

# Business Requirements Document

For

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

### Xoserve Project Nexus

|                                   |            |
|-----------------------------------|------------|
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FOR WORKGROUP APPROVAL

## **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 meetings of the PN UNC Workgroups.

This document is an amalgamation of two documents describing business requirements for the AMR Workgroup and the Settlement Workgroup. The document contains tracked versions since the last published version. This version and any future versions will contain business requirements for all gas meter points (see section 2.6 for clarification of the scope).

### **1.2 Related Documents**

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

- AMR Workgroup meetings
- Settlement Workgroup meetings
- PN UNC Workgroups

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

## **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, Settlement and PN UNC Workgroup and considering the high level principles agreed at the Allocation Workgroup.

### **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.

### **2.3 Change Background**

The changes have been identified as a result of Xserve'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 31<sup>st</sup> 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 Xserve   |
| 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                   |

## 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
- NDM CSEPs (aspiration for all iGT sites to be treated the same as directly connected sites)

### Out of Scope

#### Function:

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

#### Market Sectors:

- Receipt and processing of meter reads for;
  - NTS Telemetered sites

## 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

## 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. Products 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 Products

The following table is a summary of the four products 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 products will be available in the future solution; they are not alternative solutions.
- GFD+1 is the day following the Gas Flow Day
- For Product 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'.

**Summary of the 4 Meter Reading and Settlement Products**

| Product – 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 | Opening Transfer Read               |
|--|---|--------------------------------|--|----------------------------|---|------------------------------------|-----------------------------------|---|-----------------------|-------------------------------------|
| 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             | By D+5 of the transfer date         |
| 2 - Daily Metered not Time Critical Readings | Shipper nominates (singly or 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             | By D+5 of the transfer date         |
| 3 – Batched Daily Readings                   | GT Nominates                                  | 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             | Current UNC opening read timescales |
| 4 – Periodic Readings                        | GT Nominates                                  | 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 | [24] months           | Current UNC opening read timescales |



### **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 Product 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 Products 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 Product 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
- AUGER 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

- 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 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):
  - 5<sup>th</sup> calendar day after the gas flow day.
- To enable validation of reads it is recognised and accepted that an average CV value is used to calculate the energy in order to validate the read.
- All reads obtained and submitted to the GT are taken at 06.00 hours, for dumb meters the read will be deemed to be taken at 06.00 hours.

### 3.6 Design Considerations

- For Products 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 Product 4 sites as the ‘Allocation’ arrangements apply to missing reads.
- For Product 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 Products 1. and 2. below. Whatever system solution is developed it should be flexible enough to cope 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.

- There are some parameters within the requirements that still require agreement. These are shown within square brackets [ ]. These values should not be 'hard coded' and should be set as a parameter value. These values may need to be to be clarified for the design and development phases.
- Aspiration that there should be no volume constraints, limits on updates or data submitted to the GT.

### 3.7 Volumes

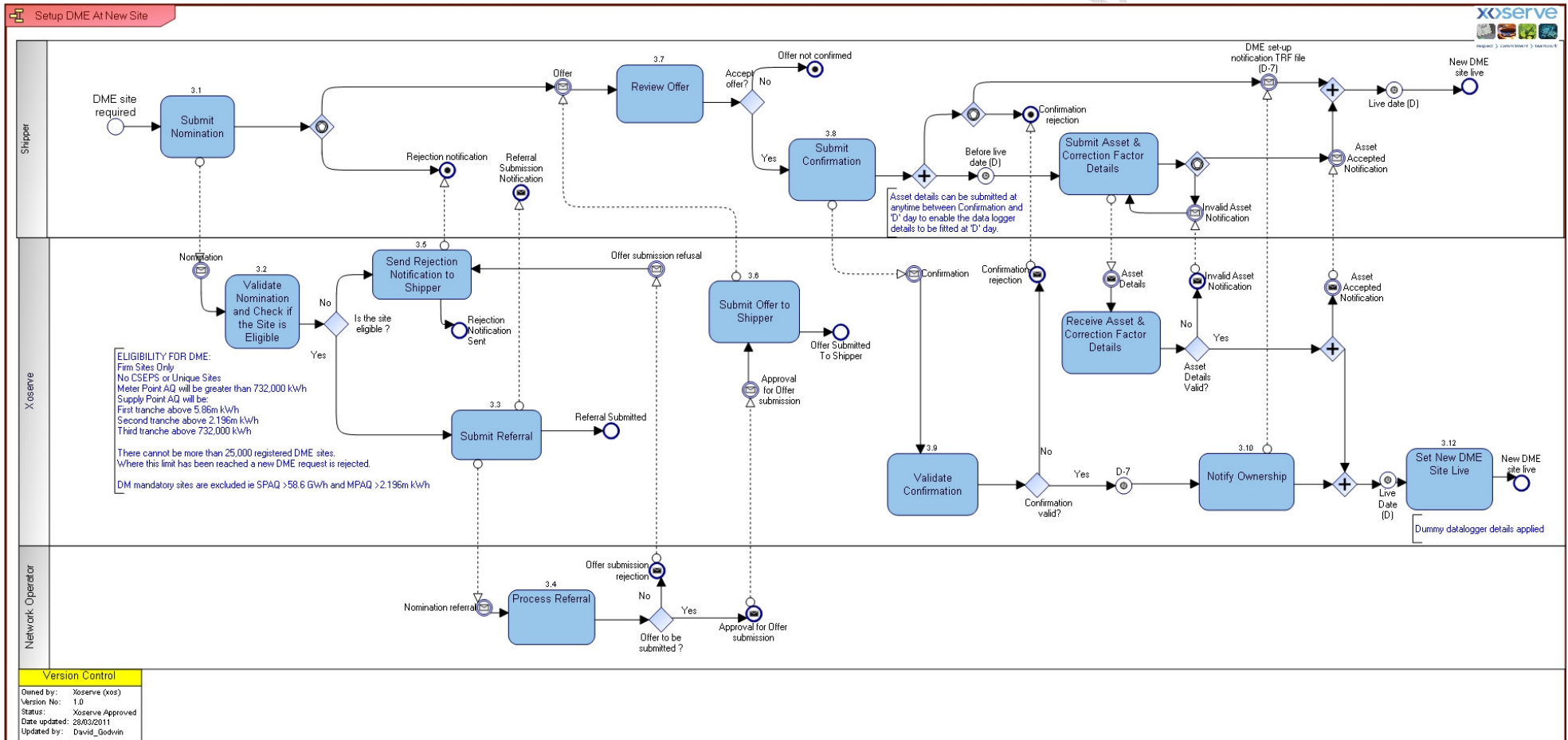
During discussions at the Workgroups it is anticipated that larger I&C sites will adopt Products 1, 2 or 3 where daily reads are submitted. Smaller I&C sites and domestic sites will mainly use Products 3 & 4. Based on this the following volumes are only an estimated guide at this time of the potential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

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

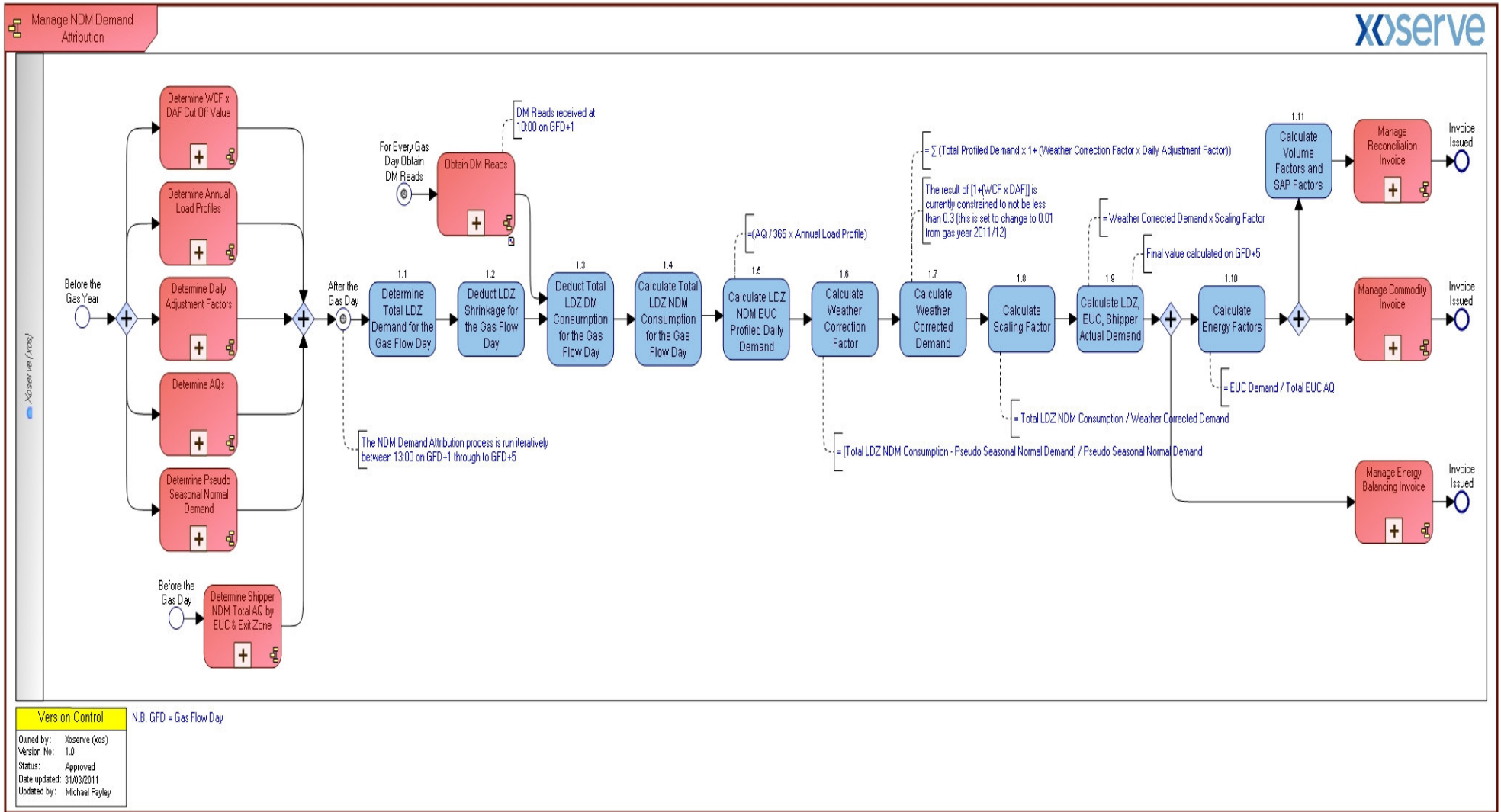
### 3.8 Costing Options

## 4. Business Process

### 4.1 Current Process & Process Maps

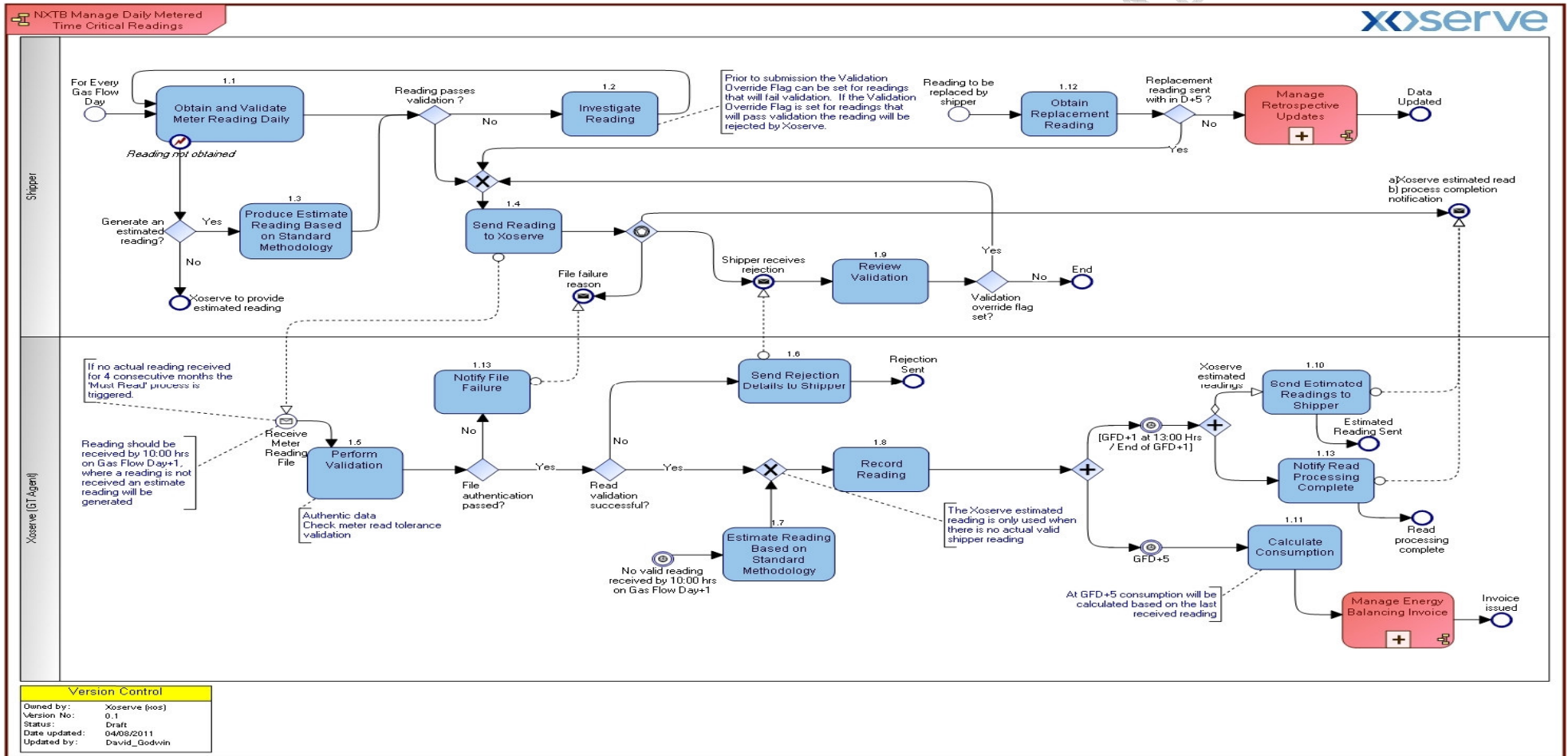


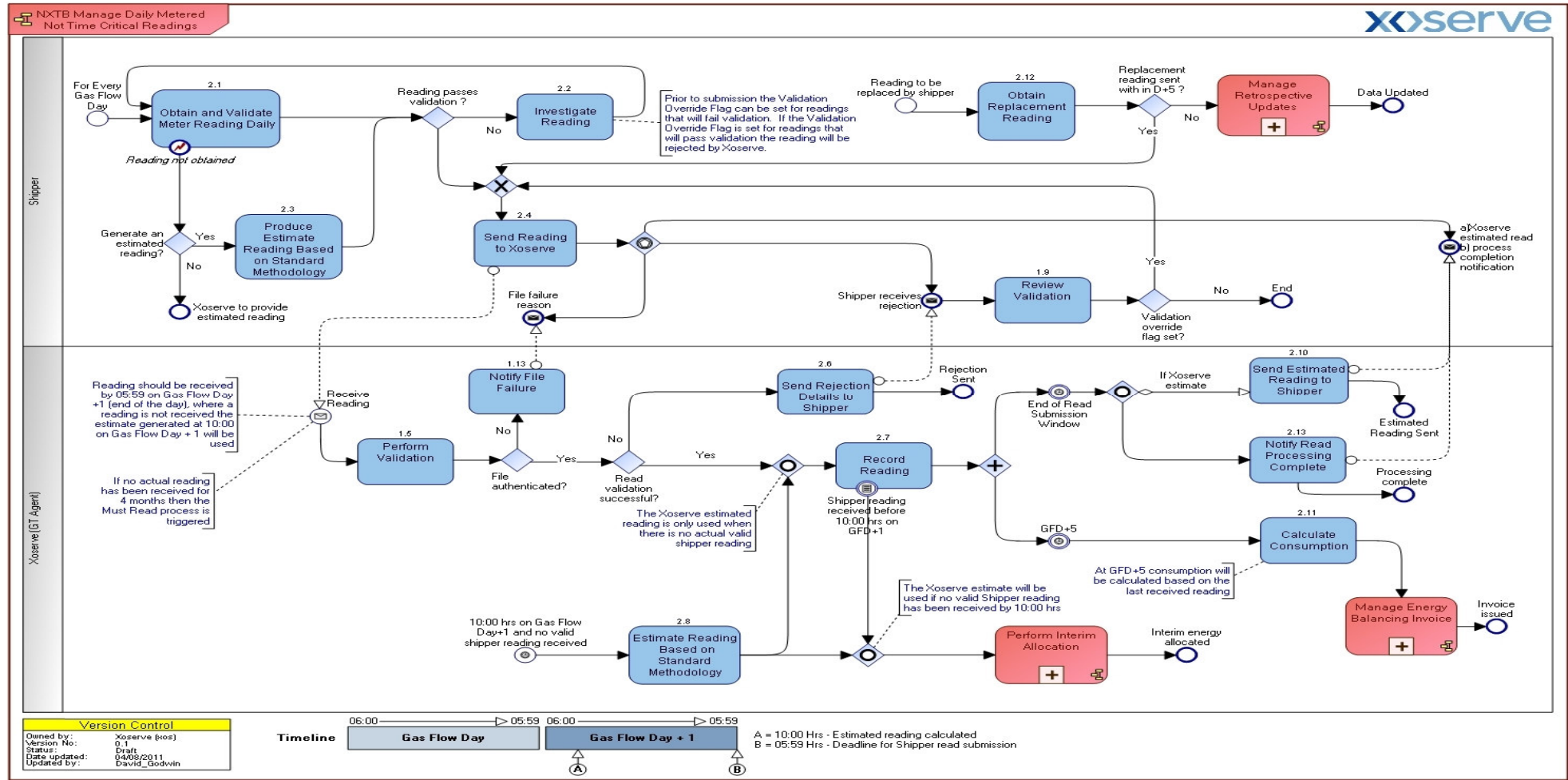




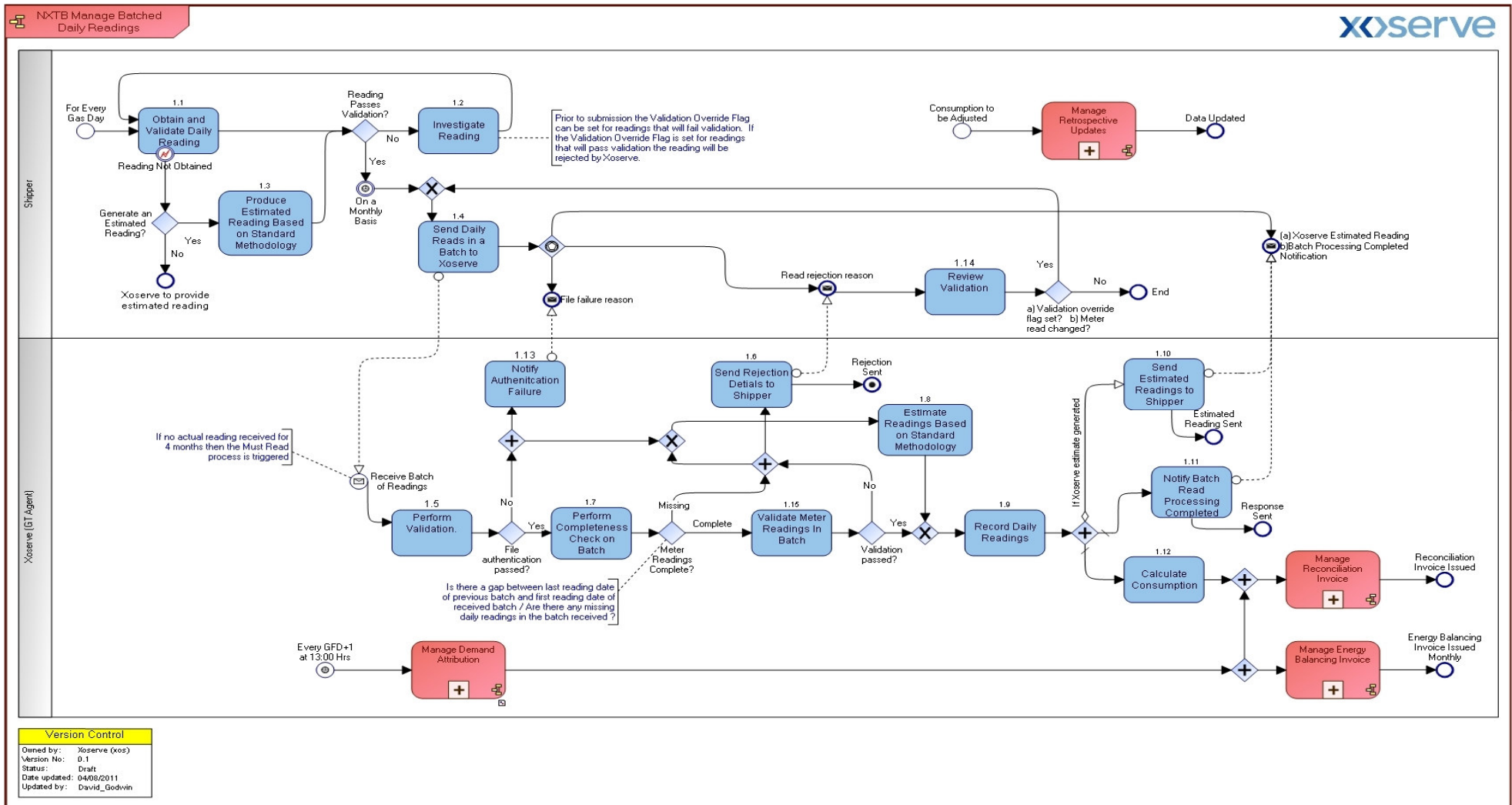


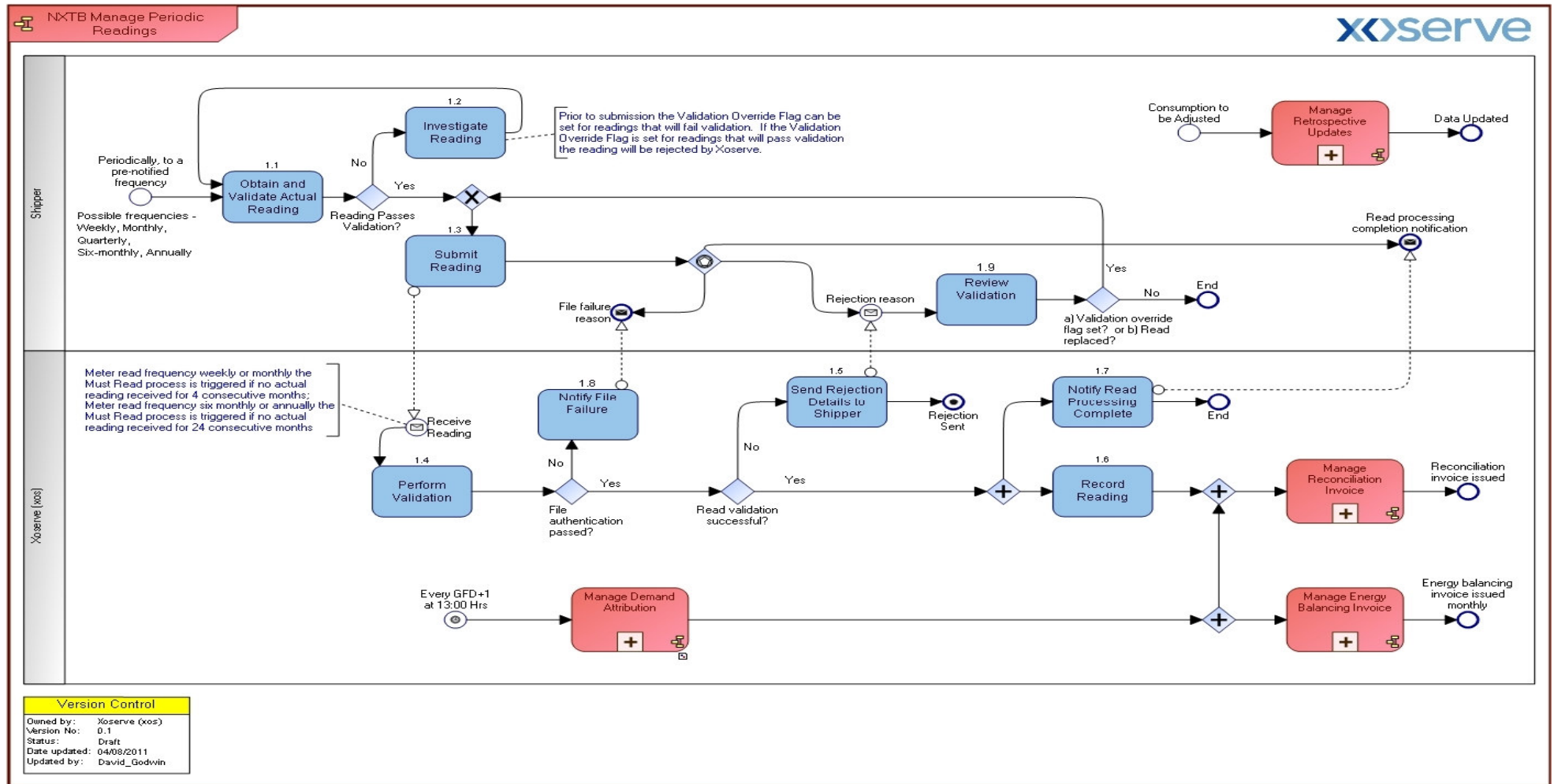
### 4.2 To Be Process & Process Map

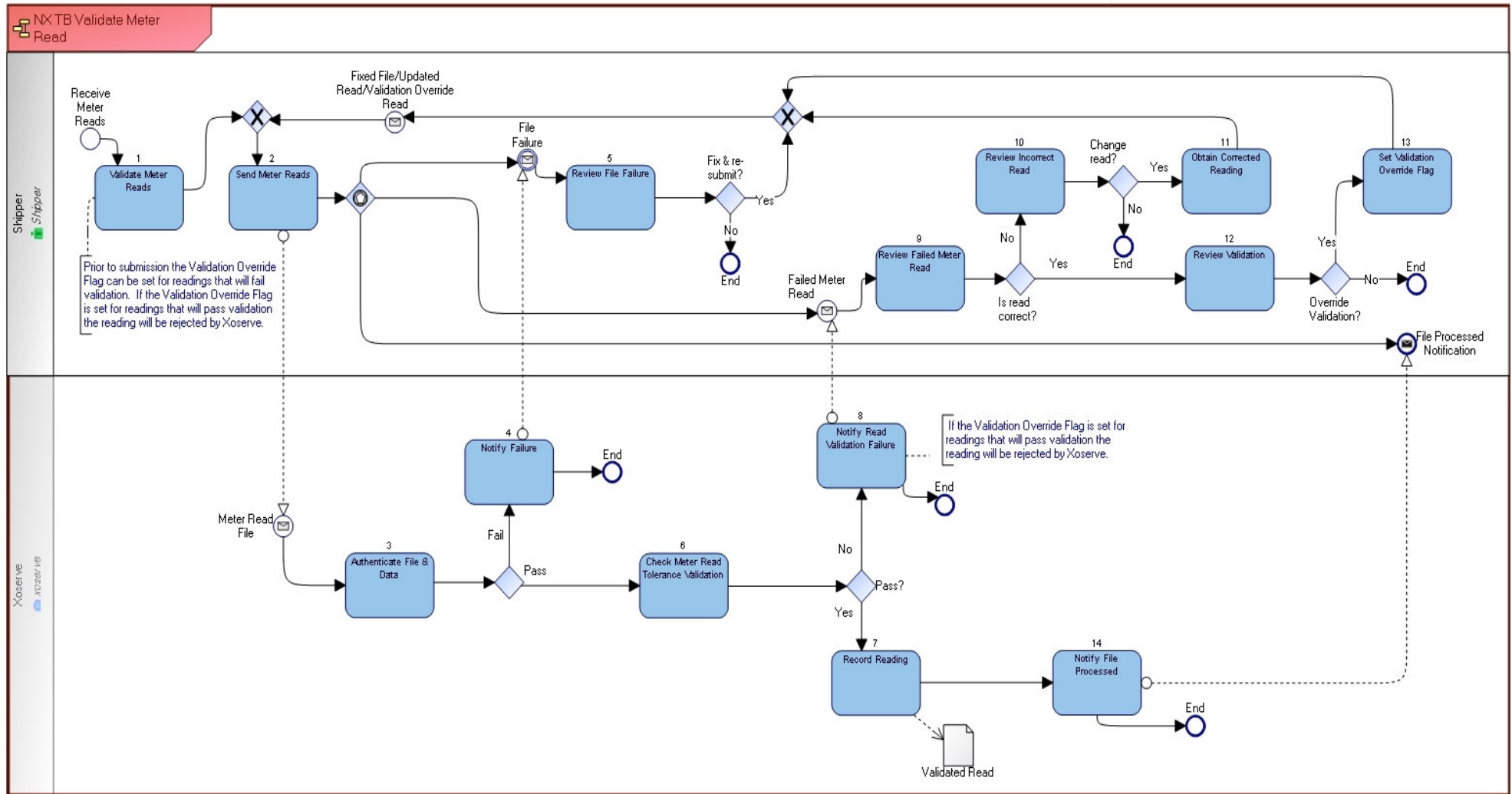


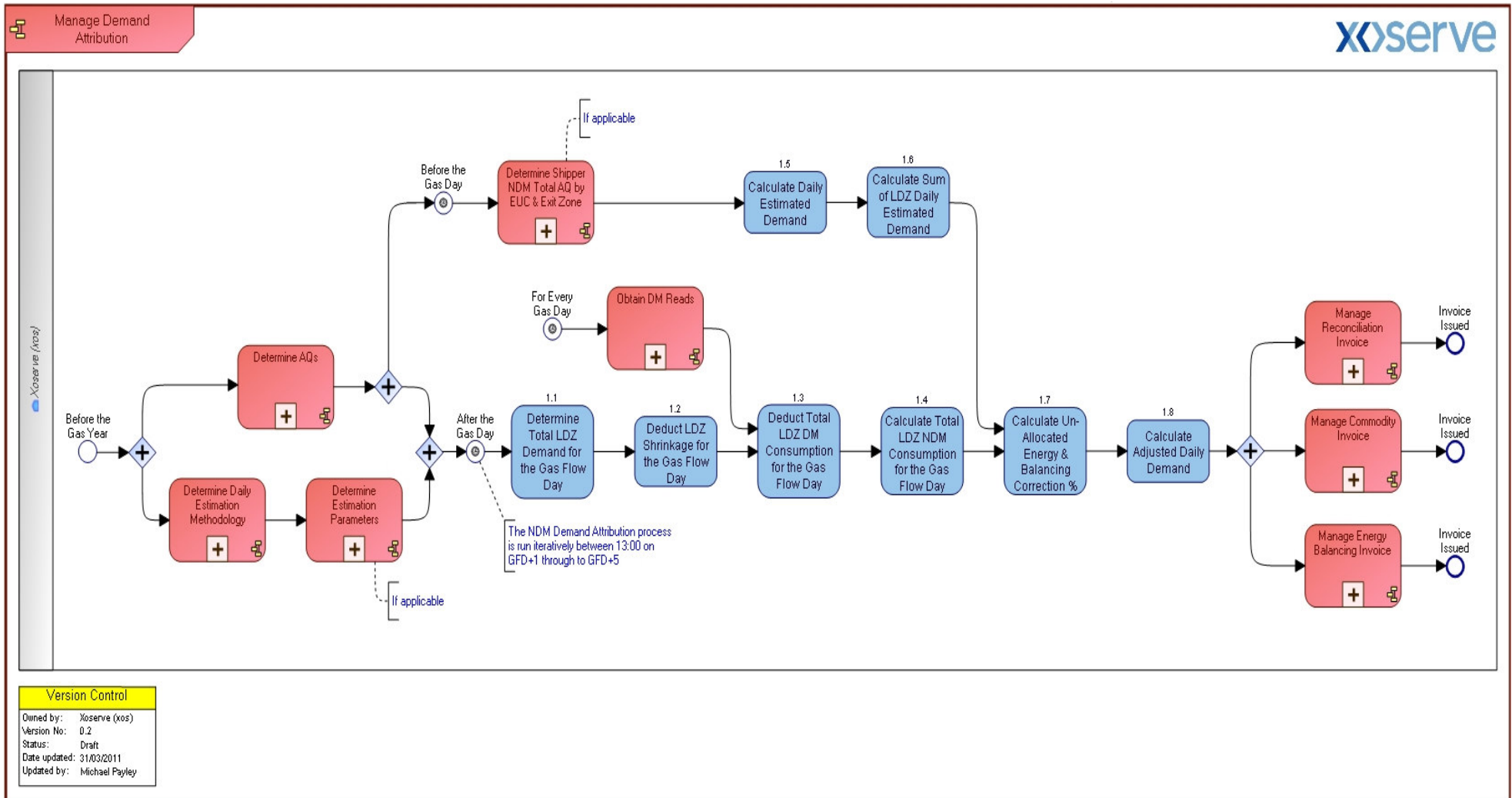












## **5. Business Requirements Definition**

### **5.1 Gas Nominations (before the day)**

- 5.1.1 Shippers submit Nominations for Product 1 and 2 sites, where meter reads are submitted daily and used for allocation and Energy Balancing purposes.
- 5.1.2 Where a value for the gas nomination is not submitted by the Shipper for Product 1 and 2 sites a default value of D-7 will be used by the GT. This may be replaced as per existing rules by the Shipper.
- 5.1.3 GT calculates gas nominations on behalf of Shippers in aggregate for all sites in Products 3 and 4.
- 5.1.4 The same estimation methodology to be applied for Nominations as Allocations.
- 5.1.5 A 'Nominations Scaling Adjustment' (Smear) will be applied at LDZ level and Shipper portfolio level.

### **5.2 Energy Allocation and Balancing**

- 5.2.1 For 'Daily Metered Time Critical' sites (Product 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 (Product 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' (Products 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' (Products 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. An allocation process will still be required for Product 3 and 4 sites. The current algorithms used for NDM allocations may not be appropriate for Smart metered sites or a mix of smart and dumb metered sites.

The 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 DESC 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:  

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

## 5.5 Product 1 – Daily Metered Time Critical Readings

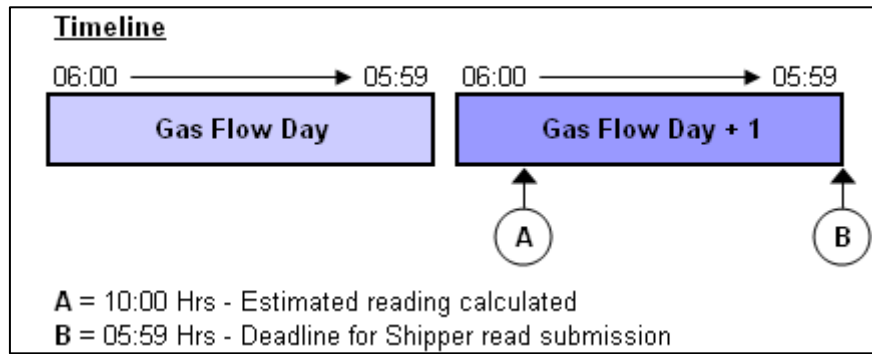
- 5.5.1 This process applies to large sites where daily balancing is currently mandatory due to size/location or other factors. Timely receipt of reads is critical to the accuracy of the Allocation process for non daily read sites. This includes all Supply Points with an AQ >58.6m kWh or NTS sites. Other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



- 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 5.5.7.
- 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'.
- 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 Product 2 – Daily Metered Not Time Critical Readings

- 5.6.1 Sites for which Product 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;



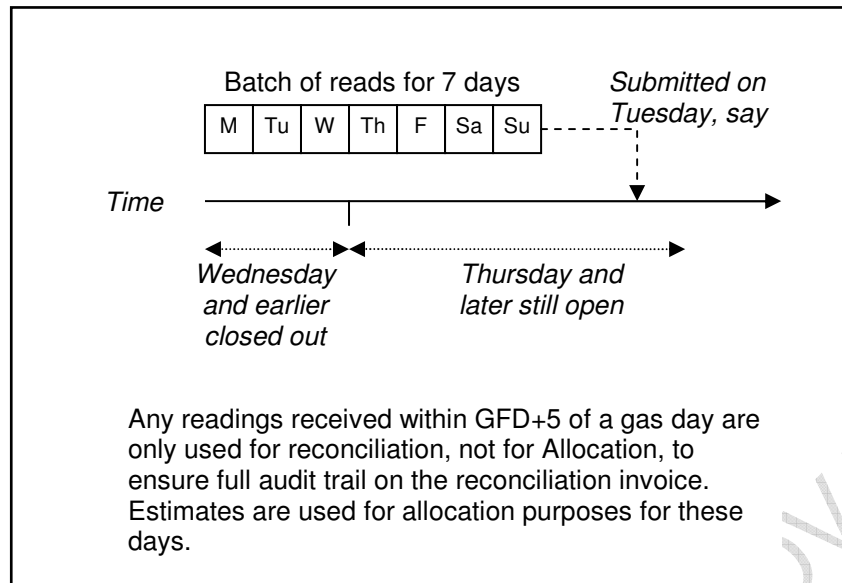
- 5.6.5 The reading submitted by the Shipper may be an actual read (obtained from the device) or an estimated read. The read notification must specify whether the reading is actual or estimated.
- 5.6.6 If a valid reading (actual or estimate) is not received by the GT by end of the gas day on GFD+1 the 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.
- 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 Product 3 – Batched Daily Readings

- 5.7.1 Sites for which Product 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.



- 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 (detailed under Section 5.14) have been received.
- 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.
- 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 of receipt by the GT of the reads. To be determined during Retrospective Updates.
- 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 5.7.10 and 5.7.11 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:



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

## 5.8 Product 4 – Periodic Readings

- 5.8.1 Sites for which Product 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'.
- 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 (Product) and (for Products 3 & 4) the Meter Reading Frequency the site is registered under.
- 5.9.2 The Proposing Shipper to be notified of which Product currently applies and the current read frequency (where applicable) as well as the

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 (Product) and, for Products 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 the read submission deadline described under section 5.16;
- 5.9.6 A batch of reads (Product 3) or periodic read (Product 4) will be rejected where a valid transfer read has not been loaded or, where a read has not been loaded, following receipt of the GT estimated opening read

## 5.10 Change of Shipper Transfer Reading

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 Products 1 and 2; D+5 Close out for the transfer read

- The Incoming Shipper has the obligation to obtain and submit the transfer read.
- The transfer read to be obtained on the transfer date and submitted by D+5.
- The transfer read submitted by the Incoming Shipper can be an actual or an estimated read.
- The read will be subject to GT validations as discussed under section 5.14. Any reads that fail will be rejected and notification issued to the Shipper.
- A valid transfer read submitted by the Incoming Shipper will be issued to the Outgoing Shipper as the closing read by the GT within [D+6] at the latest.
- 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 Product
- A transfer read (actual or estimate) can be replaced if submitted & accepted within GFD+5.
- 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.
- A replacement read received after GFD+5 will be covered by Retrospective Updates.

5.10.3 Products 3 and 4: Current UNC Timescales Section M3.8

- The Incoming Shipper has the obligation to obtain and submit the transfer read .
- The read to be obtained between D-5 and D+5 (11 day period) of the transfer date
- The transfer read can be an actual or an estimated read..
- The transfer read must be submitted within D+ 7/10 business days of the transfer date.
- Where a read has been loaded by the Outgoing Shipper with a read date nearer to the transfer read date prior to D 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.
- The read will be subject to GT validations as discussed under section 5.14. Any reads that fail will be rejected and notification issued to the Shipper
- A valid transfer read submitted by the Incoming Shipper will be issued to the Outgoing Shipper as the closing read by the GT within [D+2] of receipt of the read.
- 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

## 5.11 Election for change in Read Frequency or 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 (Products 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 change of tenancy
- 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 to the GT;

- For a change to or from Products 1 or 2: within D+5. Where a read is not loaded the GT will estimate a read and submit to the Shipper on [D+6]. The estimate should be based on the D-1 or D+1 read.
- For a change to or from Products 3 or 4: within the timescales for a change of Shipper described in Section 5.10.3. Where a read is not loaded the GT will estimate a Regime transfer read and submit to the Shipper on [D+15].

## 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 Validation Override Flag

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

5.12.3 If the 'Read Validation Override Flag' is populated the read will not be validated against the checks described under Section 5.14 however, the existing validations (logic checks) on the other fields for the MPRN will be performed and if any of the records fail the 'logic checks' the read will be

rejected and the reason for the rejection contained within the notification to the Shipper.

- 5.12.4 Existing validations (logic checks) on the data within the read communication will be carried out by the GT on receipt of the read communication; any fields that fail the validations will be rejected and notified to the Shipper.
- 5.12.5 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'
- 5.12.6 Information Exchange from the GT to the Shipper;
  - 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



Read Validation Tolerances following an Actual Read

| 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 and [100%] 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                    |

Read Validation Tolerances following an Estimated Read

| 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                              |

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 AQ/365 x no. of days |
| 29,300,001          | and above           | Between 0 – [100%] of Meter Point AQ/365 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 Products 1, 2 & 3, reject if the read produces a negative energy except after an estimated read.
- For sites in Product 4, reject if the read produces a negative energy except after an estimated transfer read
- Where the read submitted is an estimate validation will be carried out to ensure the standard estimation methodology has been used to calculate the estimated read
- The GT validations on the read itself will replicate the minimum Shipper read validations described above in 5.13.
- Where the read has failed any of the above validations the read will be rejected and a notification issued to the Shipper.
- 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 'Read Validation Override Flag' which will bypass the tolerance checks on the read.
- The 'Read Validation Override Flag' can be populated on the first submission of the read or following rejection from the GT.
- A rejected read can be re-submitted by the Shipper and will be accepted by the GT where the 'Read Validation Override Flag' on the read communication has been set to confirm the read is correct and bypass the tolerance checks on the read.
- Where a read has been flagged with the Read Validation Override Flag but, according to the GT validation the read would not fail the tolerance checks, the read will be rejected as having been incorrectly flagged.

## 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;

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

- 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 For Products 1 and 2; 5 days after the meter read date (GFD+5). Meter readings submitted after D+5 of the date of the meter read for Products 1 & 2 will be used for reconciliation
- 5.16.3 A meter reading not received within the following deadline for Products 3 & 4 will be rejected unless they are replacement reads.
- Product 3: [40] days following the date of the meter read
  - Product 4: [25] days following the date of the meter read

## 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;
- Product 1: a read has not been loaded for 4 consecutive months
  - Product 2: a read has not been loaded for 4 consecutive months
  - Product 3: a read has not been loaded for 4 consecutive months
  - Product 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 apply for sites fitted with metering equipment that derive reads, for those sites in this category the following timescales for the Check Read requirement will apply;
- Product 1: Every 12 months
  - Product 2: Every 12 months
  - Product 3: Every 24 months
  - Product 4: Every [24] 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**

- 6.1 Shipper aspiration is for no limits on the daily volume of reads that can be submitted.
- 6.2 Requirement to update a large number of meter points between Products or Meter Read Frequency to be included in Supply Point register 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  |
| Logic Checks                   | Validation carried out by the GT on receipt of the read. Validations include checks that the read communication complies with the approved format, for example mandatory fields are populated, Shipper exists as a Registered User, field lengths etc. Certain fields within the file are also validated against the data held by the GT, e.g. MPRN, meter serial number etc. |
| 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 | Xserve    | 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 | Xserve    | Updated as agreed in the PNUNC (AMR) Workgroup on 04/05/2011  |
| 0.3     | Draft                  | 24/05/2011 | Xserve    | Updated as agreed in the PNUNC Workgroup (Settlement) on 24/05/2011   |
| 0.4     | Draft                  | 01/06/2011 | Xserve    | Updated as agreed in the PNUNC Workgroup (Settlement) on 01/06/2011   |
| 0.5     | Draft                  | 05/07/2011 | Xserve    | Updated as agreed in the PNUNC Workgroup (Settlement topic) on 05/07/2011   |
| 0.6     | Draft                  | 02/08/2011 | Xserve    | Updated as agreed in the PNUNC Workgroup (Settlement) on 02/08/2011   |
| 0.7     | For Workgroup Approval | 22/08/11   | Xserve    | Updated as agreed in the PNUNC Workgroup (Settlement) on 22/08/11   |

### Reviewers

| Name                | Version | Date |
|---------------------|---------|------|
| Workgroup attendees |         |      |
|                     |         |      |
|                     |         |      |

### Approval

| Name                 | Role | Date |
|----------------------|------|------|
| Settlement Workgroup |      |      |
| PN UNC               |      |      |