibility. Processes for Must Reads are unchanged, except where specifically described.
- There will continue to be a requirement in the gas industry to have DM Mandatory sites for the following two scenarios;
    - System critical (for network operation activities)
    - Process critical (for energy balancing & allocation processes)
- The changes associated with the Allocation of Unidentified Gas Expert (AUGE) have been implemented which apply a share of unallocated energy to all sites
- For the transitional period, the arrangements described do not have any impact on the existing NDM regime for 'Dumb' meters.
- Reconciliation by Difference still operates for Smaller Supply Points.

- 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 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 daily reads (as opposed to those which allow derivation of daily reads).

3.6 Design Considerations

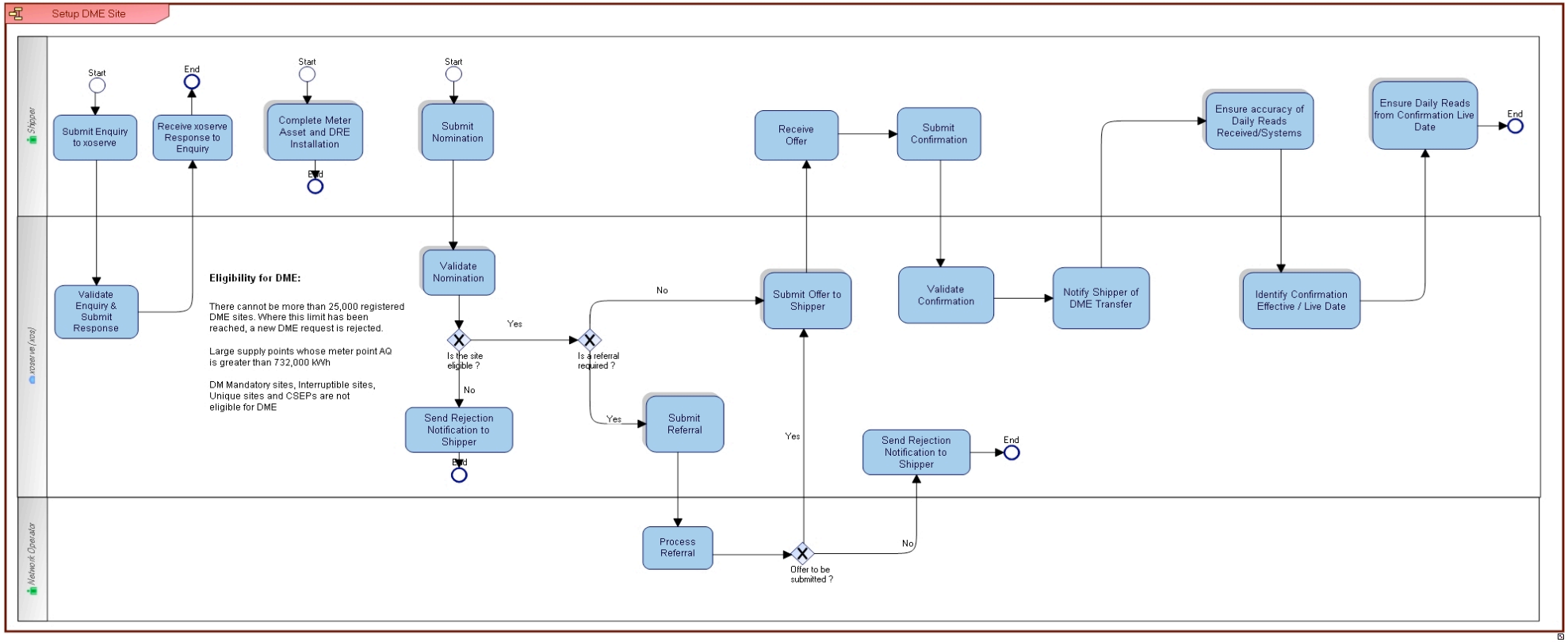
- A Shipper can elect for an AMR site to be treated as per one of the processes described in this document or to remain in the current NDM (SSP or LSP) regime.
- For Processes 1 & 2 Shippers can either elect to provide their own estimates for a site or for the Gas Transporter to produce an estimate on their behalf. This would not apply to Process 3 & 4 as the ‘NDM Allocation’ arrangements apply to missing reads.

3.7 Volumes

3.8 Costing Options

4. Business Process

4.1 Current Process & Process Map



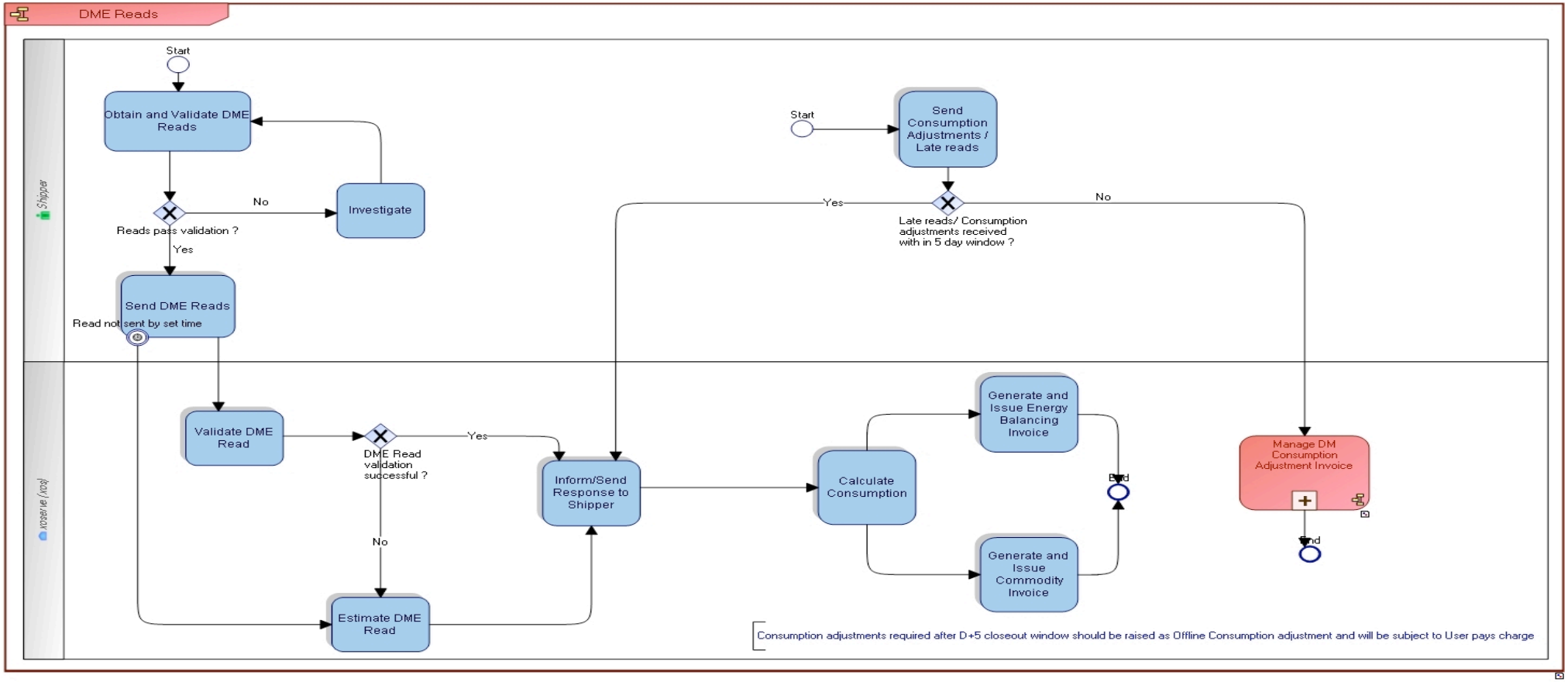
Supply Point Enquiry will provide information for shippers to check if the site is already set up as DME

DME related information will not be visible on IAD or provided to the incoming Shipper at transfer

Referral is required to the GT where, SOQ and/or SHQ has increased

GT is not required to keep or maintain records of the daily read equipment

Ratchets are applied after 12 month anniversary, however, if the site was previously a DM site, ratchets will apply



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

4.2 To Be Process & Process Map

To be documented.

5. Business Requirements Definition

5.1 Process 1 – Daily Balanced Sites – Time Critical to NDM Allocation

5.1.1 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 NDM Allocation process. 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.

5.1.2 A reading must be submitted by the Shipper by 10am each day for the previous gas day.

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

5.1.4 All estimated reads (calculated by the GT or the Shipper) will use a standard methodology under this process. This standard is described in 5.1.7.

5.1.5 [The read submission will include: meter point reference; reading; number of times through zero since last reading; date of reading; whether actual or estimated.]

5.1.6 If a reading (actual or estimated) is not received by the GT by 10am on D+1, the GT will estimate a reading.

5.1.7 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).

5.1.8 If the first read submission is an estimate, it can be replaced before D+5 with an actual reading.

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

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

5.1.11 [Read validation rules to be determined for estimates and actuals]

5.1.12 Incentive arrangements are required to ensure that valid daily reads are submitted for 97.5% of sites in a timely manner in line with current DM processes (UNC M5.2.1). The reads can be actual or estimated. The 97.5% will be based on reads expected per day per Shipper portfolio.

5.1.13 The "Must Read" requirement will not be applicable for this process.

5.1.14 Replacement of reads after D+5 will be covered by the AMR Retrospective Updates Business Rules.

5.2 Process 2 – Daily Balanced Sites – Not Time Critical to NDM Allocation

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

5.2.2 At 10am on D+1 the GT will estimate a reading for interim use for the purposes of NDM 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).

5.2.3 A reading must be submitted by the Shipper before the end of D+1 (05.59 am of the gas day following the gas day in question) to replace the GT estimate.

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

5.2.5 All estimated reads (calculated by the GT or the Shipper) will use a standard methodology under this process. This standard is described in 5.2.2

5.2.6 [The Shipper read submission will include: meter point reference; reading; number of times through zero since last reading; date of reading; whether actual or estimated.]

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

5.2.8 Any actual Shipper readings (including an actual which replaced an estimate) can be replaced with a new actual reading before end of D+5.

5.2.9 An actual Shipper reading can be replaced with a Shipper estimate, e.g. in the event of a faulty meter.

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

5.2.11 [Read validation rules to be determined for estimates and actuals]

5.2.12 Incentive arrangements are required to ensure that valid daily reads are submitted for 97% of sites in a timely manner (in line with the DME Regime). The reads can be actual or estimated. The 97% will be based on reads expected per day per Shipper portfolio.

5.2.13 Incentive arrangements are required to ensure a maximum number of consecutive estimates for a site. The “Must Read” requirement will apply where a “Valid Meter Read” is not received for 4 consecutive months as per UNC Section M3.6 for Monthly Read sites

5.2.14 Replacement of reads after D+5 will be covered by the AMR Retrospective Updates Business Rules.

5.3 Process 3 – Daily Reconciled Sites

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

5.3.2 Daily readings are not routinely submitted within D+5 under this process.

5.3.3 Daily energy allocation for these sites will be calculated at D+1, based on the existing NDM allocation process (or replacement arrangements). Sites would be apportioned energy per day based on algorithms for allocation purposes.

5.3.4 The closed-out energy balancing position will be based on the estimate calculated by the GT as described in 5.3.3.

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

5.3.6 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 5.3.17 below.

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

5.3.8 A read file can contain reads for a mix of read frequencies, for example, file contains 5 days consecutive reads for site A, 30 days consecutive reads for site B etc.

5.3.9 [The read submission will include for each reading: meter point reference; reading; number of times through zero since last reading; date of reading; whether actual or estimated.]

5.3.10 If there is a gap between the last reading date of the previous batch and the first reading date of the new batch, actual energy will be apportioned across the missing days using existing NDM Reconciliation principles and processes.

5.3.11 If there is a gap of one or more days within the sequence of reads in a batch, actual energy will be apportioned across the missing days using existing NDM Reconciliation principles and processes.

5.3.12 Replacement of readings after D+5 will be covered by the AMR Retrospective Updates Business Rules.

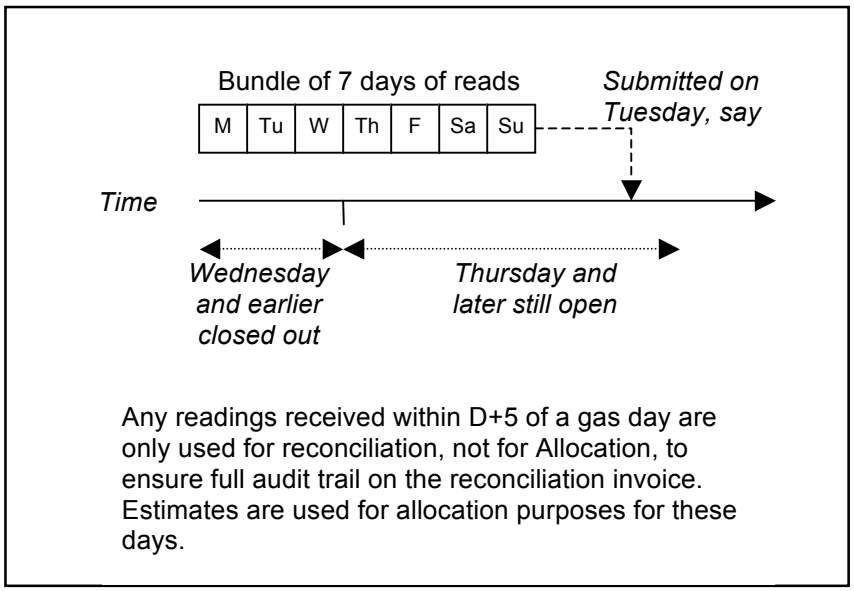
5.3.13 [Read validation rules to be determined for estimates and actuals]

5.3.14 On receipt of a batch of 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 5.3.10 and 5.3.11 above regarding filling in of gaps).

5.3.15 These reconciliations will apply daily SAP prices and gas transportation rates to the daily reconciliation quantities.

5.3.16 Reconciliation volume may be positive or negative. Energy and/or transportation charges may have the opposite sign to the volume, due to differential rates on different days.

5.3.17 Note: under this approach some readings are received within D+5, however these are not used for daily balancing, see diagram below:



Any readings received within D+5 of a gas day are only used for reconciliation, not for Allocation, to ensure full audit trail on the reconciliation invoice. Estimates are used for allocation purposes for these days.

5.3.18 Incentive arrangements are required to ensure a maximum number of consecutive estimates for a site. The "Must Read" requirement will apply where a "Valid Meter Read" is not received for 4 consecutive months as per UNC Section M3.6 for Monthly Read sites

5.3.19 Treatment of the resulting reconciliation will be to use a daily reconciliation factor to attribute reconciliation energy to each day in the period.

5.3.20 Reconciliation quantities will be calculated as follows; calculate a Reconciliation Factor (RF) for the period as Actual Volume/ Allocated Volume. Calculate daily actual volume as RF x Allocated Volume. Daily Reconciliation volume = daily actual – daily allocated volume.

5.3.21 Shippers will have an obligation to ensure that valid daily reads (actual or estimated) are submitted for 90% of 'Daily Reconciled sites' in the Shippers portfolio in any given calendar month (as per UNC Section M3.4.1).

5.4 Process 4 – Periodic Reconciliation Sites

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

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

5.4.3 Daily energy allocation for these sites will be calculated on D+1, based on the existing NDM allocation process (or replacement arrangements). Sites would be apportioned energy per day based on algorithms for allocation purposes.

5.4.4 The closed-out energy balancing position will be based on the estimate described in 5.4.3.

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

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

5.4.7 The reads that are submitted will be actuals and not estimated reads.

5.4.8 [The read submission will include: meter point reference; reading; number of times through zero since last reading; date of reading; whether actual or estimated.]

5.4.9 Replacement of readings after D+5 will be covered by the AMR Retrospective Updates Business Rules.

5.4.10 [Read validation rules to be determined for estimates and actuals]

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

5.4.12 Reconciliation quantities will be calculated as follows; calculate a Reconciliation Factor (RF) for the period as Actual Volume/ Allocated Volume. Calculate daily actual volume as RF x Allocated Volume. Daily Reconciliation volume = daily actual – daily allocated volume.

5.4.13 Reconciliations will apply daily SAP prices and gas transportation rates to the daily reconciliation quantities.

5.4.14 Reconciliation volume may be positive or negative.

5.4.15 If no "Valid Meter Reads" have been received for four consecutive months for sites with a read frequency of weekly or monthly, and for 24 consecutive months for sites with a read frequency of quarterly, 6 monthly or annually, there will be a "Must Read" requirement as per UNC Section M3.6.

5.4.16 Obligations will continue to be required within UNC (Section M3.4 & M3.5) to ensure that actual "Valid Meter Reads" are submitted in any period of 12 months for; ;

- 90% of sites of which the AQ is greater than 73,200 kWh
- 70% of sites of which the AQ is not greater than 73,200 kWh

5.5 Change of Shipper

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

5.5.2 The incoming Shipper to be notified of which Process currently applies and the current read frequency (where applicable) aswell as the elected/proposed via the Nomination response file and the Confirmation response file.

5.5.3 A proposing Shipper will need to specify on the existing Nomination and Confirmation files the election of which Balancing Type (Process) and, for Processes 3 & 4, the Meter Reading Frequency.

5.5.4 To ensure the relevant fields are populated the records will be mandatory on the Nomination and Confirmation files; a default will not be applied.

5.6 Change of Shipper Readings

5.6.1 Incoming Shipper obtains and submits the opening transfer read as per current process (UNC M3.8).

5.6.2 For Process 1 & 2 the transfer read to be obtained on the transfer date and submitted on D+1.

5.6.3 For Process 3 & 4 the transfer read to be obtained within the current NDM date range period (11 business days commencing 5 business days before the registration date) as per UNC M3.8. Transfer reads to be submitted by D+10 business days of the transfer effective date.

5.6.4 The transfer read submitted by the incoming Shipper can be an actual or an estimated read.

5.6.5 A valid transfer read submitted by the incoming Shipper will be submitted to the outgoing Shipper by the GT.

5.6.6 For sites under Processes 1 & 2, where a read is not submitted for the transfer date within D+5 the estimate calculated on D+1 by the GT will be used for the purposes of the Opening Meter Read

5.6.7 For sites under Processes 3 & 4; where a transfer read is not submitted the GT will calculate an estimated read and submit to both the outgoing & incoming Shipper at D+15 (as per UNC (M3.8.5). Methodology for the calculation of the estimated transfer read to be determined

5.6.8 The outgoing Shipper can challenge the transfer read using the existing Shipper Agreed Read process (UNC M3.8).

5.7 Election for type of daily allocation regime where there is no change in Shipper

5.7.1 The GT needs to know 10 business days (as per existing requirement) 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 AMR equipment

5.7.2 An election for a change of balancing type must be received and accepted by D-8 business days for a gas day using the existing Reconfirmation process as per UNC G2.2.5, 2.5.1 & 2.5.8. A change in balancing type can only be effective 2 months after the current balancing type effective date.

5.7.3 Only the Registered User or a Confirming User (with a confirmation about to become effective after D-7) can submit an election described in 5.6.1 or 5.6.2. If the requesting User will not be the Registered User on the day to which the election refers, the election will be rejected.

5.8 Check Read

5.8.1 Check Read obligations will continue to apply (these may need to be re-visited if the current Meter Inspect obligations are amended);

- Every 12 months for sites in Processes 1 & 2
- Every 24 months for sites in Processes 3 & 4

5.8.2 Note: Where a site with AMR equipment is transferred to the existing NDM regime the Check Read obligation will cease to apply.

5.9 Treatment of AMR drift/resynchronisations

5.9.1 For sites in Processes 1 or 2;

- A Re-Synch will be notified to xoserve & recorded. The treatment of any drift between the read derived via the AMR device for these sites will be Pro-rata from the last resynchronisation. The existing DM Resynch rules will be applied for these calculations.
- Where a Shipper transfer occurs during the period of the re-synch the relevant charges will be applied to the incoming Shipper in line with existing DM reconciliation rules.

5.10 Other requirements

5.10.1 Because third parties may also be submitting readings for the meter on behalf of the Shipper (see 3.5 above), an audit trail is required to identify which party submitted each reading and validation to ensure only authorised parties submit reads.

6. Document Control

Version History

Version	Status	Date	Author(s)	Summary of Changes
0.2	Initial Draft	20/08/2010	xoserve	Amendments following internal review
0.3	Initial Draft	26/08/2010	xoserve	Conversion to Business Requirements Template
0.4	1st Draft	03/09/2010	xoserve	To incorporate changes at AMR Workgroup
0.5	2nd Draft	07/09/2010	xoserve	Updated as agreed in AMR Workgroup 11
0.6	3rd Draft	29/09/2010	xoserve	Updated as agreed in AMR Workgroup 12
0.7	4th Draft	15/10/2010	xoserve	Updated as agreed in AMR Workgroup 13
0.8	5th Draft	01/11/2010	xoserve	Updated as agreed in AMR Workgroup 14
0.9	6th Draft	16/11/2010	xoserve	Updated as agreed in AMR Workgroup 15

Reviewers

Name	Version	Date
AMR Workgroup attendees		

Approval

Name	Role	Date
AMR Workgroup		
PN UNC		