

Gas Market Settlement Risk Assessment High Level Plan

Engage Consulting Limited

9th October 2014



Executive Summary

This document provides the delivery plan for an independent study into the Gas Market Settlement Risk Assessment.

Introduction

The UK gas settlements regime will change significantly with the implementation of the individual meter point reconciliation regime and with the wider package of Project Nexus changes due in October 2015. This new settlements regime will further incentivise shippers to maximise data quality and ensure meter reads are as accurate as possible.

For the first time all gas shippers will be able to reconcile energy billed volume with settled volume. However, the actions of individual participants will also have a direct and immediate impact on overall volume allocation. As such, the wider industry aim is to implement a performance assurance framework that helps manage new and existing settlement risk.

Engage Consulting will complete an independent study to:

- Consider and report on the required data inputs into the new settlement regime including:
 - the associated materiality; and
 - the associated risks such that they can be monitored to ensure settlement accuracy;
- Comment on the settlement risks within the current regime and any new risks arising during the transition to the new settlement regime.
- Identify owners of documented settlement risks;
- Deliver a dynamic performance assurance model that can be used to set performance targets and quantify the settlement risk.

Document Control

Authorities

Version	Issue Date	Author	Comments
0.1	9 th October 2014	Naomi Anderson/ Richard Cullen	
0.2	13 th October 2014	Naomi Anderson/ Richard Cullen	Updated with comments from Jon Dixon, Ofgem Project Manager
Version	Issue Date	Authorisation	Comments
1.0			

Related Documents

Reference 1	Project Plan v0.1
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Distribution

To be sent to Jon Dixon, Ofgem Project Manager and for circulation to members of the Performance Assurance Workgroup (PAW).

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1 Introduction

1.1 Background

This document provides the delivery plan for an independent study into gas market settlement risk commissioned by Ofgem and the Performance Assurance Workgroup (PAW).

The PAW is a Uniform Network Code (UNC) sub-committee established in January 2013 to develop an industry wide gas settlements performance assurance framework. PAW aims to incentivise individual market participants to accurately manage their portfolios such that no individual participant gains a settlement advantage. The output of the group is to implement an enduring performance assurance framework following the rollout of Project Nexus in October 2015.

This study will use a risk-based approach to help Ofgem and PAW identify the key metrics affecting settlements performance irrespective of portfolio size and composition.

Project Nexus' implementation in October 2015 will change the way gas volumes are allocated to shippers. At present, the annual quantity (AQ) dictates the energy allocation for the forthcoming gas year. Shippers allocate resource to ensure meter points are scrutinised during the annual AQ review window, each summer. The market is split into daily-metered sites (DM) and non-daily metered sites (NDM); with the NDM regime split into large supply points (LSPs) and small supply points (SSPs). LSPs are reconciled individually and SSPs are subject to a reconciliation by difference (RbD) regime.

The proposed future settlements regime splits all sites into four product categories dependent on the meter read frequency as follows:

- Product 1 – Mandatory daily metered sites;
- Product 2 – Daily metered sites – non time critical;
- Product 3 – Sites with a smart/advanced meter submitting batched daily reads; and
- Product 4 – Sites submitting meter reads periodically.

All market participants will become reliant on the quality and timeliness of read and consumption data flowing through into settlement. The Reconciliation by Difference (RbD) regime will become obsolete, once the transition phase is complete.

This study will particularly focus on identifying the risks arising following the implementation of Nexus settlement arrangements. The study will document the owners of each settlement risk. A shorter section of the report will comment on the current settlements risks and will also consider risks arising during the transition phase.

1.2 Brief

To complete an independent study, to identify data inputs to which the accuracy of gas settlement is most sensitive. The study will identify inputs that should be monitored to ensure settlement accuracy and consistency.

The independent study will identify key settlement risks and the current controls in place to manage these risks. A particular focus will be placed on the risks arising following the implementation of the Project Nexus system in October 2015, these risks will be quantified. A significant part of the project will be to deliver a top down, risk based, dynamic model in Excel which can be used by the PAW to evaluate key drivers for settlement accuracy. This model can be used by stakeholder to assess the magnitude and effect of certain risks on different types of shippers.

It is anticipated that the written findings and the dynamic model will initially be used by PAW to determine the performance assurance targets. The model will be critical to ensuring that the performance assurance targets are reflective of settlements risk and set with the specific aim of minimising and managing that risk. The targets will not be overly onerous and cost prohibitive for market participants. The model will identify value at risk of particular actions.

1.3 Objectives

The key objectives are:

- To identify current and future key settlement risks;
- To identify owners of each settlement risk;
- To report on the financial risk to market participants presented by the Project Nexus Settlements process;
- To report on the actual and perceived effectiveness of the Project Nexus data input frequency and controls;
- To quantify the size of each settlements risk identified for the different types of market participants. For each risk, to assess whether it would result in a crystallised or transient error to settlement volumes.
- To build a dynamic model to help PAW and subsequent UNC Sub-committees to assess these risks going forward.

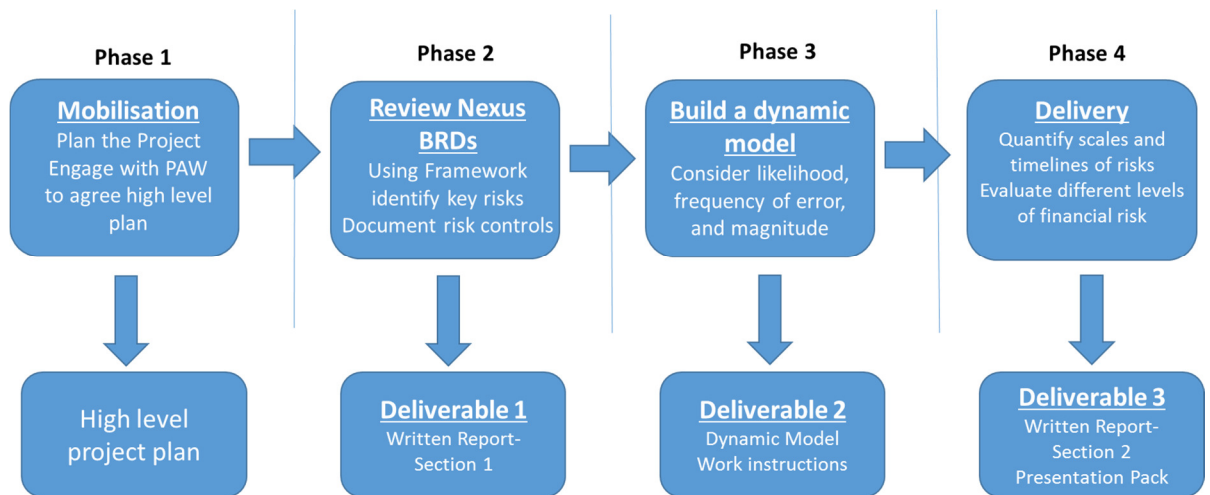
1.4 Timescales

The project will be completed by Naomi Anderson and Richard Cullen with support from other Engage Consultants where appropriate. The contract will commence on 6th October and the project should be completed by 30th January 2015, provided there are no unforeseen delays.

2 Approach

2.1 Definition of Project Phases

The project is to be split into four phases with Phase 1, mobilisation and planning detailed within this document and the attached project plan. The approach to phase 2 – 4 are set out in section 3 of this document. Each phase of the project is interdependent on the previous phase, however where possible some planning for the next phase will be completed in parallel with the previous phase. This will maximise the efficiency of the project. The diagram below illustrates each of the phases.



Phase 1

Following the kick off meeting on 6th October with Jon Dixon, Ofgem Project Manager the aims and objective has been agreed. The project plan is documented within the Gas Market Settlements Risk Assessment Project Plan v0.1. This mobilisation phase considers project timescales, resources and stakeholder requirements. Engage have set out dates for all key deliverables and the timelines for stakeholders to review deliverables. Adhering to these delivery dates and timescales is critical to ensuring the overall project is delivered on time.

Phase 2

The focus of this phase is to review the Project Nexus business requirements documents (BRDs) and identify key settlements risks.

Phase 3

The dynamic model will be built during phase 3. The model will be built in Excel in order that key stakeholders can easy amend and adapt the model to reflect all potential scenarios.

Phase 4

This phase will quantify the risks identified in phase 2. This phase will conclude the project and will present back finding to key stakeholders. This phase will conclude the written report that identifies settlements risk, qualifies and quantified these risks.

2.2 Deliverables

Phase 2

A written report outlining the settlements risks arising from Project Nexus implementation and identify any controls that will be in place to manage these risks.

Phase 3

1. A dynamic model built in MS Excel that allows Ofgem and PAW to evaluate errors on key input variables to understand how energy allocation and settlements processes are affected.
2. A User Guide outlining how to update and amend the dynamic model and detailing all assumptions made.

Phase 4

1. A written report, quantifying and rating the key drivers of settlements risk and their sensitivities. The report will document the scale of each settlements risk and how it changes over time. This will be delivered at the end of the project using information identified in each stage.
2. A presentation pack summarising the delivered documents and findings that will be presented to the PAW.

3 Project Planning

3.1 Phase 2 – Identification of Settlement Risks

Engage will develop a framework to assess settlements risk.

We will assess whether the total settled volume accurately reflects the total gas passing through the gas network. Consideration will be given to off-take meter errors, meter accuracy and shrinkage.

Engage will identify data input issues that may cause potential settlement allocation error between market participants dependent on portfolio size and type, this will include but not be limited to:

- Unread sites
 - Long Term no access
 - Theft
 - Unregistered meter points
- AQ accuracy
 - Meter read accuracy and frequency
- CV calculation
 - Truncation of CVs
 - Thermal Energy Regulations
- Profiling
 - Accuracy of the weather adjusted annual load profile (WAALP)
 - Intra LDZ variances
- IGT/Directly connected sites

This framework will be agreed and signed off with Ofgem and will be circulated to PAW members. The framework shall be used as a basis to analyse the Project Nexus BRDs and hence to identify future settlement risk.

The written report completed in phase 2 will contain, a short section on risks arising through the current settlement arrangements and a section on risks arising during the transition phase from the legacy settlements arrangements to post Nexus settlement arrangements. Owners of the settlements risks at each stage will be identified. The majority of the report will however, focus on the enduring risks following the implementation of Project Nexus' settlement arrangements.

The report will also consider the effect of the smart metering rollout on the settlement allocation process. Consideration will be given to controls already in place and we will assess their ability to manage and mitigate new risks. There will be a comparison of controls in place pre and post Nexus implementation. The comparison will document key system and UNC controls but will not provide an exhaustive list of all controls within the UNC. The majority of time will be spent analysing the enduring arrangements documented through the Project Nexus BRDs and through Modifications 430, 432 and 440.

A workshop will be held with the PAW in November to ensure the output is as expected and to confirm that all significant areas of potential settlement risk have been explored.

The risks highlighted in phase 2 will be used to identify quality control input parameters for the dynamic model detailed in phase 3. Assessing the scale of the risks and evaluate the financial impacts of any potential misallocated energy will be completed and documented in phase 4.

Assumptions

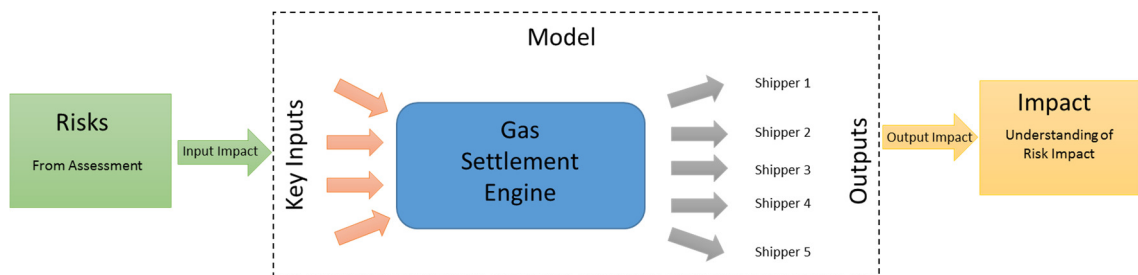
- Gas Transporters and Gas Transporter Agents are within scope and may undertake activities and processes that create settlements risk.
- The study's principle focus is the enduring Project Nexus settlement arrangements.
- Project Nexus will be implemented as specified within the Business Requirements Documents and as developed through the modifications.

3.2 Phase 3 – Dynamic Model Delivery

Phase 3 will build a dynamic model based on the assumptions and priorities agreed with Ofgem and PAW and following on from the workshop held to discuss the risks identified in Phase 2. A short design specification will be completed and agreed with Ofgem prior to the development of the model to ensure the necessary level of detail is achieved.

The model will simulate a simplified gas market and will model gas shipper activity and the impacts. The model will consider commercial shippers, large shippers, and smaller shippers and their interactions following Project Nexus' implementation. Engage Consulting will define and agree the input parameters with key stakeholders to ensure that the model contains key characteristics of a realistic market. The model will demonstrate how any error in input parameters affect the output parameters. Engage Consulting will model appropriate error distributions on the input parameters to evaluate how the outputs change. Engage Consulting will use the model to determine size of risk and how risk is distributed.

The model will not replicate the exact current market but will represent a simplified market that will aid model usability and transparency of results. The structure as illustrated by the diagram below.



Expected model inputs will include, but are not limited to the following parameters:

- Meter reading frequency and accuracy;
- Product category.

Expected model output parameters:

- Volume allocation by shipper, End User Category (EUC) and product category;
- Percentage product category uptake by shipper;
- Reconciled energy through the reconciliation window, which is currently up to 48 months.

Each risk identified as an input parameter will be assigned a realistic probability distribution. The distribution parameters can be adjusted and the model will show the effects on each market participants' volume allocation at a point in time. For example it will be possible to set the average

meter read frequency in days and a realistic standard deviation. By using the model to run scenarios the model output can be used to identify settlement volume and value at risk. We will consider the best way to address issues such as the same set of MPRNs remaining unread year on year. The model will be tested using real market data from 2013/2014 provided by Xoserve.

The model will consider permanent error crystallised following the end of the reconciliation window. It will also consider fluctuations in volume allocation over the settlement reconciliation window which causes cash flow volatility.

A summary of the outputs will show the percentage initial energy at risk and how the risk dissipates amongst gas shippers. The model will also show the financial impact of the risk.

The model will not evaluate possible performance targets, but will allow Ofgem and PAW to assess the value and volumes of settled energy at risk and can consider which performance metrics might be suitable.

A full methodology and user guide will be produced containing work instructions of how to operate and update the model. All assumptions used to creating the model will also be documented.

Assumptions

- The model will not use supplier specific information but will simulate a simplified market structure, however real data may be used to test the effectiveness of the model.
- Information on initial volume allocation, reconciliation and profiling will be required from Xoserve to ensure the model is as realistic as possible. There is an assumption that this information is obtained in a timely manner and will be made available in advance of Phase 3.
- The methodology will provide detail of data sources used and the dates revised data sets are available.
- The current reconciliation window of up to 48 months following initial allocation will remain in place.
- The model will provide an illustration of the market at a specific point in time.
- It is assumed that pre Nexus data cleanse activity is comprehensive and the majority of sites can be individually reconciled automatically.

3.3 Phase 4 – Quantification of Settlements Risk and Presentation of Findings

Phase 4 will deliver a written report that quantifies the anticipated settlement risk. This will also identify sensitivities to the input parameters that drive settlements performance. The report will use the model built in Phase 3 and will evaluate the financial implications of inaccurate input parameters and the likelihood of them occurring. Modification 432 removes the requirement for an allocation of unidentified gas expert. The dynamic model built in phase 3 will be used to comment on the fair allocation of unidentified gas.

A detailed presentation will be produced; it will describe the findings from Phase 2 and Phase 3 and will be presented at PAW meeting. The key drivers creating settlement risk will be described within the presentation. The magnitude of these risks and any critical thresholds will be highlighted. During and prior to the presentation session, there will be the opportunity for Gas Suppliers to ask questions.

3.4 Time Planning

A detailed project plan is shown in the attached document. Each phase of the project is interdependent but planning phases will be carried out in parallel to the previous phase. This will ensure that resources can be fully utilised throughout the project.

4 Key Dates

There will be a two-week review period following each project deliverable. At the end of the review period a further week will be required to finalise the document. Part of phases 2- 4 are completed concurrently to accommodate the review period.

4.1 Interim Dates

10 th October 2014	Agree the high level plan with Ofgem
17 th October 2014	Agree framework for assessing settlement risk with Ofgem
Early November 2014	Seek feedback from PAW on settlement risks identified
15 th November 2014	Agree assumptions and specification for the dynamic model with Ofgem and PAW

4.2 Key Deliverable Dates

14 th November 2014	Completion of Section 1 written report
19 th December 2014	Initial Model delivered to stakeholders
9 th January 2015	Completion of Section 2 written report
TBC	Demonstration of settlement model
TBC	Presentation of findings

4.3 Document Review Dates

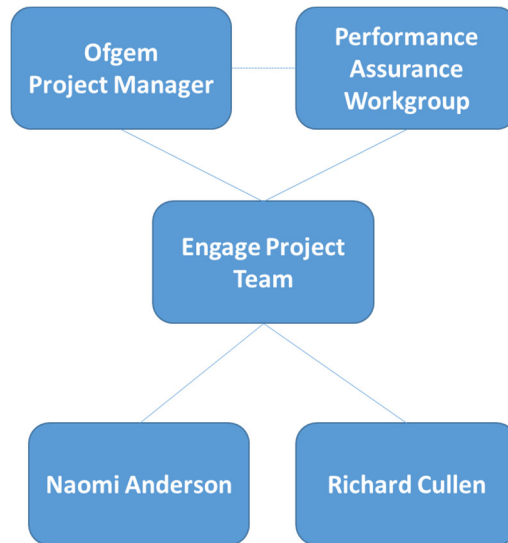
14 th -28 th November 2014	Phase 2 Document Review by all stakeholders
20 th December 2014– 9 th January 2015	Phase 3 Model review by stakeholders ahead of training workshop
9 th January 2015- 23 rd January 2015	Phase 4 Final Document Review by all stakeholder

4.4 Performance Assurance Workgroup meetings

28 th October	Attendance if required
26 th November	Attendance if required
16 th December	Attendance if required

5 Stakeholder Engagement

The project is managed by Jon Dixon in conjunction with PAW as shown below.



Weekly teleconferences will be held with Jon Dixon, the Project Manager to provide a progress update and to discuss and areas for further investigation.

Ofgem should approve the high-level plan, framework for assessment and model design specification prior to further work being continued.

An update on the work will be provided 5 days ahead of each PAW meeting. Engage Consulting will seek feedback on findings during scheduled PAW meetings. Engage will try to ensure that feedback from the PAW occurs during scheduled meeting, however additional meetings maybe required and could be by teleconference, dependent on material for discussion.

Following each deliverable there will be a two week window for comments by Ofgem and members of the PAW.

6 Identification of Risks

Final delivery timelines maybe affected should PAW and Ofgem require longer than two weeks to review each deliverable.

There is a risk that key decisions may take longer than usual due to multiple project sponsors potentially holding different viewpoints.

The final product may identify a small number of critical risks suggesting that the Performance Assurance Framework could have limited scope.