Business Requirements Document

For

AMR Meter Reading

xoserve Project Nexus

Author (for this version):	**xoserve**
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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 meetings on the 20th July and 17th August 2010.
- AMR Workgroup 11 on 3rd September 2010
- AMW Workgroup 12 on 29th September 2010

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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.

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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.

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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

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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 for gas nomination purposes 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.

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.]

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]

Out of Scope:

- Non AMR sites

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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.]

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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:

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

3.3 Risks:

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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 Transporter within D+5, due to close-out constraints. Submission of reads, volume or energy will need to be aligned with SMIP once clarified.
- Shippers will have the obligation to submit consumption data – although the role could be fulfilled by other parties (e.g. DCC, consumer, AMR operators)
  - There is a requirement for an audit trail on consumption data submissions to accommodate and report on submissions by multiple parties
  - The identity of the submitting party will need to be validated
- Any additional Transporter charges will be billed in line with User Pays principles
- "Must Reads" will continue be a 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)

3.6 Design Option

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3.7 Volumes

3.8 Costing Options

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4. Business Process

4.1 Current Process & Process Map

DME Proposed Processes to be included.

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4.2 To Be Process & Process Map

To be documented.

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

5.1.5 If no reading is received by the Transporter by 10am on D+1, the Transporter will estimate a reading. [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).]

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

5.1.7 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 up to end of D+5.

5.1.8 The maximum number of read replacements is 24 up to close out; D+5 (dependent on costs).

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

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

5.1.11 [Incentive arrangements are required to ensure that daily reads are submitted for 97.5% of sites in a timely manner in line with current DM processes. (UNC M5.2.1)]

5.1.12 [Incentive arrangements are required to ensure a maximum number of consecutive estimates for a site. If no actual reads have been received for [one] month, there will be a "must read" requirement.]

5.1.13 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 Transporter 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).]

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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 Transporter 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 [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.]

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

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

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

5.2.9 The maximum number of read replacements is 24 up to end of D+5.

5.2.10 The closed-out energy balancing position will be based on 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 daily reads are submitted for 97% of sites in a timely manner (in line with the DME Regime).

5.2.13 Incentive arrangements are required to ensure a maximum number of consecutive estimates for a site. If no actual reads have been received the "Must Read" requirement will apply 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.

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5.3 Process 3 – Daily Reconciled Sites

5.3.1 Sites for which 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 [an estimation process using AQ, typical usage profiles, weather sensitivity and actual weather].

5.3.4 The closed-out energy balancing position will be based on the estimate calculated by the Transporter as described above.

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.

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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, the Transporter will estimate a reading for each gap day. [This reading will be calculated from the previous day's reading to produce a gas volume which matches the energy allocation already used for that day.] The Transporter will charge the Shipper for this estimate.]

5.3.11 [If there is a gap of one or more days within the sequence of reads the new batch, the Transporter will estimate a reading for each gap day. [This reading will be calculated from the previous day's reading to produce a gas volume which matches the energy allocation already used for that day.] The Transporter will charge the Shipper for this estimate.]

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

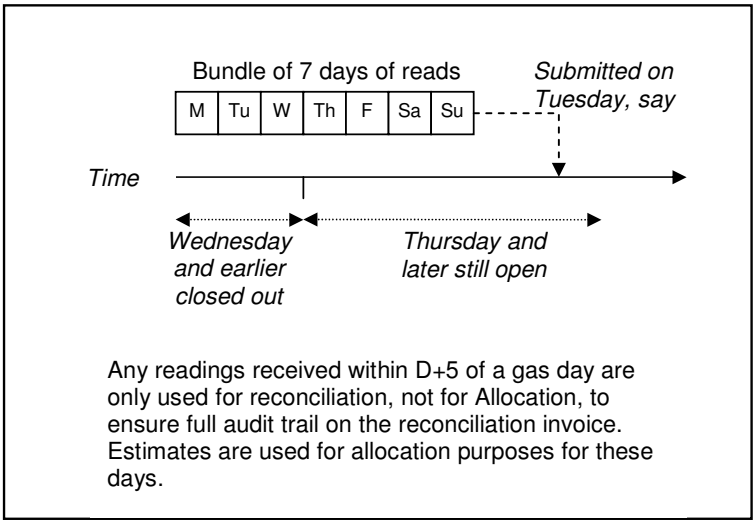
5.3.13 [Read validation rules to be determined for estimates and actuals]

5.3.14 On receipt of a batch of reads the Transporter will perform individual daily reconciliations for each gas day up to and including the date of the last reading in the batch (see 3.9 and 3.10 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.

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5.3.18 Incentive arrangements are required to ensure a maximum number of consecutive estimates for a site. If no actual reads have been received the "Must Read" requirement will apply as per UNC Section M3.6 for Monthly Read sites

5.3.19 The options for treatment of the resulting reconciliation include:

- Use of the process for filling in gaps as described above to populate the missing read days. This would result in any reconciliation energy being attributed to the last day of the reconciliation period.
- Use a daily reconciliation factor as used in process 4, to attribute reconciliation energy to each day in the period.

5.3.20 Incentive arrangements are required to ensure that daily reads (actual or estimated) are submitted for [90%] of 'Daily Reconciled sites' in the Shippers portfolio in any given month (as per UNC Section M3.4)

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5.4 Process 4 – Periodic Reconciliation Sites

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

5.4.2 Daily readings are not submitted to the Transporter 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 [an estimation process using AQ, typical usage profiles, weather sensitivity and actual weather].

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

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 can be actuals or estimates.]

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 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 Transporter 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.

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5.4.15 If no actual reads have been received for four months for sites with a read frequency of monthly or less, and for 24 months for all other sites, there will be a "must read" requirement as per UNC Section M3.6.

5.4.16 Incentive arrangements are required to ensure that reads are submitted for 90% of sites with AQ>73,200 kWh and 70% of all other sites in any given year. As per UNC Section M3.4 & 3.5.

5.5 Change of Supplier Readings

[Rules are required to ensure that change of supplier readings are submitted in a timely manner by the appropriate party (incoming/outgoing Shipper).]

5.6 Election for type of daily allocation regime

5.6.1 The Transporter needs to know before the gas day which process will apply to a site and the read frequency (Processes 3 & 4) for planning and estimation purposes.

5.6.2 An election for a change of balancing type must be received and accepted by [D-x] for a gas day.

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

5.7 Treatment of AMR drift/resynchronisations

5.7.1 [The treatment of any drift between the read derived via the AMR device and the actual index of the meter must be determined.

5.7.2 Options include:

- All drift attributed to the period since the last AMR read supplied (which could be a single day under Processes 1-3, or a longer period under Process 4). Resynchronisation reads do not need to be identified as such for this purpose, although there may be a separate requirement to be able to report on the date of the last resynchronisation.
- Pro-rata the drift since the last resynchronisation. Resynchronisation reads need to be identified as such, to facilitate this.
- Shipper to provide revised individual daily consumptions for the period since the last resynchronisation.]

5.8 Other requirements

5.8.1 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.

5.9 Interaction with Project Nexus High Level Principles

5.9.1 The above draft business rules are not in alignment with the Preferred Option for Allocation as described in the High Level Principles, which

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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.

5.9.2 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.

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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	Draft for Discussion at Topic Workgroup	26/08/2010	xoserve	Conversion to Business Requirements Template
0.4	To incorporate changes at AMR Workgroup	03/09/2010	xoserve	No changes
0.5	2nd Draft	07/09/10	xoserve	Updated as agreed in AMR Workgroup 11
0.6	3rd Draft	29/09/2010	xoserve	Updated as agreed in AMR Workgroup 12

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Reviewers

Name	Version	Date
AMR Workgroup attendees		

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Approval

Name	Role	Date
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PN UNC		

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