Gas Network Extensions in Northern Ireland

Gas to the West ("GTW")

Phoenix High Pressure Operational Business Plan

May 2014

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GLOSSARY OF TERMS

ACS	Accredited Certification Scheme
AGI	Above Ground Installation
ALARP	As Low As Reasonably Practicable
ASHES	Awareness of Health, Safety and Environmental Systems
BCP	Business Continuity Plan
BES	BlackBerry Enterprise Server
BGE	Bord Gáis Éireann
Bi-Di	Bi-Directional
BIP	Business Improvement Plan
CADD	Computer Aided Design
CAPEX	Capital Expenditure
CBI	Confederation of British Industry
CCNI	Consumer Council for Northern Ireland
CCTV	Closed-Circuit Television
CDM Regulations	Construction (Design and Management) Regulations 2007
CDM	Construction, Design and Management
CIPD	Chartered Institute of Personnel and Development
CIPS	Close Interval Protection Survey
CLM	Customer Liaison Manager
CNIP	Critical National Infrastructure Provider
CO	Carbon Monoxide
CO_2	Carbon Dioxide
CP	Cathodic Protection
CPAR	Corrective and Preventative Action Request
CPNI	Centre for the Protection of National Infrastructure
CSR	Corporate Social Responsibility
DCVG	Direct Current Voltage Gradient
DETI	Department for Enterprise Trade & Investment
DR	Disaster Recovery

DRAUC	Divisional Roads and Utilities Committee
DRD	Department of Regional Development
DNO	Distribution Network Operator
EAG	Engineering Action Group
ECC	Emergency Control Centre (National Grid)
EIA	Environmental Impact Assessment
ENGO02	Phoenix procedure for dealing with Reported Gas Escapes
FEED	Front End Engineering Design
FMA	Fingleton-McAdam Limited
FTE	Full-Time Equivalent
GAA	Gaelic Athletics Association
GDF	Group Development Forum
GIS	Graphical Information System
GSIUR	Gas Safety (Installation and Use) Regulations (Northern Ireland) 2004
GSMR	Gas Safety Management (Northern Ireland) Regulations 1997
GTMBS	Gas Trading Management Booking System
GTW	Gas to the West
HP	High Pressure
HPRS	High Pressure Reduction Station
HR	Human Resources
HSE	Health, Safety and Environment
HSENI	Health & Safety Executive Northern Ireland
HSQE	Health, Safety, Quality and Environment
I&C	Industrial & Commercial
IGEM	Institute of Gas Engineers & Managers
IMECHE	Institute of Mechanical Engineers
IoD	Institute of Directors
IOSH	Institute of Occupational Safety and Health
IPRS	Intermediate Pressure Reduction Station
IT	Information Technology
Kellen	Kellen Investments Limited

LIFE	Phoenix's CSR Programme (**L**eadership in the market place, **I**nvesting in our people, **F**ostering our community and **E**nvironmental responsibility)
LP	Low Pressure
LPG	Liquefied Petroleum Gas
LPS	Land and Property Service
MAH	Major Accident Hazard
MAPD	Major Accident Prevention Document
MCIPD	Chartered Member of the Institute of Personnel and Development
MERC	Maintenance and Emergency Response Contractor
MHC	Mutualised Holding Company
MOP	Maximum Operating Pressure
McNicholas	McNicholas Construction Services Limited
NDM	Non-Daily Metered
NEBOSH	National Examination Board in Occupational Safety and Health
NGSE	Network Gas Supply Emergency
NIC	National Insurance Contribution
NICS	Northern Ireland Capacity Statement
NIE	Northern Ireland Electricity
NIHE	Northern Ireland Housing Executive
NINEC	Northern Ireland Network Emergency Co-ordinator
NINGA	Northern Ireland Natural Gas Association
NINOA	Northern Ireland Network Operators Agreement
NIRAUC	Northern Ireland Roads and Utilities Committee
NIW	Northern Ireland Water
NOM	Networks Operations Manager
OFGEM	Office of Gas and Electricity Markets
OJEU	Official Journal of the European Union
OPEX	Operating Expenditure
OSNI	Ordnance Survey of Northern Ireland
PAD	Pre-application Discussions
PDA	Personal Data Assistant

PDHL	Phoenix Distribution Holdings Limited
PEHL	Phoenix Energy Holdings Limited
PES	Phoenix Energy Services Limited
Penspen	Penspen Limited
Phoenix HQ	Phoenix Headquarters; Airport Road West, Belfast
PIN	Periodic Indicative Notice
PMC	Project Management Contractor
PNGF	Phoenix Natural Gas Finance PLC
PNGL / Phoenix	Phoenix Natural Gas Limited
PO	Purchase Order
PQQ	Pre-Qualification Questionnaire
PR	Public Relations
PRS	Pressure Reduction Station
PSR	Pipeline Safety Regulations (Northern Ireland) 1997
PSSR	Pressure Systems Safety Regulations (Northern Ireland) 2004
PTS	Phoenix Transmission System
QMP	Quality Management Plan
QRA	Quantified Risk Assessment
QuEST	Quality, Environmental, Safety and Training Group
RCM	Reliability Centred Maintenance
RICS	Royal Institution of Chartered Surveyors
RPS	RPS Ireland Limited
SCADA	Supervisory Control and Data Acquisition
SCO	Safe Control of Operations
SGN	Scotia Gas Networks
SNIP	Scotland to Northern Ireland Pipeline
SSU	Special Studies Unit of the Planning Service, Department of the Environment (NI)
STEM	Science, Technology, Engineering and Maths
TASK	Think First; Act Safe; Stop of Hazardous; Keep Safe
TR	Transformer Rectifier
Trust	Energy for Children Charitable Trust

TSO	Transmission System Operator
UK	United Kingdom
UKOPA	United Kingdom Onshore Pipeline Operators Association
UR	the Utility Regulator (Northern Ireland Authority for Utility Regulation)
Utilities Contracts Regulations	Utilities Contracts Regulations 2006 and the Utilities Contracts (Amendment) Regulations 2009
WACC	Weighted Average Cost of Capital

1. BUSINESS PLAN OVERVIEW

1.1 PURPOSE OF BUSINESS PLAN

Phoenix Natural Gas Limited ("**Phoenix**") is submitting this High Pressure ("**HP**") Operational Business Plan (the **"HP Business Plan"**) to the Northern Ireland Authority for Utility Regulation ("**UR**") in support of its application for a conveyance licence for transmission to assist the extension of the Northern Ireland natural gas network to the towns of:

- Dungannon including Coalisland;
- Cookstown including Magherafelt;
- Enniskillen including Derrylin;
- Omagh; and
- Strabane.

(the "**GTW Licensed Area**").

The purpose of the Phoenix HP Business Plan is to:

- facilitate the secure, safe, reliable, efficient and economic development and operation of the natural gas network in the GTW Licensed Area;
- provide UR with the evidence to identify Phoenix's application as that which represents best value for gas consumers in Northern Ireland;
- construct and operate the transmission network needed to make gas available to the towns, detailed above, as soon as practicably possible;
- propose alternative designs that can minimise the quantity of transmission network needed to be constructed;
- ensure that customers in these towns can benefit from lower energy costs;
- ensure that society as a whole benefits from lower carbon and other emissions;

- ensure that through its plans to mutualise the transmission assets and by minimising the amount of transmission asset required that consumers get the benefits of lower financing costs as soon as possible; and

- provide the information detailed in 3.17(a) and (b) and in 3.20(a) and (b) of the Published Criteria.

As detailed in this HP Business Plan, Phoenix has the skills and experience within its current operation to deliver a successful network and wider natural gas industry. Through utilisation of these existing skills, Phoenix's existing policies, systems and procedures and with further training and development of additional staff in Phoenix's proven staff development programmes, Phoenix is confident that it can make the GTW Licensed Area as successful as the existing Licensed Area.

The High Pressure Data Input Workbook to be completed by applicants is provided at Annex 9 of the Applicant Information Pack.

The completed High Pressure Data Input Workbook associated with the HP Business Plan - the Phoenix High Pressure Data Input Workbook ("**the workbook submission**") - is provided at Document HPDIW.

1.2 EXECUTIVE SUMMARY

In order to maintain the existing regulatory and security ring fence of Phoenix Natural Gas Limited ("**Phoenix**"), Phoenix intends to assign the GTW licence to a new legal entity, "Newco", which will be a subsidiary of Phoenix Energy Holdings Limited. Further detail is provided at section 2.1.

Phoenix currently operates a licence granted to it in 1996 for the conveyance of natural gas (at distribution level) in Northern Ireland ("**the Licence**")[1]. At the time of its launch, the Phoenix project was one of the largest greenfield, private sector-led integrated gas transmission, distribution and supply investments in Western Europe.

Before the Phoenix investment, there was no existing natural gas infrastructure in Northern Ireland. Most importantly, Phoenix faced the challenge of developing a network and a market for natural gas from scratch.

Under the terms of the Licence, Phoenix is authorised to conduct its gas distribution business within an area covering approximately 40 per cent. of the population of Northern Ireland: Greater Belfast (comprising Belfast, Newtownabbey, Carrickfergus, Lisburn and North Down) and Larne ("**the existing Licensed Area**"). Since the Licence was first issued in 1996, the existing Licensed Area has been extended to include Comber (in 2007) and specific larger customers on the periphery of the Licensed Area (e.g. Temple and McQuillan Quarries).

Phoenix has always met (and exceeded) its licence obligations in respect of coverage of the network. By 2006, approximately 250,000 properties had natural gas available to them (which compares with a licence obligation to pass only approximately 224,000 properties in the same timeframe). The Phoenix network currently extends to over 3,000 kilometres of intermediate, medium and low pressure mains, which distribute natural gas throughout the Licensed Area. As at 31 December 2013, Phoenix had made gas available (in accordance with the terms of the Licence) to c.301,000 properties within the existing Licensed Area, of which c.171,000 (57 per cent.) have been connected to the network.

Since 1996 Phoenix has been successful in introducing natural gas to a new market and establishing a strong and vibrant supporting industry. Phoenix was responsible for constructing, operating and maintaining the Belfast Gas Transmission network for a period of c.12 years from 1996 until it was sold

[1] Phoenix's original licence was a combined licence for the conveyance and supply of gas in the Licensed Area. The conveyance part of the licence allowed Phoenix to construct and operate both a transmission and distribution network in Northern Ireland, and the supply part of the licence allowed Phoenix to supply gas to customers from that network. In line with the requirements of the Second EU Gas Directive 2003/55/EC, Phoenix legally separated its gas supply division from its transmission and distribution business on 1 January 2007 and on 31 March 2008 Phoenix completed the sale of its transmission assets to Northern Ireland Energy Holdings. The supply and transmission parts of the original combined Phoenix licence, now held by Phoenix, have been revoked by DETI and all references to supply and transmission activities have been deleted from the licence.

in 2008. Phoenix undertook the largest single transmission 'pull' across Belfast Lough which demonstrated Phoenix's attitude to using innovative solutions. Therefore although Phoenix has not been directly involved in transmission activities over the last few years, key personnel who were previously responsible for transmission are still employed by Phoenix.

Phoenix is the pre-eminent natural gas business in Northern Ireland. Within its distribution business Phoenix has undertaken innovative pipe laying techniques and has developed a strong skills base and a reputation for making safety the top priority. Imaginative marketing campaigns and hands-on customer support has expedited growth in the customer base and is key in building markets.

Since 1996 Phoenix has been successful in introducing natural gas to a new market and establishing a strong and vibrant supporting industry. Phoenix has established a downstream natural gas industry that has embraced a similar set of objectives to those of the Phoenix organisation. Independent installers, retailers and merchants align their businesses with the growth objectives set by Phoenix. Phoenix recognises the importance of an independent downstream natural gas industry and the benefits this can deliver e.g. improved customer service, additional investment, competitive prices and an ability to respond quickly to opportunities. Phoenix will play a key role in establishing the downstream natural gas industry across the GTW Licensed Area using the proven approach it adopted to establish a downstream natural gas industry across the existing Licensed Area.

Unfortunately only a fraction of the Northern Ireland population currently enjoys access to the natural gas network and the justification for bringing natural gas to the GTW Licensed Area is based on the achievement of Phoenix. There is still however much to be done to displace oil as the "fuel of choice" in Northern Ireland, and to achieve the level of market penetration achieved by natural gas in Great Britain (which is at approximately 90 per cent. of homes and businesses, compared with only approximately 20 per cent. in Northern Ireland).

Notwithstanding the challenges that remain, the development of a natural gas network is recognised as having brought considerable environmental, economic and social benefits to Northern Ireland. These successes are a function of investment, effective business decisions and efficient execution of those decisions that were made in the context of the regulatory environment that was designed in 1996 and enshrined in the Licence, and the expectations of investors that flowed from it.

Phoenix will draw on the strengths, knowledge and experience of existing FTEs ("**Full-Time Equivalents**") including Senior Managers and Phoenix's Executive Directors ("**the Directors**") who intend to develop the natural gas network in the GTW Licensed Area using the proven policies and procedures in place in the existing Licensed Area. In doing so, Phoenix will ensure that the required corporate governance and ring fencing arrangements for the existing Licensed Area are maintained.

Alongside its significant operational achievements since its formation, Phoenix has also been recognised for its outstanding performance within the arena of both safety and Corporate Social Responsibility

("**CSR**") culminating in the award of its second British Safety Council 'Sword of Honour' in recognition of world-class health, safety and environmental practices. In addition, the Group received Business in the Community's 'Big Tick Award' for a ninth consecutive year, celebrating excellence in the delivery of leading edge corporate social responsibility programmes. This award underlines its commitment to both its staff and the community it serves.

Phoenix's business activities are principally focused on the safe and efficient operation of the network. A primary objective of Phoenix is to have gas flowing in both the high and low pressure distribution network in the GTW Licensed Area as early as possible following the award of licence by UR. To achieve this Phoenix aims:

- to carry out several key activities in parallel e.g. detailed design and environmental impact assessment, procurement of materials and award of construction contract. A more detailed explanation of this approach is provided in section 3; and

- to carry out the first year's distribution construction at the same time as constructing the high pressure transmission network.

Although Phoenix's core bid submission is based on the assumptions provided by UR, Phoenix has also indicated how risks and costs can be reduced by minimising the amount of transmission network needed by substituting, where possible, transmission network with distribution network. This has a net benefit of circa £15m - £20m by substituting more expensive transmission network with less expensive distribution network.

Phoenix has the skills and experience within its current operation to deliver a successful transmission network and wider natural gas industry. Through utilisation of these existing skills, Phoenix's existing policies, systems and procedures and with further training and development of additional staff in Phoenix's proven staff development programmes, Phoenix is confident that it can make the GTW Licensed Area as successful as the existing Licensed Area.

Phoenix's cost build-up is largely derived from its own operational experience with specialist input provided by its technical and environmental advisors Penspen Limited ("**Penspen**") and RPS Ireland Limited ("**RPS**"). The financial aspects of the bid have been prepared with input from Phoenix's financial and legal advisors, [redacted]

Phoenix currently operates an efficient business and as such the GTW Licensed Area would immediately benefit from the innovation, improvements and efficiency gains already embedded within Phoenix's operation. As such this approach to the build-up of Phoenix's opex forecasts delivers efficiencies for the GTW high pressure distribution business ("**the GTW transmission business**") more aligned to a mature business.

Three internal FTEs will be required to manage Phoenix's operations across the GTW Licensed Area:

- Two dedicated FTEs; and

- a marginal increase of one FTEs will be required to manage the consolidated activities within Phoenix for the existing and the GTW Licensed Areas.

Upon award of the licence, Phoenix will begin the procurement process to appoint a Project Management Contractor ("**PMC**"). The PMC will be responsible for, among other things, the Environmental Impact Assessment, Planning Approval, Front End Engineering Design and Project Management.

Phoenix will also appoint a Construction, Design and Management ("**CDM**") Coordinator in accordance with the requirements of the Construction (Design and Management) Regulations 2007 ("**CDM Regulations**"). Among the duties of the CDM Coordinator is the formal notification of the commencement and completion of the project to the Health and Safety Executive for Northern Ireland ("**HSENI**").

A specialist pipeline contractor ("**Construction Contractor**") will also be appointed to carry out the actual construction.

Phoenix intends to structure the GTW transmission business such that for the period of construction and up to a maximum period of two years after gas starts to flow, the GTW transmission business will operate under a more traditional equity/debt model. Thereafter the GTW transmission business will either be sold to Mutual Energy, which is Phoenix's preferred option, or Phoenix will internally mutualise the transmission assets by setting up a new company, Limited by Guarantee, with all the required governance arrangements, sitting outside the Phoenix Group structure. Phoenix would aim to minimise the period in which the company operates under the traditional model by working with UR and Mutual Energy to deliver the benefits of mutualisation as soon as possible.

The high level key business operational objectives of Phoenix's HP Business Plan are to:

- facilitate the secure, safe, reliable, efficient and economic development and operation of the natural gas network in the GTW Licensed Area;

- provide UR with the evidence to identify Phoenix's application as that which represents best value for gas consumers in Northern Ireland;

- construct transmission network in a way that minimises risk and costs and enables the potential c.40,000 domestic and commercial customers to benefit from the new gas network in the west as soon as possible;

- propose alternative designs that can minimise the quantity of transmission network needed to be constructed;

- ensure that customers in the GTW Licensed Area can benefit from lower energy costs;
- ensure that society as a whole benefits from lower carbon and other emissions;
- ensure that through its plans to mutualise the transmission assets and by minimising the amount of transmission asset required that consumers get the benefits of the lowest capital expenditure and low on going financing costs as soon as possible; and
- provide the information detailed in 3.17(a) and (b) and in 3.20(a) and (b) of the Published Criteria.

Significant work has already been undertaken to fully understand the risks associated with the construction of the transmission pipeline and a detailed preliminary plan to deliver gas as soon as possible while minimising costs has also been produced. Phoenix is confident that it can deliver an efficient and effective transmission network throughout both the construction phase and the normal operations phase.

References to the Published Criteria

Phoenix notes that the summary should indicate where in the body of this submission the matters referred to in 3.17(a) and (b) and in 3.19(a) and (b) of the Published Criteria are covered. Phoenix has therefore referenced each of the appropriate sections in the body of this submission which cover the various matters below.

Please note that for ease of reference, the sections referenced in the table are the main sections within the body of this submission the matters referred to in 3.17(a) and (b) and in 3.20(a) and (b) of the Published Criteria are covered and are not therefore exhaustive.

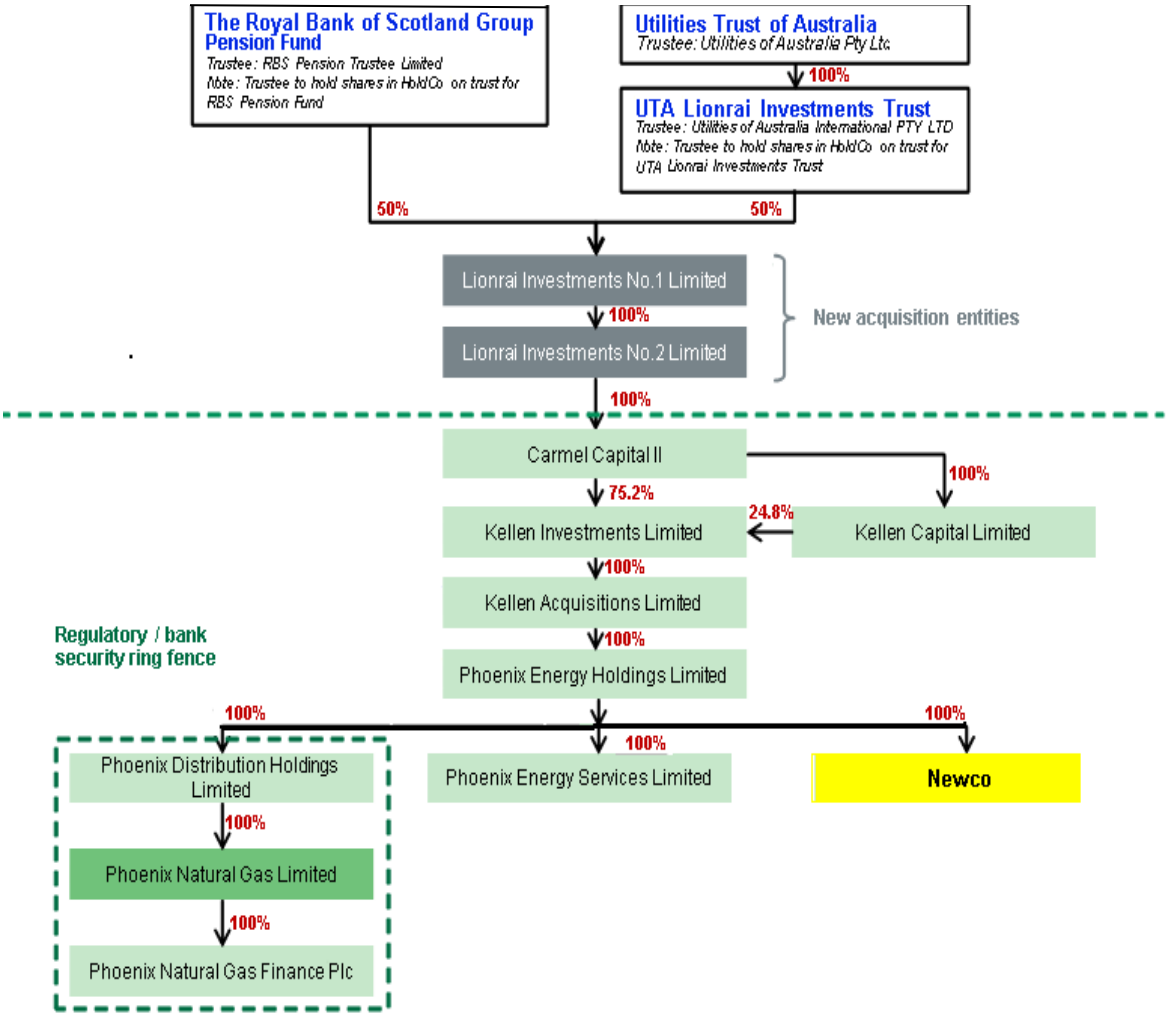
Published Criteria Reference	**Section(s) of the HP Business Plan**
3.17(a)(i)	3.6, 4.2, 5.4, 7.1 and 7.2
3.17(a)(ii)	2.3, 3.2, 3.7, 5.2, 5.4, 7.1 and 7.2
3.17(a)(iii)	as per 3.17(a)(ii) and sections 2.1, 5.8, 6.2 and 6.3
3.17(a)(iv)	3.1, 3.7, 4.1, 5.4, 5.7 and 8.3
3.17(a)(v)	2.1, 5.8, 6.2 and 6.3
3.17(b)(i)	8.1, 8.3 and 9.2
3.17(b)(ii)	8.3 and 9.2
3.17(b)(iii)	8.1, 8.3 and 9.2
3.17(b)(iv)	8.3 and 9.2
3.17(b)(v)	8.3 and chapter 10
3.17(b)(vi)	2.2 and 8.4
3.19(a)	chapters 4, 5 and 6
3.19(b)	2.3, 3.2, 3.7, 5.2, 5.4, 7.1 and 7.2
3.19(c)	chapters 1 and 5
3.19(d)	as per 3.19(b) and sections 2.1, 5.4, 5.8, 6.2 and 6.3
3.19(e)	3.2
3.19(f)	3.2
3.19(g)	3.1, 3.7, 4.2, 5.4, 5.8, 7.1 and 7.2
3.19(h)	chapters 3 and 6

2. ORGANISATION

2.1 STRUCTURE

Rationale for organisation structure

The position of Phoenix within the group structure is as follows:



The ultimate United Kingdom ("**UK**") holding company is Lionrai Investments No. 1 Limited. The ultimate parent companies are Royal Bank of Scotland Group Pension Fund and Utilities Trust of Australia which have joint ownership interests and equal voting rights.

The ownership structure below Lionrai Investments No. 2 Limited was put in place in 2007 when the Kellen Group was under the control of Terra Firma Capital Partners. The new shareholders have simply inherited this structure on acquisition.

The Kellen Group comprises Phoenix Energy Holdings Limited ("**PEHL**"), Phoenix Distribution Holdings Limited ("**PDHL**"), Phoenix, Phoenix Energy Services Limited ("**PES**") and Phoenix Natural Gas Finance PLC ("**PNGF**"). The corporate diagram does not include PNG Storage Limited, Phoenix Power Limited, Belfast Energy Limited, Phoenix Gas Limited and Belfast Natural Gas Limited, all of which are dormant subsidiaries of PEHL. Phoenix and PES are the Phoenix Group operating companies.

PES currently provides a number of services under a services contract with Phoenix, including the installation, disconnection and maintenance of customer meters and the provision of the initial 24 hour seven days a week emergency response to Phoenix's customers. Further detail of the set up of PES is provided in the Phoenix Low Pressure Operational Business Plan connected to this application.

The Phoenix Financing Group comprises PNGF, Phoenix and PDHL.

The Kellen Group's corporate governance structure is set by the Board of directors of Kellen Investments Limited ("**Kellen**"). The Kellen Group is committed to the highest standards of corporate governance as set out in the Combined Code on Corporate Governance.

The Board of directors of Kellen has established three committees: the Audit Committee, the Remuneration and Nominations Committee and the Finance Committee, each with clearly defined terms of reference, procedures, responsibilities and powers.

In order to maintain the regulatory/bank security ring fence of Phoenix Natural Gas Ltd., Phoenix intends to assign the licence for the whole of the GTW Licensed Area granted under this application, to a separate company, Newco. As illustrated in the figure above, Newco will initially be a wholly owned subsidiary of Phoenix Energy Holdings Limited and will trade under the Phoenix brand.

Phoenix would then intend to sell Newco to Mutual Energy as soon as practicable (for the purposes of this submission, a maximum period of two years have been assumed) after gas starts to flow.

In the unlikely event that such a sale did not progress, Phoenix would mutualise the GTW transmission business itself by setting up a new Mutualised Holding Company ("**MHC**") as a company limited by guarantee to which Newco would then be sold. Newco would be a wholly owned subsidiary of MHC. As UR is aware, Mutual Energy has previously utilised established principles to create such a company and therefore Phoenix would intend to follow the Mutual Energy model for the new MHC. Phoenix would envisage the sale of Newco into MHC following the same structures as for previous similar mutualisations including for example the previous mutualisation of Premier Transmission.

The governance arrangements around MHC would consist of a Board of Directors ultimately responsible for the management and governance of the mutual company and for furthering strategic and operational decisions. As stated above the constitutional structure of MHC would be that of a company limited by guarantee with effectively no shareholders, commonly known as “mutual”. The constitution of MHC would be set up so that its principal stakeholders would be the energy consumers of Northern Ireland and the financiers of its debt-financed subsidiaries (primarily Newco).

Its ultimate objective would be to deliver savings to consumers in Northern Ireland by providing a low cost of capital.

The Directors would be accountable to Members. As a company limited by guarantee, MHC would have no share capital and therefore no private shareholders. Individuals appointed as Members would not receive dividends nor would they have any other financial interest in MHC.

The Board would be accountable to Members for its management of MHC and therefore Members would be involved in reviewing the performance of the business. Experienced Non-Executive Directors would also be appointed to ensure the requisite corporate governance standards are maintained at all times by MHC.

The role of Members would be similar to that of shareholders in a public limited company, apart from Members having no financial interest in MHC. Members would be involved in approving such things as annual reports and accounts, appointment of auditors of MHC, any changes to MHC’s constitution and board remuneration.

Both Members and Non-Executive Directors of MHC would be selected on merit and against objective criteria and would have the necessary skills, expertise, industry experience and capacity to contribute to the key governance roles.

Explanation of the range of business activities and associated resource levels

A detailed explanation of the range of business activities and associated resource levels is provided at section 2.2.

Proposals to manage contract operations

Upon award of the licence, Phoenix will begin the procurement process to appoint a Project Management Contractor. The PMC will be responsible for, among other things, the Environmental Impact Assessment, Planning Approval, Front End Engineering Design and Project Management.

Phoenix will also appoint a CDM Coordinator in accordance with the requirements of the CDM Regulations. Among the duties of the CDM Coordinator is the formal notification of the commencement and completion of the project to HSENI.

A specialist pipeline construction contractor, the Construction Contractor, will also be appointed to carry out the actual construction.

Alongside the details provided to support the structure and manpower requirements, further details of Phoenix's proposals for what activities will be managed under contracts and how these contracts will be awarded and managed, are provided in sections 3.1, 3.6, 3.7 and in chapters 6, 8 and 9.

2.2 RESOURCE LEVELS

This section covers the manpower resource levels required post mobilisation. The manpower resource levels required to manage mobilisation in the GTW Licensed Area are fully detailed in section 3.2.

Explanation of internal and external resource levels and how these are built up

Internal Resources

Phoenix currently provides centralised corporate services to the whole Phoenix Group. Similar efficiencies can be achieved for the GTW transmission business by consolidating some of the functions within Phoenix for the existing and the GTW Licensed Areas and will ensure that the GTW transmission business benefits from the knowledge and experience of existing FTEs including Senior Managers and the Directors.

"**Consolidated resources**" covers the marginal increase in FTEs as required to manage the consolidated activities within Phoenix for the existing and the GTW Licensed Areas.

"**Dedicated resources**" covers those personnel dedicated to the GTW transmission business i.e. dedicated staff.

In total three FTEs (two dedicated FTEs and one consolidated FTE) will be required to manage the GTW transmission business. The build up of internal resources and full justification of the resource levels are detailed in this section 2.2.

External Resources

Phoenix's proposals to manage the contractors required under this application are detailed in section 2.1. In summary upon award of the licence, Phoenix will begin the procurement process to appoint a PMC responsible for, among other things, the Environmental Impact Assessment, Planning Approval, Front End Engineering Design and Project Management. The GTW Operations Manager will have overall responsibility for the project. The PMC will provide the personnel required to act as Phoenix's engineers on site during construction. As detailed in section 3.7, two teams will be needed headed by an overall Project Manager. Each of these teams will comprise:

- Construction Manager x 1 FTE;
- Field Engineer x 2 FTEs;
- Agricultural Liaison Officer x 1 FTE;
- Safety Advisor x 1 FTE;
- Senior Pipeline Inspector x 1 FTE; and
- Inspector x 2 FTEs.

Phoenix will also appoint a CDM Coordinator in accordance with the requirements of the CDM Regulations. Among the duties of the CDM Coordinator is the formal notification of the commencement and completion of the project to HSENI.

A specialist pipeline construction contractor, the Construction Contractor, will also be appointed to carry out the actual construction.

Assumptions associated with the build-up provided (including efficiency improvement plan)

As no operating cost information is required under this application, the following provides details on how Phoenix's build-up of costs would be derived.

Phoenix's cost build-up would be largely derived from UR's assessment of Phoenix's allowable opex within the GD14 determination. As detailed in the introduction to section 8, this is an appropriate basis for forecasting the opex requirements within the GTW transmission business; in summary the GD14

determination captures any efficiency for customers already realised by Phoenix along with potential efficiencies forecast by Phoenix within each individual cost line. Therefore the GTW transmission business would immediately benefit from the innovation, improvements and efficiency gains already embedded within Phoenix's operation.

As such this approach to the build-up of Phoenix's manpower cost forecasts delivers efficiencies for the GTW transmission business more aligned to a mature business.

A further efficiency initiative will see GTW transmission business operations grow in line with the HP Business Plan with no corresponding manpower increase.

Manpower numbers for all categories of personnel

Three internal FTEs will be required to manage the GTW transmission business:

- Two dedicated FTEs will be required to manage the GTW transmission business i.e. dedicated resources. This will consist of one GTW Operations Manager and one GTW Operations Officer; and

- a marginal increase of one FTE will be required to manage the consolidated activities within Phoenix for the existing and the GTW Licensed Areas i.e. consolidated resources.

Justification for manpower numbers in relation to the range and volume of business activity

A marginal increase of one FTE will be required to manage the consolidated activities within Phoenix for the existing and the GTW Transmission Licensed Areas.

As noted above, efficiencies can be achieved by consolidating some of the functions within Phoenix for the existing and the GTW Licensed Areas and will ensure that the GTW transmission business benefits from the knowledge and experience of existing FTEs including Senior Managers and the Directors. These functions are:

- a centralised corporate services department with responsibility for Information Technology ("**IT**"), Business Planning, Regulation, Finance, Contracts and Procurement, Risk Assurance and Human Resources ("**HR**") (see section 3.7);

- a centralised Customer Services department (see section 3.7);

- centralised Commercial Operations and Business Development management functions; and
- centralised Directors' functions.

Two dedicated FTEs will be required to operate the GTW transmission business once it is operational. Detailed plans and proposals of the GTW Operations Manager and the GTW Operations Officer requirement and the activities they will undertake are provided in section 3.1. The GTW Operations Officer will become a full time resource post mobilisation. This requirement is based on Phoenix's working assumption that UR's timetable of October 2015 for the delivery of a single Transmission System Operator ("**TSO**") will be achieved. Therefore the internal resources required in the GTW transmission business are those needed to interface with the single TSO; to manage outsourced contracts e.g. the Maintenance and Emergency Response Contractor (**"MERC"**); to interface with the Distribution Network Operator ("**DNO**"); and to interface with UR for day-to-day regulatory activities plus price control reviews. Phoenix believes that a minimum of two dedicated FTEs are required to provide a consistent level of service.

2.3 COMPETENCES AND ACCOUNTABILITIES

Competence management arrangements

Within Phoenix the skills, knowledge and ability required for each job role are defined in the job description and person specification of the role. This information is used to determine the shortlisting criteria for the role during the recruitment process and is further explored during a competency based interview. The recruitment process is fully detailed in section 3.2 under "Recruitment arrangements".

Once an employee commences employment, performance is monitored closely during their probationary period. During this period, their Manager will identify if any further training or support is required and address these needs through on the job training, coaching and support or through attendance at a formal training course.

New employees are reviewed at the end of their probationary period to determine if they have the skills and ability to carry out their role. At this stage an employee may (i) be confirmed in their role; (ii) have their probationary period extended to allow additional time to assess their competency; or (iii) have their employment terminated.

Managers continue to assess and monitor the ongoing performance of employees during employment. Where it is identified that a new skill, knowledge or technical ability is required this is managed through the annual training plan and budget process. Further detail is provided under "Training and development arrangements for all employees" below.

If performance management issues are identified the Manager will support the employee to obtain the required standard of performance using a performance action plan. If sufficient progress is not made within the agreed timescales, the disciplinary process may be initiated.

Phoenix have a number of roles which have a formalised training and development programme due to the time required to obtain the necessary skills, experience and technical knowledge to carry out the role. These are:

Commercial Operations

Within the Commercial Operations department, a competency matrix is in place to determine the training required for each role to ensure the job holder is trained and competent to perform their role. Eight classification labels (HSE 1 – HSE 8) have been created. Each role within the organisation has been assigned to one Health, Safety and Environmental ("**HSE**") label, with each label specifying the HSE training needs for that role.

For example the label 'HSE 2' covers the training required for the roles of Grid Control Officer and Transportation Services Officer. The training specified for HSE 2 roles is Health and Safety Induction (Awareness of Health, Safety and Environmental Systems ("**ASHES**")); Risk Assessment and Environmental Awareness; Manual Handling; Handling Emergency Calls; Fire Warden Training; Appointed Person Training and Safe Control of Operations Introduction.

In addition a development programme is in place to ensure that engineering staff have the appropriate behavioural, technical and supervisory competencies to carry out their role:

Engineering Officer Development Programme

Within the Commercial Operations department there is a formal development programme in place for the development and progression to the role of Engineering Officer. Employees may start the programme at entry level as a Trainee Engineer (level 0) or as an Assistant Engineer (Zone 1).

The development process is based on the attainment of twelve behavioural competencies and ten technical competencies. There are three levels within each of the 22 competencies (Zone 1-3). Each competency has a minimum level that should be demonstrated, with evidence, at each level of progression.

The minimum levels of behavioural competence that should be demonstrated, with evidence, at each level of progression are:

		Zone 1	Zone 2	Zone 3
1.	Strategic Thinking	5	4	3
2.	Analytical Thinking	4	4	3
3.	Customer Orientation	5	3	2
4.	External Sensitivity	5	4	3
5.	Performance Orientation	4	3	2
6.	Business Flair	5	5	4
7.	Quality Orientation	4	3	2
8.	Change Orientation	4	3	2
9.	Leadership	5	5	4
10.	Team Working	4	3	2
11.	Influencing	4	4	3
12.	Developing	5	5	4

The minimum levels of technical competence that should be demonstrated, with evidence, at each level of progression are:

	Zone 1	Zone 2	Zone 3
1. Legislation	1	2	3
2. Policy & procedures	1	2	3
3. Plant & Equipment	1	2	3
4. Tools & Techniques	1	2	3
5. Network Management	2	3	4
6. Systems & Applications	1	2	3
7. Gas Business Knowledge	2	3	4
8. Project Management	2	3	4
9. Supervisory Skills	1	2	2
10. Commercial Skills	2	3	4

Each participant is allocated a mentor who is responsible for ensuring that the trainee is given appropriate training and the opportunity to gain suitable experience for each of the competencies. The participant is required to maintain a log book detailing their training, experience and examples of work they have undertaken.

The process is based on regular assessments at six to nine monthly intervals. Assessments to confirm the attainment of each of the competencies are undertaken by a Senior Manager. Eligibility for progression is based on the participant meeting the required level for each of the 22 competencies and having a demonstrable record (log book) of sustained high performance and delivery of results at the current level (or above).

Progression from the position of Trainee Engineer to that of Assistant Engineer will normally take between 18 and 24 months, but maybe completed in 12 months by suitably qualified and competent individuals.

Progression from the position of Assistant Engineer to Engineering Officer will normally take between 12 and 18 months.

Once a participant has attained the level of Assistant Engineer the development process is based on the attainment of seven technical and supervisory criteria in addition to progression to Zone 3 of the 22 competencies.

The seven criteria consist of training to be completed, experience to be obtained and an assessment under the supervision of a competent person. These seven criteria are:

1. Emergency response;
2. Live Gas Operations;
3. Health, Safety and Environment;
4. Supervision/Quality;
5. Distribution Network Awareness;
6. Technical Skills; and
7. Project Management.

On successful completion of all the criteria and submission of the participant's log book, a final interview is held. If successful the participant is appointed to the role of Engineering Officer.

PES Service Engineers

As noted in section 2.1, PES currently provides a number of services to Phoenix under a services contract, including the installation, disconnection and maintenance of customer meters and the provision of the initial 24 hour/seven days a week emergency response to Phoenix's customers.

All PES Service Engineers are qualified to QCF Level 3 Gas Engineering or Plumbing and Gas Safe registered. Each PES Service Engineer's Gas Safe registration is reviewed and renewed on an annual basis. PES Service Engineers are retrained and assessed on a five year cycle in line with the expiry date of the assessment tickets (Accredited Certification Scheme ("**ACS**")) they are qualified for. The minimum

ACS qualifications required for a PES Service Engineer are CCN1 (Domestic Core and Appliances), MET1 (Domestic Meters), ESP1 (Emergency Service Providers) and CEN1 (Domestic Wet Central Heating).

On commencement of employment PES Service Engineers must provide evidence of their qualifications. PES Service Engineers are also trained to comply with the Phoenix procedure for dealing with Reported Gas Escapes ("**ENGO02**" see section 5.8).

Further detail of the competence management arrangements for PES Service Engineers is provided in section 2.3 of the Phoenix Low Pressure Operational Business Plan connected to this application.

Professional and academic qualifications and experience associated with key personnel

The following table details Commercial Operations personnel responsible for management, design, planning and supervision of live gas and construction activities in the existing Licensed Area:

Job Description	Role	Number of Personnel	Professional Qualifications	Length of service in current role
Commercial Operations Director	Director responsible for all Commercial Operations activities as detailed below	1	1 x IGEM – Fellow Plus IMECHE member	1 x 10+ years
Senior Managers	Manage all aspect of Commercial Operations work and NOMs/EOs including: - Policy and Strategy - Operations and Maintenance - Upstream Gas Emergency Response - Downstream Gas Emergency Response - Emergency Control Centre Contract - Asset Management and Maintenance - Grid Control - Transportation Services - Network Construction Design - Contract Management - Business Management and Regulatory Interface	9	4 x IGEM – Chartered Engineer 1 x Chartered Member of the Institute of Operational Safety and Health	5 x 10+ years 3 x 5+ years 1 x new appointment
Network Operations Managers ("NOMs")	Manage/supervise the following activities and EOs: - Operations and Maintenance - Upstream Gas Emergency Response - Downstream Gas Emergency Response - Emergency Control Centre Contract	4	2 x IGEM – Incorporated Engineer	1 x 5+ years 2 x 3+ years 1 x new appointment

Job Description	Role	Number of Personnel	Professional Qualifications	Length of service in current role
	- Asset Management and Maintenance - Grid Control - Transportation Services - Network Construction Design - Contract Management			
Engineering Officers ("EOs")	• Design and planning of network construction work • Monitoring quality, safety and compliance with design of network construction work • Supervise asset maintenance procedures and processes • Supervise as Competent Person live gas (Non Routine Operation) and site safety (Permit to Work) work • Supervise response to upstream gas escapes	11	5 x completed Phoenix Engineering Officer Development Programme 4 x at various stages of completing Phoenix Engineering Officer Development Programme 2 x new appointees	4 x 5+ years 1 x 3+ years
	Undertake asset maintenance work including: • commissioning network and I&C customer pressure reduc-	6	4 x NVQ Level 3	4 x 5+ years

Job Description	Role	Number of Personnel	Professional Qualifications	Length of service in current role
Maintenance Technicians	tion equipment and safety devices • maintenance of network and I&C customer pressure reduction equipment and safety devices		2 x Undertaking NVQ Level 3	
Transportation Services Manager	• delivery of a transportation service that meets all the requirements of the Network Code and ensures that legislative compliance is delivered as key legislation is implemented; • understanding the requirements of the Network Code, their impact on the business and ensuring that Phoenix meets its obligations as outlined in the Code; • ensure, through operation of a robust system of internal controls, that all gas suppliers using Phoenix's network are treated equitably; • act as the principal point of contact for gas suppliers using Phoenix's network; and • ensure transportation revenue as allowable under Phoenix's Licence conditions is calculated, billed and collected from gas suppliers on a timely and accurate basis.	1		1 x 10+ years

As detailed in section 2.2, efficiencies can be achieved by consolidating some of the functions within Phoenix for the existing and the GTW Licensed Areas and will ensure that the GTW transmission business benefits from the knowledge and experience of existing FTEs including Senior Managers and the Directors. These functions are:

- a centralised corporate services department with responsibility for IT, Business Planning, Regulation, Finance, Contracts and Procurement, Risk Assurance and HR (see section 3.7);
- a centralised Customer Services department (see section 3.7);
- centralised Commercial Operations and Business Development management functions; and
- centralised Directors' functions.

These existing FTEs hold a number of professional and academic qualifications from which the GTW transmission business will benefit e.g. Chartered Accountants, Chartered Member of the Institute of Personnel and Development ("**MCIPD**"), QS; and professional memberships of professional institutions including the Institution of Gas Engineers and Managers ("**IGEM**"), the Institute of Mechanical Engineers ("**IMechE**"), the Institute of Occupational Safety and Health ("**IOSH**"), the Chartered Institute of Purchasing & Supply, the Royal Institution of Chartered Surveyors ("**RICS**"), the Chartered Institute of Personnel and Development ("**CIPD**"), the Chartered Institute of Internal Auditors and Chartered Accountants Ireland.

A marginal increase of one FTE will be required to manage these consolidated functions.

Training and development arrangements for all employees

Within Phoenix training and development encompasses a broad range of activities including training course attendance; toolbox talks; work shadowing; on the job training; job specific development programmes; secondment; management training programmes; in-house training; attendance at conferences and employee sponsorship on further education courses.

All employees undergo an induction process on commencement of employment and the purpose of the induction is to ensure the effective integration of staff into the organization.

The induction contains three main elements to provide all the information that new employees need:

1. A general overview of the organisation and the main policies and procedures in place and the standards of behaviour expected from an employee. This is conducted by HR and includes an orientation tour of the premises and its facilities.

2. ASHES - this is an in-house safety induction on the ASHES Health, Safety and Environmental management system (see section 4.1), which provides more detailed safety and environmental information to employees including their responsibilities for Health and Safety in the workplace. This is delivered by the Health, Safety and Environment team.

3. Individually tailored on the job training and support provided by the employee's line Manager.

The induction process identifies any specific training and development requirements for new employees. The Senior Manager for the department is responsible for ensuring that these needs are addressed through on the job training, coaching and support or through attendance at a formal training course.

Training and development needs for employees are reviewed on an annual basis by the Senior Manager for the department. On an annual basis Senior Managers submit a training plan and proposed budget for their department to the HR Manager. The training plan identifies training and the associated costs required for their team members for the forthcoming year.

On receipt of the training plans, the HR Manager clarifies any queries with Senior Managers. The role of HR is to support managers to identify the appropriate training, to ensure there is no duplication of cost and to identify any potential efficiencies. The HR Manager is accountable for the training budget and agrees the departmental training budgets with the Group Finance Director on an annual basis.

Health, Safety and Environmental training

Employee HSE training records and training needs analysis are managed using Phoenix's HSE training and competency management system. This database system produces reports on training completed, training required and training/certification expiry dates which form the basis of the annual HSE training plan and budget.

The database is underpinned by a competency matrix in place to determine the training requirement for each role to ensure the job holder is trained and competent to perform their role. Eight classification labels (HSE 1 – HSE 8) have been created. Each role within the organisation has been assigned to one HSE label, with each label specifying the HSE training needs for that role.

For example the label 'HSE 2' covers the training required for the roles of Grid Control Officer and Transportation Services Officer. The training specified for HSE 2 roles is ASHES; Risk assessment and Environmental Awareness; Manual Handling; Handling Emergency Calls; Fire Warden Training; Appointed Person Training and Safe Control of Operations Introduction.

Phoenix place a significant focus on HSE training delivered throughout the organisation. HSE training delivered per employee is one of Phoenix's HSE Key Performance Indicators, which is reported at Board level.

Phoenix Energy Services training

The role, the training and the development of a PES Service Engineer is detailed above. PES maintains a training database which is used to manage the training records and training needs analysis for the PES Service Engineers and Apprentices. The database produces reports on training completed, training required and training/certification expiry dates.

This information is used to formulate the annual PES training plan and budget in conjunction with ongoing safety reviews of working practises and changes of legislation.

Further Education Policy

In addition to the annual submission of training plans Phoenix has a Further Education Policy designed to motivate and encourage effective business, team and individual performance. Staff are encouraged to actively seek opportunities for development, ensuring the achievement of competitive advantage at both an individual and business level.

The Directors and Managers will support staff to ensure that opportunities to develop skills and knowledge exist in a way that enables the most effective contribution to the Group's current and future objectives whilst at the same time helping each person derive maximum personal satisfaction from their work.

The Group recognises that the wider, long term aspirations of the individual employees must be considered in the context of opportunities that may become available throughout the business. This need not be restricted to the employee's current position.

Specific training and development plans

There are a number of roles which have a formalised training and development programme due to time required to obtain the necessary skills, experience and technical knowledge to carry out the role. Further information is provided under "Competence management arrangements" above.

The HR Manager will continue to be responsible for the training and development arrangements for all employees and the current processes and principles detailed above will be extended to include any new employees in the GTW transmission business.

2.4 DEPLOYMENT

Details of personnel deployment to operational locations in the GTW Licensed Area

Phoenix headquarters is at Airport Road West ("**Phoenix HQ**").

Phoenix currently provides centralised corporate services to the whole Phoenix Group. As detailed in section 2.2, similar efficiencies can be achieved for the GTW transmission business by consolidating some of the functions within Phoenix for the existing and the GTW Licensed Areas and will ensure that the GTW transmission business benefits from the knowledge and experience of existing FTEs including Senior Managers and the Directors.

Although the GTW Licensed Area is remote from Belfast, Phoenix intends to operate the GTW transmission pipeline from Phoenix HQ. The only people that will be remote from Belfast are those staff directly employed in the construction of the pipeline i.e. the external PMC and Construction Contractor resource (see section 3.7). During construction the two dedicated internal FTEs will split their time between the Construction Contractor's site office and Phoenix HQ.

3. MOBILISATION

3.1 PLANS AND PROPOSALS

Phoenix recognises the imperative for all key stakeholders - including the Department of Enterprise, Trade and Investment ("**DETI**"), UR and prospective customers - that the GTW HP Pipeline System is constructed and commissioned with minimum delay. This will facilitate the provision of gas to the GTW Low Pressure ("**LP**") Pipeline System.

Phoenix has engaged with external advisors to assist in the development of a high level programme. These advisors, Penspen and RPS, have considerable experience in the field of HP pipeline design, construction and commissioning. This experience ranges from environmental impact assessments to planning applications and project management, with both companies having operated as a Joint Venture from 2003 to 2007 for BGE UK South / North Pipeline.

Phoenix proposes to operate a similar arrangement and adopt a PMC for the development of the GTW HP Pipeline System. The PMC will be responsible for, among other things, the Environmental Impact Assessment, Planning Approval, Front End Engineering Design and Project Management.

A specialist pipeline construction contractor, the Construction Contractor, will also be appointed to carry out the actual construction.

Phoenix will also appoint a CDM Coordinator in accordance with the requirements of the CDM Regulations. Among the duties of the CDM Coordinator is the formal notification of the commencement and completion of the project to HSENI.

Detail on the proposed tendering arrangements is provided in sections 3.6, 3.7 and 6.

The internal and external resources required

As per section 2.2, the external resources that will be required during mobilisation are:

Reference	Internal / External	Resource
001	Internal (*Dedicated Resource*)	Engineering Staff • 1 FTE x GTW Operations Manager • 0.5 FTE x GTW Operations Officer
002	External	Project Management Contractor
003	External	Construction, Design and Management Coordinator
004	External	Construction Contractor
005	Internal (*Consolidated Resource*)	1 FTE x Senior Manager (see section 3.2)

001 Engineering Staff

On award of the licence, Phoenix will immediately begin the recruitment of a GTW Operations Manager and a GTW Operations Officer. The GTW Operations Manager will be responsible for delivery of the GTW project and for the management of the GTW HP Pipeline System on completion. This will include review and sign-off of deliverables from the PMC and the Construction Contractor. The GTW Operations Manager will be assisted by the GTW Operations Officer and supported by the Senior Manager required to manage the consolidated activities within Phoenix for the existing and the GTW Licensed Areas (see section 3.2).

002 Project Management Contractor

Upon award of the licence, Phoenix will begin the procurement process to appoint a PMC. As noted above, the PMC will be responsible for, among other things, the Environmental Impact Assessment, Planning Approval, Front End Engineering Design and Project Management. Further detail is provided in section 3.6.

The PMC will provide the personnel required to act as Phoenix's engineers on site during construction. As detailed in section 3.7, two teams will be needed headed by an overall Project Manager. Each of these teams will comprise:

- Construction Manager x 1 FTE;
- Field Engineer x 2 FTEs;
- Agricultural Liaison Officer x 1 FTE;
- Safety Advisor x 1 FTE;
- Senior Pipeline Inspector x 1 FTE; and
- Inspector x 2 FTEs.

003 Construction, Design and Management coordinator

Phoenix will appoint a CDM Coordinator in accordance with the requirements of the CDM Regulations. Among the duties of the CDM Coordinator is the formal notification of the commencement and completion of the project to the HSENI.

004 Construction Contractor

A specialist pipeline construction contractor, the Construction Contractor, will be appointed to carry out the actual construction.

How these resources will be secured and managed

Internal Dedicated resources

Phoenix has established recruitment and development processes for engineering staff. These will be employed to recruit, either internally or externally, suitable candidates for these roles. The management of the dedicated resources will be the responsibility of the individual Senior Managers in line with current processes and procedures in place within Phoenix.

PMC/CDM Coordinator/Construction Contractor

Phoenix has in place internal processes for the procurement of external contractors, subject to EU Legislation. The PMC and construction contracts will therefore be advertised in the Official Journal of the European Union. Detail on the proposed tendering arrangements is provided in sections 3.6, 3.7 and 6. The responsibility for the management of the external contractors will be assigned to the GTW Operations Manager.

Timetable for the overall delivery of the high pressure pipeline

Phoenix is aware of the desire to make gas available to the GTW Licensed Area as soon as practicable. Phoenix in conjunction with its advisors, Penspen and RPS, has developed a realistic and prudent programme for the delivery of the GTW HP Pipeline System.

This programme is based on the Fingleton McAdam ("**FMA**") designs and does not take into account areas where LP network could be substituted for HP network. These options are presented in section 3.6.

A complex programme such as this comprises many key activities, including:

- Appointment of the PMC (see section 3.7);
- Pipeline Route Selection (see section 3.6);
- Land Issues (see section 3.6);
- Environmental Impact Assessment ("**EIA**") (see section 3.6);
- Planning Application (see section 3.6);
- Detailed Engineering Design – Front End Engineering Design ("**FEED**") (see section 5.1);
- Development of Major Accident Prevention Document ("**MAPD**") (see section 5.8);
- Development and submission to HSENI of Transmission Safety Case (see section 5.1);
- Linepipe and Above Ground Installations ("**AGI**") procurement (see section 3.6);
- Appointment of the Construction Contractor (see section 3.7); and
- Commissioning (see section 3.7).

These activities are summarised below and the timetable for the overall delivery of the GTW HP Pipeline System provided at Table 1.

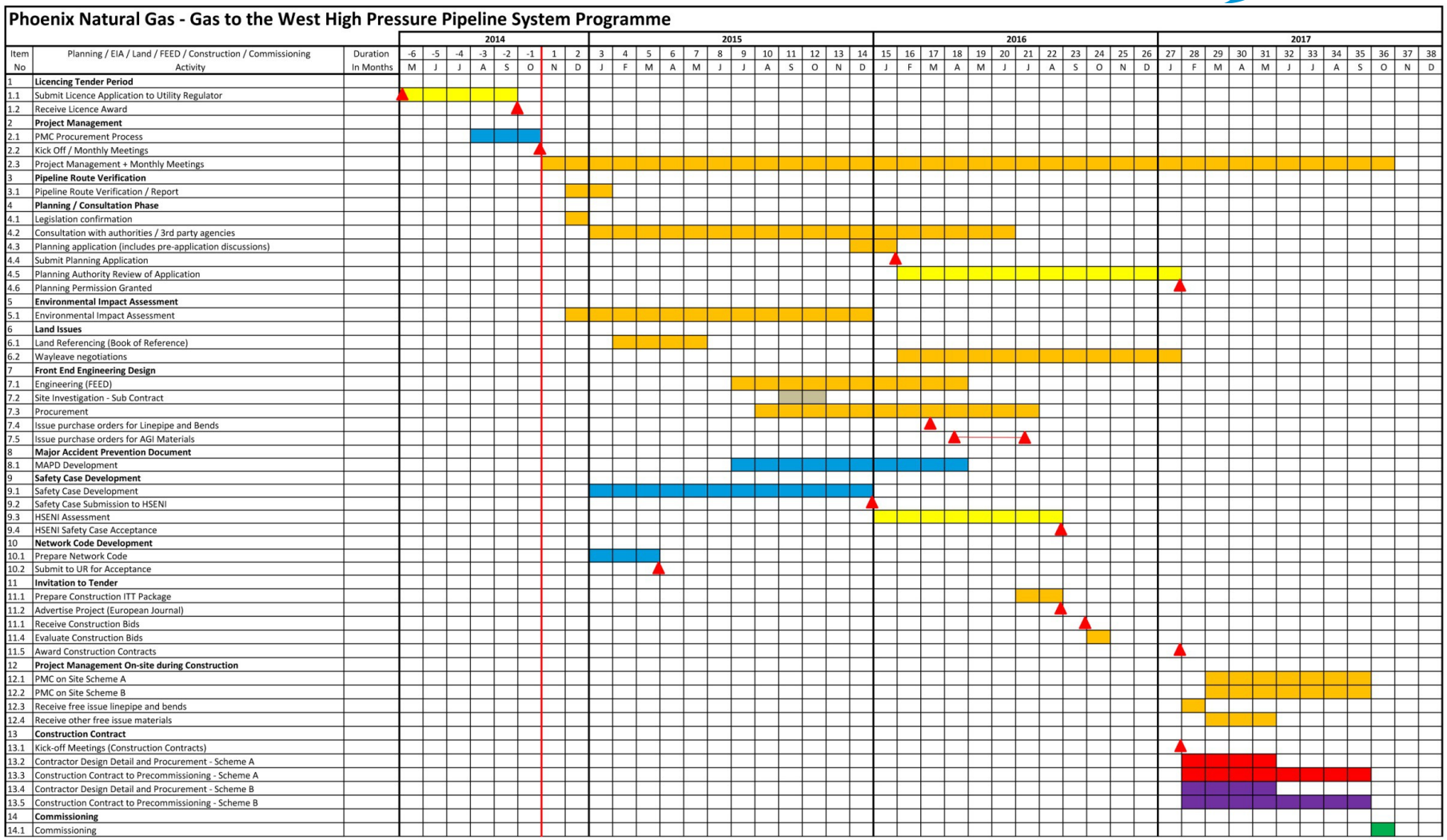


Table 1: Timetable for the overall delivery of the GTW HP Pipeline System

Appointment of Project Management Contractor

A critical element of the GTW project is to appoint a PMC as early as possible. To expedite this, Phoenix will begin the procurement process as soon as the Preferred Applicant is awarded by UR. For the purposes of the timetable, Phoenix assumes that this will made known in July 2014. It should be noted that this will be at Phoenix's risk and that any award of contract will be contingent on the successful award of the licence.

Commencing this process so early in the programme will minimise the mobilisation phase and therefore mitigate the risk of delays to the commissioning of the GTW HP Pipeline System. Phoenix has allocated three months for this task.

Pipeline Route Selection

Initially this will involve the verification of the FMA proposed route. This will be followed with detailed investigations of alternate routes in order to obtain the optimum route. Phoenix has allocated two months to this element of the project.

Land Issues

The negotiations for access to land and for wayleaves represent a major element of the project. The PMC, working with Phoenix, will carry out the negotiations. Phoenix has allocated 16 months for this element. This is spread over most of the project which allows some contingency for any difficulties that may arise.

Environmental Impact Assessment

As part of the process of applying for Planning Permission, the PMC will carry out an EIA. Phoenix has allowed 13 months for the production of a full and robust EIA.

Planning Application

The PMC will, on completion of the EIA, submit the Planning Application to the Special Studies Unit of Planning Service, Department of the Environment (NI). Phoenix has allowed 12 months for the planning application to be reviewed and for approval to be issued.

Detailed Engineering Design

The FEED will be carried out by the PMC, who will engage a sub-contractor to carry out site investigation works. The FEED will incorporate all linepipe, bends, valves, AGIs, Supervisory Control and Data Acquisition ("**SCADA**") etc. Phoenix has allocated ten months for the FEED.

Major Accident Prevention Document

The production of a MAPD is specified in the Pipeline Safety Regulations (Northern Ireland) 1997 ("**PSR**") for all Major Accident Hazard Pipelines. The development of the MAPD is intrinsically linked with the FEED, and will occur in parallel.

Safety Case Development and Submission

Phoenix will produce a GTW HP Pipeline System specific Safety Case in accordance with the PSR. Work on this will incorporate details from the MAPD and will be submitted to HSENI for review and acceptance. Phoenix has allocated 12 months for the development of the Safety Case and eight months for HSENI to review and accept.

Linepipe and AGI Procurement

The PMC will be responsible for procuring the linepipe and the AGIs. Phoenix has allocated 12 months lead-time for the linepipe, bends and AGIs. The AGIs will be ordered over a four month period to coincide with required delivery date.

Appointment of Construction Contractor

The PMC will prepare the Invitation to Tender document which, when approved, Phoenix will use to appoint a suitable Construction Contractor. Further detail on the tendering arrangements is provided at sections 3.6, 3.7, 6 and 9.2. Phoenix has allocated four months to this task.

Commissioning

The PMC will be responsible for the commissioning of the GTW HP Pipeline System. One month has been allocated for this task.

Assumptions, key dependencies and risks

The timely delivery of the GTW HP Pipeline System is contingent on a number of factors:

Award of licence

If there is undue delay in the award of the HP licence, this will have a significant knock on effect on the completion date of the GTW HP Pipeline System. Realistically construction is limited to a specific window which, inter alia, is weather dependant. A delay in awarding the licence beyond October 2014 could result in the construction season being missed, leading to a year's delay to the entire project.

Planning Approval

As mentioned above a HP pipeline, such as the one required for the GTW Licensed Area, will require Planning Approval. This is a complex process involving numerous parties and could introduce a degree of risk regarding timescales into the GTW HP Pipeline System. In section 3.6.5 Phoenix has put forward a robust proposal for managing the Planning Approvals process which will mitigate the risk of delays in being awarded Planning Approval.

Landowners

Obtaining permission to construct the pipeline and associated easements is a major part of any pipeline project. As with Planning Approval, Phoenix has robust processes in place which will mitigate the risk of delays due to landowner disputes.

It should be noted that, in the event of the company being unable to successfully reach an agreement with a given landowner, it may be necessary to apply to DETI for a necessary wayleave under the terms of the licence. It is important that the necessary provisions that allow for such a wayleave be included in the licence.

Archaeology

Areas with known archaeology will be taken into consideration at the pipeline route selection stage, though it will not be possible to predict exactly where archaeology may be found. In the event of archaeological artefacts being encountered, Phoenix will liaise closely with Environmental Heritage Services Northern Ireland in the development of mitigation measures.

Ground Conditions

As has been highlighted in the FMA report, the initial proposed pipeline route traverses a number of sections of bog land. Construction through boggy ground presents major technical, environmental and cost implications. Careful consideration will be given during the pipeline route selection process to bog lands and, where possible, mitigation measures will be put in place.

While the FMA report has not highlighted any areas of significant rock, it should be borne in mind that rock can have major technical and cost implications to the project. During the pipeline route selection process and again during the site investigation works, Phoenix will monitor the expected levels of rock and develop mitigation measures.

3.2 RESOURCES

Organisational arrangements to secure and manage internal and external resources

The recruitment process is utilised to manage any additional resource requirements where possible. Further information is provided under "Recruitment arrangements" below.

Phoenix have a framework agreement in place with various recruitment agencies (following a tendering process) in order to address occasions when resources are required in a tight timescale, for a short period or when it is not cost effective to recruit directly. Phoenix will adopt a similar tendering process and a similar framework agreement as required for the GTW business.

There are some situations when it is not cost effective to have an internal resource provision as the demand is ad hoc for a specific skill set e.g. Employment Solicitor. These resources are purchased by Phoenix from external providers in line with the company's Procurement Policy.

There are occasions when the service provision is bought in through a formal competitive tender process. Further detail is provided at chapter 6.

Phoenix intends to manage the construction contract across the GTW Licensed Area in accordance with the established processes already in use in the existing Licensed Area. Phoenix is subject to the OJEU procurement thresholds and the construction contract for the GTW Licensed Area will be awarded by Phoenix following such a competitive tendering process completed during mobilisation. Phoenix's proposals for initiating the competitive tender process and awarding the construction contract for the GTW Licensed Area are fully detailed in section 3.6.

Manpower numbers

The equivalent of 2.5 annualised internal FTEs (i.e. over the three year mobilisation period 2.5 FTEs will have dedicated one full year of their time to the GTW transmission business) will be required to manage mobilisation.

It is envisaged that 1.5 FTEs normally allocated from operating to capital expenditure will ultimately be covered by the capital expenditure ("**capex**") cost lines as they are predominately there to support the construction of the GTW HP Pipeline System. For the purpose of this application these costs have been included in the mobilisation cost line.

One annualised FTE (one Senior Manager) will be required to undertake regulatory and operational activities during mobilisation. These activities include but are not limited to the administrative overhead to deliver:

- conveyance licence agreement;
- determining the first price control review;
- contractual arrangements with other parties including TSOs/DNOs;
- any standalone Network Code or single Transmission Network Code development (see section 5.4); and
- establishment of the necessary IT systems for the ongoing operation of the network.

As detailed in section 2.2, efficiencies can be achieved by consolidating some of the functions within Phoenix for the existing and the GTW Licensed Areas and will ensure that the GTW transmission business benefits from the knowledge and experience of existing FTEs resulting in only a marginal increase of one FTE to undertake regulatory and operational activities during mobilisation.

Recruitment arrangements

The HR department is responsible for the recruitment arrangements within the organisation. HR work alongside managers to ensure their resource requirements are met in a timely manner and in line with equal opportunity legislation and any other relevant legislation. The HR department's role will be expanded to include the GTW transmission business.

Vacancies (i.e. recruitment of resources to manage mobilisation and recruitment of any additional resources to manage operations across the GTW transmission business thereafter) will be recruited using a combination of internal advertising, the Phoenix website and external advertising, including within the GTW Licensed Area.

An overview of the recruitment process is as follows:

1. *Vacancy Identified*

   A Staff Requisition form is completed by the recruiting Manager and signed by their Director.

2. *Vacancy Authorised*

The Staff Requisition is authorised by the Group Chief Executive/Group Finance Director to ensure manpower budgets are not exceeded.

3. *Attraction method agreed*

HR discusses the vacancy requirement with the recruiting Manager and agrees the shortlisting criteria and where to place the advert. All vacancies are advertised internally in conjunction with any external recruitment.

4. *Advert placed*

HR agrees the advert wording and closing date with the recruiting Manager. HR places the advert in the appropriate publication/ website/ Job board. Vacancies are also advertised internally and on the Phoenix website.

5. *Applications received*

Candidates return completed application forms to HR before the closing date. HR removes the Equal Opportunities Monitoring Form and Criminal Declaration form and log candidate details.

6. *Shortlisting*

HR provides the recruiting Manager with copies of the application forms and the shortlisting criteria. HR and the recruiting Manager agree the shortlist for interview. HR writes to inform all unsuccessful candidates.

7. *Interviews*

Prior to the interview the recruiting Manager and HR agree any test (if appropriate) and interview questions and the scoring system to be used. HR invites candidates for testing/ interview. Competency based interviews are conducted by the recruiting Manager and HR.

8. *Recruitment decision*

Following testing/interview the recruiting Manager and HR score each candidate's performance. Using this information the recruiting Manager in conjunction with HR will select candidates to be offered the role/ for second interview (if appropriate).

9. *Job Offer*

HR will agree the salary for the role with the Group Finance Director. HR will contact the successful applicant and offer the role. All job offers are conditional upon the receipt of:

- satisfactory employment references (five years);
- pre-employment medical report;
- certificates confirming academic qualifications;
- photographic identification;
- address verification; and
- proof of eligibility to work in the United Kingdom.

10. *Referencing*

HR conducts all pre-employment reference checks and agrees start dates. HR notifies unsuccessful applicants. Feedback is provided on request.

3.3 ACTIVITIES

Provide details of the proposed activities

Phoenix provides full detail of each mobilisation activity and detail of how the mobilisation cost forecasts entered in the workbook submission are built up in this section 3.3.

As detailed below, the mobilisation cost forecasts for each of these cost lines are largely derived from the GD14 determination. As detailed in the introduction to section 8, this is an appropriate basis for forecasting the opex requirements within the GTW transmission business; in summary the GD14 determination captures any efficiency for customers already realised by Phoenix along with potential efficiencies forecast by Phoenix within each individual cost line. Therefore the GTW transmission business would immediately benefit from the innovation, improvements and efficiency gains already embedded within Phoenix's operation.

The build up of the mobilisation activities and cost forecasts is:

Manpower

Section 3.2 sets out the internal resources to manage the mobilisation process. The cost of this activity is £207,941.

The manpower cost line comprises three cost elements:

1. Gross Salaries;
2. National Insurance Contributions; and
3. Fleet costs.

Gross Salaries

All staff will be employed on a personal contract basis with salary levels assessed within a band based on the job value. The position within the band will be driven by the specific experience and qualifications of the jobholder, the supply/demand of suitable candidates and also the effectiveness in undertaking the role.

Gross salaries comprise the following elements:

- *Base Salary*

  Base Salary has been assessed taking the average base pay for each job in each band.

- *Bonus or Commission*

  Salary is structured (fixed and variable pay elements) to take account of nature of the role being undertaken and the prevalence for similar schemes for roles of similar nature in the market elsewhere. In general the business will use a basic salary and performance bonus for staff.

- *Standby and Call Out*

  As a result of the requirement to provide a 24 hour seven days a week emergency response (see section 5.8), there is a need to operate various levels of on call managers and Engineers. Payment for this service is made either on a flat fixed amount per week and or variable amounts dependent upon being physically called out.

- *Company Cars*

  Company vehicles will be provided to selected employees either as a result of their position (job status e.g. Senior Managers) or where such provision is required for business purposes (job requirement).

  In the case of job status cars, an alternative cash equivalent is payable in lieu of the company car for employees qualifying for such a benefit

  Job requirement vehicles include, where applicable, both branded and unbranded vans or cars as deemed suitable for that position. No cash equivalent is available for job requirement car users however if an employee decides to use their own vehicle for business purposes, a private car fuel rate is payable consistent with inland revenue levels which covers overhead cost of the vehicle in addition to the fuel used.

- *Pensions*

  The company will operate a Group Personal Pension Plan for its employees with contribution rates on a matching basis at rate of [redacted] base pay.

  In addition the Group Personal Pension Plan scheme will be salary sacrifice based enabling employees to benefit from company's savings in National Insurance Contribution ("**NIC**").

- *Life Assurance*

  Life Assurance benefits will be provided to all employees

Phoenix has determined gross salaries for:

- dedicated FTEs using the average unit costs derived by UR in the GD14 determination for each band; and

- consolidated FTEs using the total manpower costs determined by UR in the GD14 determination to derive an average unit cost per FTE.

National Insurance Contributions

Phoenix has built-up from first principles the calculation of NIC and reflects the current charging level. Car NIC costs are 13.8 per cent. of benefit in kind costs, assumed to be £3,664 per mobile employee.

Fleet Costs

An average fleet rate per vehicle has been determined based on the GD14 determination. There are several elements considered in the build up of fleet costs (lease charge, fuel costs, mileage). Whilst the unit rate of lease charges and fuel costs will remain consistent with that assumed in the GD14 determination, it has been anticipated that unit mileage rates will increase due to the geography of the GTW Licensed Area.

Professional and Legal Fees

Phoenix's mobilisation cost forecast of £200,000 covers the costs relating to professional and legal services required for establishing GTW transmission business operations e.g.

- consultancy costs (payroll, engineering, health and safety, security, regulation and general) e.g. completing the first price control review;
- legal fees (corporate, commercial, HR, regulatory, competition); and
- audit and accountancy fees.

Specific examples include obtaining:

- legal advice on establishing the Conveyance Licence Agreement, the TSO DNO interface agreements, any standalone Network Code development (if a single TSO is not delivered prior to gas on date) and consultancy advice on developing all necessary supporting systems (see section 5.4);
- consultancy advice on completing the first price control review (see section 4.2); and
- legal advice on initiating the competitive tender process and awarding the construction contract (see section 3.6).
- consultancy advice on recruiting additional internal resources to meet the manpower requirements for the GTW transmission business (see sections 2.3 and 3.2); and
- consultancy advice on extending information systems through the addition of additional data sets to enable processing for the GTW transmission business (see section 4.5).

Public Relations

Phoenix's mobilisation cost forecast of £50,000 covers the CSR, stakeholder engagement, lobbying, public information and publicity activities detailed in section 7.2.

Car Insurance

Phoenix's mobilisation cost forecast is based on the GD14 determination of £750 (£2012) per car and equates to £1,963 for the submission.

Office Costs

UR's GD14 determination for Phoenix's office costs cost line is an appropriate basis for forecasting costs associated with apportioning the costs of Phoenix HQ (see section 2.4) to the GTW transmission business.

Based on Phoenix's previous experience the total number of FTEs gives a reasonable approximation of the main driver of the office costs cost line.

Phoenix's mobilisation cost forecast of £11,000 covers the costs relating to the provision and maintenance of Phoenix HQ in respect of the 2.5 FTEs (see section 3.2) required in the GTW transmission business.

The costs for the provision and maintenance of Phoenix HQ include:

- costs for rental of Phoenix HQ;
- building repairs and maintenance;
- minor machinery and equipment;
- office facilities at Phoenix HQ (including security, cleaning, waste disposal, canteen);
- photocopiers; and
- service charge.

Telephone, Postage and Stationery

Phoenix's mobilisation cost forecast of £1,616 relates to provision and usage of communications infrastructure (excluding IT) and stationery. The costs classified by Phoenix within the telephone, postage and stationery cost line are detailed in section 8.2. Based on Phoenix's previous experience the total number of FTEs gives a reasonable approximation of the main driver of the telephone, postage and stationery cost line.

The total number of mobile phones gives a reasonable approximation of the main driver of the mobile phone cost line. Phoenix has included a mobilisation cost forecast of around £747 for the provision of mobile phones determined using an average cost per mobile phone based on the GD14 determination.

Systems/IT

Phoenix's mobilisation cost forecast of £145,000 covers the systems required to establish operations detailed in section 3.5.

3.4 COSTS

Details of each mobilisation activity and detail of how the mobilisation cost forecasts entered in the workbook submission are built up are provided in section 3.3. In summary Phoenix's mobilisation cost of £617,523 in the workbook submission is built up as follows:

Activity / cost line	Costs
Manpower	£207,941
Professional and Legal Fees	£200,000
Public Relations	£50,000
Car Insurance	£1,963
Office Costs	£11,000
Telephone, Postage and Stationery	£1,616
Systems/IT	£145,000
Total	**£617,520**

3.5 SYSTEMS

Arrangements to put in place required work processes

Whilst successfully constructing the network in the existing Licensed Area over the last c.17 years, Phoenix has created and developed a comprehensive suite of proven works management processes. The Directors strive for increased quality, safety and productivity by continuously reviewing and improving these processes. The last c.17 years of process development and improvement will therefore be extremely beneficial for the GTW HP Pipeline System.

From 1996 to 2008 Phoenix successfully managed the operation of the transmission system (Phoenix Transmission System – **"PTS"**) in its ownership, namely the Belfast Transmission Pipeline, the Larne Lough Crossing and the Belfast Lough Crossing, along with the associated AGIs.

The management of the operation of the PTS involved the adoption of industry best practice, the development of appropriate work processes and procedures and the continual review and modifications of these processes. Following the sale of the PTS in 2008, Phoenix retained much of the experience in the management and operation of a transmission system in the form of its Senior Managers.

Each Senior Manager is responsible for his/her departmental processes within Phoenix and each of their remits, where appropriate, will be expanded to include the GTW HP Pipeline System. Therefore on award of the licence a GTW Operations Manager will be recruited with, among other aspects, the remit of co-ordinating with the existing Senior Managers to develop, where necessary, new process and procedures.

Existing relationships with external providers, such as DNV GL, will be expanded to cover the GTW HP Pipeline System. DNV GL act as Phoenix's Competent Person (the "**Competent Person**"), responsible for, among other things, certification of Phoenix's Written Schemes of Examination in compliance with the Pressure Systems Safety Regulations (Northern Ireland) 2004 ("**PSSR**"). Further detail is provided in section 6.3. The previous experience in complying with PSSR for transmission, will inform the GTW Operations Manager in developing new Written Schemes of Examination.

This coordinated approach, in tandem with the existing culture and experience developed in the last c.17 years, will ensure consistency and efficiency in approach to work processes and procedures while maintaining compliance with relevant legislation and following industry best practice.

Arrangements to put in place required asset management processes

The construction of the network in the existing Licensed Area has meant that asset management processes have already been developed - they are an essential part of owning and operating a successful distribution network.

Phoenix's experience in the operation and maintenance of the PTS has ensured a thorough understanding of the processes and assets involved in a transmission system. To supplement this experience, Phoenix will work closely with our external industry partners e.g. the Competent Person, Mutual Consultants Ltd. and GVC Asset Integrity Ltd. These companies have considerable experience in the development of asset management systems, specifically in the natural gas transmission arena. The have worked with Phoenix on asset management for the distribution system and work with other DNOs and TSOs in Ireland and Great Britain.

The combination of the Phoenix's existing experience in developing of asset management processes for the Distribution System and the experience that our industry partners bring will ensure the appropriate extension of the current Asset Management arrangements to cover those of the GTW HP Pipeline System.

This means that the key systems and processes required to successfully locate, monitor and maintain Phoenix's existing assets will be deployed to carry out, where appropriate, the same function for the GTW HP Pipeline System. Where changes to the existing systems are required, Phoenix has the in-house capability, with assistance from our industry partners as required, to develop and implement any necessary modifications.

Asset Management has further been developed within Phoenix over the last four years following the appointment of an Asset Manager in 2010 with a team of Engineers responsible for all areas of Asset Management. This team began by engaging a consultant to carry out a Gap Analysis based on Phoenix's compliance with the principles outlined in the Institution of Asset Management's PAS 55 methodology. A short and long term Asset Management Strategy was then developed to improve compliance within the business. This strategy is fully detailed in section 5.7.

As part of this project a Reliability Centred Maintenance ("**RCM**") plan and processes were developed. Two Engineers have attained RCM facilitator qualifications and now head up a team who have analysed each piece of apparatus in the Phoenix asset to enable condition based maintenance schedules to be developed, improving equipment life span/reliability and decreasing breakdown and maintenance costs.

With the release of the ISO 55000 asset management standard in January 2014, Phoenix is currently working towards achieving accreditation by late 2015. Consequently, the work completed and ongoing within the Asset Management team has led to continual development and improvement, resulting in a suite of robust Asset Management processes. These existing processes will therefore provide an excellent Asset Management template for the GTW HP Pipeline System. The Asset Manager will be

responsible, working in conjunction with the GTW Operations Manager, for the implementation of these processes for the GTW HP Pipeline System.

Arrangements to procure required information systems

Phoenix has identified the following IT systems as being required, during mobilisation and thereafter of the development of the GTW HP Pipeline System.

- SCADA;
- Gas Trading Management Booking System ("**GTMBS**");
- Site Security System;
- Cathodic Protection Monitoring System;
- Geographic Information System ("**GIS**");
- Work Issue System; and
- Asset Management System.

In preparing this application, Phoenix has assumed that the current proposals to deliver the Northern Ireland EU compliance project and the specific requirement to introduce single transmission system operation in Northern Ireland is completed by the proposed commissioning date of the GTW HP network.

Consequently, Phoenix assumes that an appropriate IT system will be delivered by the single TSO. As part of the GTW HP Pipeline System, Phoenix will, on award of the licence, engage with existing TSOs to ensure that the GTW HP Pipeline System has been considered as part of the EU compliance project.

Note, should the Northern Ireland EU compliance project not be completed by the commencement of the GTW project, Phoenix has the capability to carry out each of the required functions in-house, while actively participating with the existing TSOs to deliver single system operation. Phoenix, having owned and operated a transmission system and control room, is in the position of being able to upgrade the current control room to accommodate the IT systems to facilitate the GTW HP Pipeline System, should the need arise.

As described in section 3.1, Phoenix will contract a PMC to carry out the detailed FEED. Within the remit of this contract will be the specification, procurement, installation and commissioning of appropriate SCADA facilities at each of the AGIs. Phoenix will ensure liaison between the PMC and the single TSO, safeguarding compatibility between the GTW systems and the existing equipment.

Phoenix will carry out the design and procurement of the GTMBS, Site Security Systems and the Cathodic Protection Monitoring System in the same fashion, with the PMC being tasked with detailed design, procurement, installation and commissioning. Again, liaison between Phoenix, the PMC, the single TSO and the existing TSOs will be in place to ensure compatibility, where appropriate, of the systems.

GIS

Phoenix currently uses the ArcGIS suite of GIS software supplied by Esri as the corporate GIS. ArcGIS is widely used by utilities and since migrating to it in 2001, Phoenix has developed considerable expertise in its use, both for capturing records and for the implementation of innovative GIS solutions.

Transmission Model

For the purposes of the GTW HP Pipeline System, Phoenix will utilise the existing GIS platform in order to capture as-built records. Phoenix has retained the design and structure of the PTS geometric model and proposes to adapt this for the GTW system. These modifications are required to reflect changes in industry best practice and improvements / enhancements in GIS functionality. This is especially relevant when considering leveraging the GIS for Asset Management purposes.

The majority of this work will be carried out using the consolidated resources. Five days external consultancy has been identified to install the modified model onto the existing GIS platform and for testing. This will be carried out by Phoenix's existing service provider.

GIS Data

It is necessary to obtain data for the GIS in order to be able to design, construct and operate the GTW HP Pipeline System. The GIS datasets required are:

- Large-scale Vector Landline: Typically 1:2,500 scale tiles;
- Small Scale Raster Maps: Typically 1:50,000 and 1:250,000;
- Pointer Property Dataset: Details of all properties in the relevant council districts; and
- Digital Terrain Mapping: A dataset showing elevations throughout the proposed GTW HP Pipeline System.

As part of the evaluation of the FMA Feasibility Study for both the High and the Low Pressure Systems, Phoenix has purchased the Pointer Property Dataset for one year and, as part of normal operations, has the Small Scale Raster Maps installed on the basis of an annual licence fee.

It is a straightforward process for Phoenix to incorporate the GTW and the expanded datasets into the existing system and will incur no additional cost other than the annual licence fee.

GIS Deployment

The GTW Operations Manager and the GTW Operations Officer will be equipped with laptops and ArcView standalone licences which will provide the mobile access that they will require.

GIS Records will be captured by the Construction Contractor via GPS points along the route. As part of the quality assurance programme, Phoenix will carry out regular audits on the records being captured to ensure the quality of the final information.

Work Issue System

During the mobilisation phase work issue processes will be developed in combination with the contractual arrangements with the Construction Contractor. In the course of the last c.17 years of operation, Phoenix has developed extensive experience in managing third party contractors.

A key part of this management is having appropriate work issue processes in place. Phoenix will use the existing work issue processes in place to manage its current distribution contract, in conjunction with the processes developed with the Construction Contractor to ensure that all work issue is carried out in the most efficient and accurate manner possible.

A central element of this will be the management of change. All design changes will undergo a series of management / technical checks to ensure fitness for purpose and cost effectiveness. These checks will be in line with the existing IGEM recommendations IGE/GL/5 - Procedures for managing new works, modifications and repairs, currently operated by Phoenix. Phoenix will therefore adapt the current Work Issue System, allowing it to be utilised to issue work for the GTW HP Pipeline System. There are no additional costs associated with this as all development will use in-house resources.

Asset Management System

For district Pressure Reduction Stations ("**PRS**") and large (>40 scmh) I&C regulators, Phoenix use the Governor Maintenance Database. This is a bespoke database than records details of all items of plant and the faults and maintenance associated with them. RCM and Asset Management are also facilitated through this package.

This package will be adapted to cater for the requirements of the GTW HP Pipeline System. Phoenix will appoint a MERC, charged with carrying direct maintenance on the GTW HP Pipeline System.

Phoenix will work closely with the appointed MERC to ensure that all work is carried out to the correct standard. Work will be issued through the Governor Maintenance Database, ensuring consistency with Phoenix's existing Asset Management System and compliance with PSSR. Use of the Governor Maintenance Database will facilitate the implementation of RCM, where appropriate, on the GTW HP Pipeline System.

As with the Work Issue System, development of the Governor Maintenance Database will be carried out using the consolidated resources. Further detail on the Governor Maintenance Database is provided in section 5.7.

3.6 HIGH PRESSURE SYSTEM CONSTRUCTION

This section 3.6 covers Phoenix's proposals for the GTW HP Pipeline System construction. As mentioned in section 3.1, Phoenix will appoint a PMC who will be responsible for:

- Project Management;
- Pipeline Route Verification;
- Planning / Consultation;
- Environmental Impact Assessment;
- Easements / Consents / Land Acquisition;
- Front End Engineering Design;
- Development of Invitation To Tender;
- Project Management during construction; and
- Commissioning.

The Pipeline Route Verification, Planning / Consultation, Environmental Impact Assessment, Easements / Consents / Land Acquisition and Front End Engineering Design are all intrinsically linked.

The first step for Phoenix and the PMC will be to examine the pipeline routes as proposed by FMA in their feasibility report. This desktop analysis will be carried out using available resources such as Google Earth / Google Maps / available GIS Mapping. This will be followed up with site visits to verify the routes and to consider engineering / construction issues e.g. crossings. Further detail is provided in section 9.3.

Proposals for engagement with external stakeholders

As part of the design and construction of any package of work, Phoenix has to engage with a range of external stakeholders. These range from statutory bodies to local interest groups and potential customers.

Some of the external stakeholders that Phoenix will engage with include:

- UR;
- HSENI;
- Roads Service;
- DOE Planning;
- Northern Ireland Environment Agency;
- DETI;
- Landowners;
- Local councils;
- Consumer Council for Northern Ireland ("**CCNI**"); and
- Other Utilities.

It should be noted that Phoenix does, in the course of constructing network, engage with some or all of these stakeholders on a regular basis. This approach has proven effective in the existing Licensed Area where Phoenix has developed a network and a market for natural gas over the last c.17 years from scratch.

For the purpose of this application a number of key stakeholders will be discussed below. Phoenix will continue to engage with these stakeholders in relation to development of the GTW transmission business.

Roads Service

As part of any project, Phoenix consults with DRD Roads Service. Phoenix maintains positive and constructive relationships with the various Roads Service section offices. As part of this project, Phoenix will initiate early consultation with the relevant section offices in Western Division of Roads Service i.e.

- Cookstown;
- Dungannon;
- Fermanagh;
- Omagh;
- Magherafelt; and
- Strabane.

While the majority of the GTW project will be carried out in private land, there will, of course, be many road crossings to be completed. FMA, in their report, have identified one motorway, seven Class A, 12 Class B and 127 Class C road crossings. Close liaison with Roads Service will be essential once the FEED has been completed to ensure the smooth construction of the GTW HP Pipeline System.

Phoenix and the PMC will, in conjunction with Roads Service, identify the traffic management and notification requirements for each road crossing, ensuring that all statutory requirements are met and that disruption to the general public is kept to a minimum.

At a Northern Ireland level, Phoenix is a leading participant in the Northern Ireland Roads and Utilities Committee ("**NIRAUC**") which meets quarterly to promote regional liaison and best practice, leading to improved cooperation between the parties. Given the risk of third party interference with the completed pipeline, it will be an important element of Phoenix's Plant Protection Strategy to continue to participate in NIRAUC, providing guidance and education to Roads Service and other utilities of the hazards of working in the vicinity of HP gas pipelines.

In order to assist with cooperation at local level, Phoenix attends Divisional Roads and Utilities Committees ("**DRAUC**"). As part of this project Phoenix will work with the relevant DRAUC groups from the outset to ensure good communication and cooperation with Roads Service and the other utilities.

Local councils

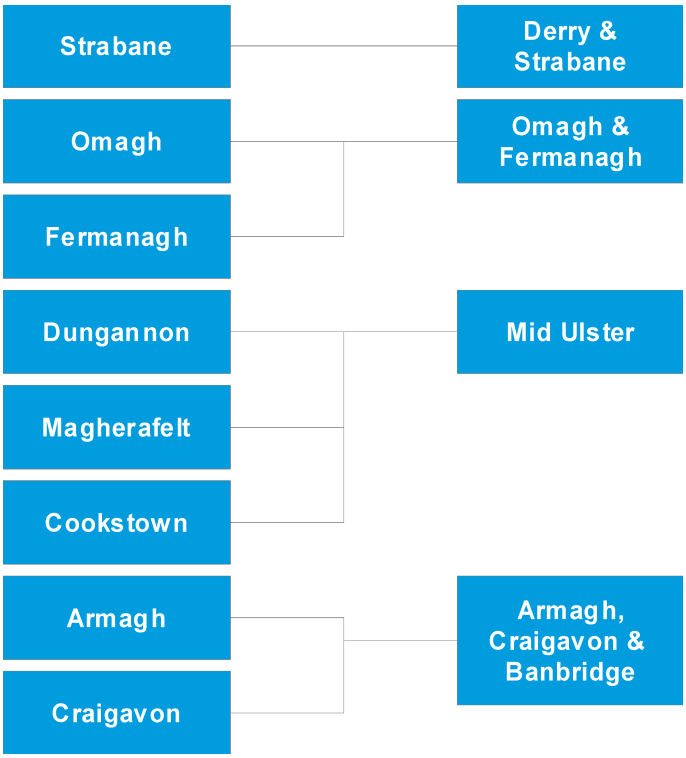
Local knowledge and contacts aid Phoenix in the development of the gas market as well as ensuring that the local community are kept informed of the work that is being carried out, in turn helping to minimise the disruption to the community that a major infrastructure project can bring.

In addition, the PSR require local authorities to prepare emergency plans for pipelines which have the potential to cause a major accident.

Early consultation and liaison with the local councils will be essential in assisting them discharging their obligations under PSR.

As part of obtaining Planning Consent for the GTW HP Pipeline System, Phoenix will liaise with local councils and divisional planning offices (see section 3.6.).

The mobilisation period of the GTW HP Pipeline System coincides with the Local Government Reform process in Northern Ireland that will see the number of councils reduced from 26 to 11. This is due to take place in April 2015. Phoenix is cognisant that there may be an impact due to this reform and will work closely with the existing councils prior to April 2015 and with the new councils post April 2015 to ensure that there are no adverse implications for the project.



Other Utilities

Phoenix, through NIRAUC, DRAUC and other forums maintains a positive and constructive relationship with the other utilities. As part of the construction process for the existing Licensed Area this involves the sharing of construction programmes and, where possible, the coordinating of works.

A key element of the relationships that Phoenix has built is in the area of data sharing. Currently Phoenix shares asset information, in the form of GIS data, with Northern Ireland Electricity ("**NIE**") and Northern Ireland Water ("**NIW**"). This allows the three companies to produce job packs, including utility information, in-house and reduces, to an extent, the cost associated with dealing with third parties.

As third party damage represents the greatest risk to the GTW HP Pipeline System, it is incumbent upon Phoenix to work closely with other utilities and their contractors. It will be important to ensure that general awareness levels of the GTW HP Pipeline System and safe digging procedures are raised. This is particularly true when it is considered that the GTW HP Pipeline System will be constructed in an area that, until now, has no history of gas pipelines.

In summary, Phoenix has, through the development of the natural gas network in the existing Licensed Area, amassed significant relevant experience in engagement with stakeholders, ensuring that business plan objectives are attained while managing expectations.

Proposals to finalise the pipeline and AGI designs

As stated in section 3.1, Phoenix will engage a PMC, such as Penspen, who will be responsible for, inter alia, the detailed design of the GTW HP Pipeline System and associated AGIs.

This detailed design is referred to as the FEED. The FEED is expected to take nine months to complete. In order to minimise possible delays in the delivery of the overall programme, Phoenix will accept the risk of starting and completing the FEED in advance of receiving final planning approval. This is necessary as to delay commencement of the FEED until after receipt of Planning Approval would introduce at least nine months delay into the project and possibly longer as a full construction season may be missed.

At the start of the FEED stage, Phoenix will appoint a CDM Coordinator in accordance with the conditions of the CDM Regulations. This person can be a member of the FEED team, preferably with a recognised qualification such as the National Examination Board in Occupational Safety and Health ("**NEBOSH**"). One of the CDM Coordinator's first duties will be to formally notify HSENI that work is commencing on the design of a major construction project. In time, when the project is closer to construction, the CDM Coordinator will again contact HSENI to notify them that construction is due to start.

Engineering design will be in accordance with a recognised Code of Practice. In this case, it will be IGEM/TD/1: Steel Pipelines for High Pressure Gas Transmission – (Pipelines over 16 bar).

The AGIs will be designed in accordance with IGEM/TD/13 – Pressure Regulating Installations.

Once the pipeline routes have been agreed in general and subject to landowner agreements, it will be necessary for the PMC to appoint a Site Investigation Sub-Contractor to carry out a series of boreholes and trial pits, also subject to landowner permission to enter private land, to determine ground conditions.

The results of the site investigations will allow the PMC to establish the methods of construction, particularly at road / rail / watercourse crossings. As part of the site investigations, a resistivity survey on the ground will be conducted to determine the soil resistance conditions. This will inform the Cathodic Protection System design.

Meanwhile the PMC will use their Mechanical, Civil, Electrical and Instrumentation facilities to prepare the necessary specifications, procedures, calculations, Computer Aided Design ("**CADD**") drawings and other documentation in accordance with a General Register of Deliverables and, from this, a programme of works.

Once the FEED is complete and Phoenix is ready to move forward into the construction phase, the PMC will prepare the Invitation to Tender package to allow Phoenix to appoint a Construction Contractor. Further detail on the tendering arrangements is provided at sections 3.6, 3.7, 6 and 9.2.

Substitution of High Pressure Pipelines – alternate designs

Phoenix has examined the proposed network configuration and designs as developed by FMA. Consideration has been given as to *whether any high pressure pipelines could be substituted for low pressure pipelines, taking into account the most appropriate size of pipeline and pattern of connections*.

Based on the load and customer data supplied by FMA and Phoenix's knowledge of the costs/constraints involved in constructing HP pipelines, Phoenix considers that there are no opportunities for substituting HP pipelines for LP pipelines.

Phoenix has, alternatively, considered the feasibility of substituting LP pipelines for HP pipelines. The analysis that follows is based purely on the information provided by FMA. Phoenix has not carried out the detailed load and route surveys required to provide robust, detailed designs and costs for the alternative designs. Following licence award, Phoenix will carry out the detailed design work that is required in order to verify the feasibility or otherwise of these designs.

In line with the published criteria from DETI, Phoenix has also examined the feasibility of extending the network to *more remote geographical areas* beyond the towns covered by this application. Phoenix understands that there is considerable desire across Northern Ireland for natural gas to be made available and indeed notes a recent request by MLA Tom Elliott that the Clogher Valley be added to the GTW project.

As part of this application, Phoenix has examined the feasibility of connecting towns in the near vicinity to the GTW project but would suggest that, upon award of licence, a work strand be developed with UR to investigate the viability of other possible extensions.

For clarity, the assumptions made in carrying out this study are:

- loads and peak network demands are as per the FMA study;
- load growth beyond the FMA report have not be considered;

- desktop route surveys have been carried out – detailed site surveys are required in order to validate the feasibility of these proposals;

- all prospective customers can be supplied from a LP pipeline i.e. there is no requirement, for process reasons, for HP; and

- the design for supplying Strabane from LP pipelines comprises three separate scenarios:

    - Supply Strabane only with the expected flows as per the FMA report;

    - Supply Strabane with additional capacity being made available to supply Lifford (which is small town across the river Foyle from Strabane. Lifford is in the Republic of Ireland and, as such is outside the remit of UR. The possibility of cross border cooperation could be considered – this project could be eligible for EU funding under Projects of Common Interest). The actual gas load requirements for Lifford have not been fully assessed as part of this study;

    - Supply Strabane, Lifford and with additional capacity being made available to supply Letterkenny (which is the largest town in Donegal. As with Lifford the possibility of cross border cooperation could be considered). As with Lifford, the actual gas load requirements for Letterkenny have not been fully assessed as part of this study.

- the design for supplying Derrylin from LP pipelines will have some additional spare capacity. Some of this capacity could be used to supply the town of Ballyconnell. As with Lifford, this is a small town in the Republic of Ireland. It lies approximately 8km from the village of Derrylin. The actual load requirements for Ballyconnell have not been fully assessed as part of this study.

- The design for supplying Cookstown from LP pipeline will pass adjacent to and may have the capacity to supply the town of Coalisland. The load requirements for Coalisland have not been fully assessed as part of this study.

Methodology

A model was created that replicated the basic configuration of the GTW HP Pipeline System as proposed by FMA. In other words, the same lengths, pipe details and routes as the FMA study were used. A replica model was then developed to operate at Distribution Pressures and using the maximum diameters that have been employed in the Phoenix network.

This model was used to discount, or otherwise, the possibility of using Distribution Pressures (LP pipelines) as an alternative to HP pipelines. The figure below shows the FMA arrangement, with the towns to be connected in red, the proposed pipeline as designed by FMA in green and the existing HP pipelines as operated by BGE(NI) in purple.

Pipeline Run No.	Description	Nominal Diameter (mm)	Approx. Length (km)	Design Flow (kSCMH)	Design Pressure (bar)
2	Derryhale AGI to Dungannon AGI	250	28	48	85
3	Dungannon AGI to Cookstown AGI	150	17	13	85
4	Dungannon AGI to Omagh AGI	250	38	23	85
5	Omagh AGI to Enniskillen AGI	200	35	12	85
6	Enniskillen AGI to Derrylin AGI	200	23	6	85
7	North-West Pipeline to Strabane AGI	150	28	7.5	85

This design requires AGIs for reducing the pressure of the gas from HP for introduction into LP pipelines. The AGIs considered as part of this study are as listed in the table below.

AGI Name	Flow (kSCMH)
Dungannon	12
Cookstown	13
Omagh	11
Enniskillen	6
Derrylin	6
Strabane	7.5

Revised Transmission Proposals

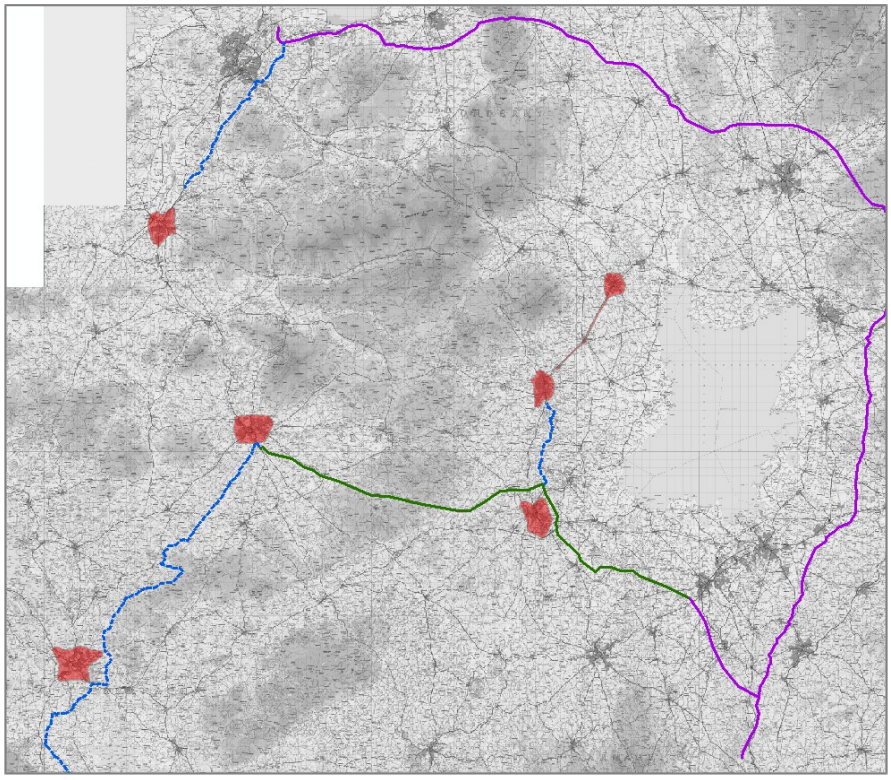
In order to transport the quantities of gas specified in the FMA report, a portion of the proposed GTW HP Pipeline System is required. Using the network analysis model mentioned above, it will be possible to construct some of the network at either 7bar or 4bar.

Phoenix, as part of its innovative design and operation of its existing network, has renowned expertise in the construction and safe operation of 7bar High Density Polyethylene and 7bar to 4bar Intermediate Pressure Reduction Stations ("**IPRSs**"). It is this expertise that enables Phoenix to offer this revised transmission proposal. To date Phoenix has constructed and is operating c.100km of 7bar pipeline and 36 IPRSs.

The revised design is as follows:

- the pipeline from Derryhale to Dungannon and the one from Dungannon to Omagh remain as per the FMA proposal;
- the pipeline from Omagh to Enniskillen is substituted by 355mm PE operating at 7bar;
- the pipeline from Enniskillen to Derrylin is substituted by 315mm PE operating at 4bar. It is assumed that the source for this will be an Intermediate Pressure Reduction Station installed as part of the distribution system to feed Enniskillen;
- the pipeline from Dungannon to Cookstown is substituted by 315mm PE operating at 7bar. It is assumed that the AGI supplying Dungannon will also supply this main; and
- as stated above, the pipeline feeding Strabane presents three possibilities – supplying Strabane only, supplying Strabane and Lifford and supplying Strabane, Lifford and Letterkenny;
    - Option A – Strabane only: is substituted by 315mm PE operating at 4bar. It is assumed that an AGI will be built to supply gas from the North West Pipeline;

- Option B – Strabane and Lifford;
- Option C – Strabane, Lifford and Letterkenny.



Pipeline Run No.	Description	Nominal Diameter (mm)	Material Steel/PE	Approx. Length (km)	Design Flow (kSCMH)	Design Pressure (bar)	End Pressure (bar)
2	Derryhale AGI to Dungannon AGI	250	Steel	28	48	85	N/A
3	Dungannon AGI to Cookstown	315	PE	12	13	7	5.0
4	Dungannon AGI to Omagh AGI	250	Steel	38	23	85	N/A
5	Omagh AGI to Enniskillen	450	PE	46	12	7	6.0
6	Enniskillen to Derrylin	315	PE	27	6	4	3.2
7 (A)	North-West Pipeline AGI to Strabane	315	PE	24	7.5	4	2.9
7 (B)	North-West Pipeline AGI to Strabane, Capacity of 800 scmh for Lifford	315	PE	24	8.3	4	2.6
7 (C)	North-West Pipeline AGI to Strabane, Capacity of 800 scmh for Lifford, 10,000 scmh for Letterkenny	450	PE	24	18.3	7	6.0

Note: Designs 7B and 7C do not include the mains that would be required to supply Lifford or Letterkenny.

The revised designs result in a reduction in the number of AGIs required, as detailed in the table below.

Name	Type	Flow (kSCMH)
Dungannon	AGI	12
Cookstown	Not required	13
Omagh	AGI	11
Enniskillen	Not required	6
Derrylin	Not required	6
Strabane	AGI	7.5

Conclusion

From this analysis, carried out by Phoenix and subject to the assumptions outlined above, there is considerable scope for substituting LP pipelines for HP pipelines. The total length of HP pipeline required would drop to approximately 66km from 169km while, based on these preliminary designs, 109km of LP pipeline would be substituted.

The construction costs of LP pipelines are considerably less than the construction of HP pipelines. Indicatively Phoenix has estimated a possible net saving of c.£15m to c.£20m (this is the net effect of substituting the HP pipelines identified with the LP pipelines identified) when compared to the FMA costs.

Immediately upon award of Preferred Bidder Status, we will begin the detailed load surveys/design works/stakeholder engagement required in order to finalise the feasibility or otherwise of these designs and the possibility of supplying the town of Coalisland. Similarly Phoenix will engage with UR to investigate the feasibility of making capacity available for other towns in Northern Ireland and for cross-border supplies to Lifford/Letterkenny/Ballyconnell.

Proposals to initiate materials procurement processes and award contracts

Materials procurement will be the responsibility of the PMC. Following the FEED, the PMC will issue enquires to suppliers. The PMC will provide a list of pre-qualified vendors for all materials associated with the project. Technical requisitions and specifications for materials will be prepared and issued to suitably qualified vendors.

Materials ordered in this manner will include linepipe, hot bends, piping, barred tees, isolation joints, ball valves, actuators, pig traps and control kiosks. To ensure the delivery of linepipe and bends by the start of construction in February 2017, the PMC will submit the Purchase Orders ("**PO**") in March 2016.

Other materials, with shorter lead times, will be ordered from April to July 2016 for delivery over the period March to May 2017. The PMC Procurement Team will track the progress from manufacture right up to the delivery of materials to site.

The Project Management Team (see section 3.7) will be responsible for the receipt of the materials into the pipeline storage areas and for the issue to the Construction Contractor.

Proposals to finalise pipeline route planning

Phoenix and the PMC's first task will be to assess the pipeline routes that have been proposed by FMA, as stated in its feasibility report. This task will entail an initial desk top study using Google Earth and available mapping, followed up by site visits to verify the routes and to consider engineering and construction issues. Site visits will be carried out from public rights of only.

Routing maps, a route corridor and a verification report will be produced as part of this activity. Typically a preferred line with a 50m buffer on either side is chosen. This will form the basis of the planning application and at pinch points it is prudent to have a wider buffer to allow for any changes that may be required during construction.

Pipe storage areas need to be identified at this stage also. If they are not contiguous with the pipeline route as submitted in the planning application then the pipeline storage areas will require a separate planning application.

Finalising the pipeline routing will be an early activity at the start of the FEED stage, in conjunction with consultation with the statutory authorities and environmental agencies, taking account of the Environmental Impact Assessment, views from the statutory undertakers. There will also be close association with the land agents dealing with landowners, to finally arrive at the optimum route which will normally comprise an accommodation of the various stakeholders' reasonable views and conditions. Pipeline sizing calculations will also be carried out at this stage.

Proposals to obtain consents, easements and AGI land acquisition

Consents

There are two key elements to obtaining the necessary statutory consents for the development of the GTW HP Pipeline System - Planning / Consultations and the Environmental Impact Assessment.

Planning Consultation

The PMC will handle the planning issues and consultations. Their initial task will be to review the relevant legislation. In Northern Ireland, the planning approval process falls within the remit of the Special Studies Unit ("**SSU**") of the Planning Service, Department of the Environment (NI), which also has the remit for mineral development within the planning process. Any consultation in relation to the statutory consents for an energy infrastructure project will be directed through the SSU.

The application will be dealt with under the Planning (Northern Ireland) Order, 1991, as an Article 31 project (of regional importance), in which case the standard timescales for dealing with a normal application are set aside and the interval between application and granting of approval can be variable.

However, this determination of Article 31 status allows the local district councils and divisional planning offices, across which the pipeline routes will traverse, to be dealt with as consultees, thus preventing delay in decisions by discerning bodies and allowing the SSU to grant planning permission subject to conditions.

It is likely that the approvals process will be completed within 12 months of lodging any application and supporting documents. However, it will be important to remain fully engaged with the Planning Service and key consultees during this period to facilitate the approvals process. To allow for any delays this task has been allocated a conservative 18 months.

Environmental Impact Assessment

This task will be the responsibility of the PMC, who will consult with the Planning Service to request a formal determination under the Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 2012, regarding this scheme and the need for an EIA.

Planning Service will also be asked to conduct a formal scoping exercise to determine the issues which the statutory consultees may want to see addressed in an Environmental Statement (**"ES"**) regarding the proposed scheme. This formal scoping process will be carried out under Article 7(1b) of the Planning (EIA) Regulations (NI) 2012, whereby the competent authorities provide an opinion as to the information to be provided in the ES at the request of the developer. This will ensure that all issues that the statutory consultees are concerned with, will be dealt with adequately under the EIA process and will supplement the scoping study carried out by the consultants.

Since the programme is critical for any major infrastructure project, it will be crucial that the Project Team facilitates the approvals process by ensuring that extensive consultations are undertaken at all stages of the project to reduce environmental and planning issues prior to submission of the application so that objections are minimised and a public inquiry can be avoided. Consideration should be given to engaging with the Planning Service and relevant consultees through formal Pre-application Discussions ("**PAD**"), particularly for strategic projects.

The primary purpose of the PAD is to allow Planning Service to provide general advice and identify key issues that need to be considered as part of the application submission. An indicative programme with expected timescales for the processing of the planning application will also be provided. Key dates such as the submission of the application with the required documentation and key milestones during its processing will be agreed.

Early consultations will enable key environmental issues to be fully addressed during the study with follow up meetings to discuss mitigating measures, resolve outstanding impacts and agree monitoring programmes.

Other Environmental Legislation such as the Habitats Directive will also need to be considered particularly if the pipeline has the potential to impact, either directly or indirectly, on a Natura 2000 site (Special Area of Conservation or Special Protection Area). This will require a Habitats Regulations assessment to be undertaken.

Easements

The PMC will appoint land agents with local knowledge to prepare a Book of Reference that will list those landowners/tenants that lie along the pipeline routes. These project land agents will arrange visits with each landowner/tenant to explain the pipeline project in general terms and the consenting process.

Financial negotiations are not discussed in detail at this early stage, but it will be explained just what a "wayleave" consists of and what rights it provides the developer to gain access to the pipeline during its lifetime. Sums of money will be paid to the landowner and tenant, which are normally split 75 per cent. / 25 per cent. respectively, and calculated on a rate per meter run. These sums of money are normally paid in stages, with the last payment made upon the handing back of the land to the landowner, provided reinstatement is accomplished satisfactorily. In addition, crop loss compensation will be explained too.

Normally, some landowners may already have a local land agent acting on their behalf where land matters are concerned, whilst others may choose to engage a land agent too, to handle consent negotiations. Landowners' land agents will also be entitled to a fee for their services. However, at this early stage it is only necessary to obtain a provisional verbal agreement in order to draw up the Book of Reference which will form part of the planning application package.

Normally, most companies do not wait for planning approval before negotiating further with landowners/tenants because the process can be arduous and there is a likelihood of a small number of objectors that may require further persuasion. These negotiations can be sensitive and should be undertaken with the view to agreeing wayleaves for the pipeline by agreement and without the need to apply to the DETI for a necessary wayleave under the terms of the license agreement.

During this period, the PMC will prepare wayleave plans, normally called "**PLATS**", for every landownership and tenancy. Each one will carry a unique number that will be shown on the PLAT and on the Consent form for signature by the landowner / tenant and client. Access onto land to commence construction will not occur until all consents have been agreed and signed off. This is one activity that is difficult to place a timeframe on, but for the purpose of preparing a programme, 16 months has been allocated spread over a period of 27 months.

AGI Land Acquisition

As stated in "Proposals to finalise pipeline route planning" above, the PMC and Phoenix will develop a final pipeline route. At this point optimum location for the AGIs will be identified. These locations will be chosen based on criteria such as the possibility for future development, environmental impact, security assessment and planning considerations as well as suitability for the gas network design and cost.

Phoenix will then enter into negotiations with the landowner and their agents, if applicable, with a view for purchasing the required land. If necessary Phoenix will identify alternate sites to minimise potential delay to the overall project should negotiations prove to be unsuccessful.

Phoenix will engage the appropriate legal services to complete the acquisition of the land.

Proposals for preparation of construction, maintenance and specialist services contract tender documents

In the c.17 years that Phoenix has been in operation, considerable experience has been gained with regards to the procurement of specialist services contractors in connection with the maintenance and operation of a natural gas network. These have ranged from distribution construction contracts to HP MERC contracts as well as the appointment of several specialist services contracts.

These specialist services contracts, relevant to the HP Pipeline System, have included:

- design, construction and commissioning of the 'Hot Tap' connection to the Belfast Transmission Pipeline Middledivision
- engagement of specialist survey contractors for scheduled inspections of the Belfast Lough Crossing and Larne Lough Crossing pipelines
- the provision and installation of a Grouted Tee to a 600mm 7 bar steel main
- The transfer of SCADA and systems control in-house

The procurement process associated with the proposed contracts for the GTW HP Pipeline System will be managed by Phoenix's Contracts and Procurement Department.

Following a full strategy review taking into account the anticipated demands, management approach etc. - the scope, timescales and general requirements of the respective contracts would be determined. Part of this determination would be to determine how the required works/services would be procured and delivered i.e. the number and type of contracts to be awarded.

Tender documentation would be prepared by Phoenix in conjunction with an appointed technical expert who would most accurately specify the nature and scope of the works and services required.

Phoenix regularly awards contracts captured, due to nature and value, by the Utilities Contracts Regulations 2006 with the subsequent award taking into account the Utilities Contracts (Amendment) Regulations 2009 (together the "**Utilities Contracts Regulations**"). The tender documentation required would therefore take into account such requirements.

The tender documentation prepared would be broken down, as a minimum, into five key sections:

i. Instructions to Tenderers;

ii. Proposed Terms & Conditions (either bespoke or standard);

iii. Scope of Services/ Technical Specification (including programme – if applicable);

iv. Pricing Schedule; and

v. Form of Tender.

Each of the five sections would be cross-referenced, where appropriate, so as to ensure that the works/service required are fully described, and therefore understood, by each tendering organisation. The terms of contract engagement would be detailed so that all parties concerned would appreciate the covenants and obligations that are both sought and offered.

The planned maintenance of the proposed system would be carried out by both in-house and out-sourced resources (see "MERC" below). With regards to in-house resources, Phoenix currently utilises its own Engineering Operations personnel and PES – depending upon the nature of the maintenance required. In turn, PES subcontracts maintenance operations to a number of smaller (by way of manpower and turnover) providers. These subcontracts are drafted and awarded in line with best tendering practices and, where appropriate, advertised in the Official Journal for the European Union ("**OJEU**") and/or local press.

In some instances it may be appropriate to have the Construction Contractor provide a maintenance service as he will already have provided the necessary skill-sets to construct the network initially. If so, the planned maintenance requirements will form part of the "Scope of Services" section that is contained within the Invitation to Tender document.

The tender documentation for all the specialist services shall be in a similar format to the above, albeit such documentation shall be adapted to suit the nature of the services being procured, the pricing structure under which such services would be valued upon delivery and the specific terms and conditions that would be utilised to secure the services required. Tender documentation would therefore be drafted to reflect the nature of the contract arrangement required in each instance.

The four key contracts associated with the GTW HP Pipeline System are:

Project Management Contractor

As stated in section 3.1, Phoenix will appoint a PMC, subject to competitive tender, as soon as practicably possible following the announcement of preferred applicant status. This will minimise delays in the commencement of the overall project following the award of licence in October 2014. Phoenix has the necessary in-house expertise to procure an appropriately qualified PMC, including the drafting and execution of the necessary tender / contract documentation.

Materials Procurement

Materials represent a significant proportion of the overall capital spend on this project and include; Linepipe, Hot bends, Pig traps, Barred tees, Kiosks, Pressure Reduction Equipment, Boilers / Heat Exchangers, etc.

Phoenix will be responsible for and will initiate, in accordance with the Utilities Contracts Regulations where applicable, the procurement of materials which will be subsequently delivered "free issue" to the Construction Contractor.

Construction Contractor

Phoenix will, in conjunction with the PMC, produce an Invitation to Tender document consisting of, amongst other sections, a Contract, based upon the New Engineering Contract Three framework as specified in the Applicant Information Pack. This Invitation to Tender will be the document against which the short-listed tenderers shall be required to compile their bid.

Maintenance and Emergency Response Contractor

Phoenix has experience in the procurement of the MERC for HP Pipeline Systems. This experience was gained in the period when Phoenix owned and operated the PTS. Following the sale of the PTS in 2008, Phoenix retained much of the expertise in the development and operation of these contracts in the form of its Senior Managers.

Phoenix is committed to compliance with the Utilities Contracts Regulations (see section 6.1). In particular Phoenix is committed to achieving the most economically advantageous tender, with due regard to the inclusion, where appropriate, of wider environmental, social and economic objectives.

Proposals to initiate the competitive tender process

As with any tender opportunity, the appropriate marketplace requires to be suitably notified so that bids may be sought from organisations that are best placed to deliver the services required. There are a number of avenues that Phoenix would wish to explore in order to ensure that maximum exposure is given to such an opportunity.

In line with Phoenix policy and procedure, upon receiving Director/Board approval to proceed with the project, we would propose to consider a number of media through which the competitive tender process would be initiated. Should the value of any proposed Contract exceed the thresholds stipulated in the Utilities Contract Regulations, currently £345k for services/supplies and £4.32m for works, then the tenders will require to be advertised in the OJEU. Initial interest, depending upon time pressures, could be raised by placing a Periodic Indicative Notice ("**PIN**") which would advise the marketplace of our intent, albeit this would then require to be followed up by a Contract Notice which would, in effect, confirm the initial intent in that it would act as a call for competition.

This call for competition would advise all potential Suppliers or "Economic Operators" of our intention whilst, at the same time, would summarise what is required and when. The Contract Notice would also

advise of our intent to adopt the "Negotiated Procedure" throughout the course of the procurement process. Timescales, as determined by the Utilities Contract Regulations, shall apply with regards to the receipt of expressions of interest in response to this notice.

In order to promote the GTW project further and, by way of further stimulus of the local marketplace, the project could also be advertised in both local press and industry literature. This would be to supplement the OJEU Notice and not instead of it as in promoting the project, a balance will have to be maintained with regards to raising the profile, yet providing all suppliers – potential or otherwise – with equal treatment.

Although dependent upon the nature of the item being tendered, OJEU Contract Notices may require to be placed almost twelve months prior to the proposed start date of any contract to be awarded.

Phoenix has years of experience of the competitive tender process.

Proposals to award the construction, maintenance and specialist services contracts

Whether the Utilities Contracts Regulations apply to the award of contracts or not, there will remain a requirement to treat all tendering organisations equally, using a transparent procedure.

Award criteria shall require to be stated in the Invitation to Tender documentation and, where practical, in the initial Contract Notice. Such criteria will state the areas that Phoenix, as the contracting organisation, would choose to judge the merits of each offer received, along with weightings that would advise in advance, the level of importance that we would place on that particular aspect of the tender offer.

Tenders received would be evaluated in line with the award criteria and adjudged by an evaluation panel which would be made up from both technical and procurement professionals. The outcome of the evaluation would result in a recommendation to award a contract to the "most economically advantageous tender" received. The evaluation process would be summarised in a report which would require sign-off at Director level prior to proceeding.

Upon sign-off all parties tendering organisations would be notified of the outcome and a full debrief offered to any unsuccessful tenderer.

Should the Utility Contracts Regulations apply, a ten day standstill period shall be observed between the date of notification and date for award of contract to the successful bidder.

Whilst the content of the Invitation to Tender documentation may vary depending upon the nature of the construction, maintenance or specialist services contracts to be awarded – the process for award will follow the principles outlined above.

3.7 CONSTRUCTION PROJECT MANAGEMENT

Proposal for the timely commissioning of the high pressure pipeline system

As stated in section 3.1, Phoenix has developed a programme for the design, construction and commissioning of the GTW HP Pipeline System. In order to achieve the earliest possible commissioning date for the GTW HP Pipeline System, this programme starts with the award of "Preferred Applicant" status in June / July 2014, with an expected commissioning date of October 2017.

Alternate Design Verification

One aspect of the project that needs to be addressed at this stage is that of the alternate designs, where LP Pipelines are substituted for HP Pipelines.

Upon award of *"Preferred Applicant Status"*, Phoenix will commence a project to investigate the alternate designs proposed in section 3.6. This will involve assessing the load surveys carried by FMA in their feasibility report, updating the preliminary network analysis models that Phoenix created for this application and engaging with UR regarding the proposals.

As per the Applicant Information Pack, Phoenix will assume that the FMA proposals will be followed.

For the purposes of this application, the project has been divided into 11 sections. This will demonstrate Phoenix's plan for the Design, Construction and Commissioning of GTW HP Pipeline System including the processes that will be taken to ensure that it is commissioned in a timely manner in line the objectives of DETI, UR and Phoenix. These sections are:

1. licencing tender period;
2. project management;
3. pipeline route verification;
4. planning consultation;
5. environmental impact assessment;
6. land issues;
7. front end engineering design;
8. invitation to tender;
9. project management on site during construction;
10. construction contract; and
11. commissioning.

Licencing Tender Period

Cross-country pipeline construction is generally constrained to specific construction windows in a given year – ideally from spring to autumn. Other constraints, as will be covered later, include the Environmental Impact Assessment and the Planning Application. These should be achievable within the timescales proposed by Phoenix, but a delay in getting started with these could result in the proposed construction start date of March 2017 being missed, with the attendant possibility of the construction season being missed completely.

To mitigate, as much as is practicable, this risk Phoenix proposes to begin the appointment of a PMC upon being awarded "Preferred Applicant" status, albeit Phoenix understands and accepts the associated risk of carrying out a procurement process in advance of licence award.

Upon award of the licence in October 2014, Phoenix will finalise the contract negotiations and award the PMC contract to the successful bidder.

Phoenix would stress that delay in the award of the licence could severely jeopardise the October 2017 commissioning date.

Project Management

Phoenix will appoint an Operations Manager and an Operations Engineer (the GTW Operations Manager and the GTW Operations Engineer) to work with, and supervise, the PMC. The PMC will assume the role of Project Manager; managing the overall delivery of the project and be responsible for administration, invoicing, maintaining the project programme, handling commercial and technical issues and chairing monthly Project Management meetings throughout the duration of the project. These Project Management meetings will be attended by the PMC, the GTW Operations Manager and the GTW Operations Engineer, together the Project Management Team.

Pipeline Route Verification

Phoenix and the PMC's initial task will be to assess the pipeline routes that have been proposed by FMA as stated in its feasibility report. Alternative routes will also be investigated. This task will entail an initial desk top study using Google Earth and available mapping. This will be followed up by site visits to verify the routes and to consider engineering and construction issues. Site visits will be carried out from public rights of way only.

Routing maps and a verification report will be produced as part of this activity. This task will include the identification of suitable locations for the AGIs and pipe storage areas. Early identification of these will be important from both a planning point of view and, for the AGIs, a land purchasing point of view. For the pipe storage areas, where possible, Phoenix will endeavour to identify suitable locations that are contiguous with the pipeline route as this will simplify the planning applications process.

Planning Consultation

See “Planning Consultation” under “Proposals to obtain consents, easements and AGI land acquisition” in section 3.6.

Environmental Impact Assessment

See “Environmental Impact Assessment” under “Proposals to obtain consents, easements and AGI land acquisition” in section 3.6.

Land Issues

See “Easements” under “Proposals to obtain consents, easements and AGI land acquisition” in section 3.6.

Front End Engineering Design

The PMC will carry out the FEED. As with the negotiations with landowners and given the time constraints with this project, Phoenix will accept the risk of proceeding with the FEED in advance of receiving final planning approval. This is necessary as to delay commencement of the FEED until after receipt of Planning Approval would introduce at least nine months delay into the project and possibly longer as a full construction season may be missed.

At the start of the FEED stage, Phoenix will appoint a CDM Coordinator in accordance with the conditions of the CDM Regulations. This person can be a member of the FEED team, preferably with a recognised qualification such as NEBOSH. One of the CDM Coordinator’s first duties will be to formally notify HSENI that work is commencing on the design of a major construction project. In time, when the project is closer to construction, the CDM Coordinator will again contact HSENI to notify them that construction is due to start.

Engineering design will be in accordance with a recognised Code of Practice. In this case, it will be IGEM/TD/1: Steel Pipelines for High Pressure Gas Transmission – (Pipelines over 16 bar). The AGIs will be designed in accordance with IGEM/TD/13 – Pressure Regulating Installations.

Once the pipeline routes have been agreed in general and subject to landowner agreements, it will be necessary to appoint a Site Investigation Contractor to carry out a series of boreholes and trial pits, also subject to landowner permission to enter private land, to determine ground conditions.

The results of the site investigations will allow the PMC to establish the methods of construction, particularly at road / rail / watercourse crossings. As part of the site investigations, a resistivity survey on the ground will be conducted to determine the soil resistance conditions. This will inform the Cathodic Protection System design.

Meanwhile the PMC will use their Mechanical, Civil, Electrical and Instrumentation facilities to prepare the necessary specifications, procedures, calculations, CADD drawings and other documentation in accordance with a General Register of Deliverables and from this, a programme of works.

Phoenix will be responsible for and will initiate, in accordance with the Utilities Contracts Regulations where applicable, the procurement of materials which will be subsequently delivered "free issue" to the Construction Contractor. This will include specialist engineering materials such as: linepipe, hot bends, piping, barred tees, isolation joints, ball valves, actuators, pig traps and control kiosks.

The PMC will be responsible for the logistics associated with the eventual free issue of the specialist engineering materials to the Construction Contractor – ensuring appropriate responsibilities with regards to title and insurances are duly met.

In order to ensure delivery of linepipe and bends by the start of construction in February 2017, it will be necessary to place the appropriate Orders in March 2016. Orders for the remaining free issues may be placed from April to July 2016 for delivery over the period March to May 2017. The PMC Procurement Team will track the progress from manufacture, right up to the delivery of materials to site.

Phoenix has allocated a prudent 12 months for the FEED package.

Invitation to Tender

Once the FEED is complete, Phoenix will be in a position to move on to the construction phase of the project, subject to planning approval. Phoenix will initiate the Construction Contractor procurement process. Phoenix and the PMC will prepare the Invitation to Tender package, which will be issued to a list of pre-qualified Tier 1 Pipeline Contractors, selected via a compliant short listing process.

An Invitation to Tender document consisting of, amongst other sections, a Contract, based upon the New Engineering Contract Three framework as specified in the Applicant Information Pack, will be drawn up upon which the short-listed tenderers shall be required to compile their bid. The procurement process shall be carried out in accordance with the Utilities Contracts Regulations.

The eventual Construction Contract shall be awarded to the tenderer submitting an offer which is adjudged to be the most economically advantageous - with due regard to the inclusion, where appropriate, of wider environmental, social and economic objectives.

Phoenix will split the Works into two Schemes so that construction can be completed in one season. As shown on the Route maps and schematic attached in Appendix A, Phoenix proposes that the two Schemes comprise of:

- Scheme A - Sections 2, 3 and 4; and

- Scheme B - Sections 5, 6, and 7.

Project Management on site during construction

The GTW Operations Manager will have overall responsibility for the project. The PMC will provide the personnel required to act as Phoenix's engineers on site during construction of the two Schemes. A separate team will be needed to project manage each Scheme headed by an overall Project Manager i.e. two teams will be needed in total. Each of these two teams will comprise:

- Construction Manager x 1 FTE;
- Field Engineer x 2 FTEs;
- Agricultural Liaison Officer x 1 FTE;
- Safety Advisor x 1 FTE;
- Senior Pipeline Inspector x 1 FTE; and
- Inspector x 2 FTEs.

The Project Manager will delegate responsibility on site to the two Construction Managers. The Construction Managers will supervise day-to-day activities of the Contract to ensure construction is compliant with project specifications and adhere to the schedule and Contract. The Engineer will chair fortnightly contractor meetings, and also attend the monthly Project Management meetings. The GTW Operations Manager will also attend these meetings.

Each Construction Manager will prepare weekly reports per Scheme, whilst the Project Manager will prepare an overall Monthly project report. On a monthly basis the Construction Managers will chair a contractor's commercial evaluation meeting. This is to evaluate monthly invoices and to listen to any areas of concern that the contractor may wish to raise that may lead to variations being submitted for due consideration.

On site, the Field Engineers, the Senior Pipeline Inspector and the Inspectors will oversee all construction activities on a daily basis to ensure that the Construction Contractor conforms to project specifications and remain on programme. Meanwhile the Agricultural Liaison Officer will liaise with farmers and landowners on a daily basis to listen to and rectify any concerns they may have, in particular where they believe construction activities may be interfering with farming activities.

Construction Contract

Upon award of the construction contract, the successful Construction Contractor will finalise the construction schedule and arrange to mobilise to site and erect site establishments. These sites will

have been identified and planning approval obtained by Phoenix in advance of awarding the construction Contracts. As stated in section 3.6, where possible these sites will be contiguous with the pipeline spread and so covered by the main planning application. Where this is not the case, individual planning applications will have to made, though this will be identified at the Pipeline Route Verification stage.

The PMC will receive the linepipe, bends and other free issue materials at the pipe dumps on Phoenix's behalf. This will normally be carried out ahead of the Construction Contractors' arrival.

Phoenix will ensure that all landowner consent agreements have been signed and that any agreed conditions are met before the Construction Contractors are allowed access to private land. The land agents will be monitoring these matters closely during the course of construction.

Prior to the beginning of bird nesting season, all hedgerows in the path of the pipeline route will be cut down to ground level to prevent birds nesting there. If the temperature is above 5°C, any requirement for Great Crested Newt fencing will be erected before heavy plant access the land.

The Construction Contractor will prepare and issue Method Statements and Risk Assessments to cover every activity. These documents will be reviewed by the PMC's Project Manager before any activity commences on site. The Construction Contractor will also maintain a Health and Safety file which will be populated during the course of the construction contract.

Safety is the most important consideration on site and to that end, safety induction courses will be attended by the workforce before work commences. Tool box talks and other training courses will be on-going, as required throughout the construction season. The Construction Contractor will maintain environmental and safety records.

The Construction Contractor's first activity on site will be to peg out the pipeline centreline and the boundaries of the working width. Then the Construction Contractor will erect temporary demarcation fencing that will remain in place throughout the duration of construction. The working width or "spread" will then be ready to receive heavy plant. The tracked excavators and dozers will begin the process of removing the top soil and storing it on the right hand side of the working width. Wooden skids (similar to railway sleepers) will be laid out alongside the pipeline centreline and individual pipes strung down the spread.

Once the weld procedures have been completed and coupons sent off for testing and passed, then production welding can begin on site. This is the main activity that dictates the rate of progress for all other activities. Behind the "Front End Welding" team will appear the Non-Destructive Testing technicians to check each welded joints either by x-ray or ultra-sonic methods. Once the joints have been "sentenced", the field joints can be grit blasted and then field coated.

The trench will then be dug and lengths of welded pipe-strings lowered into the trench. Each welded joint will be captured by GPS survey equipment, so that accurate records of their locations can be added

to the Phoenix GIS as part of the 'as-built' drawings. The trench will then be backfilled with "intimate" backfill and covered with "general" backfill and compacted by "rammax" machines to provide compaction strength of 95%.

In tandem with pipeline construction, work on the major crossings will be proceeding. This may involve drilling beneath major features such as motorways or highways, railways or watercourse. There are a number of techniques that may be used by the Construction Contractor from general auger-boring at roads, to Horizontal Directional Drilling at long crossings over several hundred metres, or guided auger-bores or micro-tunnelling beneath railways. Watercourses are normally open cut. Whichever method is proposed, it must comply with the conditions imposed by the relevant statutory authority/undertaker. Normally, they will send a representative to site to be in attendance during construction. These crossings will be tied into the rest of the pipeline before testing commences.

The pipelines will be tested by a specialist sub-contractor. Temporary test ends will be welded onto the ends of the pipeline test section. Cleaning foam pigs and then a bi-directional ("**Bi-Di**") pig with a gauge plate attached will be propelled through the test section of pipe. More Bi-Dis will be sent through the section carrying magnets and brushes. These pigs will remove any debris and ensure the section of pipe is clean. The pipeline sections will be hydrostatically tested using water normally taken from a local river with the consent to abstract and discharge from the Northern Ireland Environment Agency. The water pressure in the pipe is gradually increased to 1¼ times the design pressure and held for 24 hours. Once hydro-testing is complete, the test sections will be tied in, to form a continuous tube. A caliper pig will be sent down the tube to check for any defects. Meanwhile, on the ground a Direct Current Voltage Gradient ("**DCVG**") survey will be carried out to detect for any external coating imperfections.

Once the DCVG survey has been carried out and any defects dug up and repaired, the last two activities will be to carry out. The first of which is a "soak" test to thoroughly dry the interior of the pipeline. It is then held in that state at a temperature normally below -20°C for 24 hours, using a series of air compressors. Finally, the pipeline is purged and held in a positive charge of nitrogen, and then sealed. Upon completion of this final stage, a Mechanical Certificate will be issued to prove the system is fit for purpose. It will remain in this benign state until Phoenix is ready to introduce natural gas into the system during the commissioning stage.

Meanwhile, reinstatement will have commenced by ripping the sub-soil to loosen up the compacted sub-soil surface, following which the top-soil can be replaced and finally, harrowed. The spread can then be handed back to the landowner to resume normal farming activities.

Other activities will still be going on. Cathodic Protection ("**CP**") test posts will be installed at some road crossings. They will be connected to the pipeline by cables, and also connected to a buried ground-bed of sacrificial anodes, and to a free standing Transformer Rectifier ("**TR**") cabinet. The TR will be powered by mains electricity taken from a convenient local supply into a meter cabinet that will sit alongside the TR cabinet. This is called a CP impressed current system which is the most common system used to protect the pipeline from corrosion during its working life.

Marker posts and aerial marker post will be installed along the pipeline route, wooden post and rail fenced boxes will be erected where hedgerows were cut down. Later that year, normally in November, the boxes will be planted up with a variety of native bushes.

Whilst pipeline construction will be progressing, work on the AGIs will have commenced to build the offtakes, pigging facilities, meter skids and block valve stations. This will include pouring concrete bases, installing and fitting the above ground piping, line valves, and gas actuated Emergency Shut-Down valves, also laying the instrumentation and electrical cable runs around the site and into the control kiosks. External mains power and telecoms supplies will be installed to the sites.

As part of the FEED, the PMC and Phoenix will have consulted with the security services and the Centre for Protection of National Infrastructure ("**CPNI**") to specify the level of security provisions required for the AGIs.

This is likely to take the form of secure fencing and entrance gates erected around the sites and should include for an alarm system to detect intruders. Lighting and Closed-Circuit Television ("**CCTV**") columns will be erected and cabled up. Access roads, flag-stone paths and a car parking area will be laid and chippings laid out across the site. Finally, a landscaping strip will be planted up around the whole site within a perimeter wooden post and rail fence.

The Electrical and Instrumentation systems will be loop tested and certificates issued to prove completion of the pre-commissioning stage.

The Construction Contractor will then reinstate the site office and pipe dump areas and de-mobilise from site. The Construction Contractor will hand over the Health and Safety file that will contain the as-built drawings and completion certificates and other essential documentation.

At this point, the pipeline system becomes the responsibility of Phoenix and Phoenix will appoint a MERC to carry out regular maintenance and surveillance, and to monitor the CP system. However, during the "warranty period" which kicks in immediately after the handover, the Construction Contractor will be responsible to repair any defects. This period will usually run for a period of two years.

Commissioning

When Phoenix is satisfied that all conditions for the safe introduction of live gas into the pipeline system have been met, the PMC will prepare a Non-routine Operation procedure that will be followed to gradually introduce natural gas. This be carried out under the Northern Ireland Safe Control of Operations system and be subject to Permit to Work.

Close liaison with the existing TSO's will be required. The commissioning will be by the MERC, with Phoenix's own technicians and engineers, along with support from the PMC as required and will be in accordance with IGEM/TD/1**.**

Proposal to establish the Project Management Team and information systems

Phoenix's Directors (detailed below) will lead Phoenix and the GTW transmission business across the existing and the GTW Licensed Areas respectively. Phoenix will ensure that the required corporate governance and ring fencing arrangements for the existing Licensed Area are maintained.

Peter Dixon is the Chief Executive Officer

Peter has spent his entire career in the gas industry, acquiring over 35 years' experience. He started out as an Engineer in 1976 with North West Gas and went on to play a key role in the break-up of what was then the old British Gas.

Peter joined Phoenix as Commercial Director in February 1997. He was appointed Chief Executive in July 2000. He is currently Chairman of the Energy for Children Charitable Trust, as well as Chairman of Arena Network - the environmental arm of Business in the Community of which he is also a Board member. In 2008 he was appointed a Belfast Harbour Commissioner.

Michael McKinstry is the Group Finance Director

Michael has been with Phoenix from its earliest days, joining the fledgling company in 1996 as Finance Director. He took his place on the Kellen Group Board in January 2006 following the acquisition of Phoenix by Kellen.

As Michael has been at the financial helm of Phoenix throughout its history, overseeing the various changes to its ownership, corporate, financial and regulatory structures, as well as developing its strategies, he has a comprehensive knowledge and understanding of the business. Prior to joining Phoenix, Michael gained extensive financial management experience across a broad range of business sectors, starting in heavy engineering with GEC, in the textiles industry with Ulster Weavers and in the energy industry with Premier Power following its purchase by British Gas.

Ivan Bell heads Phoenix's Commercial Operations Department:

Ivan is a chartered engineer and Fellow of the Institution of Gas Engineers and Managers who spent 8 years involved in various aspects of the natural gas industry in Great Britain. In 1998 he returned home to Northern Ireland as Transportation Development Manager for Phoenix, before taking on the position of Commercial Manager in November 1999.

Ivan is Commercial Operations Director responsible for the Construction, Operation and Maintenance of the Gas Distribution and Transmission Pipeline Network, the provision of additional Customer Connections and the delivery of the company's Health, Safety and Environmental policy - including the emergency services operation and Network Design and Planning. He also has responsibility for providing transportation services to all gas supply companies and end users. Since 2008, Ivan has also been responsible for Regulation within Phoenix.

Ivan is currently a Board member of Energy and Utility Skills, a Member of the Institution of Mechanical Engineers, a committee member of the Institution of Gas Engineers and Managers (Ireland Section) and a Fellow of the Institute of Directors.

Alastair Pollock heads Phoenix's Business Development Department:

Alastair has helped to drive forward the development of the local natural gas industry in the last 10 years by adopting a number of innovative sales, marketing and customer service strategies.

Before joining Phoenix, Alastair was Managing Director of Kwik Fit in Ireland, and had held several senior roles within the BP organisation both in Britain and Northern Ireland.

Alastair has responsibility for all Residential and Commercial Sales, including Housing Executive and new build homes. He also has responsibility for Trade Development, Customer Service and Corporate Affairs.

Alastair is currently a member of the CBI Council for Northern Ireland, is Secretary of the Energy for Children Charitable Trust, and is a member of the Musical Theatre for Youth Committee.

The Project Management Team

As noted in this section 3, upon award of the licence, Phoenix will begin the procurement process to appoint a PMC. The PMC will be responsible for, among other things, the Environmental Impact Assessment, Planning Approval, Front End Engineering Design and Project Management.

Phoenix will appoint an Operations Manager and an Operations Engineer (the GTW Operations Manager and the GTW Operations Engineer) to work with, and supervise, the PMC. The PMC will assume the role of Project Manager; managing the overall delivery of the project and be responsible for administration, invoicing, maintaining the project programme, handling commercial and technical issues and chairing monthly Project Management meetings throughout the duration of the project. These Project Management meetings will be attended by the PMC, the GTW Operations Manager and the GTW Operations Engineer, together the Project Management Team.

Phoenix will also appoint a CDM Coordinator in accordance with the requirements of the CDM Regulations. Among the duties of the CDM Coordinator is the formal notification of the commencement and completion of the project to HSENI.

A specialist pipeline construction contractor, the Construction Contractor, will also be appointed to carry out the actual construction.

Further details of Phoenix's proposals for what activities will be managed under contracts and how these contracts will be awarded and managed, are provided in sections 3.1, 3.6, 3.7, 6, 8 and 9.

Information Systems

Phoenix provides a centralised IT department to the whole Phoenix Group, with responsibility for developing and maintaining computing services using third party providers under commercial contracts as required.

The main system within Phoenix is Concerto, which records and manages assets and any movements thereto at a customer's premise. For larger Pressure Regulating Equipment, Phoenix operates a bespoke Governor Maintenance Database, which is used to record asset details, to schedule maintenance and PSSR Inspections and to capture fault data for RCM analysis.

Phoenix currently uses the ArcGIS suite of GIS software supplied by Esri which provides a graphical record of the network and in conjunction with SynerGee enables effective management of the distribution network. These systems coupled with those used in Finance (Total), Contracts and Procurement (6 over 6), HR/Payroll (ICS Unicomp) together with mail, internet, office desktop solutions for current users within Phoenix will be used to support management of the mobilisation process. Further detail on Phoenix's core systems is provided in sections 4.5 and 5.6.

As detailed in section 4.5, it is envisaged that Phoenix's existing robust systems would simply be extended through the addition of additional data sets to meet the demands of the GTW Licensed Area. Phoenix intends to review its current systems to ensure that any (i) additional data sets and (ii) changes to Phoenix's systems are identified and progressed during the mobilisation period to meet the increased demand.

As detailed in section 2.2, efficiencies can be achieved by consolidating some of the functions within Phoenix for the existing and the GTW Licensed Areas. This includes the IT function. Phoenix will resource its IT Department to ensure that it is capable of providing technical support to meet the demands of both its existing and the GTW Licensed Areas. Section 2.2 sets out the manpower resource requirements. During mobilisation, technical support will be provided by the Senior Manager resource detailed in section 3.2.

Proposal for construction QA and asset records

QA Processes

As detailed in section 3.6, Phoenix will appoint a GTW Operations Manager with overall responsibility for delivering the GTW HP Pipeline System. The GTW Operations Manager will be assisted by a GTW Operations Engineer.

Phoenix will develop a Quality Management Plan ("**QMP**") for each phase of the asset lifecycle (see section 4.4). This will encompass an audit, inspection and monitoring system and the implementation of a corrective and preventive action system to ensure a culture of continual improvement.

The transmission QMP will be defined within the Phoenix Asset Management procedures and processes. For the transmission asset, this process will start at the design stage, continue throughout the construction programme and be closely monitored and managed as part of operation and maintenance of the network.

Phoenix will also appoint a PMC to manage the construction and commissioning of the GTW HP Pipeline System. The PMC will have the responsibility of project managing the on-site activities during construction. This will include responsibility for ensuring the quality of all works carried out by the Construction Contractor. Monitoring of the quality assurance process throughout the asset lifecycle will form a key element of the Transmission Asset Review Group (see section 4.4 for further detail).

The PMC will provide the personnel required to act as Phoenix's engineers on site during construction. As detailed in this section 3.7, two teams will be needed headed by an overall Project Manager. Each of these teams will comprise:

- Construction Manager x 1 FTE;
- Field Engineer x 2 FTEs;
- Agricultural Liaison Officer x 1 FTE;
- Safety Advisor x 1 FTE;
- Senior Pipeline Inspector x 1 FTE; and
- Inspector x 2 FTEs.

Phoenix, as part of the Invitation to Tender issued to appoint both the Construction Contractor and the PMC, will require that a detailed QMP be submitted for each stage of the project.

The Construction Contractor will supply detailed Method Statements for each activity, underpinned by the QMP. The QMP will detail the audit, inspection and monitoring system that the Construction

Contractor will employ in ensuring the quality of their work. Audits and Inspections will focus on materials, welding, pipe coatings, lifting operations, testing, backfill, pigging and commissioning operations.

The PMC will review the Construction Contractor's Method Statements and QMP and will develop and implement an appropriate audit, inspection and monitoring system, in line with the PMC's QMP. The GTW Operations Manager will be responsible for the audit and monitoring of the PMC's compliance with this system.

As noted above, Phoenix will establish a Transmission Asset Group with the remit of managing and monitoring all transmission asset construction, operation and maintenance. The Transmission Asset Group will report into the Network Safety Group. Further detail is provided in section 4.4

Asset Records

A fundamental aspect of the GTW HP Pipeline System will be the records of construction and testing. Phoenix, as will be discussed in section 5.6, has significant experience in the capture and retention of asset records. Phoenix operates a corporate GIS that can be readily adapted to accommodate any additional asset information that may be associated with a new transmission asset.

During the FEED, Phoenix will carry out detailed reviews of all materials and equipment that will be installed as part of the GTW HP Pipeline System, ensuring, from an asset management point of view, that all aspects of the asset life cycle have been considered. As part of this review, the data that will be required in order to effectively manage the asset will be identified. The Governor Maintenance Database will be adapted to accommodate the new data.

The Competent Person will also have a key role in managing the quality of the asset records i.e. reviewing the proposals from the FEED and indicating any specific requirements under legislation, in particular information and records required to ensure PSSR compliance. Examples of records retained could be:

- Materials and component certificates;
- Pipe coating and wrapping records;
- Welding procedures and records;
- Qualification;
- Pressure testing records;
- Failures;

- Repairs;
- Re-tests;
- Radiographs;
- Commissioning records; and
- Continual corrosion protection monitoring records.

The management and implementation of Modification and Repairs Procedures will be crucial in ensuring that any asset constructed is fit for purpose. All Modifications and Repairs will be carried out in accordance with IGE/GL/5.

The route of the pipeline, the location of welds and fittings and changes in ground conditions will be captured using GPS for import into the corporate GIS. Deviations from the designed route, changes in depth of cover, method of construction and so on will also be captured by the PMC.

In order to ensure the quality of the asset records data that is captured onsite, Phoenix will develop an audit / monitoring schedule, tailored to each item of equipment. Coherent and consistent monitoring of the records produced by the PMC will ensure the quality of the data returned.

Proposal for project cost monitoring and control, including contingency costs

Phoenix provides centralised corporate services to the whole Phoenix Group:

1. Phoenix's Business Planning and Regulation Departments support management of business plans and forecasts, collation of data and statistics, liaison with key agencies and other third parties.
2. Phoenix's Contracts and Procurement Department is responsible for the management of all contracts and services, provision of facilities and fleet requirements and the effective operation of the office.
3. As detailed in section 4.1, Phoenix employ a Risk Assurance Manager with specific responsibility for the management of risk to Phoenix, its employees, customers, assets, reputation and interests of stakeholders and for the implementation of best practice and businesses improvement initiatives.
4. Phoenix's Finance Department is responsible for accounting and treasury functions. This incorporates financial reporting to meet all statutory, regulatory and financing requirements, internal management accounting and reporting, audit and review of costs under the McNicholas

Construction Services Limited ("**McNicholas**") contract arrangement (see section 9.3 of the Phoenix Low Pressure Operational Business Plan), bank and other treasury management functions, tax management and compliance, stock and asset management, purchase and sales ledger control.

5. Phoenix's HR Department is responsible for the recruitment, training and development arrangements for all employees.

6. Phoenix's IT Department is responsible for developing and maintaining computing services as detailed above.

As detailed in section 2.2, efficiencies can be achieved by consolidating some of the functions within Phoenix for the existing and the GTW Licensed Areas. This includes the corporate services function. Phoenix will resource the above departments to support mobilisation cost monitoring and control, including contingency costs across the GTW HP Pipeline System in accordance with the established processes already in use in the existing Licensed Area. Section 2.2 sets out the manpower resource requirements. During mobilisation, support will be provided by the Senior Manager resource detailed in section 3.2. Further detail on Phoenix's finance function is provided at section 8.3.

The PMC's Construction Managers on each Scheme (Scheme A or B) will be responsible for the day-to-day management of the Construction Contractor. This will include the monitoring of costs and the approval of changes to design. Phoenix will hold weekly and monthly meetings to monitor progress on the construction and the costs incurred.

Contingencies

The contingency cost has been included in the workbook submission on the basis specified in the Applicant Information Pack i.e. it is based on the New Engineering Contract Three framework Option C type of arrangement. As part of the licence application process all bidders have been told to bid against the Capex costs provided by Ureg and as such therefore detailed work into the actual Capex costs has not been undertaken by Phoenix. Therefore the contingency cost in the workbook submission is Phoenix's assessment, based on the available information, on the level of contingency that may be required.

The type of contingencies that Phoenix has accounted for include the effect on the programme due to adverse weather conditions and the possibility of additional cost due to demobilisation / remobilisation. This could occur, for example, where there are landowner disputes. While not affecting the overall programme, these could incur additional cost from the Construction Contractor in moving plant and equipment around the disputed area and returning upon resolution of the dispute.

PNGL's approach to the overall construction of the transmission pipeline, through the appointment of a dedicated PMC and a Construction Contractor who between them will undertake the tasks outlined in

Section 9 places the risk with the party best placed to manage the risk, and through its innovative proposals to replace high pressure transmission pipeline with low pressure distribution pipeline and with the ultimate aim of selling the pipeline to Mutual Energy as soon as practicable will all contribute to the delivery of the lowest cost solution for the Northern Ireland consumer.

Proposal for risk assessment and proposals to mitigate/resolve identified issues

As detailed in section 4.1, Phoenix employ a Risk Assurance Manager with specific responsibility for the management of risk to Phoenix, its employees, customers, assets, reputation and interests of stakeholders and for the implementation of best practice and businesses improvement initiatives.

Phoenix already has in place robust risk management procedures for its operations in the existing Licensed Area (see section 4.1 for more information). It is envisaged that these risk management processes will be replicated across the GTW transmission business i.e. Risk Registers, Risk Review Committees etc.

However based on our experience of the development of a new transmission network, it is anticipated that the risks faced on the GTW transmission business will change as the network matures. As such, we would plan to manage risks for the GTW transmission business in three distinct phases:

- Phase 1 – Mobilisation (the initial mobilisation (or start up) stage of mobilisation)
- Phase 2 - Construction (the construction stage of mobilisation); and
- Phase 3 – Normal Operations.

Phoenix outlines how it would anticipate managing risk during mobilisation below:

Mobilisation

The initial mobilisation (or start up) stage is anticipated to be highly challenging and will require significant and robust risk management process. For example, some of the areas of operation that are likely to have a different risk focus during this phase compared with normal operations include:

- Security of operations and personnel;
- The establishment of relations with stakeholders and the local community; and
- Public relations.

Risk management procedures to identify, resolve and mitigate issues for the mobilisation phase are anticipated to include:

Risk Workshops

Risk workshops would be performed with Senior Managers and other experts (including industry and local experts) to identify risks, related controls and actions required to manage these risks.

Risk Assessments

Detailed risk assessments utilising the risk assessment procedures for the existing Licensed Area would be performed for all routine or non-routine tasks, materials, equipment, substances or situations which could pose a risk to an individual whether an employee, contractor, customer or member of the public.

Risk Register

A detailed risk register would be developed specifically for the risks relating to the mobilisation phase. The register would be based on the same best practice risk management principals utilised in the Phoenix Corporate Risk Register for the existing Licensed Area, namely:

- assessment of the probability that each risk will materialise;
- assessment of the impact on the business if the risk was to materialise (quantitative and qualitative);
- formally document controls in place to manage/mitigate the risk;
- assign persons responsible for the management of the risk and the implementation of additional actions to further mitigate the identified risk; and
- traffic light system utilised to rank risks identified.

Risk Review Committees

Senior Engineering Manager and Director led committees would be established to assist the management of risks i.e. similar to the Phoenix Risk Review Committee and the Networks Safety Group for the existing Licensed Area.

Further detail on each is provided in section 4.1.

Proposed arrangements for liaison with and handover to Systems Operations

In preparing this response Phoenix has considered that the current proposals to deliver the Northern Ireland EU compliance project and the specific requirement to introduce single system operation in Northern Ireland is completed[2] by the proposed commissioning date of the GTW HP network. As part of this single system operation the existing TSOs will deliver for Northern Ireland:

- a single TSO;
- a single IT system;
- a single Transmission Network Code (see section 5.4);
- a single Control Room; and
- TSO DNO interface.

Phoenix assumes that when delivering the proposed structures for single system operation, consideration will be given by the existing TSOs and UR for the requirement to facilitate the inclusion of an additional HP pipeline. Phoenix would however propose to engage with the existing TSOs upon grant of the licence to help assist and inform the development project to ensure that upon completion of the construction phase the handover to system operations can be completed with little amendment to existing system operation structures.

Phoenix understands that the current proposals for single system operation is that the Operator role will be organised in either the form of a Joint Venture between TSOs or require the appointment of a single entity who would be a completely separate licenced company. Irrespective of which option is selected for single system operation, during the mobilisation phase of the project Phoenix would envisage handing over the following areas of responsibility to the single TSO:

- Operations
    - Physical and commercial operations;
    - Co-ordination of maintenance;
    - Aspects of congestion management;
    - Meter and gas quality management; and
    - Management and co-ordination of emergencies.
- Transportation Services

[2] Phoenix understands that the target completion date for the EU compliance project is currently October 2015

- market operations;
- network balancing;
- single Transmission Network Code (see section 5.4) administration; and
- transportation charges administration (collection and disbursement of charges).

- Systems
  - Provision and maintenance of single IT system including the TSO DNO interface.
- Long term planning and development
  - Network User communications.

As detailed in section 5.4, Phoenix is aware of the work currently being undertaken by the existing TSOs in Northern Ireland to deliver the requirements of EU legislation and all associated EU Network Codes ensuring Northern Ireland compliance. As part of this project the TSOs are preparing a single Network Code to be used by all TSOs in Northern Ireland (the "**single Transmission Network Code**") with a current proposed implementation date of October 2015. Phoenix would propose to utilise any agreed single Transmission Network Code for the GTW HP network operation. Phoenix believe that many of the aspects identified above which will be undertaken by the single TSO on behalf of the asset owner, will already be clearly defined in this single Transmission Network Code.

Irrespective of which single system operation option is chosen there will be a requirement for an operating agreement to be developed between Phoenix as the licensed asset owner of the HP network and the single TSO. Phoenix assume that this will also be a key requirement for the existing Northern Ireland TSOs in delivering the Northern Ireland EU compliance project and Phoenix would therefore suggest that the agreed template for existing HP networks should be appropriate for use for the GTW network. As a minimum the operating agreement would need to contain details of the single TSO requirement for liaison and reporting to the asset owner ensuring proper governance is achieved. Phoenix would again propose to engage with the existing TSOs in assisting delivering the required operating agreement upon grant of the licence.

4. GOVERNANCE

4.1 RISK MANAGEMENT

This section covers the following:

- ***identification and quantification of risk issues, including significant asset risk issues;***
- ***description of the policy and processes to identify and manage risk issues; and***
- ***description of the procedures to mitigate risk and monitor actions to completion.***

Phoenix recognises that risk management is a fundamental component of sound corporate governance. Risk management is integrated throughout Phoenix at a strategic and operational level and is fully endorsed by the Directors.

Phoenix has a holistic approach to the identification of risks, creating controls to mitigate those risks, and for monitoring and revising identified risks and controls. Management within Phoenix see the mitigation of risk as a challenge and utilise risk management processes to identify and implement measurable actions to mitigate identified risks.

Phoenix's risk management processes include:

- Corporate Risk Register;
- Operational Risk Register;
- Risk Assessments;
- Risk Review Committee;
- Network Safety Group;
- Business Continuity Arrangements;
- Dedicated Risk Assurance Manager;
- Internal Audit;
- External Audit;
- Health and Safety Audits;

- Regulatory Compliance Register;
- Processes for Compliance with New Legislation / Legislative Amendments;
- Financial Authority Matrix; and
- Security Arrangements.

Further detail on each of these risk management processes is provided below. It is envisaged that the risk management processes currently in operation in Phoenix would be replicated for the GTW transmission business.

Corporate Risk Register

The Corporate Risk Register serves as a central repository for Phoenix's risk information and allows for the information identified from risk management processes i.e. risk assessments etc. to be suitably sorted, standardised, and managed from a strategic and business risk perspective.

Its key function is to provide the Directors, Phoenix's Board and key stakeholders with significant information on the major risks faced by Phoenix and the controls to mitigate them.

In line with best practice, risks included in the Corporate Risk Register are assessed based on:

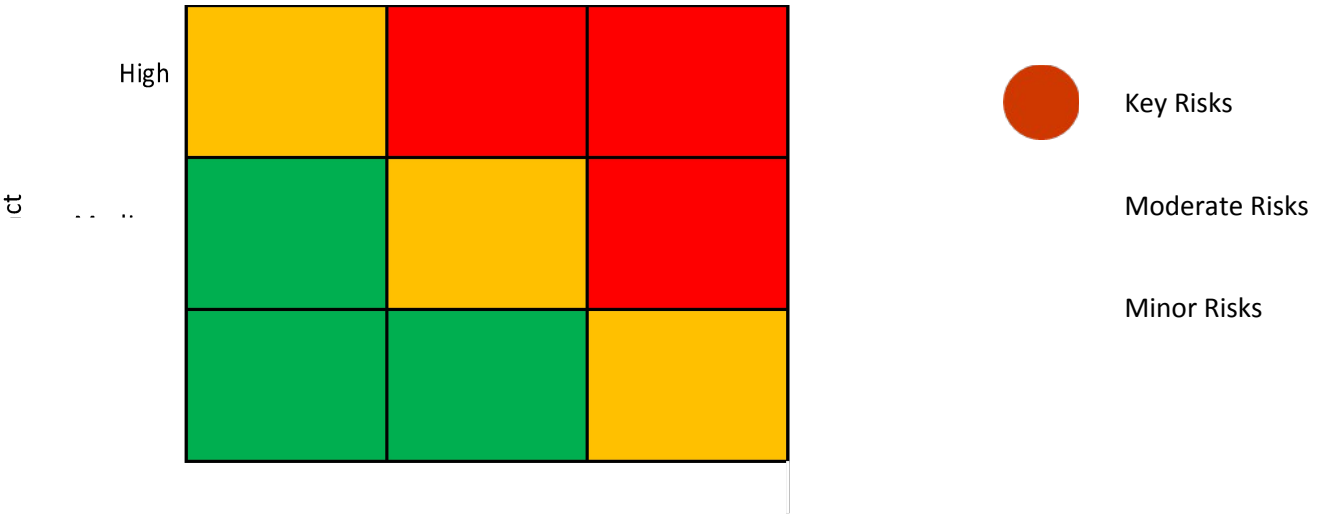
1. The probability that the risk will materialise; and

Probability		**Likelihood of Occurrence**
Rating	**Score**	
Remote	1	Less than 10 per cent.
Possible	2	Between 10 per cent. and 50 per cent.
Likely	3	Greater than 50 per cent.

2. The impact on the Phoenix if the risk materialises (quantitative and qualitative).

Impact		Impact Assessment	
Rating	**Score**	**Quantitative**	**Qualitative**
Low	1	Less than £xm impact on Profit or net assets	Low impact on strategic objectives and minor impact on public image
Medium	2	Between £xm and £xm impact on Profit or net assets	Medium impact on strategic objectives and moderate impact on public image
High	3	Greater than £xm impact on Profit or net assets	High impact on strategic objectives and major impact on public image

Phoenix utilise a traffic light system to rank its risks and to aid effective risk management.



Individual Managers are assigned responsibility for the management of each risk included in the register and for the implementation of additional controls to mitigate risks identified.

Risk workshops are held with Phoenix's Senior Managers on at least an annual basis to review and update the Corporate Risk Register.

The objectives of risk workshops are to:

- review in detail each risk included in the register;
- re-assess the likelihood of each risk occurring and its potential impact on Phoenix;
- verify the performance of and assess the impact of actions identified to mitigate identified risks;

- identify new actions to further mitigate identified risks; and
- identify and assess new risks.

The updated register is presented to the Phoenix Board for review and approval on an annual basis.

Operational Risk Register

The Phoenix Operational Risk Register identifies significant risks (and controls) specifically concerning the safety and integrity of the distribution network, including the occupational safety of those involved in network activities. The register forms a significant element of the Phoenix Safety Case detailed in section 5.1.

The register is formally linked to the Corporate Risk Register, in that major risks included in the Operational Risk Register are escalated into the Corporate Risk Register.

In line with risk management best practice management, the Operational Risk Register utilises the same principles as the Corporate Risk Register.

The Operational Risk Register contains the following elements:

- the hazard identified (including initiating events and their causes);
- existing safety controls that are used manage the risk;
- an assessment of the risk based on the likelihood and consequence of the risk occurring (quantitative and qualitative);
- a description of any further additional controls that are required to reduce the risk to as low as reasonably practicable;
- a revised assessment of the risk based on the implementation of additional control measures;
- the name of the person who is responsible for the day-to-day management of the risk and for the implementation of any additional controls within a defined timeframe; and
- traffic light system to rank risks identified.

The Operational Risk Register is reviewed and updated by the Senior Engineering Management Group (including the HSE Manager) on an annual basis and is formally approved by the Director of Commercial Operations.

Additional actions identified to mitigate risks identified are monitored to implementation through the monthly Risk Review Committee meetings and the HSE Action Tracker System.

Distribution Network Risks

Phoenix utilise a three tiered approach to the identification, management and control of risks that may impact on the safe and continued operation of the distribution network (including asset risks):

1. Risk Assessments	Detailed assessment of each risk identified
2. Risk Review Committee	Senior Manager led forum to discuss the effective management of significant risks identified through the risk assessment process
3. Network Safety Group	Director of Commercial Operations led Group to aid the management of risks escalated by the Risk Review Committee

Risk Assessments

Phoenix's policy and procedure for ensuring risks are adequately assessed and controlled sits within the Health and Safety Management System, ASHES.

Risk assessments are carried out for all routine or non-routine tasks, materials, equipment, substances or situations which could pose a risk to an individual whether an employee of Phoenix, a contractor, a customer or members of the public.

The risk assessment process is fundamental in ensuring both an environment that is safe for staff and members of the public and for facilitating effective and productive working practices. Phoenix utilise risk assessments on all areas or issues that may impact on the integrity of the gas distribution network.

The risk assessment process for all types of risk follows the same basic procedure:

- identification of the hazards;
- identification of who is at risk;
- likelihood of risk;
- identification of existing controls;

- evaluation of the risk (based on the likelihood of the risk occurring and the severity of its consequences, taking into account existing controls);
- identifying any additional controls which may be required;
- recording of the findings; and
- review.

When controlling risk the following hierarchy will generally be considered;

- elimination of the risk – can certain activities and processes be avoided completely;
- substitution – substituting the use of an item with a less hazardous alternative;
- isolation - the use of engineering controls should be considered;
- minimising the risks by designing suitable safe systems of work to control the risk (i.e. permit to work, safe control of operating procedure); and
- as a last resort, issuing personal protective equipment.

Risk assessments are completed in the following situations:

- all activities undertaken where a potential hazard could exist;
- on any new systems, processes, techniques, equipment, materials or amendment to documents prior to implementation;
- prior to any organisational change;
- on any situation where approved codes of practice or technical guidance cannot be implemented;
- changes to existing legislation or introduction of new legislation; and
- if any accident, incident or near miss investigation requires it.

The majority of risk assessments undertaken within Phoenix are simple qualitative risk assessments. However more detailed and complex risk assessments are performed for larger projects or work activities with higher levels of risk, for example quantitative assessments, hazardous operations, asset management risk assessment etc. Where applicable, the findings of risk assessments will be reviewed in detail by the Risk Review Committee or, if more significant, at the Network Safety Group.

Risk assessments are only performed by trained personnel with appropriate experience and knowledge of the area of concern. Each risk assessment must be signed by the individual who has undertaken the risk assessment; authorised by the relevant Senior Engineering Manager to verify that the operation is permissible and authorised to proceed; and countersigned by Phoenix's HSE Manager.

Risk assessments associated with asset management are reviewed by the Risk Review Committee and countersigned by the Policy and Strategy Manager.

All risk assessments are allocated unique reference numbers and are recorded on the central Phoenix Risk Assessment Register. The register is utilised to ensure they are monitored and reviewed on a regular basis.

Once risk assessments are completed they are communicated to all relevant personnel via formal risk assessment briefings or engineering updates (formal presentations to all engineering personnel), which are recorded. Any additional controls required are implemented within the agreed timeframes.

Risk assessments are reviewed by appropriate managers on an annual basis or more frequently if the circumstances change.

The Risk Assessment System is periodically audited as part of the Health, Safety and Environment Auditing programme.

Risk Review Committee

The Risk Review Committee is responsible for the identification and assessment of risks in relation the safe operation of the network asset (the network asset being defined as the distribution network, associated resources, systems, procedures and processes). Significant risks identified via the risk assessment process are presented to the Risk Review Committee for discussion and agreement on controls and appropriate actions to mitigate them.

The committee meets on a bi-monthly basis and is attended by all Phoenix Senior Engineering Managers and the Network Operations Managers.

The objectives of the committee are to:

- identify risks that may affect the safe operation of the distribution network;
- to ensure all risk assessments are completed as appropriate;
- to develop and agree suitable actions to mitigate risks identified;
- implement and monitor agreed mitigation measures and controls;

- to ensure the Operational Risk Register is maintained and reviewed;
- to verify that actions identified to mitigate risks are appropriately implemented;
- to review and monitor health and safety performance specifically in relation to the management of network related risks management;
- to contribute to the formation of technical and safety related policies and procedures; and
- to ensure all relevant technical and safety related information is adequately communicated to employees.

Network Safety Group

The Network Safety Group comprises of all Senior Managers within the Commercial Operations department and is chaired by the Director of Commercial Operations. This group meets on a quarterly basis to review all health and safety issues and risks relating to the safe operation of the distribution network.

The Group also reviews any safety related matters which has been elevated by any other safety meetings within the organisation, for example the Risk Review Committee.

An example of some of the areas reviewed are emergency procedures, risk assessments undertaken and reviewed, safety related training, results accident/incidents investigations and lessons learnt, results of safety audits/inspections undertaken and policy formation.

This group ensures that health and safety is an integral part of all projects and operations undertaken by Phoenix.

Business Continuity Arrangements

Phoenix maintain a Business Continuity Plan ("**BCP**") that outlines how it would continue to operate if access to the main office, or to the systems therein, are restricted for prolonged periods.

A BCP Working Group, comprising representatives from key Phoenix departments, meets on at least an annual basis to discuss business continuity issues and to improve the BCP. Members of the BCP Working Group are responsible for reviewing and updating battleboxes[3], key business process and actions listings for their areas of responsibility.

[3] A box (physical or virtual) of critical documentation required to assist the continuation of critical business processes should the BCP be invoked.

The BCP disaster recovery ("**DR**") arrangements include the provision of a DR Site, which can be utilised by Phoenix following a major incident affecting the main office. As part of the DR arrangements, the following resources are available at the DR Site:

- dedicated, replicated control room;
- replicated networks drives;
- workstations (computers, telephones etc) with access to Phoenix systems;
- a dedicated computer suite;
- fax machines;
- printers;
- photocopiers; and
- storage.

Risk Assurance Manager

Phoenix employ a Risk Assurance Manager with specific responsibility for the management of risk to Phoenix, its employees, customers, assets, reputation and interests of stakeholders and for the implementation of best practice and businesses improvement initiatives.

The Risk Assurance Manager is a Chartered Accountant (big four accountancy firm trained) with over ten years experience in Enterprise Risk Management and Internal Audit.

The Risk Assurance Manager's key activities include:

- planning, designing and implementing an overall risk management process;
- evaluating and assessing risks facing the business (e.g. facilitating risk workshops with Senior Managers);
- reporting on key risks to the Directors (e.g. by way of the twice yearly Chief Executive Officer led Group Development Forums (see section 7.1));
- ensuring appropriate corporate governance arrangements are in place;
- the implementation and management of best practice risk management practices (e.g. risk registers);

- conducting audits of policy and processes; and
- implementing policy and procedure improvements.

Audit

Internal Audit

Phoenix recognises that the activities involved in managing risk, play a central role in maintaining a sound system of internal control. One of the key roles of the internal audit function within Phoenix is to provide the Directors with assurance that risks identified are being appropriately managed.

The Phoenix internal audit plan, which is agreed on an annual basis, is designed to complement the Corporate Risk Register and Operational Risk Register through the review of areas of significant risk and to ensure actions to mitigate risks have been implemented appropriately.

The Phoenix internal audit function provides the Directors with assurance on:

- risk management processes, both their design and how well they are working;
- the management of key risks, including the effectiveness of the controls; and
- the complete, accurate and appropriate reporting and classification of risks.

The internal audits performed provide the Directors with an independent assessment on the adequacy and effectiveness of Phoenix processes.

The final results of all internal audits and follow up audits performed are presented to the Chief Executive Officer and the Directors.

External Audit

Phoenix are audited by KPMG on annual basis to confirm that the financial statements are presented fairly, in all material aspects, and/or give a true and fair view in accordance with financial reporting standards.

Health and Safety Audits

Phoenix ensures the effectiveness of its Health and Safety Management System through a combination of internal and external audit regime.

Phoenix's internal HSE Audit procedures sit within ASHES. Phoenix maintains an annual HSE Internal Audit Schedule. The findings of the audits, including Corrective and Preventative Action Requests ("**CPARs**") raised (see section 4.4) are communicated to the Directors and are monitored to implementation through the HSE Action Tracker System.

Phoenix have attained ISO 14001 (Environmental Management System) and OHSAS 18001 (Occupational Health and Safety Assurance Systems). Both systems have been externally verified and as such are independently audited twice yearly by a third party to ensure continued compliance and certification.

Phoenix has also been audited by the British Safety Council as part of their Five Star Audit and was awarded two consecutive swords of honour as a result of the standards attained.

Each year an external audit plan is prepared which, along with the above Health, Safety and Environment Management Systems Audit, will also specify other areas of independent HSE Audits required. For example Phoenix Safety Case compliance audit, Construction Design Management compliance audit.

Phoenix recognises that it is only through regular internal and external audit can assurance of the adequacies of the Health and Safety Management System be assured and a culture of continual improvement fostered.

Regulatory Compliance Register

The Regulatory Compliance Register is utilised by Phoenix to summarise and manage the main conditions within the Licence. The register is reviewed on a monthly basis to ensure Phoenix continues to meet the Licence requirements and is periodically presented to the Directors.

New Legislation / Legislative Amendments

Phoenix has robust procedures in place for the identifications and implementation of amendments to processes as a consequence of new or amended legislation e.g. the UK Bribery Act.

When applicable, Phoenix implements the following processes to ensure timely compliance with new /amended legislation:

- legal review;
- development/amendment of policy;
- identification of required changes to existing procedures or the development of new procedures;
- provision of training to relevant personnel (normally utilising industry or legal experts); and
- development of processes to ensure compliance (ongoing review, internal audits etc).

Financial Authority Matrix

Phoenix utilise a financial authority matrix to assign procurement spending limits to budget holders. The authority matrix is reviewed and approved by the Finance Director on annual basis.

Purchase orders are independently reviewed by personnel with appropriate authority prior to the placing of all procurement orders.

Security Arrangements

Phoenix is committed to minimising the risk to personnel through potential security incidents. The following procedures have been implemented to reduce the security risk of personnel, contractors and subcontractors working on behalf of Phoenix:

- mandatory personal safety awareness training provided to all personnel deemed at risk;
- arrangements for effectively monitoring the location of at risk personnel (vehicle tracking, panic alarms, signing on and off jobs etc.);
- formal procedures for reporting security incidents/attempted incidents;
- 24 hour/seven days a week central resource available to monitor and manage security incidents/attempted incidents;
- procedures for the timely notification of security incidents/attempted incidents to other personnel, contractors or subcontractors working in the areas affected; and
- a register of security incidents/attempted incidents is maintained on the Phoenix asset register.

4.2 INTERACTION WITH UR

Phoenix has significant knowledge and experience operating in a regulated environment. Phoenix's Directors have in total c.70 years experience working with UR. As well as the normal day-to-day interactions, Phoenix has completed five price control reviews, agreed several licence extensions and successfully delivered both commercial and domestic retail competition in its Licensed Area.

Phoenix has also constructed operated and maintained the Belfast Gas Transmission network between 1996 and 2008 and, by working with UR, successfully sold its transmission business to Mutual Energy to deliver the benefits of mutualisation for Northern Ireland consumers.

During mobilisation, Phoenix sees the requirement being to complete a price/shadow price control review to establish the capital and operating expenditure for the first five year period. Capex will be determined following the procurement of materials and the award of construction contract and as such a detailed timetable will need to be agreed with UR for determining the VFCE. As detailed in section 2.1, it is Phoenix's plan to construct the transmission network, operate and finance it in a traditional manner for a maximum of three years, during which the transmission business will be either sold to Mutual Energy (Phoenix's preferred option) or will be internally mutualised by Phoenix to deliver the benefits of a mutualised transmission asset for the Northern Ireland consumer. This initial price/shadow price control review will therefore need to set operating allowances to deal with the two different company structures i.e. for the period until mutualisation is delivered and the period thereafter.

Phoenix also sees the need, during mobilisation, to deliver a Connection Policy. Again Phoenix has already established a Connection Policy for distribution for the existing Licensed Area and has, in the past, had a Connection Policy that incorporated its previously owned transmission network. Subject to the principles determined as part of the first price/shadow price control review, would use its current Connection Policy as a template for establishing a Connection Policy for the GTW Licensed Area.

As detailed in section 5.4, Phoenix's understanding is that a single Transmission Network Code to be used by all TSOs in Northern Ireland is planned to be implemented by October 2015. Phoenix would consider engagement with UR and existing TSOs as necessary to assist and inform the development and contents of the single Transmission Network Code. Also if there is any reason why the single Transmission Network Code is not going to be in place in time for the operational go live date for the GTW transmission pipeline then Phoenix would engage with UR in a timely manner to deliver a standalone Network Code for the GTW network with transportation arrangements in line with the current arrangements for HP pipelines.

Phoenix has already established accountability for regulatory affairs in its current organisation structure. Ultimate responsibility rests with the Chief Executive Officer with the Commercial Operations Director being the Director accountable within the company. The Regulatory Manager, supported by the Business Planning Manager, is responsible for all strategic interaction with UR e.g.

- ensuring licence compliance;
- providing detailed analysis and supporting information for each price control review;
- submitting licence extension applications;
- submitting annual conveyance charges determinations; and
- submitting periodic reviews of Phoenix's Connection Policy.

These Senior Managers are supported by the Transportation Services Manager whose regulatory responsibilities, as detailed in section 5.4, are largely operational.

These three Senior Managers have many years experience operating in Northern Ireland and interacting with UR. A pool of analysts provides support on both operational and strategic regulatory issues where required alongside their core work activities.

Phoenix proposes to utilise this existing organisational structure to manage the regulatory requirements and ensure accountability for regulatory affairs in the GTW transmission business.

Phoenix believes that to deliver a successful natural gas industry in Northern Ireland requires close cooperation and a good working relationship between the company and UR. Phoenix believes that the success of the existing Licensed Area is a result of its working relationship with UR at all levels in the organisational structure, with regular interaction between the Chief Executive Officers of Phoenix and UR, the appropriate Directors and the appropriate Senior Managers. Phoenix proposes that similar interaction would be required to deliver a successful natural gas industry in the GTW Licensed Area.

Phoenix currently provides UR with a range of both periodic and ad hoc information to report performance and support regulation of the business e.g.

- Phoenix submits its network development information annually. This details distribution pipeline installed and total distribution system capital expenditure by Licensed District; connections made to the network by tenure; energy off taken from the network by Gas Suppliers; and cumulative premises connected and cumulative premises passed to the end of the calendar year. This information is provided to UR more frequently if requested;
- Phoenix publishes its Network Capacity Statement annually;
- Phoenix publishes its Standards of Service annually;
- Phoenix submits its Regulatory Accounts and compliance certificates annually;
- Phoenix publishes its conveyance charges as approved by UR annually; and

- Phoenix submits a quarterly report on supplier transfers.

Phoenix has also worked closely with UR to develop the cost reporting templates which formed the basis for cost comparison for the GD14 price control review. These GD14 templates are consistent with the templates used as part of this licence application process. Phoenix will work closely with UR to implement an enhanced, robust and consistent system for cost reporting.

Phoenix intends that the existing suite of information and reports currently provided to UR would duplicated for the new Licensed Area with further reports developed to meet any additional specific requirements of UR.

4.3 POLICIES AND PROCEDURES

Phoenix utilise robust processes to control the development, review, approval, dissemination and retention of policies and procedures for its operations in the existing Licensed Area.

A suite of policies and procedures that document all aspects of its operations is maintained by Phoenix. Personnel are provided with access to policies and procedures via the Phoenix intranet web pages.

Further detail on Phoenix's:

- ***process for development of policies and procedures;***
- ***process for maintenance/review of policies and procedures;***
- ***organisational arrangements for personnel access to current documents; and***
- ***proposals for communication of changes***

is provided below.

It is envisaged that the processes currently in operation in Phoenix would be replicated for the GTW transmission business.

Development

Policy and procedures are developed by Managers with responsibility for the areas of consideration. Various resources to aid the development of uniform and consistent policies and procedures for the organisation are available e.g.

- policy and procedure templates – that provide guidance on font types, logos, format, copyright notices, version control etc; and
- acronyms and glossary of terms – information on agreed definitions and terminology to be utilised in relation to our operations.

As a minimum all Phoenix policy and procedures must include:

- title;
- publication date;
- unique reference number;
- version control;
- approvals; and
- copyright notice.

Consultation

New or amended policy or procedures are consulted on both internally (by relevant Phoenix departments) and externally (by external stakeholders e.g. Gas Suppliers, CCNI) if applicable, prior to being published.

Approval

Policies and procedures are approved by the Manager that developed or amended them and by a Director. Approvals are evidenced by way of signature on hard copies. A central repository of all signed policies and procedures, including historic versions, is held.

Publication

New or updated policies or procedures are issued by email to Senior Managers in advance of formal publication. Emails include copies of the new/amended policies or procedures and briefing notes on the key aspects of the new processes/changes.

The Directors are notified on the key aspects of all new or updated policies and procedures via the twice yearly Chief Executive Officer led Group Development Forum (see section 8.4).

Copies of policies and procedures are made available to all staff via the Phoenix intranet web pages. Staff are notified by email when new or updated policies or procedures are added to the intranet web pages. Hard copies are also provided to relevant personnel without intranet access e.g. emergency response Engineers.

New staff commencing employment with Phoenix are briefed on relevant policies and procedures as part of the induction process.

In some circumstances, separate verbal briefings on new or updated policies or procedures are provided to all personnel e.g. the Health and Safety ASHES Policy is briefed to all Phoenix employees.

Copies of policies and procedures are issued to contractors or subcontractors working on behalf of Phoenix if deemed relevant.

Update and Review

Phoenix policies and procedures are updated by relevant managers bi-annually or earlier if processes change significantly.

Where applicable, Senior Managers are provided with updated versions of policies and procedures with new or amended aspects highlighted.

Policy and procedure documents are updated with new version numbers for each new publication.

4.4 INSPECTION REVIEW QA AUDIT

Phoenix will develop, within its Asset Management structure, procedures, processes and review mechanisms to ensure that the transmission network is designed, constructed, operated and maintained safely, effectively and securely.

Health, Safety, Quality and Environmental ("**HSQE**") matters are currently managed by Phoenix via a structured series of HSQE management meetings addressing areas such as:

- Policy and procedure formation and implementation;
- Risk management and implementation;

- Implementation of the safety and quality auditing programme;
- Implementation of safety and quality inspection programme;
- HSEQ monitoring and review processes; and
- The implementation and management of change.

It is intended that this structure be augmented by the addition of a specific Transmission Asset Review Group that will report regularly to the Network Safety and Board Meetings and will liaise with the Risk Review Committee, the ASHES Safety Committee and the Environmental Reporting Group for matters related to the transmission asset (see Figure 4.4a).

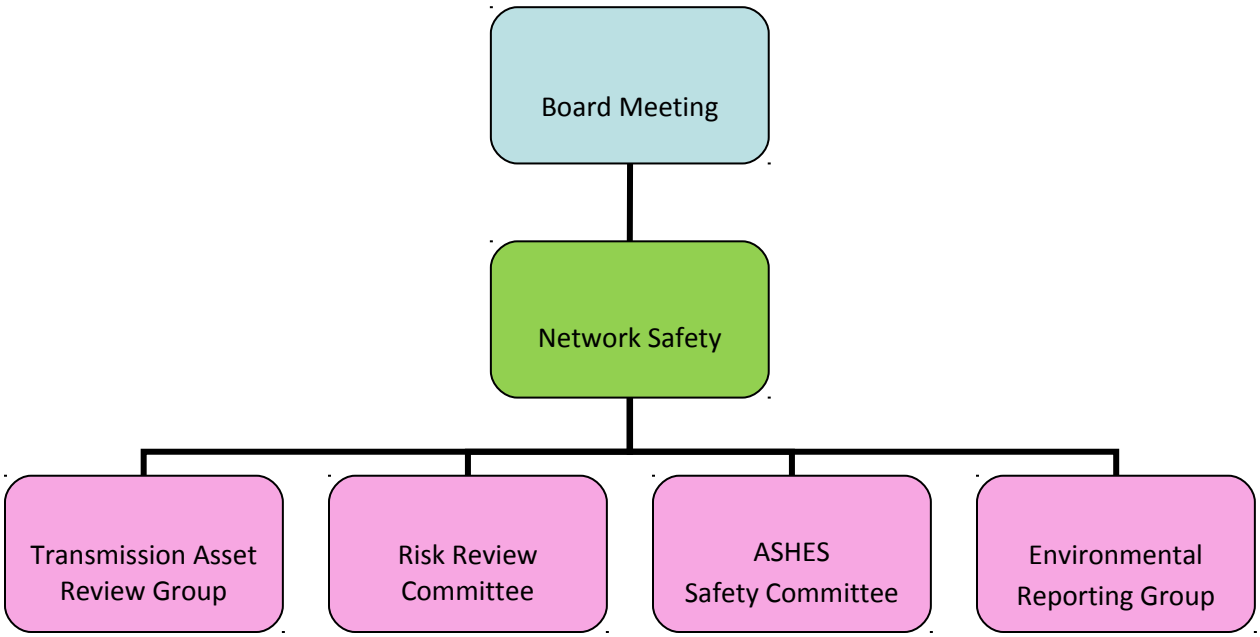


Figure 4.4a Proposed Management Meeting Structure including the new "Transmission Asset Review Group"

The three meetings which are most relevant to this section 4.4 are Network Safety, Risk Review Committee and Transmission Asset Review Group:

- **Network Safety Group**

  The Network Safety Group comprises of all Senior Managers within the Commercial Operations department and is chaired by the Director of Commercial Operations. This Group meets on a quarterly basis to review Health, Safety and Quality related performance, issues and risks relating to the safe operation of the network in the existing Licensed Area.

  The group also reviews any safety or quality related topic which has been elevated by another group within the organisation e.g. by the Risk Review Committee or the Quality, Environmental, Safety and Training ("**QuEST**") Group. Further detail on the QuEST Group is provided within the Phoenix Low Pressure Operational Business Plan.

  Further detail on the Network Safety Group is provided in section 4.1.

  This forum will be expanded to include issues relating to the GTW HP Pipeline System.

- **Risk Review Committee**

  The Risk Review Committee is responsible for the identification and assessment of risks in relation the safe operation of the network asset (the network asset being defined as the distribution network, associated resources, systems, procedures and processes). Significant risks identified via the risk assessment process are presented to the Risk Review Committee for discussion and agreement on controls and appropriate actions to mitigate them.

  The committee meets on a bi-monthly basis and is attended by all Phoenix Senior Engineering Managers and the Network Operations Managers.

  The objectives of the committee are set out in section 4.1 under "Risk Review Committee".

  This forum will be expanded to include issues relating to the GTW HP Pipeline System.

- **Transmission Asset Review Group**

  The Transmission Asset Review Group will be established, chaired by the Asset Manager and attended by the GTW Operations Manager, the HSE Manager, and other engineering personnel as required, with representation from the appropriate contractor or other independent organisations at the various stages of the transmission network life cycle e.g. the PMC and the Construction Contractor during construction phase and the MERC once operational.

  The remit of this group will be to manage and monitor all transmission asset construction, operational and maintenance activities.

Proposals Identified for Inspection / Quality Assurance / Audit / Review

As noted in section 3.7, a QMP will be developed for each phase of the asset lifecycle. This will encompass an audit, inspection and monitoring system and the implementation of a corrective and preventive action system to ensure a culture of continual improvement.

The transmission QMP will be defined within the Phoenix Asset Management procedures and processes. For the transmission asset, this process will start at the design stage, continue throughout the construction programme and be closely monitored and managed as part of operation and maintenance of the network.

Inspection and Quality Assurance

During the design stage of the GTW HP Pipeline System, inspection and quality assurance processes will be devised to ensure that materials, equipment and assemblies are specified in accordance with industry standards and an asset register detailing all component related details will be developed.

This asset register will be utilised during the material and equipment procurement, delivery, storage and the construction stage to record initial fitness for purpose inspection and construction inspection processes for welding, pipe coating, assembly of components, testing and asset records etc.

Phoenix will appoint a PMC to manage the Construction Contractor during the construction phase. Phoenix will be responsible for managing the work of the PMC, which will include the implementation of the QMP and a materials defects / non conformance monitoring and a Corrective and Preventative Action Request (**"CPAR"**) system. This process will be managed by the GTW Operations Manager and reviewed by the Transmission Asset Review Group. All actions related to specific asset components will be recorded on the asset register.

Prior to commissioning the network Phoenix will design an Asset Management inspection regime based upon statutory requirements, IGEM recommendations, industry standards and best practice. The auditing, inspection and reporting programme will be incorporated into Phoenix operational procedures and into the MERC contract.

For example, specified reporting processes will involve high risk inspection, non-conformances being reported directly to Phoenix's control room, registered on the CPAR system and referred immediately to the duty Phoenix Responsible Person for further investigation and action.

Lower risk non-conformances will be registered and appropriate specified action undertaken within an agreed timescale. All non-conformance reports will be forwarded to the GTW Operations Manager and the Asset Manager and the monitoring of the CPAR system will be an agenda item for Transmission Asset Review Group meetings.

Internal and External Audit Regime

Phoenix's internal and external audit programme is determined annually by the Network Safety Group and is managed by the appropriate Senior Manager. The transmission asset audit programme will be derived from the Operational Risk Register with high risk areas being subject to a more stringent audit regime.

All procedures will be assessed and depending on the level of risk a procedural audit programme designed. Periodic "special audits" will also be commissioned for specific areas of operation.

The findings of the audits, including corrective and preventative actions requests will be logged, remedial action progress monitored to close out through by the Transmission Asset Review Group, reviewed at the Network Safety Group and where appropriate reported at Board meetings.

System and procedural audits will usually be undertaken by Phoenix internal auditors, however, audits into activities highlighted as high risk or associated with statutory compliance may be undertaken by independent external specialised auditors.

Phoenix places significant emphasis on independent audits performed by industry experts to provide reassurance of existing systems and to continually improve our standards and performance.

Phoenix have attained ISO 14001 (Environmental Management System) and OHSAS 18001 (Occupational Health and Safety Assurance Systems). Both systems have been externally verified and as such are independently audited twice yearly by a third party to ensure continued compliance and certification. The findings of these audits and progress on the close out of corrective and preventative action are monitored "to close out" and reported to Board level.

Phoenix has also been audited by the British Safety Council as part of their Five Star Audit and was awarded two consecutive swords of honours as a result of the standards of Health and Safety Management demonstrated.

Review Processes

Phoenix Asset Management procedures and processes detail the requirement to undertake programmed reviews of policies and procedures on a periodic basis. This will be undertaken in line with Phoenix document control procedures.

An integral part of this process will be to review all relevant transmission management information which may include the findings of audit reports and inspections, all relevant CPAR's related to the area of review. Appropriate issues may be referred to Risk Review Committee, ASHES Safety Committee, Environmental Reporting Group for review or guidance on policy and procedure formation.

On completion of the review process a record of actions and completion must be formally recorded on the CPAR system action tracker system and monitored to close out.

Proposed Range of Operational Activities Covered

The range of operational activities to be covered by inspection, audit and review processes will be as specified by statutory requirements, IGEM recommendations and other relevant industry standards. The range of activities to be covered will be formulated at the design stage for the transmission network which will encompass the assets life cycle.

This initial range of operational activities will be reviewed by the GTW Operations Manager, the Asset Manager, the PMC and the MERC and will form part of the detailed QMP.

These activities will be reviewed on a regular basis by the Transmission Asset Review Group and the QMP updated as necessary.

The QMP applies to all appointed contractor and sub-contractor activities in connection with the design, construction and operation of the transmission network and will provide clear responsibilities and accountabilities for Phoenix and contractors.

The scope of the QMP will cover the detailed design, procurement in accordance with standard specifications, stock management, programming, construction, operation and maintenance activities, equipment calibration, pipeline route surveys, plant protection, site monitoring by the single TSO/ Grid Control, security and emergency activities.

The QMP will clearly define the level of audits and inspections to be completed throughout the asset life cycle. This will include the frequency that audits and inspections are undertaken and individuals responsible for completing them. The QMP will be formally reviewed at six-month intervals by the Transmission Asset Management Review Group.

Where appropriate all inspection activities will be recorded on personal data assistants ("**PDAs**"). The benefit of PDAs being that information can be relayed immediately from site to Phoenix's control room and non-conformances can be proactively managed. Any failures identified through site inspection or maintenance processes will generate a CPAR which will be managed and monitored to close out via the Transmission Asset Review Group.

Proposals to identify actions and manage to completion

Any corrective or preventative action identified either through inspections, management system audit, incident investigation or other means will be formally raised via the Phoenix CPAR system. A CPAR will be raised if noncompliance with defined criteria is identified. These criteria will be based upon statutory requirement, best practice, industry guidance and internal policies and procedures. Figure 4.4b depicts the existing Phoenix Corrective Action Management System.

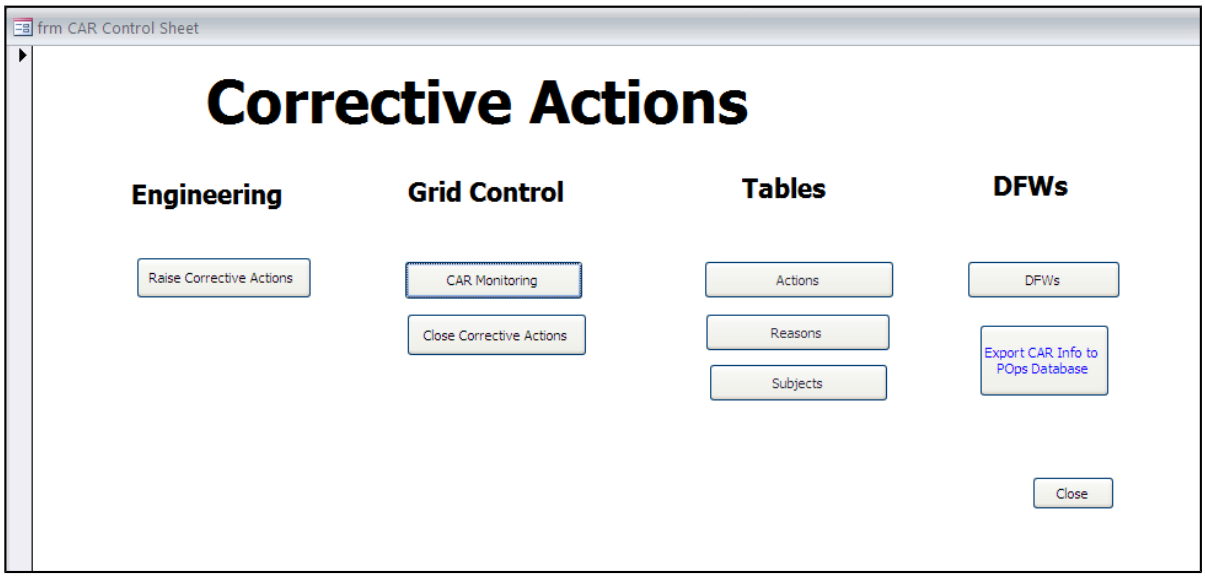


Figure 4.4b Phoenix Corrective Action Request Management System

All CPARs are raised and formally approved by Phoenix. Once the agreed CPAR has been completed in full (including evidence of the completed action presented to Phoenix), the CPAR will be formally accepted as closed by Phoenix. Figure 4.4c is an example of a closed CPAR.

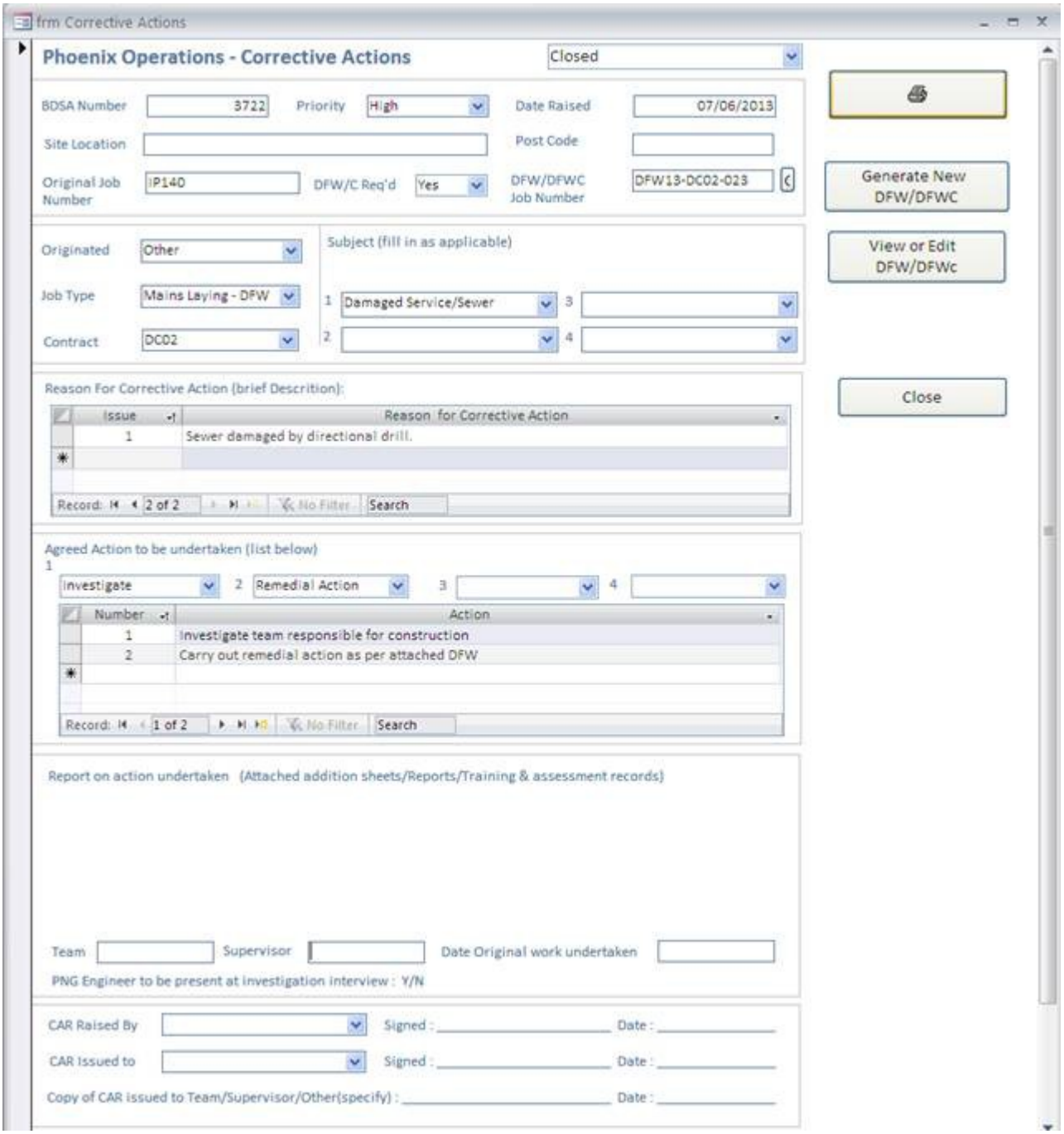


Figure 4.4c - Closed Corrective Action Request

The status of all corrective actions raised and closed out each month will be presented at the monthly Transmission Asset Review Group meeting.

Arrangements for feedback into review of policies and procedures

All CPARs raised will be reviewed by the Transmission Asset Review Group. At this forum a decision will be taken if the review of a non-conformance and specifically an agreed preventative action requires a review of any policy, procedure, method statement or risk assessment. The review will be allocated to the person responsible for the identified document and monitored to close out.

During periodic reviews of critical documents the data which will be evaluated as part of the process will include:

- Changes in statutory requirements;
- Industry guidance and recommended best practice;
- Material defects and non conformances;
- Near miss data;
- High Potential Incidents;
- Accidents / Incidents investigation reports;
- Trends of failures during inspections and audits;
- Control Room SCADA / system monitoring alarms;
- CPARs;
- Internal Audit findings; and
- External Audit findings.

In certain instances joint working improvement groups may be established to identify and implement measures associated with the review process.

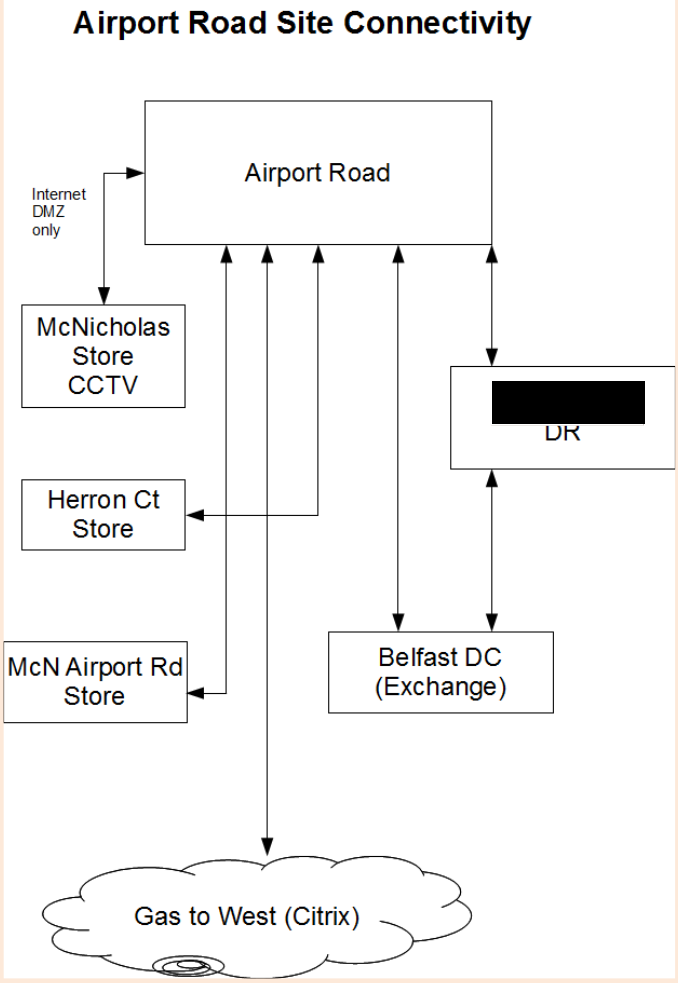
4.5 INFORMATION SYSTEMS

IT systems proposed to provide management information

Phoenix operates as an internal service provision where all information systems are managed, installed and run by a centralised IT department providing services to the whole Phoenix Group.

The core systems within Phoenix are Concerto, which records and manages assets and a GIS which provides a graphical record of the network and in conjunction with SynerGee enables effective management of the distribution network (see boxes below). Remote access is provided using either Citrix based Secure Sockets Layer Virtual Private Network technology, a secure and reliable solution currently deployed by Phoenix, on laptops or via Good Technology Solutions. Phoenix runs its own BlackBerry Enterprise Server ("**BES**") and Good Technology BES integrated into the host exchange server for this purpose. It is proposed to use the existing Citrix based system to provide remote access to the network in the GTW Licensed Area. As the infrastructure is already in place, deployment will be straightforward and will ensure quick and easy remote access to all the required systems.

Concerto



Concerto is a unified asset register system which records and manages all connections to the network and holds information about every supply point and work carried out there. It also includes systems to manage supply point administration, domestic customer switching and meter stock control.

In addition, a siteworks scheduling system allows various jobs to be booked by Gas Suppliers via a web interface. This web interface also allows suppliers to check certain asset register information and to confirm details about supply meter points.

Further detail is provided in sections 5.4 and 5.6 and in Phoenix's Innovation and Technology Transfer submission ("Systems" section).

Graphical Information System ("GIS")

An ESRI based GIS which provides a graphical record of the network and contains all physical assets. The GIS is used in conjunction with Concerto to manage and design the distribution infrastructure and integrates with SynerGee to provide modelling to ensure that the network meets the performance criterion set by Phoenix's engineering team.

Detailed information on GIS is provided in sections 3.5 and 5.6.

These systems coupled with those used in Finance (Task), Contracts and Procurement (6 over 6) and HR/Payroll (ICS Unicomp) will be used to support the provision of management information across the GTW transmission business, with the same mail, internet, and office desktop solutions made available as for current users within Phoenix.

Disaster Recovery

As detailed within "Business Continuity Arrangements" in section 4.1, Phoenix has a dedicated remote disaster recovery suite at [redacted] with various systems in hot or warm standby. This includes facilities for the operation of the Control Room. Efficiencies can be achieved by consolidating the disaster recovery sites for Phoenix and GTW transmission business.

Proposed approach to provide and disseminate operational activity based cost information

As noted in section 3.7, it is envisaged that these existing robust information systems would simply be extended through the addition of additional data sets to enable processing for the GTW Licensed Area. The existing hardware is stable and the processes robust so extrapolation across the GTW Licensed Area will be straightforward. This approach will ensure that Phoenix has the same ability to disseminate operational activity based cost activity in the GTW Licensed Area as has been proven, not least at the time of each price control review, for the existing Licensed Area. As noted in section 8.3, dissemination of information will be undertaken at Group level and within Phoenix's finance function. In summary:

Group level

The Phoenix Group exercises strong financial and management accounting controls through the consolidation of all financial and treasury requirements within the finance function within common services in Phoenix.

Long-term business plans and shorter term budgets and forecasts are tracked monthly against actual performance at both a company and consolidated group level in line with obligations

under financing agreements, thereby enabling financial requirements to be monitored against the cash resources available to both the Group as a whole and its constituent parts.

Phoenix's finance function

Phoenix's Business Planning and Regulation Departments support management of business plans and forecasts, collation of data and statistics, liaison with key agencies and other third parties.

Phoenix's Contracts and Procurement Department is responsible for the management of all contracts and services, provision of facilities and fleet requirements and the effective operation of the office.

Phoenix's Finance Department is responsible for accounting and treasury functions. This incorporates financial reporting to meet all statutory, regulatory and financing requirements, internal management accounting and reporting, audit and review of costs under the McNicholas contract arrangement, bank and other treasury management functions, tax management and compliance, stock and asset management, purchase and sales ledger control.

As detailed in section 2.2, Phoenix currently provides centralised corporate services to the whole Phoenix Group. Similar efficiencies can be achieved by consolidating some of the functions within Phoenix for the existing and the GTW Licensed Areas. Phoenix departments will therefore be expanded to support cost monitoring and control, including operational activity based cost information, across the GTW Licensed Area. This will ensure that the GTW transmission business benefits from the knowledge and experience of existing FTEs (including Senior Managers and the Directors) and the strong financial and management accounting controls already in place.

Support services requirements identified and resourced

Phoenix has identified its support systems requirements above.

Phoenix will resource its IT Department to ensure that it is capable of providing technical support to meet the demands of both its existing and the GTW Licensed Areas. Section 2.2 sets out the manpower resource requirements.

5. TECHNICAL

5.1 SAFETY CASE

Proposed process and timetable for development of the GTW Transmission Safety Case

The Gas Safety Management (Northern Ireland) Regulations 1997 ("**GSMR**") requires gas conveyors to prepare a safety case containing the requirements defined in Schedule 1 and to have this formally accepted by HSENI before conveying gas.

Phoenix prepared the Phoenix Natural Gas Safety Case (the "**existing Safety Case**") prior to the transmission and distribution of gas in the existing Licensed Area. This first issue of the existing Safety Case was accepted by HSENI as have each of the subsequent four revisions which followed thorough reviews undertaken by Phoenix. The history and progress of the existing Safety Case is outlined below:

Safety Case Issue number	Reason for creation/ review
1	Initial Safety Case
2	3 year review
3	Sale of Belfast transmission pipeline
4	3 year review
5	3 Year review

Issue 5 of the existing Safety Case is dated April 2012.

Phoenix has fulfilled the role of Northern Ireland Network Emergency Coordinator ("**NINEC**") since 1996 and has a sound technical knowledge and understanding of the overall Northern Ireland natural gas supply system, structures and operating capabilities. As part of this role, Phoenix is responsible for preparing, updating and implementing the NINEC Safety Case which has been accepted by HSENI.

In conjunction other TSOs, DNOs and statutory bodies, Phoenix will review the existing NINEC Safety Case for the inclusion of the GTW transmission and distribution systems. Phoenix will also submit the NINEC Safety Case to HSENI for acceptance.

Phoenix would propose a separate Safety Case be prepared for the GTW HP Pipeline System. This approach will ensure that the identification and analysis of major accident hazards are appropriately identified and resourced for the GTW HP Pipeline System. This process will include specialist risk identification and analysis techniques.

Phoenix will use the skills and experience of its key members of staff in developing the existing Safety Case to prepare and submit a Safety Case for the GTW Licensed Area (the "**GTW Transmission Safety Case**"):

The development and submission of the GTW Transmission Safety Case will require the HSE Manager (who will lead the Safety Case Development Team) to work closely with all engineering Senior Managers defined as being "responsible for the safe flow of gas" in the GTW HP Pipeline System along with relevant appointed independent transmission specialists which may include pipeline designers, planners, safety engineers and environmental consultants. This Safety Case Development Team, through a series of group and individual forums, will identify the processes which must occur to plan, design, construct, operate and maintain a gas transmission system safely, without incident. As is the case with the existing Safety Case, Phoenix will ensure the GTW Transmission Safety Case addresses the requirements defined in Schedule 1 of GSMR.

The risk identification and management element which underpins the safety case will focus on the following key stages:

- identifying all major accident hazards associated with the transmission pipeline;
- identifying the potential consequences of each hazard;
- assessing each risk identified;
- identifying appropriate controls to reduce the risk to as low as reasonably practicable ("**ALARP**");
- identifying Safety Critical Elements to manage each major hazard identified;
- designing appropriate monitoring and control systems for each safety critical element identified; and
- preparing the GTW Transmission Safety Case for submission to HSENI.

As the transmission pipeline is classified as a major accident hazard pipeline under PSR, the preparation of the GTW Transmission Safety Case will be undertaken in parallel with other safety critical undertakings such as the preparation of the MAPD also required under PSR. Further detail is provided in section 5.8. The MAPD will form a significant part of the risk management element of the GTW Transmission Safety Case.

Implementation and review of the GTW Transmission Safety Case will be undertaken by the Risk Review Committee and the Transmission Asset Review Group.

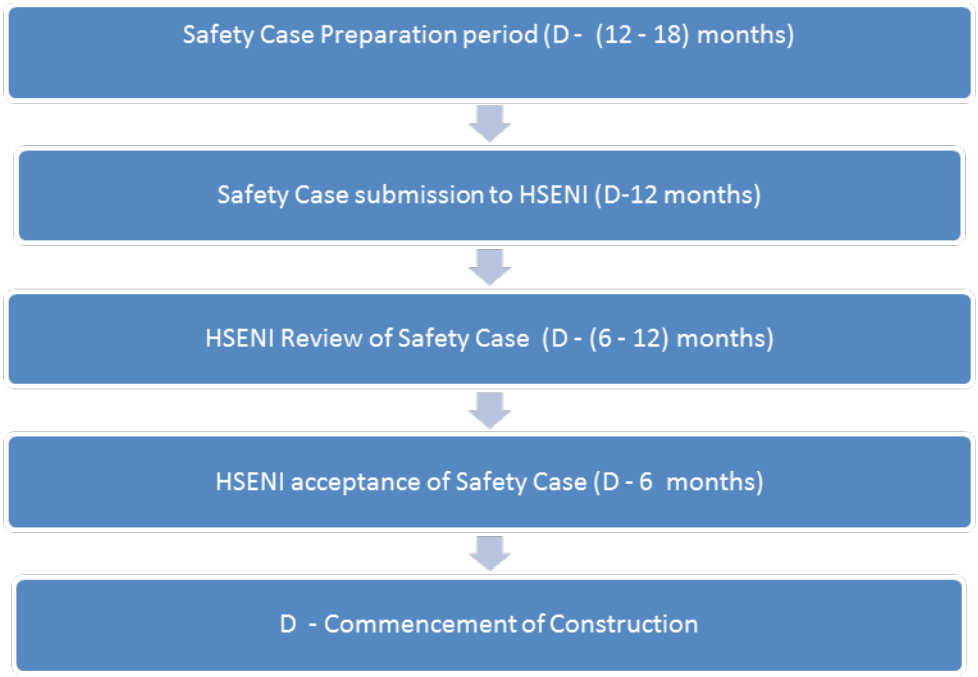
The HSE Manager must be satisfied that all risks which could affect the safety and integrity of the GTW HP Pipeline System are adequately assessed and controlled through the implementation of risk assessments (see "Risk Assessments" in section 4.1), safe working procedures, method statements and safe systems of work and that these are appropriately documented within the GTW Transmission Safety Case.

Phoenix would propose to initiate preparation of the GTW Transmission Safety Case not less than 18 months prior to the proposed commencement of construction. This time period allows for development of the GTW Transmission Safety Case to commence during the pipeline detailed design stage sufficient

liaison and consultation period with HSENI in relation to their acceptance process and to have an accepted GTW Transmission Safety Case agreed ahead of construction.

Proposed arrangements for liaison with and submission to HSENI

Phoenix would seek clarification from HSENI at the earliest opportunity on an appropriate period to enable it to conduct its review. Phoenix's proposed timetable (18 months) estimates HSENI's review period at between three and six months as defined within HSE's gas safety case assessment manual as illustrated in the following flow chart:



with "D" being the date of commencement of construction.

Phoenix is experienced in this stage of a safety case acceptance process. Previous submissions of revisions to the existing Safety Case resulted in questions or clarifications being raised by HSENI which required prompt responses. Furthermore in 2011, a three-day verification inspection was conducted by HSENI to ensure the contents of the existing Safety Case were being implemented by Phoenix and to further support their acceptance process.

Phoenix has a positive and pro-active relationship with HSENI. Engineering decisions are made via a formal risk based approach where HSENI's views are often invited and considered in the overall risk

management process. Phoenix will often present safety related engineering topics to HSENI, including the proposed risk control measure, to add value to the overall risk management system.

Phoenix's HSE Manager is an active member of the Northern Ireland Gas Safety Forum which is chaired by HSENI.

Proposed process for management of change in operational practices

Phoenix considers a safety case to be a "living document" which must be maintained in order to reflect any changes that would be considered either material or non-material.

Phoenix has also produced a responsibility matrix for the existing Safety Case which identifies the main requirements against each responsible person defined within the existing Safety Case. This ensures that each responsible person defined within the existing Safety Case is clear as to what their responsibilities are. The responsibility matrix also aids regular compliance reviews of the existing Safety Case. Phoenix would propose to mirror this approach for the implementation and management of the GTW Transmission Safety Case.

All proposed changes to the management or operation of the GTW transmission network would be assessed for potential impact on the existing Safety Case through the Risk Review Committee and the Transmission Asset Review Group.

Phoenix classifies "changes" as follows:

1. Minor changes; and
2. Material Changes.

HSE define a material change as: *"A material change is one that is likely to change the basis on which the original safety case was accepted. In other words changes that merit reappraisal of the risk control arrangements, whether or not they require the adjustment of measures to be taken."*

Changes are likely to be considered material if they have the potential to affect the major risks identified in the GTW Transmission Safety Case and the MAPD, either directly or indirectly. Phoenix would propose to always consult with HSENI as to whether a change should be recorded as minor or material at the earliest opportunity.

A material change will require a revision to the GTW Transmission Safety Case. The proposed change would be risk assessed by the Risk Review Committee and the Transmission Asset Review Group for impact on the GTW Transmission Safety Case and appropriate controls identified. The assessment of impact and implications would be formally presented to HSENI and their contributions incorporated into

the revision of the GTW Transmission Safety Case. The revised GTW Transmission Safety Case would then be submitted to HSENI for acceptance. On acceptance, the revised Safety Case would be issued to registered GTW Transmission Safety Case holders who would also be briefed on the relevant changes and impacts before a pre-agreed implementation date.

Any change which, following risk assessment and consultation with HSENI where appropriate, is deemed minor shall be recorded and maintained within the safety case modifications log. This ensures that all minor changes are incorporated into future revisions of the GTW Transmission Safety Case and monitored should they have a cumulative effect which warrants immediate revision of the GTW Transmission Safety Case.

Phoenix also ensures that regular internal and external audits are undertaken in relation to the implementation and compliance with the existing Safety Case (see "Health and Safety Audits" in section 4.1). The last independent audit was carried out on the existing Safety Case in 2010 followed by a HSENI verification inspection in 2011 as noted above. Again Phoenix would propose to mirror this approach for the GTW Transmission Safety Case.

5.2 TECHNICAL POLICIES, PROCEDURES AND REFERENCE STANDARDS

Proposals to have policies covering all operational business activities

Within the existing Licensed Area, Phoenix currently undertakes a wide range of distribution operational activities necessary to satisfy and comply with safety, regulatory, asset management, network maintenance, system monitoring and business activities and responsibilities incumbent on a DNO and asset owner. All of these activities are covered by policies, procedures and processes that have been drafted by line managers and approved by the Commercial Operations Director (for operational procedures) or appropriate Director in accordance with the document control procedure.

The existing procedures (detailed below), with minor enhancements, will be updated to include the operational / business activities associated with operating a transmission network and responsibilities incumbent on a TSO:

- Health, Safety and Environment;
- Risk Management;
- Asset Management and Records;
- Emergency and Incident Response;

- Safe Control of Operations (Non Routine Operations and Permit to Work);
- Business e.g. finance (budgetary control), IT, personnel, audit;
- System Monitoring / Grid Control; and
- Management of Network Code, System Access by Shippers and Gas Supplier Interface.

In addition to these procedures there will, during the transmission detailed design process, be a requirement to draft policies, procedures and processes to cover transmission operational activities such as:

- Emergency Procedures Manual;
- Pipeline Surveillance (Aerial / Vantage Point / Walking / Leakage);
- Prevention of Third Party Damage / Third Party Liaison;
- Maximum Operating Pressure ("**MOP**") Audit / Declaration;
- Condition Monitoring / Corrosion Control (Cathodic Protection / PIG / Close Interval Potential Survey ("**CIPS**"));
- Proximity / Population Density Infringements;
- Above ground pipework, line valve and PIG trap maintenance;
- AGI maintenance (filters / pre-heating / metering / pressure reduction equipment / instrumentation / communication equipment);
- AGI equipment calibration (metering / instrumentation)
- AGI operational checks (inspection / functional / diagnostic); and
- AGI site survey (security / civils).

The timescales / responsibilities for developing and implementing these procedures will be:

- drafting by the Project Management Team during the detailed transmission pipeline / AGI design stage of the project;

- reviewing, checking for conformity with legislation, regulations, industry standards and other Phoenix procedures, risk assessing and refining by the GTW Operations Manager / the Asset Manager during the construction phase;

- review and approval by the Commercial Operations Director three months prior to the commissioning of the transmission network;

- The GTW Operations Manager, the Asset Manager, and the MERC will be responsible for drafting and implementing operational processes, standard operating procedures, technical advice notes and maintenance / inspection / audit check lists to ensure compliance with the procedures.

Prior to the implementation all transmission / Grid Control staff, contractors and sub-contractors will be trained / briefed on the content of all procedures and processes, operating framework and their responsibilities / accountabilities.

Proposals for training of personnel to ensure understanding

Detailed training matrixes will be developed for all transmission / Grid Control staff, contractors and sub-contractors based upon individual job type responsibilities, accountabilities, safety requirements, duties and relevant procedures and processes. Prior to the commissioning of the network the following process will be undertaken by competent trainers, Managers, Engineers and assessors and overseen by the GTW Operations Manager:

- all personnel will be assessed against the relevant training matrix (review of qualifications, experience and where appropriate competency assessed);

- a gap analysis will be undertaken to identify shortfalls in qualifications, training / experience;

- training, mentoring, supervised on-the-job experience and competency assessment will be undertaken;

- where deemed necessary additional training and experience will be undertaken and competency further assessed;

- only persons that are qualified, experienced and deemed competent shall be employed to undertake transmission related activities;

- where there is a shortfall in a particular skill set a training development programme (including attainment of qualifications, training, instruction, knowledge, experience, competency assessment etc.) will be developed; and

- engineering update training / briefings will be periodically undertaken to update personnel in changes of procedures, processes, safety and technical matters.

Training, assessment and internal / external verification will be provided as appropriate by approved external training providers or internally by experienced authorised competent persons (managers, engineers and qualified assessors / verifiers).

Methods for assessing knowledge and competency will include:

- desk top scenario assessments / questionnaires;

- assessed tasks and assignments;

- witness testimonies from competent persons (managers, engineers and qualified assessors);

- assessment of submitted portfolio evidence;

- observation (practical task / site competency assessment); and

- review and authorisation of completed work.

5.3 COMPLIANCE WITH RELEVANT LEGISLATION, INDUSTRY STANDARDS AND BEST PRACTICE

Proposals to incorporate into all policies, procedures and practices

During the detailed design process, all relevant transmission network related legislation, regulations, industry / safety standards and best practices will be identified and incorporated in draft policies, procedures and processes. Compliance will be reviewed and if necessary content formally risk assessed prior to updating by the GTW Operations Manager / the Asset Manager and authorised by the Commercial Operations Director or other appropriate Director.

Phoenix as a DNO has regularly engaged with HSENI and IGEM, the recognised authority on technical standards for the gas industry, with regard to legislation, regulations and safety / technical standards and has also raised a number of compliance / technical queries. Additionally Phoenix has sought guidance / risk assessments from experienced industry experts / consultants to ensure correct interpretation of legal / safety / technical matters and the pursuit of better practices and delivering cost effective practical solutions. It is intended that this liaison process will also be adopted by Phoenix as a TSO.

Phoenix undertake periodic reviews of policies and procedures to verify currency and applicability and health check these through a combination of internal audit and external verification (e.g. the British Safety Council Five Star Audit), risk assessment and have also recently undergone a successful due diligence exercise associated with change in company ownership.

The above philosophy will remain for the GTW transmission business.

Process to maintain awareness of industry practice

Phoenix have a legal compliance procedure that requires an annual review to be completed to ensure the requirements and obligations of relevant legislation and regulations are being met and a register recording these reviews is maintained.

Sources used for this legal compliance review include:

www.hmso.gov.uk	Lists all new legislation each year in Northern Ireland
www.hseni.gov.uk	HSE legislation and the Approved Code of Practice
www.croner-i.croner.co.uk	Health and Safety updates

www.nibusinessinfo.co.uk	Environmental updates
www.doeni.gov.uk/niea	Environmental Agency
http://standards.igem.org.uk	Phoenix is an IGEM subscriber and has online access to all IGEM standards / updates
www.ukopa.co.uk	United Kingdom Onshore Pipeline Operators' Association

Phoenix retain sight of industry best practice through relationships with IGEM, Pipeline Industries Guild, other network operators, manufacturers, suppliers and contractors, websites, attendance at industry / asset management conferences / seminars and updates from gas consultants with whom we engage for specific services. Further detail is provided within Phoenix's Innovation and Technology Transfer submission ("Knowledge Sharing" section).

Phoenix will adopt relevant industry best practice where practical for the GTW transmission business.

5.4 NETWORK CODE

Timetable for completion of the network code and any other appropriate contractual arrangements

Phoenix is aware of the work currently being undertaken by the existing TSOs in Northern Ireland to deliver the requirements of EU legislation and all associated EU Network Codes ensuring Northern Ireland compliance. As part of this project the TSOs are preparing the single Transmission Network Code, a single Network Code to be used by all TSOs in Northern Ireland with a current proposed implementation date of October 2015. Phoenix assumes that the development of the single Transmission Network Code would consider the requirement to include provisions for the inclusion of an additional HP network and it would therefore be Phoenix's intention to utilise this agreed single Transmission Network Code for the GTW transmission operation with minimal amendment.

Phoenix would also be keen to engage with existing TSOs in Northern Ireland as soon as possible following the grant of the necessary licence to assist and inform the development and contents of the single Transmission Network Code to ensure this could be in place to facilitate the transfer of operational arrangements to the single TSO in a timely and coordinated manner as well as allowing shippers wishing to utilise the pipeline to begin their accession processes. Phoenix would assume that any Shipper already acceded to the single Transmission Network Code would not be required to complete a full accession process for the GTW HP network thus reducing the associated timescales.

In the absence of an agreed single Transmission Network Code Phoenix believes that it would be able to deliver a standalone Network Code for the GTW transmission network with relative ease as Phoenix would propose to put in place transportation arrangements in line with current arrangements for HP networks. Development of a standalone Network Code for the GTW transmission network would be undertaken in tandem with the construction of the transmission pipeline to ensure system operation could commence from the earliest stage following completion of the network (see Table 1: Timetable for the overall delivery of the GTW HP Pipeline System).

Irrespective of which approach for delivery of the Network Code for the GTW transmission network is considered the most appropriate i.e. a single Transmission Network Code or a standalone Network Code for the GTW transmission network, there will be a requirement for an agreement between Phoenix and the existing TSOs in Northern Ireland which ensures consistency in approach to the operation of the system, areas where co-operation and the sharing of information is critical, as well as the lines of communication to ensure effective operation of the networks at all times. Any agreement should include as a minimum details of:

- matching nomination and allocation processes;
- balancing arrangements and rules;
- pressure requirements, metering information;
- network emergencies handling;
- gas quality provisions; and
- communication strategy.

Phoenix is aware of, having once been party to, an existing TSO's agreement, the Northern Ireland Network Operators Agreement ("**NINOA**") and indeed was responsible in part for its drafting. Phoenix would suggest that any new agreement builds on existing arrangements.

Phoenix is also aware of the project to deliver single system operation currently being undertaken by the existing TSOs with their current preferred option being a joint venture. Similar to the comments above, on development of a single Transmission Network Code, Phoenix would propose to liaise with the TSOs as soon as the grant of licence process was complete to assist in the development of a single system operation for Northern Ireland and to aid the development of the necessary operating agreement necessary between Phoenix as the asset owner and the single TSO.

Phoenix would also propose to put in place a TSO DNO interface. Again similar to the NINOA for transmission operators, an agreement already exists between Phoenix and the transmission operators in

Northern Ireland and Phoenix would propose this as the template for the development of an appropriate TSO DNO interface. As a minimum any TSO DNO interface would include details of:

- connection facilities;
- gas supply emergencies handling processes;
- details of measurement equipment; and
- arrangements for provision of data and information flows processes.

Phoenix can readily deliver this TSO DNO interface and ensure that this is in place upon completion of the construction phase of the GTW HP Pipeline System by being granted both the distribution and the transmission licences under this connected application.

Phoenix are also aware of the revised requirements under the EU Network Codes for an increased flow of information between a TSO and DNOs and there will be a requirement to reflect these new requirements in any interface agreement. The new requirements include information relating to nomination processes, capacity requirements and Non-Daily Metered ("**NDM**") profiling information.

Based on the timescales for delivery of the Northern Ireland EU compliance project Phoenix would expect the necessary interface agreement and supporting system to already be in place to facilitate the additional requirements detailed above before the commissioning of the GTW HP network and we therefore would propose to utilise both for the GTW TSO DNO interface arrangements.

Accountability for management of processes/compliance/issues identified in the organisation structure

In preparing this application and as detailed previously in this section 5.4, Phoenix has assumed that the Northern Ireland EU compliance project has delivered on the requirement for single system operation including the production of a single Transmission Network Code for HP networks in Northern Ireland.

Accountability for management of processes and compliance

In relation to accountability for management of processes Phoenix believes that, as asset owner of the HP network, it will retain responsibility for the processes surrounding:

- the GTW Transmission Safety Case (see section 5.1);
- the emergency response (see section 5.8);

- long term planning and development investment decisions;
- aspects of congestion management;
- financial accounting;
- management of financial security policy; and
- tariffing.

Phoenix envisages that many of the above processes will be defined in either the transmission licence or the single Transmission Network Code.

In line with previous industry discussions on single system operation, Phoenix would suggest that the processes for which the single TSO should be responsible for include:

- operations
    - physical and commercial operations;
    - coordination of maintenance;
    - aspects of congestion management;
    - meter and gas quality management; and
    - management and co-ordination of emergencies.
- Transportation Services
    - market operations;
    - network balancing;
    - single Transmission Network Code administration; and
    - transportation charges administration (collection and disbursement of charges).
- Systems
    - Provision and maintenance of single IT system including the TSO DNO interface.
- Long term planning and development
    - Network User communications.

Many of the above processes undertaken using single system operation will be defined in the single Transmission Network Code and will be the responsibility of the single TSO to ensure compliance.

Organisational Structure

Phoenix believes it will be essential to develop an operating agreement with the single TSO to clearly set out responsibilities and in particular the reporting structure by which the single TSO will communicate with Phoenix to ensure proper governance. Phoenix would suggest that a governing committee should be set up, made up of senior management representatives from each transmission asset owner to ensure full accountability of the single system operation. Phoenix would expect to provide one Senior Manager who would have the appropriate decision making powers to represent its interests as an asset owner on any governing committee.

5.5 SYSTEM PERFORMANCE MONITORING, SYSTEM CONTROL ARRANGEMENTS

System Control Arrangements

Phoenix own and operate a dedicated Network Control Room ("**the control room**"). A team of five Grid Controllers operate on a 24 hour seven days a week shift pattern and fall under the remit of the Asset Manager.

The control room has been in operation since its inception in 2004. At that time Phoenix owned and operated the Belfast Transmission Pipeline, the Larne Lough Crossing and the Belfast Lough Crossing along with three associated AGIs. The PTS was sold to Mutual Energy in 2008.

In 2005 Phoenix transferred system control for the PTS from contracts held by National Grid to the control room. From 2005 to the date of sale, the control room safely and efficiently provided the control and operational monitoring of the PTS and the AGIs. Since then, Phoenix continues to monitor and record volume and pressure information at the four main Above Ground Installations ("**AGIs**") (Knocknagoney, Torytown, Larne and Lisburn) using information provided by SCADA at those sites. This proven experience of monitoring the current distribution network and the previous PTS network provides Phoenix with the confidence in its ability to manage the control and monitoring of the HP GTW network.

The control room successfully carries out several other key functions which would also be provided across the network in the GTW Licensed Area. These functions include:

- *the role of Network Controller within the Safe Control of Operations ("**SCO**") Procedure*. This enables Phoenix to comply with GSMR (see section 5.1) and provides safe systems of work on

Permit to Works, routine and non-routine operations on the network in the existing Licensed Area. The SCO Procedure will be used in the same way to safely control operations on the network in the GTW Licensed Area.

- the central point of contact between Phoenix and the Northern Ireland Network Emergency Coordinator during a national gas supply emergency and during all network emergency scenario exercises.

- *the Governor Maintenance Monitor* - as part of PRS maintenance processes (in compliance with the Asset Management Policy) the control room logs technicians on and off site and inputs data on new parts required into the PRS maintenance database. This enables Phoenix to improve personnel security and productivity and the detailed maintenance data received is critical to the ongoing RCM program.

As mentioned in section 3.5 and detailed in section 3.7, Phoenix assumes that single system operation as part of the EU Northern Ireland Compliance Project will have been completed. Upon award of the licence, Phoenix will engage with the existing TSOs to ensure that all systems procured and implemented as part of this project are compliant with single system operations.

Should the single system operation not be completed in time for the commissioning of the HP pipeline, Phoenix has the experience - gained from owning and operating a transmission pipeline and control room - to implement the changes in processes required to Phoenix's existing control room operations to safely and efficiently operate the GTW HP Pipeline System.

System performance principles and arrangements

As noted in this section 5:

- Phoenix assumes that the single TSO will be in place and will carry out the monitoring of system performance; and

- should the single TSO not be in place or should Phoenix's assumptions as to the remit of the single TSO be incorrect, Phoenix will enhance the Control and Monitoring Processes currently in place in Phoenix's existing control room.

For the purposes of this sub-section "System performance principles and arrangements", "***Control Room***" shall refer to the single TSO, the Phoenix Control Room or a combination of both.

The GTW Operations Manager will have the responsibility for developing the policies, procedures and processes required to ensure the safe and efficient operation of the GTW HP Pipeline System. During the FEED, the GTW Operations Manager will, in conjunction with the PMC, develop the key system

performance principles. These will inform the development of the policies and procedures, including the Emergency Procedures Manual.

The key system performance principle is to ensure the safe and efficient operation of the network in compliance with the relevant legislation and guidelines. These include GSMR, PSR and PSSR.

Inlet Pressures

Close liaison with the single TSO, the Control Room, the other TSOs and the DNO will be required in order to ensure that minimum pressures are maintained on the system and interruptions to supply are prevented.

This will be particularly important when the configuration of the transmission networks in Northern Ireland is taken into consideration. The GTW HP Pipeline System will be fed from the existing BGE(NI) pipeline system and will, in the initial years of operation, have no compression facility installed. The pressures available at the AGIs will be dependent on the inlet pressure into the system from the BGE(NI) pipeline system.

The current minimum pressure on the BGE(NI) pipeline is 35bar while the design minimum inlet pressure on the GTW HP Pipeline System is 50bar. This will not pose an operational difficulty in the initial years of operation, until customer numbers have reached the point where the demand requires the higher inlet pressure. This is a matter that will have to be revisited, but will be monitored by the GTW Operations Manager via the Control Room.

System Monitoring

The Control Room will be tasked with monitoring the key performance indicators of the GTW HP Pipeline System. These will be determined during the FEED and will include:

- Inlet Pressures to the GTW HP Pipeline System;
- Inlet Pressures to each AGI;
- Outlet Pressures at each AGI;
- Boiler Status / Alarms;
- Gas Temperature;
- Gas composition;
- Gas Calorific Value;
- Odorant Levels;
- Pressure Excursions; and
- Site Security.

Scheduled Maintenance / Inspections

The GTW Operations Manager will be responsible for scheduling maintenance and PSSR Inspections in accordance with Phoenix policies and in compliance with legislation – see chapter 8 for details of the operational activities. Where appropriate data is available, maintenance intervals will be determined using a Risk Based methodology. Where the appropriate data to underpin a Risk Based approach is not available, intervals will be set using manufacturers' guidance / industry best practice until such time as appropriate data has been collected.

5.6 ASSET RECORDS

Key Records

Maintaining comprehensive, accurate asset records is crucial to the successful operation of any gas transmission network. Phoenix has a proven track record of successfully constructing, owning and operating a transmission network between 1996 and 2006.

Phoenix currently captures and maintains a large number of asset records to facilitate its distribution network operations.

The asset records required to manage and operate the GTW HP Pipeline System will be clearly defined, controlled and retained by Phoenix. As part of any works contract Phoenix will ensure that all asset records and their associated accuracy requirements are outlined. The Construction Contractor will collect and submit the initial records detailing the specification and location of all the components in the system. The main asset records collected at this stage will include:

- *As-Laid records* documenting the exact location and specification of the pipelines and all the associated valves, welds and corrosion prevention apparatus. These are marked up in relative location to the permanent geography and include details such as depth of cover and distances from surrounding geographical features. These records are logged on databases and then updated on GIS. Hard copies of hand drawn sketches and printed digitised maps are filed with original design documentation. A GPS mark up will also be carried out on all transmission mains, valves and joints to allow precise accuracy of location in remote locations throughout the assets life cycle;

- *Easement/Wayleaves Documentation* for each landowner involved. These will be filed and referenced on an access database containing the critical details for each landowner. Hard copies of all correspondence will be filed and official documentation scanned and saved on a network drive. The specific areas covered by each easement/wayleave will also be digitised onto GIS;

- *Original design files* created prior to construction will be filed and will include authorising signatures, design drawings, design flow models, material and plant specifications, risk assessments, tender costings, official documentation to proceed, document register, engineering modification/repair procedure, third party utility information, landowner contact information, special landowner requests, landowner/utility correspondences etc.;
- *PSSR Packs* – Receipt of packs are logged onto databases, completed documentation scanned and hard copies of paperwork filed according to project number after being signed off by the authorising engineer and verified on the Written Scheme of Examination by the Competent Person. These packs include critical records such as pressure test data, commissioning data, welding joint data, x-ray testing etc.;
- *Corrective action records* against the Construction Contractor will be kept as hard copy and in database format;
- *Road, River and Railway Crossings* will be kept as hard copy, on GIS and in database format;
- *Areas with the potential for Ground subsidence* will be kept as hard copy, on GIS and in database format;
- *Arial Marker Locations* will be kept as hard copy, on GIS and in database format;
- *CP Telemetry Point Locations* will be kept as hard copy, on GIS and in database format;
- *Sleeve Protection Details including any auxiliary anodes* will be kept as hard copy, on GIS and in database format;
- *Pre and Post Construction Photos*
- *Land Drain Reinstatement details* will be kept as hard copy and on GIS;
- *Differences between Design and As-laid information with reasons* will be kept as hard copy and in database format;
- *Locations of Nearby Below Ground Plant and Pipelines* will be kept on GIS;
- *Areas of Archaeological Interest* will be kept on GIS; and
- *All protective materials used* will be kept on GIS and in database format.

Once construction is complete the MERC will be responsible for collecting and submitting the required operational records. The main records collected at this stage will be stored on purpose built databases and will include:

- *PRS maintenance and fault data* will be stored in the Governor Maintenance database. This database will retain records on maintenance dates, technician on-site/off-site times, parts used, safety device settings, corrosion levels, failures discovered etc. This data will be used to produce a statistical assessment as part of any RCM analysis on a system or individual part. The results of such analysis will be used when determining appropriate maintenance periods and improving equipment specification. This will in turn be critical when trying to minimise the whole life cost of the transmission asset;
- *Management of Change Records* will be kept as hard copy and in database format;
- *Current set points for each regulator, slam shut valve, and relief valve* will be kept as hard copy and in database format;
- *Corrective Action Records against the* Construction *Contractor* will be kept as hard copy and in database format;
- *Alarm Parameters for device with telemetry Installed* will be kept as hard copy and in database format;
- *Detailed pipeline specification data including type of internal coating, material grade, wall thickness, type of external coating or field applied coating, factory batch numbers, welder operator numbers, etc.*;
- *Pipeline Inspection Data / CIPS* will be kept as hard copy and in database format;
- *Cathodic Protection* - location, specification and performance data will be kept as hard copy and in database format;
- *Pressure Cycling Data* will be kept in database format;
- *Gas Quality Data* will be kept as hard copy and in database format;
- *Gas Odorant Data* will be kept as hard copy and in database format;
- *Paint System Performance* will be kept in database format; and
- *Remedial Work Carried out* will be kept in database format.

All records of inspection works carried out on the transmission asset will be captured on the Governor Maintenance Database and all hard copies of these inspections will be filed and retained.

Record Quality

Phoenix, working in tandem with the PMC and the Competent Person, will develop office based and site based auditing processes throughout the construction and operation of the GTW HP Pipeline System to ensure that all required records are captured accurately by the Construction Contractor.

A PSSR Sign-Off Process will be implemented where the Senior Construction Engineer from the appointed Construction Contractor checks all the construction paperwork and signs it off to confirm the relevant details are present and correct. The paperwork will then be passed to Phoenix for final sign off by the GTW Operations Manager and the Competent Person, based on the Written Scheme of Examination.

Arrangements for Collection of key records

All the key records outlined above will be collected as part of Phoenix transmission construction and operation processes. These processes will be clearly defined in legally binding contractual agreements between Phoenix, the PMC, the Construction Contractor and the MERC.

These contracts and their associated policies will specify the minimum level of experience and competency that any operative must have. This will ensure that they are fully trained and compliant with the data capture processes and their related IT systems to maintain the highest possible quality of data within the GTW HP Pipeline System.

Arrangements for Retention of Key Records

Phoenix has robust offsite storage procedures in place for the various systems including the digital asset information. These same storage procedures would be further developed and applied to the GTW transmission business meaning that all the key records would be retained in the event of major incident or equipment failure at Phoenix HQ. Key Paper records (see section 5.5) are scanned as well as archived which means they can be readily retrieved.

5.7 ASSET MANAGEMENT SYSTEM

Phoenix currently operates an effective Asset Management System in the existing Licensed Area. This ensures that a wide range of information is being collected and analysed to ensure sound management decisions are being made.

The responsibility for implementing and maintaining an Asset Management System within the GTW transmission business will fall under the existing Asset Management team within Phoenix. The Asset Management team will develop, within their existing structure, procedures, processes and review mechanisms to ensure the GTW HP Pipeline System is designed, constructed and operated safely, effectively and securely.

Currently information from the distribution network is being gathered through a range of audit, monitoring, reporting and review functions essential for day-to-day operation and maintenance activities. The Asset Management team ensures that Phoenix has and maintains the required asset management processes, knowledge and expertise and will therefore carry out the same role to effectively manage the GTW transmission Asset.

The Asset Management System within Phoenix controls strategies and expenditure to ensure a safe, reliable and sustainable supply of gas in line with:

- legislative obligations such as PSSR, PSR and GSMR;
- effective risk management via structured processes and forums such as the existing Risk Review Committee, the Network Safety Committee and the ASHES Safety Committee;
- effective Operational and Maintenance activities via the proposed Transmission Asset Review Group. This group will monitor these activities as well as and other related reports and non-conformances to ensure that any remedial action is managed to completion. The group will review its actions and implement continuous improvement processes which will develop and enhance the various transmission asset management procedures;
- financial business parameters outlined in each UR price control determination; and
- lowest lifecycle costs via continuous improvement, the application of RCM, lifecycle cost driven procurement, and an in depth understanding of how to maximise the lifespan of the entire Phoenix asset.

This existing Asset Management System will be further developed by Phoenix over the next 18 months in order to achieve the new ISO 55000 Standards for Asset Management accreditation. This will ensure that Phoenix has an ISO accredited Asset Management system in place to manage each phase of the development of the network in the GTW Licensed Area from procurement and construction through to maintenance operations and maximising the assets lifespan.

Proposed approach to implement an Asset Management System

Phoenix has been working over the last four years on a project to introduce a formal Asset Management System in line with the philosophies of PAS 55. Originally a detailed gap analysis was carried out, in conjunction with external consultants, highlighting the areas were Phoenix needed to improve. Detailed asset management plans were then developed based on thorough examinations of the policies and procedures in operation at Phoenix.

To date Phoenix has concentrated its efforts into ensuring compliance with the spirit of the requirements of PAS 55, though Phoenix does not intend to proceed with achieving formal PAS 55 Certification. ISO 55000 was released in January 2014 and Phoenix will aim to achieve ISO Certification by late 2015. These existing Phoenix Asset Management processes will be further developed to allow them to be successfully applied to the GTW transmission business.

Phoenix will initially develop and update its Asset Management Policy and Asset Management Strategy to ensure that any new areas, specific to the transmission asset, are fully covered.

Asset Management Policy

The objective of this policy is to set out the asset management framework which will support the compliance with the Phoenix price control review, Group Development Forum process (see section 8.4), operational processes and associated information/administration systems to ensure that the physical asset delivers the required level of:

- operation;
- safety;
- environmental performance; and
- security of supply.

at an optimum whole life cost.

Asset Management Strategy

Phoenix's Asset Management Strategy will require a new section dedicated to the GTW HP Pipeline System. A long term plan for the entire life cycle of the transmission asset will then be developed to enable Phoenix to implement and operate an integrated management process to effectively and efficiently deliver the company's Asset Management Policy throughout the GTW HP Pipeline System.

At present, the Asset Management Policy and Strategy are being updated to align Phoenix with the principles outlined in ISO 55000 released in January 2014. These policies will further be developed to ensure they can be used to successfully manage the GTW transmission asset.

An RCM process is currently underway within the distribution network and Phoenix will implement a similar process within the GTW HP Pipeline System. This will be longer term project. Initially Phoenix will identify the key items of transmission infrastructure to be assessed. Phoenix will then commence the data gathering phase of the RCM implementation process via the transmission maintenance and operational procedures, with design improvements and revised maintenance schedules being developed over time based on the results of the data gathering.

Phoenix is currently engaging a consultant with a view to completing the following tasks by May 2014

- ISO 55000 training for all relevant staff members; and
- gap analysis based on the new standard.

Phoenix is more than four years down the route of developing and implementing a formal Asset Management System for the maintenance and operation of the distribution network. Most of the principles behind the system will apply to the GTW HP Pipeline System meaning that Phoenix has already developed a large proportion of the Asset Management Systems required. Phoenix has committed a dedicated Asset Management team and this resource will ensure that the Asset Management System is fully implemented in the GTW transmission business.

Demonstration that asset records are integrated / aligned with work and financial management processes

Asset Records

Phoenix maintains two key Asset Records and Work Issue Systems - GIS and the Governor Maintenance Database - which will be further developed within the GTW transmission business.

GIS

GIS is used to capture details of all items of Phoenix equipment and plant that is installed in the ground e.g. pipe, PRSs, valves etc. Each item of asset is assigned a unique referenced number in GIS – a GIS ObjectID. This ObjectID is used to identify the asset from a maintenance point of view and provides a link to the Transmission Maintenance Database - this is simply an exact replication of the procedure Phoenix currently employs to link its Distribution Governor Maintenance Database to the GIS.

GIS is not used to capture maintenance details or to schedule maintenance, rather it provides a spatial representation of the item of plant relative to other parts of the network.

Further detail is provided at sections 3.5 and 4.5.

Governor Maintenance Database

The Governor Maintenance Database is used to issue all work associated with District and large regulators. This is a bespoke database that has been developed to capture asset records for all district PRSs and large I&C installations. It also holds details of bridge crossings that are subject to maintenance/risk reviews and for Network Critical Valves. This database will be further developed to enable it to provide the same functions for the critical parts associated with the GTW transmission network maintenance programs.

The Governor Maintenance Database captures the commissioning details of each item of plant and schedules routine maintenance and PSSR inspections. It also captures all non-routine and breakdown jobs that are carried out on these regulators.

With the introduction of RCM, the Governor Maintenance Database has been enhanced to capture fault data in the format that allows detailed analysis to be carried in support of changing of maintenance intervals/practices.

All PRSs and regulators within GIS are linked directly via the ObjectID to the Governor Maintenance Database. This integration of GIS and the Governor Maintenance Database ensures the Governor Maintenance Database also captures details of all parts used in routine and non-routine maintenance. Parts Used reports are generated and used by the Finance Department as part of financial cost reporting for the Operations and Maintenance team who have responsibility for this work.

The Asset Records Systems in place at Phoenix are designed to operate in tandem with the work management processes, ensuring the timely scheduling of maintenance work, driven by the underlying maintenance strategy for the given item of equipment/asset. This allows for consistent production of accurate financial information and for comprehensive management reporting on work activities. In turn this allows for greater control of the costs associated with non-routine and routine maintenance.

Phoenix will complete the minor changes required to allow the current Asset Records and Work Management Systems to be deployed throughout the GTW HP Pipeline System. This will ensure a consistent, efficient and proven approach to Asset Management throughout Phoenix.

Proposal for asset life cycle management

This section describes the key processes, procedures and controls associated with the lifecycle management of the Phoenix network assets. The same approach would be used in the GTW transmission business.

Figure 5.7a below details the three main phases of an asset's life cycle.

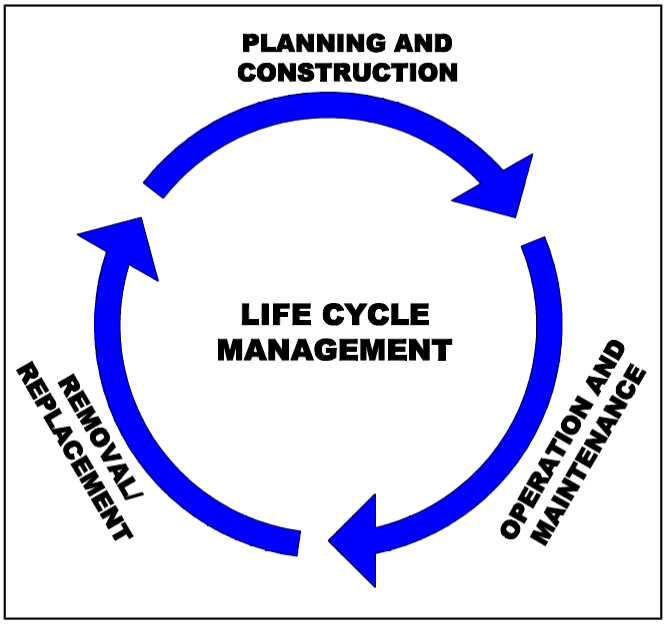


Figure 5.7a

1. *Planning and Construction Processes*

The following controls ensure quality and prudence in the planning and construction of assets:

- engineering procedures for planning a gas transmission system;
- project process control for design, construction and commissioning;
- asset management policies and procedures;
- detailed materials and component specifications;
- testing, inspection and commissioning policies and procedures; and
- appropriately skilled and competent personnel.

Key Financial Controls

Network asset construction, like in any business, must be subject to appropriate cost controls. The following financial controls ensure that creation of assets only occurs in accordance with established prudential approval processes:

- The initial construction phase will be controlled to ensure the actual costs stay in line with and do not exceed the initial projected costs. This will be facilitated by a regular meeting and reporting structure running continuously throughout the construction phase between Phoenix, the PMC and the Construction Contractor;
- all large capex projects, outside the scope of the price control determination, will be subject to the preparation of a formal business case/justification to UR;
- all opex and capex expenditure will require approval from a Manager/Director with a suitable level of Delegated Authority. This process requires authorisation for expenditure to be provided by both financial and operational departments within Phoenix; and
- Phoenix carries out a monthly report comparing actual costs and budget costs to identify any underperforming areas which are then analysed and brought back in line with the annual opex budget.

Material and Equipment Procurement

Any potential new piece of equipment will be proposed at the Transmission Asset Review Group. This forum will employ a structured process to ensure that the whole life cost of a piece of equipment is considered before purchase rather than just focusing on the initial purchase price. A detailed analysis on the projected life span, required maintenance regimes and spare parts costs is carried out to calculate an actual cost per year of operational status. This same approach will be used when forming a final decision on what equipment is best placed to meet the requirements for the GTW transmission business.

2. *Operation and Maintenance*

The Phoenix approach to network operation and maintenance is detailed in the Safety Case (see section 5.1) and the Plant and Equipment Maintenance procedure.

Operation and Maintenance involves three principal sub-processes:

i. Surveillance and Monitoring;
ii. Preventative Maintenance; and
iii. Corrective Maintenance.

The following data collection occurs in each sub-process to assist in making Asset Management decisions:

i. Surveillance and Monitoring:
   - telemetry pressure point monitoring;
   - pipeline inspection;
   - cathodic protection monitoring;
   - inspection of special crossings;
   - odorant monitoring;
   - pressure cycle monitoring;
   - leakage surveys;
   - CIPS;
   - internal on-line inspections;
   - river crossing surveys;
   - aerial surveys;
   - vantage point survey;
   - security monitoring; and
   - line walk.

ii. Preventative Maintenance:
   - regulator maintenance;
   - valve inspection and maintenance;
   - cathodic protection maintenance;
   - telemetry system maintenance;

- meter maintenance (I&C); and
- maintaining a “Dial Before You Dig” service.

iii. Corrective Maintenance:

- repairing leaks;
- repairing third party damages;
- providing standby and emergency callout;
- resolving metering problems/failures;
- repairing cathodic protection system faults; and
- fault-finding on HPRS.

Maintenance of assets is undertaken to ensure that their intended functionality i.e. performance level, is maintained for the duration of their expected lifetime. To ensure suitable performance, maintenance standards for differing asset types are determined using the following criteria:

- manufacturers recommendations;
- RCM analysis;
- asset type;
- location and operating environment;
- system criticality; and
- asset history.

3. *Removal/Replacement*

Examples of the processes associated with assets that have reached the end of their technical or economic lives (including removal from service and disposal or refurbishment to extend their useful lives) include:

- replacing or refurbishing ultrasonic metering assemblies;

- replacing or refurbishing pressure regulating installations; and
- replacing or refurbishing ancillary equipment (telemetry).

The process of network asset replacement is driven by the prudent balance between 'avoided future cost of maintenance' and current replacement cost. Those assets which are approaching the end of their technical lives or experience unanticipated deterioration in condition are identified for replacement and prioritised in a manner that ensures an efficient and cost effective allocation of resources.

In summary Phoenix will fully consider and manage the complete life cycle of the GTW HP Pipeline System from initial concept and design through to detailed design, material and equipment procurement, fabrication, construction, testing, commissioning, operation, maintenance, modification and finally, decommissioning and removal. This will allow Phoenix to accurately predict, minimise and financially plan for the associated costs throughout the whole life of the GTW HP Pipeline System.

Proposal to identify and manage developing risk

Risks will be identified and controlled by two existing and one new management forum within Phoenix. These forums will be used to identify and manage risk issues associated with the GTW HP Pipeline System. The two existing groups are the Risk Review Committee and the Network Safety Group. The new group will be the Transmission Asset Review Group.

- **Network Safety Group**

  The Network Safety Group comprises of all Senior Managers within the Commercial Operations department and is chaired by the Director of Commercial Operations. It will also include the GTW Operations Manager. This Group meets on a quarterly basis to review Health, Safety and Quality related performance, issues and risks relating to the safe operation of the network in the existing Licensed Area.

  The group also reviews any safety or quality related topic which has been elevated by another group within the organisation e.g. by the Risk Review Committee or the Transmission Asset Review Group.

  Further detail on the Network Safety Group is provided in section 4.1.

  This forum will be expanded to include issues relating to the GTW HP Pipeline System.

- **Risk Review Committee**

  As part of the initial Asset Management strategy the Risk Review Committee was set up to provide a forum were potential risks could be identified, discussed and decisions on what controls were required could be made.

  The Risk Review Committee is responsible for the identification and assessment of risks in relation the safe operation of the network asset (the network asset being defined as the distribution network, associated resources, systems, procedures and processes). Significant risks identified via the risk assessment process are presented to the Risk Review Committee for discussion and agreement on controls and appropriate actions to mitigate them.

  The committee meets on a bi-monthly basis, is chaired by the Asset Manager, and includes all the Phoenix Senior Engineering Managers, the HSE Manager, the Network Operations Managers and will include the GTW Operations Manager who will present any risks relating to the safe operation of the GTW HP Pipeline System.

- **Transmission Asset Review Group**

  The Transmission Asset Review Group will be established, chaired by the Asset Manager and attended by the GTW Operations Manager, the Phoenix Grid Control Room Manager, the Phoenix HSE Manager, and other engineering personnel as required, with representation from the MERC.

  The remit of this group will be to be to monitor all transmission asset operational / maintenance activities, reports and non-conformances and ensure that remedial / follow up action is managed to completion. An important part of this work will be to review actions and implement a continuous improvement processes and updating of procedures. Where necessary the group will refer specific matters to the Risk Review Committee, ASHES Safety Committee, Environmental Reporting Group and / or Network Safety Group.

Other systems in place which identify and manage risk issues include:

- Risk Assessment process

  A Qualitative Risk Assessment process formally identified hazards and controls requiring Senior Engineering Manager and Health and Safety Manager approval (see section 4.1).

- Near Miss reporting process

  This process allows all members of staff to report any potential hazards they have become aware of during whilst completing their daily tasks.

- Safety Alert process

  A formal process which notifies all relevant members of staff should an accident or an incident occur on the Phoenix Network or another gas operator's network.

- The Engineering Update process

  A quarterly forum where any relevant information on operational issues or risks is presented to the engineering team

- Safety Tour Inspections

  These are safety based inspection which are carried out on a range of Phoenix operational functions such as maintenance activities, emergency response and live gas operations.

Figure 4.4a shows the management meeting structure which will be used to control the GTW HP Pipeline System.

Application of RCM principles to optimise activity

The formal definition of RCM is:

> *Reliability-centred Maintenance: a process used to determine what must be done to ensure that any physical asset continues to do what its users want it to do in its present operating context.*

RCM is a risk based process developed to manage the maintenance and operation of assets in order to minimise cost and to maximise useful life.

RCM involves using a systematic approach to analysing each item of equipment/process in order to identify Failure Modes and Effects. From this detailed understanding of the equipment it is possible to develop optimised maintenance regimes, ultimately reducing cost and increasing efficiency. These efficiencies/savings are achieved by ensuring that only the correct maintenance is carried out at the correct intervals.

As mentioned, the RCM process involves a systematic approach to analysing each item of equipment. It involves asking the following seven questions about the asset or system under review:

- what are the functions and associated performance standards of the asset in its present operating context?

- in what ways does it fail to fulfil its functions?

- what causes each functional failure?
- what happens when each failure occurs?
- in what way does each failure matter?
- what can be done to predict or prevent each failure?
- what should be done if a suitable proactive task cannot be found?

For each item of plant under review an Operating Context is drawn up. This gives the details of the item, its functions, operating condition/environment and design parameters/limits.

In each case the Failure Modes and Effects are identified and, where applicable, suitable maintenance tasks developed. The reviews also identify design issues with each of the different installation types. As the process examines each part of the equipment in detail and in a very systematic fashion, a much greater understanding of the operation and failure characteristics is gained. In some cases, compulsory redesigns may be required for issues that may not have been previously identified.

At a basic level the review involves the following processes for each item of equipment of plant:

- carry out RCM review;
- identify failure modes (hidden/evident) and effects (safety/environmental operational);
- identify maintenance tasks, if appropriate;
- identify compulsory redesigns (physical/procedural);
- identify the fault data gathering requirements;
- implement the RCM recommendations;
- review the results; and
- audit the process and carry out periodic reviews.

RCM at Phoenix

Phoenix started on the journey to implementing RCM in 2011. This involved setting up a RCM team, employing external consultants to provide familiarisation training, setting up an Asset Management Department, getting two Engineers trained as RCM Facilitators, carrying out RCM Reviews on key items of Phoenix Asset and gathering maintenance/fault data.

The current position for Phoenix with RCM is that, for the sites for which RCM Reviews have been completed, we are collecting the fault data. As RCM is, for a large part, statistically based it is necessary for sufficient data to be gathered in order to inform any decisions that are to be made. This is particularly true when reviewing maintenance intervals.

What has become clear to Phoenix, and is often quoted in the training courses and RCM literature, is that implementing RCM gives the operator a better and more thorough understanding of the operation of the equipment. This allows the operator to modify the operating context of the equipment, either by changing the parameters within which the unit operates; changing/improving elements of the unit's design; or opting to employ a different unit.

For the GTW HP Pipeline System, Phoenix will draw on the significant amount of work done and experience gained in implementing RCM for distribution in the existing Licensed Area as the founding principles and training for transmission and distribution are the same. The GTW transmission business will immediately benefit from Phoenix's work to-date, both in terms of having the key systems and processes already in place for recording fault / maintenance data and in terms of having the key asset management personnel already fully trained as RCM facilitators.

The existing RCM principles will therefore be implemented throughout the GTW HP Pipeline System to optimise all maintenance operations, maximise reliability and therefore minimise the transmission asset's whole life costs.

5.8 EMERGENCY RESPONSE

Introduction

This section, 5.8, sets out and explains Phoenix's provision for emergency response including:

- emergency procedures prioritised for development during mobilisation stage;
- Standards of Performance and rationale;
- resource arrangements;
- arrangements for personnel training and simulation exercises;
- compliance with single Gas Emergency Number and interaction with other parties within the Utility Industry; and

- references - this details the primary legislation, regulations, procedures and industry standards relevant to Phoenix's gas emergency arrangements and resource provisions including a list of the key reports used by Phoenix in managing the current gas emergency service for the existing Licensed Area.

Explain emergency procedures prioritised for development during mobilisation stage

This subsection begins with an overview of Phoenix's current emergency response framework for the existing Licensed Area and then provides proposals for adoption and adaptation of this framework for the GTW HP Pipeline System.

To comply with the requirements of legislation and regulations applicable to the transportation of natural gas and responsibilities placed on a Transmission Network Operator, Phoenix will have in place emergency arrangements to adequately deal with incidents, gas supply emergencies, gas escapes and other emergency situations prior to the conveyance of first gas through the system in the GTW Licensed Area.

As detailed in section 5.5, Phoenix has previous experience of transmission operations within Northern Ireland having owned and operated the PTS over the period October 1996 to March 2008. Phoenix therefore has proven success in developing transmission emergency procedures, processes and systems to deal with major pipeline accidents, incidents and gas supply emergencies and has retained the role of NINEC ensuring a sound technical knowledge and understanding of the overall Northern Ireland natural gas supply system, structures and operating capabilities remains within Phoenix.

As a current DNO transporting gas on behalf of five Gas Suppliers to a customer base of c.171,000 consumers, Phoenix will further adapt, develop and enhance its existing emergency response framework to cover the GTW HP Pipeline System.

This emergency response framework is outlined in Figure 5.8a:

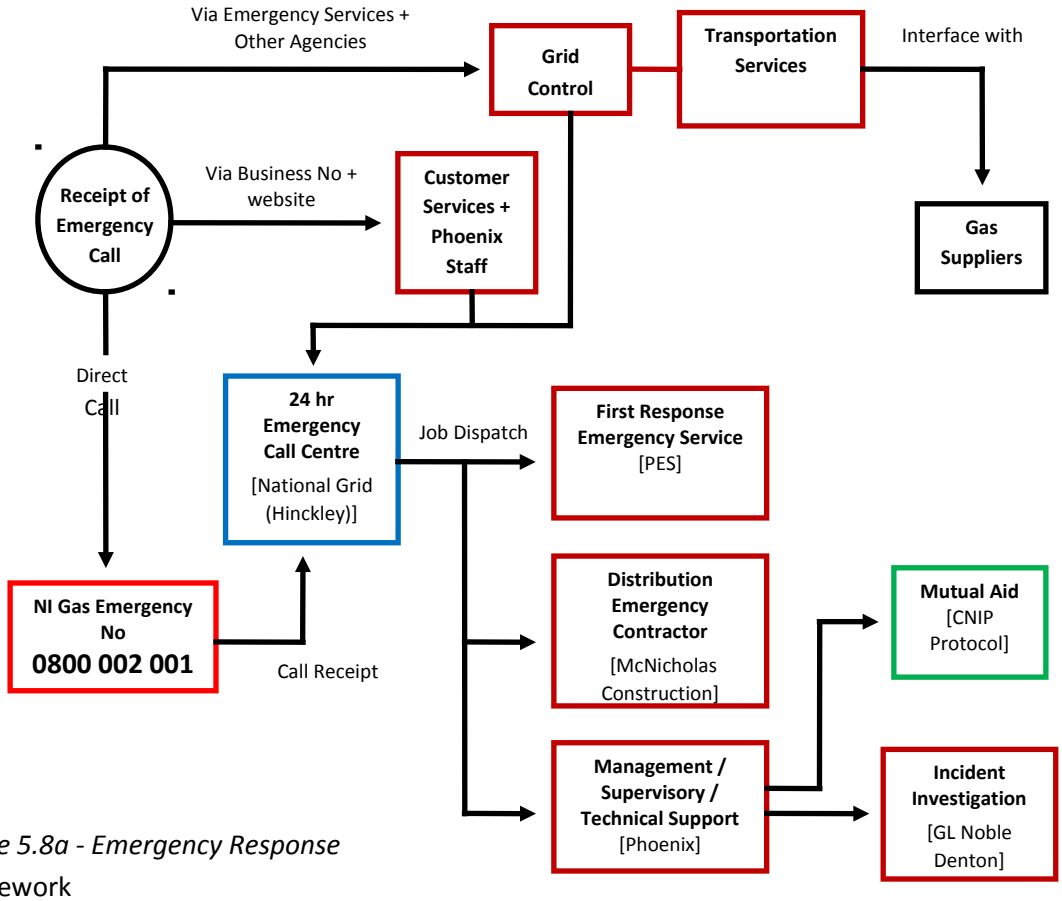


Figure 5.8a - Emergency Response Framework

The key parts of this framework are:

- provision of a dedicated gas emergency number;
- provision of a continually manned 24 hour emergency call centre;
- preparation of safety cases and provision of procedures and processes;
- provision of personnel, equipment and support to receive, action and complete emergency work and provide technical/specialist support; and
- mutual aid support.

Further detail on each is provided below.

Dedicated Gas Emergency Number

In the 17 years since natural gas was introduced to Northern Ireland, Phoenix has established the 0800 002 001 emergency number ("**the emergency number**") for Northern Ireland - a continuously manned free phone number that has been set up and managed by Phoenix and provided for use by the public, consumers and emergency services. This emergency number is shared with another natural gas DNO and gives direct access 24 hour seven days a week 365 days a year to the National Grid Emergency Control Centre based in Hinckley, England. This same emergency number will be used to receive safety related calls within the GTW Licensed Area ensuring consistency for all natural gas consumers and other parties throughout Northern Ireland.

24 hour Emergency Call Centre

National Grid is Phoenix's service provider for delivering a 24 hour emergency call centre ("**ECC**"). This call centre also deals with emergency calls on behalf of Network Operators in Great Britain but has in place a Northern Ireland desk and core staff specifically handling phone traffic to the emergency number. These staff are responsible for:

- call receipt, log and initial report classification;
- issuing of safety advice to caller/consumer;
- call dispatch to first response engineers and other personnel as dictated by Phoenix procedures;
- requesting additional support as instructed; and
- recording of job progress, completion, final classification and any necessary follow up work.

National Grid has escalation processes in place to facilitate an increase in call handling and dispatch, with mechanisms in place should an incident event occur for Phoenix Customer Services to handle non gas escape reports, dependent upon call levels. National Grid has business continuity contingency arrangements allowing for calls to be diverted to an alternative call handling facility in Leicester and back up communications.

From current emergency operations Phoenix has full visibility and a clear understanding of the number of emergency calls and enquiry calls received. Phoenix expect call volumes relating to the GTW HP Pipeline System to be low with the majority of responses to site resulting from

alarm alerts and deviations from normal operation that will be identified and managed directly by the single TSO.

Based on the total number of additional connected customers associated with the GTW Licensed Area it is anticipated that neither the extension of the distribution nor the transmission network will add significantly to the current workload handled by ECC, and present arrangements and standards of service shall be retained.

Safety Cases and Emergency Procedures and Plans

As detailed in section 5.1, under GSMR Phoenix has a responsibility to prepare a Safety Case (submitted to and accepted by HSENI) detailing all aspects of its business operations and responsibilities as a transmission network operator. An important part of which is the arrangements and procedures for dealing with and managing incidents and other gas emergencies.

Obligations under the Pipelines Safety Regulations (NI) 1997 place similar responsibilities on a pipeline operator to have processes in place to deal with loss of containment and damages / defects and, for high pressure transmission systems with major accident hazard pipelines, to prepare a MAPD and provide effective response to emergencies, accidents and resultant consequences as may arise with such pipelines or associated facilities.

The key procedural documents covering emergency arrangements are outlined in Figure 5.8b and detailed below:

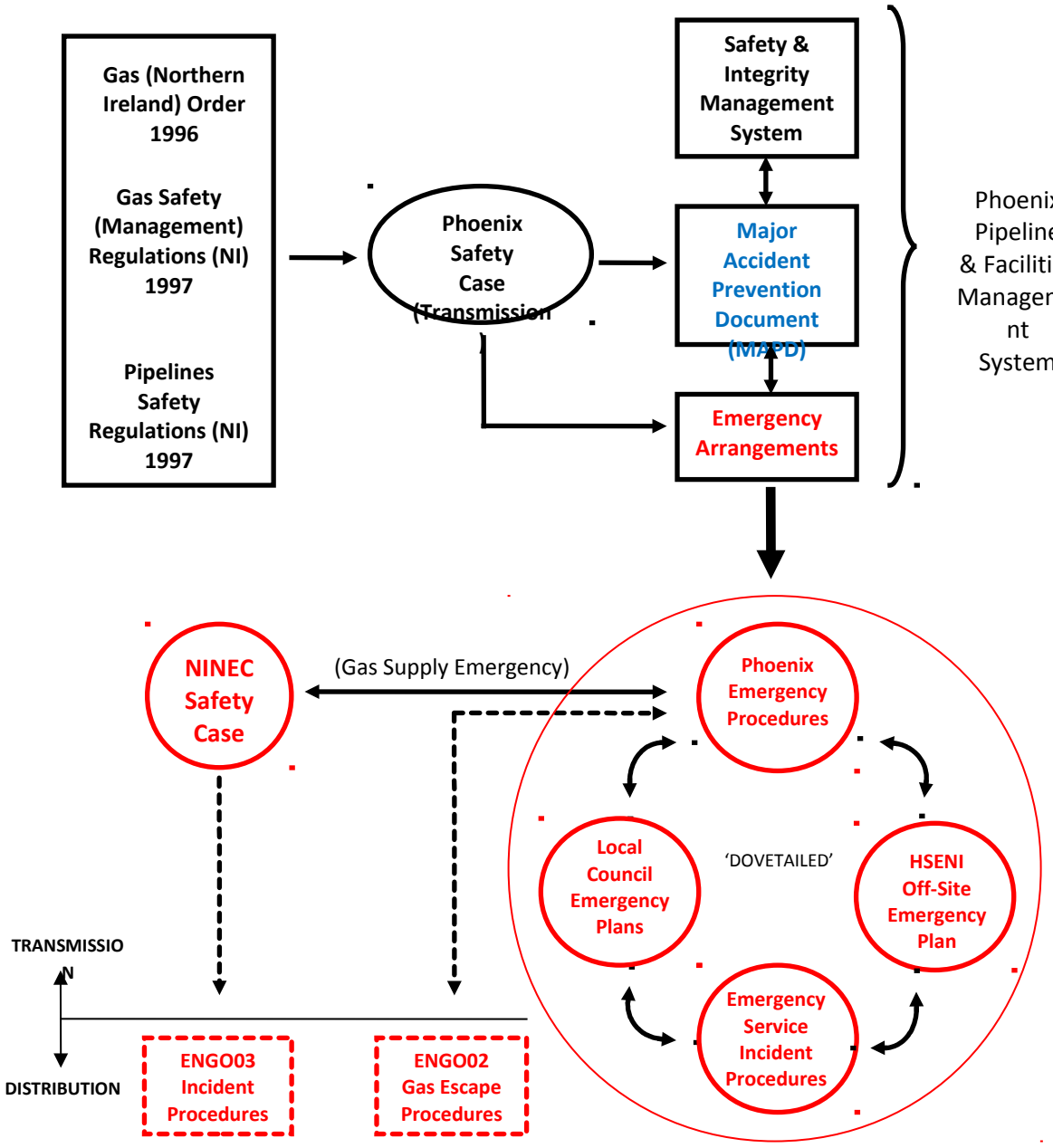


Figure 5.8b Emergency Procedures and Plans

Legislative Requirements

Regulation 12 of the Pipelines Safety Regulations (NI) 1997 places duties on pipeline system operators to provide adequate arrangements for incidents and emergencies and to demonstrate the development and implementation of risk management systems to reduce the risk of failure and to mitigate against the resulting effects and consequences.

Fulfilment of this duty will be met by Phoenix through compliance with the following:

- Regulation 23 Major Accident Prevention Document
- Regulation 24 Emergency Procedures
- Regulation 25 Emergency Plans In Case Of Major Accident
- Regulation 17 Co-operation

Major Action Prevention Document

Phoenix will prepare a MAPD in conjunction with the design of the transmission pipeline and associated facilities such as PRSs and valve installations.

A key part of the design process is the identification of potential pipeline failures and principle causes (e.g. third party damage, corrosion, mechanical failure, ground movement and vandalism), predicted failure modes (e.g. pinhole, puncture and rupture), outcomes (e.g. uncontrolled gas release, gas clouds, fire and explosion) and consequences (e.g. noise, asphyxiation, thermal radiation, burning, projectiles and blast damage) that may result in injury, fatalities, property damage and environmental contamination.

Pipeline operating stresses (established from parameters such as operating pressure, pipe material specification and choice of wall thickness) have a significant bearing on the likelihood of failure causing a full bore rupture.

Phoenix will undertake Quantified Risk Assessment ("**QRA**") to establish whether identified hazards result in acceptable levels of risk in accordance with HSENI guidelines and will undertake review and amendments to design as necessary.

This QRA approach will enable Phoenix to identify emergency events which will provide the basis upon which emergency arrangements (Phoenix Emergency procedures, HSENI Off-site Emergency Plan, Emergency Services Incident procedures and Local Government / Council Emergency Plans) will be developed or revised.

The MAPD will demonstrate that all hazards relating to the pipeline system with the potential to cause a major accident, defined as one where there may be death or serious injury from fire, explosion or uncontrolled gas release, have been assessed and evaluated and an appropriate and robust safety and integrity management system established.

The MAPD will include details of the worst credible failure(s) that will be used to establish safety cordon distances for emergency response and the emergency planning distances upon which external emergency plans are to be prepared.

Phoenix Emergency Procedure

Phoenix will develop an emergency procedure to cover all foreseeable major accidents as identified in the MAPD and other significant emergency situations as considered necessary. The core aim and purpose of the procedure will be to specify and provide detail as to who does what, when and how to ensure that all operating staff, contractors and involved parties are aware of the actions to be taken to enable a safe, effective and reliable response to be delivered.

The procedure will apply to the entire GTW HP Pipeline System including all pipeline sections (above and below ground), valve installations and PRSs.

An outline of the content of Phoenix's proposed emergency procedure is:

- aims, objectives, scope and interfaces with other procedures / plans;
- description and details of the GTW HP Pipeline System including route maps;
- properties of natural gas and how it is transported;
- potential incidents, causes, consequences and effects;
- plan activation, call classification and emergency declaration;
- management and organisation (key roles and responsibilities and "TASK" (Think First; Act Safe; Stop of Hazardous; Keep Safe) cards);
- incident control points, cordon distances and communications;
- failure scenarios and specific actions to be followed;
- standby arrangements and specialist support / repair services;

- contact lists for emergency responders and involved agencies; and
- contact details for landowners, tenants and land agents.

For the GTW transmission network Phoenix's control room staff will have visibility of the key network operating parameters and will be the interface point for communications between the single TSO and Phoenix. As detailed in section 5.5 the single TSO will have overall responsibility for system operations, the monitoring of pressure and flows, management of alarm alerts and will be the central point for communications in a transmission emergency / incident situation.

To ensure completeness of emergency arrangements and response to other situations arising on the transmission network that will not result in a major accident, Phoenix will prepare procedures covering the actions to be undertaken to address and deal with:

- high / low pressure events;
- incidences of high / low temperature;
- slam shut fire alert;
- filter differential alarms;
- communications failures;
- site security alarms;
- heating system failure alarms;
- metering issues / loss of data; and
- power faults (mains supply and back-up systems).

The monitoring of the above system parameters and correct identification, classification and actioning of alarm events will be a key role for TSO personnel.

Phoenix will also develop Environmental Emergency procedures to cover incidents involving emissions to atmosphere, contamination of water and contamination of ground, their classification and associated response.

Emergency Plans

The emergency response to a transmission system incident will potentially involve a significant number of non-gas personnel. Typically this will include the emergency services (the Police Service of Northern Ireland, the Northern Ireland Fire & Rescue Service and the Northern Ireland Ambulance Services) as direct responders and a number of outside agencies including HSENI, Environmental and Heritage Services, local district councils, Health and Social Care Trusts, DRD and the military who may be involved in providing support services, guidance and assistance during the ongoing emergency or who may be involved in the restoration and clean-up operation returning life back to normal.

To ensure that Phoenix's emergency procedure, district council emergency plans and emergency service incident procedures deliver a pre-determined, structured and harmonised response to a gas related emergency or incident, Phoenix will furnish HSENI with all relevant information on the GTW HP Pipeline System to enable their preparation of an Off-Site Emergency Plan.

It will be this Off-Site Emergency Plan that provides the formal link between Phoenix's emergency procedure and those of supporting responders.

During the mobilisation stage of the project Phoenix will communicate, consult and closely liaise with HSENI throughout all stages of the development of the Off-Site Emergency Plan and its own emergency procedure to produce emergency documents that are concise, clear and consistent with regard to processes, protocols, roles and responsibilities and actions to be followed by all in an emergency situation.

HSENI will take the lead in issuing this Off-Site Emergency Plan to emergency services and relevant agencies / parties although introduction to the plan and briefing of requirements will be undertaken jointly with Phoenix.

It will be the responsibility of these outside parties to determine how best to encompass the aspects of this Off-Site Emergency Plan into existing emergency planning systems.

Due to the GTW HP Pipeline System passing through the jurisdiction of a number of local councils, Phoenix will encourage councils to adopt a similar approach to their integration of emergency planning arrangements for a natural gas pipeline major accident and will reinforce the importance of plan interfacing where council boundaries are crossed.

Phoenix notes the imminent change in the local council arrangements and will, as detailed in section 3.1 work closely with the existing councils to ensure a smooth transition to the new arrangements.

Cooperation

The effectiveness of Phoenix's emergency arrangements for the GTW HP Pipeline System, in addition to the contribution from all external non-gas responders, will also be reliant on the co-operation of other Transmission Network Operators particularly where actions are necessary to be undertaken at system interfaces, off-takes or boundaries. Phoenix will develop working relationships with other pipeline operators for this purpose and will actively pursue opportunities to share emergency resources wherever this is operationally, technically and commercially feasible and acceptable to all parties.

In instances where a pipeline incident results in a network gas supply emergency co-operation between transmission operators is imperative and will be driven by the requirement to coordinate the emergency response with the NINEC and undertake actions as directed by them.

The NINEC Safety Case, written by Phoenix, details the steps and actions to be taken when dealing with an actual, developing or potential network gas supply emergency ("**NGSE**") arising due to a situation where gas demand exceeds gas supply and which cannot be corrected by normal balancing actions permitted under Network Codes.

NGSEs can arise due to:

- insufficient gas supplies being available to the Northern Ireland supply network;
- a critical transportation constraint occurring within the Northern Ireland transmission network; or
- issues either on the Scotland to Northern Ireland pipeline ("**SNIP**") or within the Great Britain system from which both Northern Ireland and Republic of Ireland are supplied.

The Northern Ireland network is classified into primary, secondary and supplementary systems with associated responsible operators and is used to assist NINEC in conjunction with the primary system transporter to develop and implement emergency strategies and plans and issue instruction accordingly.

NINEC has a duty to avert a NGSE or minimise the impact of a NGSE by taking all necessary actions to maintain minimum system pressures and secure supplies to firm load customers, particularly domestic consumers.

Emergency actions may include the use of system line-pack, emergency interruption and firm load shedding which will be enforced equitably across all Network Operator systems and Gas Suppliers.

Phoenix (as NINEC) is also accountable for ensuring communication channels are established between parties including DETI, UR and HSENI and convening of Joint Response Groups.

Prior to commissioning of the GTW HP Pipeline System Phoenix will, in conjunction with other TSOs, DNOs and relevant statutory bodies, have updated and revised the NINEC Safety Case to reflect changes to the Northern Ireland transmission network and operating parties within.

Provision of Personnel, Equipment and Support

Phoenix's delivery of an effective emergency response service requires the cooperation of a diverse range of personnel with correct handling of incoming calls being fundamental to the process. All Phoenix staff are capable of taking receipt of gas emergency calls and issuing standard safety advice and have existing skills to handle and progress calls relating to the GTW HP Pipeline System should this prove necessary.

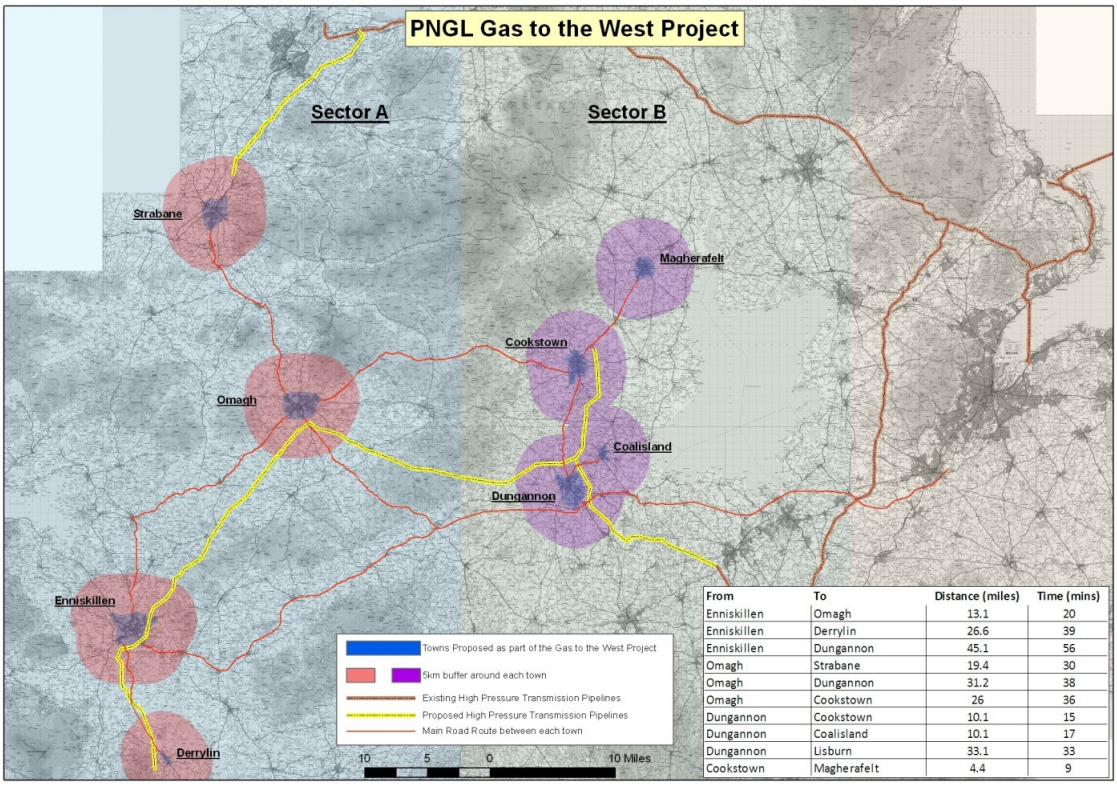
Phoenix's control room currently undertakes monitoring of Phoenix's distribution network including alarm alerts from pressure control equipment and act as the central point of contact for non-routine operations and interfacing with other Network Operators and NINEC during network incident situations. For the GTW HP Pipeline System the role of Phoenix's control room will be expanded to incorporate secondary monitoring of GTW transmission operating data whilst retaining an interface role for Phoenix distribution. If necessary Phoenix's control room will take on system operator duties taking responsibility for managing transmission operations and the associated emergency response functions.

The MERC will lead all emergency site responses on the GTW transmission asset providing safety and technical expertise and be responsible for securing specialist pipe repair services and holding, maintaining and managing repair stock and equipment. The MERC will also be used to deliver asset maintenance services.

Civil works necessary to undertake a transmission repair or pipe assessment will be undertaken by Phoenix's distribution contractor where skills and resource availability permit.

Under Phoenix's LP Operational Business Plan, PES will provide first call operatives (PES Service Engineers). Initial response to site may involve PES Service Engineers and further training will be required to ensure such operatives are fully conversant with protocols for dealing with reports of gas smells on transmission pipeline and / or facilities.

Phoenix HQ functions will remain in Belfast but due to the large geographical area associated with the GTW Licensed Area, a core team of operational response personnel will be based in an operations depot in Omagh (see "Explain how resource arrangements align with progressive development of business" below) operating in two distinct sectors as shown in Figure 5.8c below:



From	To	Distance (miles)	Time (mins)
Enniskillen	Omagh	13.1	20
Enniskillen	Derrylin	26.6	39
Enniskillen	Dungannon	45.1	56
Omagh	Strabane	19.4	30
Omagh	Dungannon	31.2	38
Omagh	Cookstown	26	36
Dungannon	Cookstown	10.1	15
Dungannon	Coalisland	10.1	17
Dungannon	Lisburn	33.1	33
Cookstown	Magherafelt	4.4	9

Figure 5.8c

In the event that expert incident investigation is required, Phoenix has secured the specialist services of DNV GL to undertake such work and this service will be extended to the GTW transmission business.

Mutual Aid

During a major incident Phoenix will receive support from emergency services and other responding agencies and councils.

This response will be delivered through the emergency procedures and plans framework detailed above that aim to ensure a combined and coordinated response that makes best use of the skills, expertise and resources available to suit the nature and scale of the emergency prevailing.

Having developed plans and procedures Phoenix will ensure that these are kept up-to-date, requirements for delivery regularly reinforced between all parties and tested accordingly to ensure they are fit-for-purpose and can be relied upon.

In addition Phoenix is one of four Critical National Infrastructure Providers ("**CNIP**") in Northern Ireland along with BT, Northern Ireland Electricity and Northern Ireland Water who, under a mutual aid protocol, have entered into a Memorandum of Understanding whereby each party will, on a reasonable endeavours basis, provide support to another CNIP where they have difficulties maintaining delivery of service to end users.

This arrangement will be invaluable in instances and will be extended to cover the GTW Licensed Area.

Adapting the existing emergency framework and procedures to the GTW Licensed Area during mobilisation stage

Phoenix's current emergency service is driven by detailed and robust procedures to give consistent information and guidance to all Phoenix personnel, contractors and service providers enabling such parties, using competent staff to contribute to the effective and safe delivery of this service on a continuous and ongoing basis.

Communication between all parties, a thorough understanding of procedures and the specific deliverables of each party are key to ensuring the continued high standard of emergency provision.

This philosophy will remain and be employed in the development and implementation of emergency arrangements for the GTW HP Pipeline System.

To adapt the existing emergency framework and procedures to the GTW Licensed Area the following actions will be undertaken during mobilisation:

- development, review and approval of a MAPD produced in conjunction with the pipeline and pressure regulating station designers;
- preparation of Phoenix transmission emergency procedures with assistance from the PMC, the Construction Contractor and in conjunction with the MERC with input from emergency services and key outside agencies. In tandem Phoenix will develop and formalise emergency protocols with emergency services – the Police Service of Northern Ireland, the Northern Ireland Fire & Rescue Service and the Northern Ireland Ambulance Services;
- review, update and approval of revised distribution emergency procedures to reflect potential response to transmission asset (see section 5.8 of the Phoenix Low Pressure Operational Business Plan);
- update and review of NINEC Safety Case in consultation with other TSOs and DNOs;
- furnishing of key transmission system data and information to facilitate preparation of the Off-Site Emergency Plan;
- joint presentations with HSENI to Councils / Agencies and provision of information (Off-Site Emergency Plan) to assist development of their individual Emergency Plans;
- consultation with service providers and contributing parties to identify required amendments to existing processes to accommodate procedural changes;
- negotiation of revised contractual terms for service delivery (where necessary);
- briefing of new or revised procedures and processes to staff / operatives and issue of amended documents;
- testing of revised procedures, plans and processes through desk top exercises to confirm fitness for purpose, confirm roles and responsibilities, robustness of communications and accuracy of contact lists and identify anomalies or improvements and amend documents as necessary;
- agree arrangements for additional staff mentoring and monitoring;
- receive regular feedback / reporting on performance to allow continual review and update;
- implement mechanisms for escalating unforeseen problems encountered; and
- testing of emergency shut-down valves and remote operation prior to pipeline commissioning and formalising of protocols and authority levels for operation.

Additional actions include:

- ongoing briefings to Phoenix's operational staff on the developing live network, pipeline routes, pressure reduction installations and road / water crossings supported by physical route drive and visits to AGIs;
- introduction of SATNAV systems and road maps / street plans for the GTW Licensed Area;
- purchase of postal address data and GIS tiles for the GTW Licensed Area;
- issue of route plans to relevant authorities including emergency services and utility operators;
- liaison with landowners, occupiers and tenants to verify contact details and furnish them with plans showing location, diameter and depth of the pipeline, pipe protection, details of warning marker posts, easement details and obligations to be observed re notification of activities;
- development and implementation of a system for the identification, notification and impact assessment of third party activities and subsequent supervision / monitoring in line with IGE/SR/18 Edition 2;
- development and implementation of pipeline plant protection and surveillance procedures and actions in the event of pipeline encroachments; and
- line walk following first commissioning with gas.

Associated activities include:

To maximise the public's awareness of the introduction of natural gas to the GTW Licensed Area and safety requirements, the following activities will be also be undertaken but with focus biased towards distribution systems and customer use of the fuel:

- use of scratch and sniff cards for public / consumer identification of natural gas odour;
- Carbon Monoxide ("**CO**") Safety Awareness and promotion of HSENI guidance;
- information to new customers;
- basic guidance on gas utilisation;
- identification of meter installation and meter (emergency) control valve;
- Northern Ireland Emergency number and safety advice to be followed;
- Phoenix website details;

- advertising campaigns / road shows;
- introduction of Dial before you Dig to local contractors promoting safe digging around gas apparatus; and
- provision of mains/service information to utilities and their contractors.

Standards of Performance and Rationale

Standards of performance for delivery of a robust emergency service that will be delivered for the GTW Licensed Area will be driven by requirements of gas licences, legislation, IGEM guidance, industry recognised best practice and the Guaranteed Standards of Service legislation.

These requirements are outlined below:

• Uncontrolled Gas Escape (loss of containment)	1 hour
• Fire and explosion	1 hour
• System alarms	2 hours
• Secure an escape of gas	12 hours (unless deferral can be defended)
• Supply restoration following interruption	24 hours

Reports of smells of gas and other emergency situations take precedence and priority over all other work and attendance of first gas emergency personnel to site is required as soon as reasonably practical within the timescales outlined above.

Where the initial report of a smell of gas has been received through the emergency number and it has not been established that the report relates to the GTW transmission network, deployment of a first call operative (PES Service Engineer) as per Phoenix's Gas Escape Procedure (ENGO02[4]) will be made, otherwise a transmission first line response engineer (as part of MERC) will be mobilised.

The prime objectives of Phoenix as a responsible and diligent TSO will be to safeguard life and property and make safe the situation without undue delay.

Thereafter repair work, final site investigation and supply restoration will be undertaken as soon as reasonably practicable having taken into consideration factors such as safety, loss of customer supplies (numbers and type), environmental aspects such as noise, complexity and specialist nature of repairs, working at night, traffic management (where applicable), welfare of emergency staff and other emergency priorities that may also be present.

[4] this procedure outlines the operational and administrative processes for dealing with reported gas escapes and other emergencies. Further detail is provided in section 5.8 of the Phoenix Low Pressure Operational Business Plan.

Priorities for attendance are based on risk and hazard and aimed at providing a reasonable and practically achievable standard of service for response; ensuring persons and property are not unnecessarily endangered and commensurate with delivering a safe, efficient and cost effective 24 hour seven days a week emergency response.

Delivery Standards

Further explanation regarding the rationale behind Standards of Service follows:

Uncontrolled Gas Escape, Fire and Explosion

Transmission systems comprise predominantly buried HP pipe in remote rural locations with unmanned above ground pressure regulating sites with telemetry communications. By virtue of operating pressures, fire and explosion are significant and potentially high risk events necessitating immediate action. Uncontrolled gas escapes, unless associated with a pipeline incident where loss of containment can be considerable, may be attributable to small leaks from pipe work within pressure regulating stations or may be attributable to another upstream transporters network or from another system (LPG or other natural gas network) or other gas source (e.g. landfill or sewers).

Multiple calls relating to the same location will indicate the likely magnitude and scale of the event allowing early escalation of the situation and mobilisation of additional personnel, where deemed necessary.

Fire, explosion and large scale gas loss require immediate response to protect persons from injury or death.

Reports of actual or suspected gas leaks where the extent, severity and source of the leak are unknown demand a prompt response to site to investigate and identify the cause, set up safety cordons and undertake priority actions to safeguard life and property through building evacuation and removal of persons from site.

A one hour response allows for prompt attendance whilst observing speed limits etc.

System Alarms

Alarm systems for a transmission network will predominantly relate to operational parameters and state of readiness associated with equipment, apparatus and systems forming part of a pressure reduction station site.

It is common practice for all critical system parts within a PRS to have at least one level of redundancy due to provision of back up or standby facilities.

Alarms are therefore generally early warning mechanisms unless multiple failure events have occurred simultaneously or closely together when immediate action would be required.

The single TSO will manage system performance and through monitoring and availability of telemetry information shall be able to verify the validity of an alarm signal and identify deteriorating conditions and the rate at which a fault escalation may occur.

In such circumstances there may be a requirement to prioritise response to an alarm alert or to continue monitoring and defer action for a longer period of time.

A two hour response will ensure that such problems are investigated within reasonable timescales whilst minimising the potential for deterioration and worsening of the situation before action is taken.

Secure an Escape of Gas

GSMR require that a gas escape be prevented within 12 hours of the initial report.

It is Phoenix's aim to locate, secure and repair gas leaks as soon as possible and will only exceed the 12 hour period in exceptional circumstances that may arise due to factors such as unforeseen demand on emergency response personnel, resources being diverted to other more serious escapes/situations or due to difficulties arising in locating and dealing with the escape e.g. frozen ground, access issues or complexity.

Where a leak is associated with a major accident or incident on the GTW transmission network, priorities lie in minimising the effects and consequences of failure to prevent serious damage to human welfare, evacuating properties and reaching a state of safety and thus every effort will be taken to isolate a source of leakage as soon as practically possible.

In situations where there is no additional or increasing safety risk and all has been done to preserve and safeguard persons, isolation of a leak may be delayed for sound technical and operational reasons having taken into consideration the further implications associated with loss of gas supplies to significant numbers of end users.

Supply Restoration

Phoenix will not delay unnecessarily the restoration of supplies but will only do so on completion of all pressure tests, purging operations, re-pressurisation and equipment functional checks as may be necessary.

Major accidents require a detailed assessment of the damage area to be made and a strategy and plan developed for the permanent repair which may involve complex procedures, specialist repair methods / techniques and expert operatives and supervision.

As part of Phoenix's management of an incident, indicative timescales and timelines will be given, where possible, for each stage of the emergency to enable all responders to make appropriate provisions for allocation of resource over the period required.

Other Factors

Other factors and aspects of current processes which will apply to the GTW Licensed Area and which positively contribute to achieving targeted standards of service are:

- the use of standard scripts by ECC and Phoenix staff enabling the nature of the emergency to be determined and the correct initial classification to be applied;
- performance targets for ECC call handling and overspill facility;
- planning of other work load such that sufficient emergency resource available at all times;
- vehicle tracking to ensure the most efficient deployment of emergency personnel to site;
- trigger points for escalation, management intervention and action;
- facility to redirect non gas escape calls to Phoenix for dispatch locally; and
- implementation and testing of Business Continuity Plans.

Explain how resource arrangements align with progressive development of business

As detailed in section 3.5, for the GTW HP Pipeline System Phoenix propose to engage the services of a MERC having the specific skills, expertise and knowledge to manage, supervise and carry out emergency works on all aspects of the HP network including pipelines and pressure reduction installations.

The resource provided and made available through the MERC will be in addition to Phoenix's emergency arrangements set up to cover response on the GTW distribution system.

Calls relating to smells of gas on the transmission network may be received through the emergency number and therefore initial response may be made by PES Service Engineers. There will therefore be an overlap in the skills required of PES Service Engineers to ensure first response to a transmission asset related smell of gas is correctly identified and the necessary action taken having recognised the potential additional hazards that may exist.

Whilst the MERC will have responsibility for managing and controlling the specific technical and safety aspects of an emergency / incident site, Phoenix as the TSO will have overall responsibility and accountability for management of any response and ensuring that the cooperation and coordination of external responders are in accordance with procedures and plans and are such that an efficient and effective response is delivered.

A gas transmission incident will require a high level of support and guidance to site personnel to ensure that safety is paramount to any actions taken, that the implications on the supply network are minimised, that the necessary emergency strategies are developed and that repairs and restoration back to normal operation are completed as quickly as possible.

Phoenix will use existing Commercial Operations Managers to fulfil these roles and take responsibility for communications between parties critical to achieving a structured and coordinated response.

The response to a transmission incident and groups involved is summarised in Figure 5.8d.

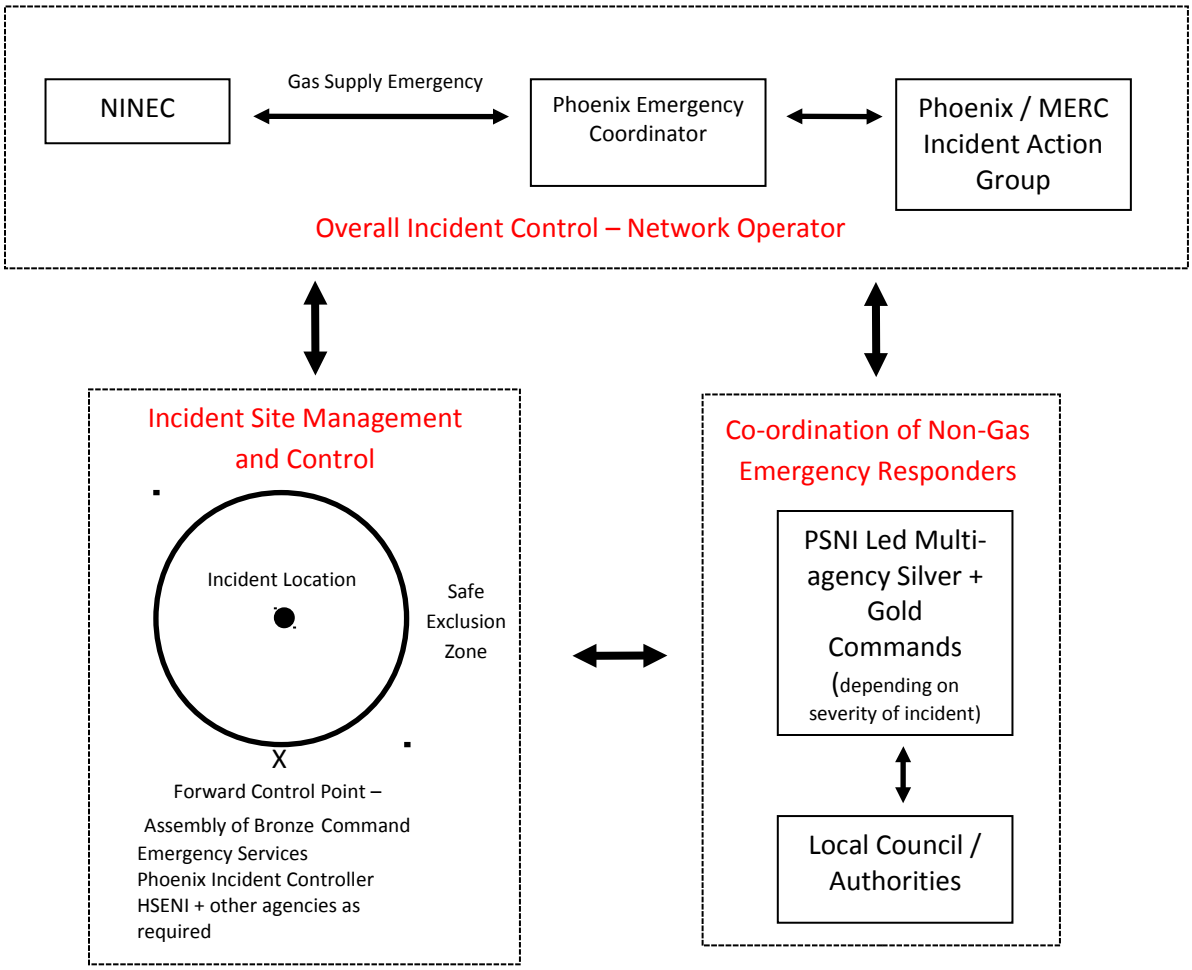


Figure 5.8d Incident Response and Control

Due to the size of the transmission system required for the GTW project, the emergency response resources are minimal and it is proposed that the MERC will also provide maintenance and pipeline integrity services.

By virtue of the locally based MERC resource numbers being small, Phoenix would propose up-skilling existing Phoenix personnel to have the capability to undertake some core activities in response to PRS alarm alerts and to provide initial control at an incident site until such times as relieved by the MERC site controller.

The rationale behind this proposal is to provide additional support, if required, to achieve standards of performance in situations where there may be concurrent problems or an escalation of events requiring mobilisation of operatives to different parts of the network.

The current provisions for distribution emergency cover are based on a tiered structure with roles and responsibilities summarised in Table 2.

It is proposed by Phoenix to have an operations depot in Omagh within which there will be a core team of design and planning staff for the GTW distribution business comprising one Network Operations Manager and three Engineering Officers who will also take responsibility for dealing, at a supervisory/management level, with day-to-day emergency calls (see figure 5.8d).

First response to emergency calls will continue to be met be PES Service Engineers who will be operating within specific geographical work areas i.e. Sector A and Sector B as illustrated in figure 5.8c, overlapping as necessary to meet call demands. Three PES FTEs will provide the initial emergency response across these two sectors.

Support will be provided as necessary by Phoenix's operational personnel in the GTW Licensed Area and from Belfast in conjunction with response delivered from the MERC.

Where an engineering team response is required to undertake civil works resource will be drawn from mains or service construction teams operating in the GTW Licensed Area or alternative arrangements made for deployment via Phoenix's distribution contractor.

Phoenix's proposals for personnel engaged in transmission emergency response are outlined in Figure 5.8e.

Gas Escapes		Incidents			
Position	**Role**	**Position**	**Role**	**Position Fulfilled by**	**Qualifications / Experience**
Engineering Manager	Overall responsibility for dealing with gas escapes necessitating escalation (high volume, high impact escapes, fire and explosion) and network system alarms. Liaison with emergency services, outside agencies, management of site safety, repair and supply restoration	EAG Controller Eng Ops Controller Incident Site Manager NINEC	Set up an incident control, assess the situation and develop emergency plans and accept responsibility for the overall co-ordination and management of the incident. Implement emergency plan in conjunction with Customer Ops Controller and support site operations ensuring availability of resources. Implementation of action plan and overall control of site activities to ensure safe and successful resolution of emergency. As per 5.8.1.3a	**Phoenix** Senior Commercial Ops Managers Network Operations Managers (NOMs)	As per Engineering Officer but with 5 years operational, emergency and incident response experience obtained at a middle / senior management position with Phoenix Commercial Operations (Engineering). Responsible for daily management of either operations, asset management or mains / connection work with sound knowledge of Phoenix distribution supply network and having strong relationships with emergency service providers. Completed Engineering Manager development / assessment including NINEC training, system monitoring and incident management including load shedding and sector isolation. SCO(NI) – Authorising Engineer Minimum Incorporated Engineer - IGEM but typically Chartered status.
Engineering Supervisor	Assigned to respond to reported gas escapes either by personal attendance or delegation to another competent person. Where engineering response required responsible for initial liaison with emergency services and overall control, supervision & co-ordination of site safety, tracing and repair works on the network	Incident Site Manager Eng Supervisor	As above. As per Gas Escapes	**Phoenix** NOMs Engineering Officer	HNC / HND with relevant industry experience or degree qualification in an engineering discipline + NVQ Level 4 Gas Network Engineering Management Minimum 2 years gas engineering experience + 1 year mentored emergency experience day time / out of hours (minimum 25 jobs + further emergency assessment) Gas Escapes and SCO (NI)–Competent Person – EU Skills RLP Normally Incorporated Engineer - IGEM
Customer Liaison Manager	Responsible for the safety of life and property, liaison with Police, customers and members of the public, initial handling of press and media issues / enquiries and dealing with downstream activities	Customer Ops Controller CLM – Incident Site	Liaise with Eng Ops Controller to agree strategy for resolution and manage make safe of customer installations and restoration of same. As per Gas Escapes	**PES** Ops Manager Technician	As per Service Engineer but with 5 years operational / emergency experience including loss of supply and management of customer restoration. Level 3 award in First Line Management Incident Investigator in accordance with IGE/GL/8
Governor Technician	Direct support of emergency site operations. Responsible for diagnostic investigation, repair and replacement of pressure regulating equipment and telemetry, undertaking control and adjustment of pressures / flows and system monitoring	As per Gas Escapes		**Phoenix** Gov Tech	NVQ Level 3 – Gas Engineering / Maintenance Operations Gas Safe Registered - Minimum CCN1 / CODNCO1 / MET4 / CMET1 / CMET2 / TPCP1 / ESP1 Gas Escapes and SCO (NI)–Competent Person – EU Skills RLP

	activities.			Minimum 2 years operational experience with external assessment + min 6 months mentored emergency response
Engineering Emergency Team	Response to upstream gas escapes and network problems. Responsible for execution of external investigative works involving excavation, bar-holing, preventing gas ingress to properties, securing site, undertaking flow stopping and valve operations and completing repairs to mains, services and risers.		**McNicholas** Engineering Team (Mains / Services)	GNO NVQ Level 2/ NCO (Gas) Level 2 Service Laying or Main Laying ELR – Escape, Locate and Repair Competent Person Level 2 – SCO (NI) Typically 2-3 years gas experience construction, testing and commissioning + gas emergency response (team mate – minimum 6 months)
Service Engineer	Providing 1st line response to all reported gas escapes and emergency situations having initial responsibility for making safe the immediate situation through priority actions to safeguard life and property. Prime role to investigate and check customer meter installations, downstream pipe work and appliances / equipment to ensure continued safety of people and property		**PES** Service Engineer	NVQ / QCF Level 3 – Gas Engineering / Utilisation Gas Safe Registered - Minimum CCN1 / MET1 / ESP1 / CEN1 Gas Escapes – EU Skills RLP 3 years operational experience delivered as a staged process involving mentoring and assessment to verify competency.

Table 2 - The current provisions for distribution emergency cover

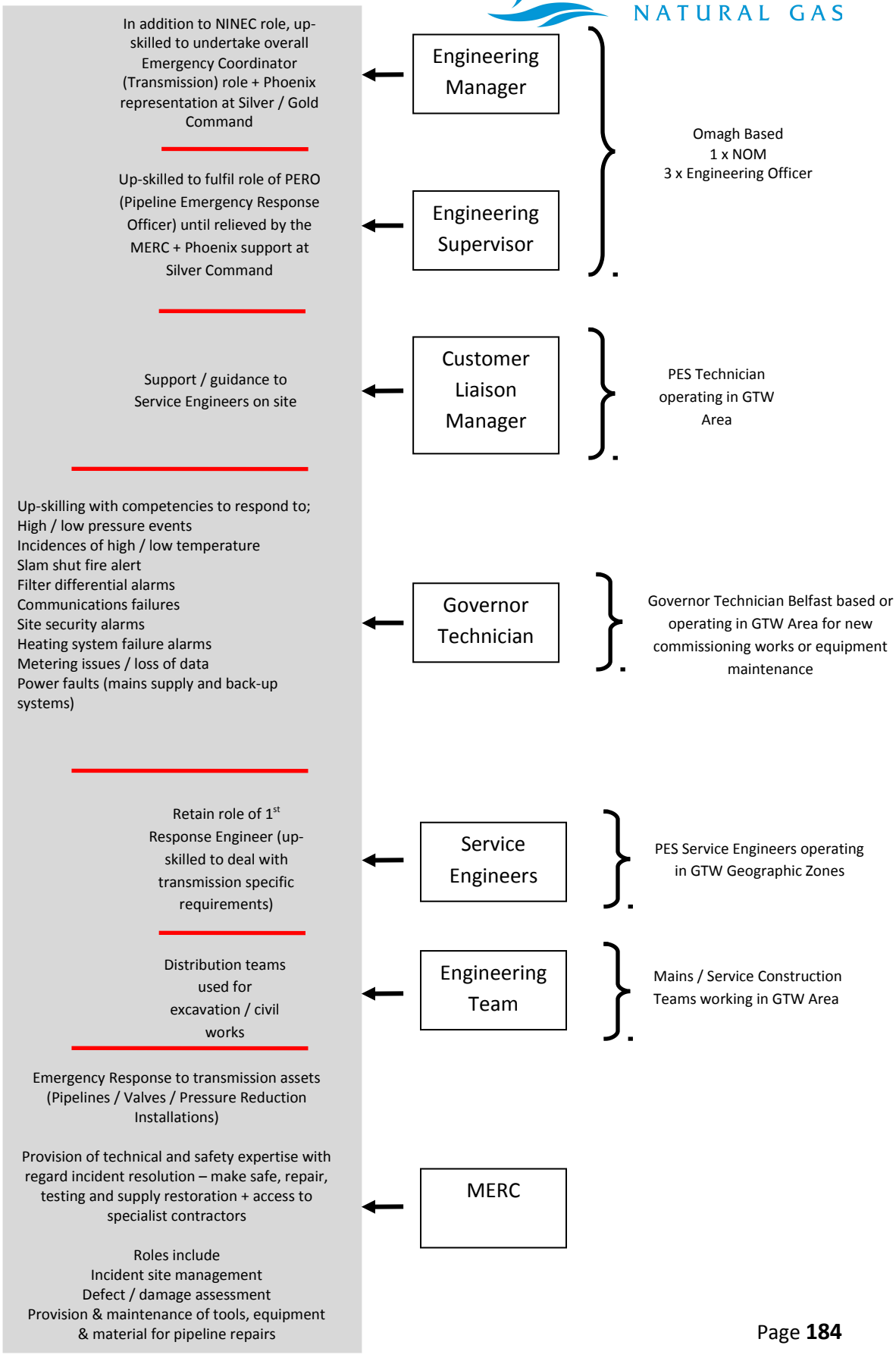


Figure 5.8e Emergency Resource Structure

Arrangements for personnel training and simulation exercises

Phoenix recruit, train and develop staff through a number of recognised streams including:

- apprenticeships;
- adult trainees with previous relevant industry experience;
- graduate recruitment; and
- internal promotion within engineering/operational functions.

The principle behind apprenticeships and trainee routes, which are the basis for development of PES Service Engineers and Phoenix Governor Technicians, is the attainment of key skills and underpinning knowledge achieved through attendance at college and training centres. Further specific skills, key operational knowledge and experience of Phoenix processes and procedures are gained through involvement in day-to-day business activities with mentoring, instruction, audit and assessment being undertaken by appropriately qualified Phoenix staff and/or external bodies culminating in achieving an EU Skills accredited NVQ Level 3 qualification.

Both PES Service Engineers and Phoenix Governor Technicians are Gas Safe Registered with appropriate qualifications for their role.

The role of Engineering Supervisor is predominantly fulfilled by Phoenix Engineering Officers who work within the Design/Planning, Asset Management and Operational parts of the business and who have completed a minimum two year IGEM structured development programme covering all aspects of engineering.

Prior to personnel being engaged in emergency response work they undergo:

- a three-day Gas Escape Course (EU Skills RLP);
- a minimum period of shadowing and emergency operational experience (40 hours/25 jobs); and
- further detailed assessment.

Performance is regularly monitored through audit and review.

Phoenix maintains a close working relationship with emergency service providers and a culture has been engrained in all parties to ensure continual improvement in emergency response and to maximise benefit through learning experiences. Through structured monthly meetings such as QuEST and PRE

Operations, points of learning/improvement are identified. Safety Committees and the Risk Review Committee are responsible for formalising these learning points by:

- developing additional technical advice notes;
- amending risk assessments and procedures;
- producing safety alerts; and
- delivering briefing updates.

Further detail is provided in section 4.4. Refresher update/training briefings are also completed annually to reinforce the key aspects of Gas Escape procedures.

These training arrangements form the basis and backbone by which Phoenix attains personnel with appropriate skills and competences for distribution emergency response duties and the philosophy will be continued for transmission emergency response.

Phoenix's MERC will be responsible for providing all resource (either directly or indirectly through the likes of specialist repair companies) that are competent and capable to undertake all operational activities necessary to deal with an emergency incident on Phoenix's GTW transmission asset.

Transmission emergency training and assessment will be devised and agreed with the MERC and all transmission personnel will receive transmission emergency focused training and assessment prior to commissioning of the network. Phoenix will review all training, development and competency records for personnel and audit the MERC's procedures and processes to comply with the requirements of Phoenix's emergency procedures.

Where Phoenix personnel are to be up-skilled to undertake duties as previously described, training, testing and assessment will be delivered by the MERC in conjunction with the equipment manufacturers / suppliers as necessary.

Phoenix will have overall responsibility for ensuring that Phoenix personnel, contractors and non-gas emergency responders are fully conversant with the relevant parts of Phoenix transmission emergency procedures and interagency emergency plans.

It is important that these procedures and plans are tested with sufficient depth that they can be relied upon to work effectively in an emergency or incident. Update training and competency assessment including site emergency response exercises will be undertaken on a regular basis.

Participation in emergency response drills and simulations will be used to increase personnel's knowledge and understanding, reinforce roles and responsibilities and improve preparedness for an

emergency event. Testing of communication links and verification of their correctness will be a key part of the testing process to ensure and demonstrate that a coordinated response is achievable.

Phoenix proposes using desk top exercises and scenario based simulations to test procedures and plans.

Phoenix emergency procedures will be tested with the MERC to ensure robustness of the technical and safety aspects of managing a transmission gas incident from receipt of initial report, setting up of response groups to verifying the availability of materials and equipment and timescales for mobilisation, repair and restoration for a particular emergency scenario.

Joint testing of emergency plans will be carried out with emergency services and other agencies and will focus on the key coordination aspects of the plan critical for delivering a consistent and coherent approach to large scale emergency situations. This part of testing will concentrate on cooperation between parties, welfare arrangements and activities to be undertaken during clean up stages.

The period between testing of plans and procedures will not exceed two years.

Debriefings will follow all testing to enable feedback from participants and will be used to identify shortcomings, successes, learning points and actions. Outcomes from this feedback will be evaluated and reviewed and changes made to procedures as appropriate and such amendments communicated accordingly.

Compliance with Single Gas Emergency Number and interaction with other parties within the Utility Industry

As noted above, in accordance with GSMR Section 7 and Condition 2.8.1 of the Licence, Phoenix has delivered a single gas emergency number (the emergency number) and continuously manned telephone service for Northern Ireland (see box below).

Phoenix promotes the single gas emergency number on all its paperwork, websites, sales literature and company branded vehicles. It liaises with HSENI, CCNI, DETI, Northern Ireland Housing Executive ("**NIHE**"), Gas Suppliers and other Distribution companies in relation to promotion of the number.

Joint Call Centre Contract

The procurement of the emergency service was carried out solely by Phoenix with a provision incorporated into the Scope of Services to facilitate other DNOs "piggy-backing" onto the final arrangement. In effect, the services were procured in a manner which meant that there was no duplication of procurement costs between Phoenix and other DNOs, albeit other DNOs are made aware, and sign onto, the scope/standards of service which are specified and ultimately agreed.

As part of the tendering process, the servicing party is fully aware of the magnitude of the operation and as such provides a tender response and cost proposal on that basis. The economies of scale of each company's operations are fully considered by the servicing party at the time of tender and as such are reflected in the cost proposals provided. As the tender has been undertaken so as to provide the same standards of service to all DNOs, the successful bidder is already accountable for the standards of service for all Northern Ireland calls received.

This approach was a condition of the initial invitation to tender and ultimately the Contract itself:

> *"**2.3 Other Gas Suppliers and Transporters***
>
> *2.3.1 Note, that due to the emergency aspect of this service that is being afforded to the public, the appointed Service Provider will be required to confirm that that the terms of any subsequent Contract entered into by Phoenix Natural Gas Ltd. will also be offered for acceptance by other licensed natural gas suppliers/ transporters who operate – or propose to operate – within the Northern Ireland region of the United Kingdom.*
>
> *2.3.2 As part of the safety management of gas related incidents the emergency contact free-phone number (**0800 002 001**) shall therefore be made available to gas customers etc. throughout Northern Ireland – albeit only those calls relating to the Phoenix network shall be reported to, invoiced and paid by Phoenix Natural Gas Ltd. Other calls to this number in relation to non-Phoenix networks, shall require to be reimbursed by the appropriate network operator."*

The transition for including the GTW Licensed Area will therefore be seemless as no change of contract would be required.

In order to successfully deliver a safe and effective emergency service through the emergency number, Phoenix has negotiated contracts with National Grid to answer, record and dispatch all Northern Ireland gas related emergency jobs reported on the emergency number having developed processes and procedures in line with best practice and relevant IGEM guidance.

All Gas Suppliers and DNOs throughout Northern Ireland use the Northern Ireland gas emergency number for dealing with gas related incidents. To ensure that National Grid correctly dispatches jobs to the responsible DNO, a post code location address system is employed to ascertain the correct Licensed Area. Alongside this model there is an agreed protocol for handling unclear addresses or disputed postcode areas that border different Licensed Areas so that all jobs get handled and dispatched appropriately. The same procedures and control mechanisms will be utilised in the GTW Licensed Area.

Phoenix also maintains close liaison with the Police Service of Northern Ireland and the Northern Ireland Fire & Rescue Service to agree and formalise response protocols to ensure a safe and consistent response to all gas related emergencies.

Through testing of the NINEC Safety Case Phoenix engages with other network Operators (TSOs and DNOs) and outside agencies and also interacts with other utilities and councils in developing and testing emergency plans and processes.

As noted above, Phoenix has an emergency protocol agreement with other major utility operators in Northern Ireland to provide mutual support in the event of a major incident requiring additional resources (manpower/ equipment/transport/other facilities).

In addition Phoenix has a support network agreement with downstream installers to provide qualified/competent downstream response in the event of a local gas supply emergency.

References

Legislation and Regulations

Health and Safety at Work (NI) Order 1978

Gas (Northern Ireland) Order 1996

GSMR

PSR

Reporting of Injuries, Diseases and Dangerous Occurrences Regulations (NI) 1997

Institution of Gas Engineers and Managers Standards

IGEM/TD/1 Ed5	Steel Pipelines and Associated Installation for High Pressure Gas Transmission
IGEM/TD/2 Ed2	Assessing the Risk from High Pressure Natural gas Pipelines
IGEM/TD/13 Ed2	Pressure Regulating Installations for Natural Gas, LPG and LPG / Air
IGEM/SR/29	Dealing with Gas Escapes
IGE/SR/18 Ed2	Safe Working Practices to ensure the integrity of Gas Pipelines & Associated Installations
IGE/GL/8 Ed2	Reporting and Investigation of Gas Related Incidents
IGE/GL/9	Guidance for large gas consumers in dealing with Natural Gas Supply Emergencies
IGEM/TD/102	Competency Framework

External Guidance

HSE - A Guide to Pipeline Safety Regulations 1996

HSE - Further Guidance on Emergency Plans for Major Accident Hazard Pipelines

Procedures

NINEC Safety Case

Phoenix ASHES Safety Management System (see section 4.4)

Phoenix Business Continuity Plan (see section 4.1)

Northern Ireland Critical National Infrastructure Provider Mutual Aid Protocol V2.6

6. PROCUREMENT

6.1 PRINCIPLES

Identify accountability for development and management of processes in the organisation structure

The process to be applied, and principles to be adopted, with regards to the procurement of works, supplies and services are set out in Phoenix's Procurement Procedure (FINP04, **"the Procurement Procedure"**). Phoenix would propose to apply the Procurement Procedure to the GTW transmission business.

The Procurement Procedure has been drafted by, and has the ownership of, the Contracts and Procurement Manager with authorisation for implementation coming from the Finance Director.

Any proposed amendments to the Procurement Procedure are incorporated by the Contracts and Procurement Manager upon authorisation by the Finance Director.

The Procurement Procedure sets out authority levels with regards to limitations on budget spend along with the steps to be taken when considering potential suppliers for selection. The placing of orders and award of contracts are also addressed.

Budget holders are made aware of their obligations with regards to levels of expenditure and associated accountability and are required to acknowledge this responsibility in this regard by way of appropriate sign-off.

The exact nature of the processes surrounding supplier selection is dependent upon the materiality and criticality of the goods/services being procured. The higher the value and/or the more critical the item is to the operation of the business, the more likely that additional company resources will be employed in the process and therefore the more detailed that the procurement process may be. The exact resources and timetable required will be determined following a regular review process which monitors spend-to-date as well as projected requirements. This review is being carried out by the Contracts and Procurement Department – the outcome of which is notified to senior management accordingly.

The Procurement Procedure has been briefed to all relevant personnel within the business to whom budget holding responsibility has been assigned. This briefing being carried out by both in-house procurement and external legal personnel.

Proposed policies and procedures to ensure compliance with EU requirements

Phoenix has tendered a number and wide variety of different projects in accordance with the requirements of the Utilities Contracts Regulations.

Not all works, supplies and services procured in connection with the GTW transmission business will be captured by the Utilities Contracts Regulations – applicability largely depending upon the value and nature of any contract to be awarded. With regards to value, the Utilities Contracts Regulations currently place a threshold spend of £345k for services/supplies and £4.32m for works. Phoenix's Procurement Policy (POL.BS.42, "**the Procurement Policy**") and the Procurement Procedure addresses activity both above and below these thresholds.

The Procurement Policy and the Procurement Procedure specifically address projected contract values in accordance with budget holder spend. Any proposed contract (singularly or in the aggregate) with an annual spend of £50k or more may be subject to a full EU tendering process albeit this may be further dependent upon the nature of the service. For example, not all services (those defined as "Cat. B") are subject to the full Utility Contracts Regulation Procurement Procedure. Note, however, we are aware that proposed amendments to the Utilities Contracts Regulations scheduled for late 2014 may alter the current Cat. B part exemption.

In order to ensure compliance, actual and projected spend are monitored on a monthly basis in order to ensure that a previously determined non-captured spend item does not exceed forecast. Should it exceed, then an EU tender process will be required.

Processes, authority levels and financial controls

The Procurement Procedure details the process to be followed with regards to the acquisition of works, supplies or services for the business. The Procurement Procedure addresses matters such as: raising and authorising a purchase requisition; the selection of suppliers and nomination onto the Phoenix supplier database; the process for ascertaining the suitability of suppliers and the procedure for instigating a formal tendering process. All aggregate spend items above [redacted] per annum are subject to a formal tender which may be carried out by a Phoenix approved budget holder in conjunction with the Contracts and Procurement Manager. All aggregate spend items above £50k per annum may also be subject to EU tendering arrangements. The procurement process associated with such items would be managed by Contracts and Procurement.

As noted in section 4.1, Phoenix utilise a financial authority matrix to assign procurement spending limits to budget holders. The authority matrix is reviewed and approved by the Finance Director on annual basis. Authority levels, with regards to expenditure, are determined by the level of seniority with the company and designation of appropriate financial authority levels. Financial authority commences at Senior Manager level with designated managers being able to authorise a maximum expenditure of [redacted] per transaction. Directors and the Chief Executive Officer may authorise levels of

expenditure in excess of this albeit in all instances the item of spend and supplier selection will be determined by the application of the Procurement Policy and the Procurement Procedure. All personnel assigned with financial authority levels may also be referred to as budget holders.

Budget holders are designated in line with business requirements and are required to acknowledge, by way of signature, their responsibilities in this regard. Actual expenditure is monitored by the Finance Department and monthly reports prepared summarising budget holder expenditure in connection with their specific area of responsibility. This expenditure is then monitored by way of regular budget panel meetings attended by both budget holder and Finance Department representatives.

Competitive tendering arrangements and timetable for these

Bringing natural gas to the GTW Licensed Area would involve a wide variety of tendering projects many of which will be captured by EU tendering arrangements but all of which shall be subject to EU treaty principles of equal treatment, non-discrimination and transparency.

Tendering arrangements would follow a project plan, the exact nature of which and critical path to be followed would be dependent largely upon the complexity of the works, supplies or services being procured. In general, however, the main steps in the tendering arrangements would be as follows:

i. contract strategy development;

ii. Pre-qualification Questionnaire ("**PQQ**") preparation;

iii. placing of tender advertisement (OJEU, local press etc);

iv. prepare Invitation to Tender document;

v. PQQ return and short listing;

vi. notify successful/unsuccessful applicants;

vii. issue Invitation to Tender document;

viii. record and evaluate tender return;

ix. tender presentation/negotiations;

x. complete tender report for Board approval;

xi. notify successful/ unsuccessful tenderers;

xii. standstill period - if EU - and debrief (if required);

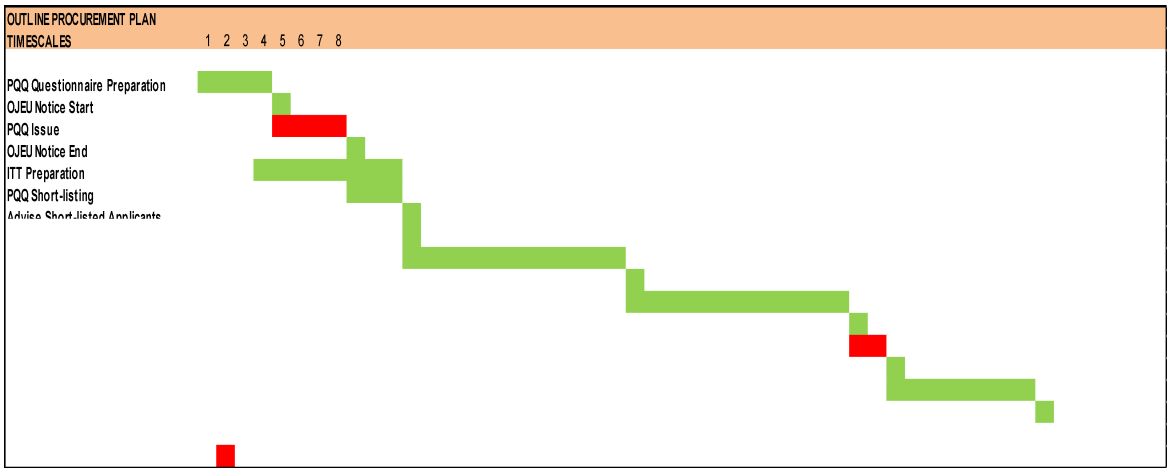
xiii. preparation of contract documentation;

xiv. mobilisation (if required);

xv. contract start; and

xvi. place award notice – if EU tender arrangements apply.

With regards to a timetable, again this would be dependent upon the nature of the item being procured. Where the Utility Contracts Regulations apply and therefore an EU tendering arrangement is followed, the overall procurement process may take up to almost one year for the more complex contracts that are to be awarded. A typical timetable may be made up as follows:



6.2 MATERIALS

Proposals for contract development

The principle materials that will be required as part of the GTW HP Pipeline System shall be those utilised in the construction project (gas engineering and civil engineering type materials).

Much of the gas engineering materials such as linepipe, valves, pressure reduction equipment etc. are specialised and may not be readily available from suppliers local to Northern Ireland. The procurement of many of these items will be subject to compliance with the Utilities Contracts Regulations.

The Construction Contractor, when appointed, will be responsible for the procurement of all civil engineering type materials. Much of these materials will be sourced from local suppliers/distributors.

As with several other significant contracts awarded by Phoenix e.g. the contract awarded to McNicholas detailed in section 2.1 of the Phoenix Low Pressure Operational Business Plan, Phoenix would propose to take a proactive approach with regards to the management and development of the supply chain in order to ensure that objectives, expectations and deliverables are aligned throughout. The exact nature of Phoenix's input would depend upon the value and complexity of the service or material delivered, however Phoenix would propose to establish a degree of visibility whilst maintaining the appropriate contract relations already formed. Risk and reward would be determined by the nature of the contract yet the responsibility for suitable direction shall be an obligation firmly rested with Phoenix.

Proposals for contract awards during mobilisation period

The design, planning and construction of the GTW HP Pipeline System shall entail the award of a number of new contracts albeit some supplies and services required may be bolted on to current agreements already entered into by Phoenix to which such a variation would not constitute a material change.

New contract awards would include the appointment of the PMC, the various material supply contracts, the appointment of the Construction Contractor and the MERC. The ECC services required (see section 5.8) could, during the mobilisation phase, be delivered through an award which has previously been tendered in accordance with EU procedures and to which the entire Northern Ireland region was cited as the area for delivery.

It would only be when the value or nature of services required constitutes a material change to the original award that such services would require to be tendered in order to achieve delivery through a separate contract.

With regards to Phoenix sign off for award, this would be executed at Board level within the organisation following approval of an appropriate recommendation report.

The actual procedure associated with the award of any contract has been addressed in section 6.1.

Requirements planning arrangements proposed

With regards to procurement of materials, the necessary planning arrangements would largely centre on the development of an overall project delivery strategy from which the contract strategies for the various works, supplies and services would be determined.

This will take place in the initial stage of the FEED, ensuring that sufficient lead-time will be available for the procurement of the required specialist materials.

Upon determining what is required, Phoenix's strategy development would then focus upon how Phoenix would propose to deliver this, by whom, under what terms and when.

The nature and timescales for delivery of each contract to be awarded would be critical as a large proportion of the services required, and hence material requirements, would be outsourced. Delivery from a number of third parties from different industries and backgrounds would involve several varying approaches to the procurement route chosen as well as the terms to be employed and timescales for delivery.

With regards to the construction of the proposed GTW HP Pipeline System, an outline FFED design would identify specific material requirements, the lead-times for supply being ascertained from the PMC's previous experience in this regard as well as through initial dialogue with various industry representatives, if required and deemed appropriate to do so.

Through effective advertisement of the project, appropriate specification writing in the Invitation to Tender documentation and sound supply chain management Phoenix would, throughout the process, keep all stakeholders informed as to what materials may be required and when so that the necessary planning decisions can be made.

Stock holding arrangements proposed

In constructing a GTW HP Pipeline System a diverse range of stock will be required – some specialist and on long lead-times, whilst others may be more commonly used and therefore readily available. Once construction and commissioning has been completed, the requirement to hold spares for maintenance / breakdown will be limited. The stock requirements for this will be determined as part of the FEED, which will take into account the entire asset life cycle.

During the construction phase of the project, Phoenix will be responsible for, and will initiate, the procurement of materials which will be subsequently delivered "free issue" to the Construction Contractor. This will include specialist engineering materials such as linepipe, hot bends, piping, barred tees, isolation joints, ball valves, actuators, pig traps and control kiosks.

As part of the Pipeline Route Verification, dedicated pipe storage areas will be identified and planning approval sought.

The PMC will be responsible for the logistics associated with the eventual free issue of the specialist engineering materials to the Construction Contractor – ensuring appropriate responsibilities with regards to title and insurances are duly met. This will include the placing of the appropriate orders and the tracking of delivery to the pipe storage areas.

For other materials Phoenix will enter into contractual arrangements with the Construction Contractor to manage the procurement and ensuing logistics associated with the project required - the actual amount of which would be balanced between what the anticipated demand would be whilst also taking into account lead times and cost of supply / stock holding.

6.3 CONSTRUCTION, MAINTENANCE AND SPECIALIST SERVICES

Proposals for Services contract development

Phoenix recognises the requirement for procuring external services of a specialist nature rather than developing the capability in-house. This is particularly the case when considering many of the maintenance activities required as well as the potential for emergency response. As detailed in section 5.8, Phoenix will therefore engage a MERC to carry out specific maintenance and emergency response work on the AGIs and the pipeline.

The proposed key areas for maintenance and the associated intervals detailed in the table below have been derived from the UKOPA recommendations. The table also indicates what activities will be outsourced through the MERC contract and what activities Phoenix will contract out directly to individual service providers:

Activity	Recommended Frequency	Resource
Aerial Survey	Every 2 weeks	Phoenix
Vantage point survey	Every 2 weeks if replacing aerial survey, as required for local risk control	Phoenix
Line walk	Every 4 years	Phoenix / MERC
Owner / occupier liaison	Annual	Phoenix
River Crossing Survey	Every 1-5 years, depending on type	Phoenix / MERC
Road / Rail Crossings	Every 1-4 years, depending on type	Phoenix / MERC
In-line Inspection	Every 10 years (if not integrity / risk based)	MERC
CIPS	Every 5 years	MERC
Pearson / DCVG	As indicated by CIPPS	MERC
Valves	Every Year	MERC
Protective Devices	Every Year	MERC
Sleeve / Casing Assessment	Every Year	MERC
Pig Traps	Prior to use	MERC
Infrastructure Survey	Every 4 years	MERC
MOP Declaration	Every 4 years	Phoenix

These activities have been categorised into three key areas - Pipeline, PRS and Systems, and are detailed in section 8.2.

MERC

Phoenix tender a wide range of different projects in accordance with the Utilities Contracts Regulations. These Regulations currently place a threshold spend of £345k for services / supplies. Phoenix's Procurement Policy (POL.BS.42) and the Procurement Procedure addresses activity both above and below this threshold. Further detail is provided in section 6.1 under "Proposed policies and procedures to ensure compliance with EU requirements".

Other Activities

Where maintenance activity is to be carried out by Phoenix rather than the MERC, Phoenix will carry out the majority using the GTW Operations Manager and the GTW Operations Engineer, or through the engagement of other, specialised, service providers e.g.

PSSR Competent Person

In some instances e.g. PSSR inspections, even though the MERC will carry out the activity, Phoenix will require a contract with an external body to act as Competent Person. As noted in section 3.5, Phoenix currently contracts this to DNV GL for the distribution network in the existing Licensed Area. DNV GL previously carried out this activity for Phoenix on the Belfast Transmission Pipeline. Phoenix would propose to extend the existing contract with DNV GL

to cover the additional activities related to the GTW HP Pipeline System. Cost associated with this will clearly be attributable to the GTW HP Pipeline System while Phoenix and consumers will benefit from any savings to be accrued by operating a combined contract and from the economies of scale involved.

Aerial Surveys

For the aerial surveys Phoenix has, in the past, procured contracts with local helicopter providers. For GTW, Phoenix will investigate the possibility of working with the other TSOs in order to ascertain if any mutual benefit in utilising the same contractor will be possible. If there is no scope for such an arrangement, Phoenix has the experience, in-house, to procure such a contract and to carry out the required visual surveys.

Proposals for contracts award during mobilisation period

Whether a proposed contract award is in connection with construction, maintenance or specialist services, all tender offers received would be suitably evaluated in line with predetermined criteria prior to completion of the tender process and ultimate award of contract. All awards would follow an evaluation based upon such criteria in line with associated weightings which will have been advised to participating tenderers as part of the process. Award will be recommended to the "most economically advantageous tender" as determined by the award criteria. Sign off of the award recommendation will be at Director/Board level upon presentation of a full tender report.

Such practice would be in line with the requirements of the Utilities Contracts Regulations. Whether the procurement and award process is advertised in the OJEU or local press, the principles of transparency, non-discrimination and equal treatment shall be applied throughout. The timing of each contract award shall be determined by the required lead times and inherent critical path as dictated by both industry factors and ultimate customer needs.

The initial project, and therefore various contract strategies, will have identified a critical path which will subsequently highlight the priority with regards to contract awards and dates for commencement. The first priority will be given to the proposed contracts with the PMC. The second priority will be the construction contract and any services agreements.

Provisions for a degree of planned and response maintenance requirements may be contained within the construction agreement thereby minimising the priority with regards to an immediate award of such a Contract. The mobilisation of any maintenance agreement(s) would therefore follow the implementation of the aforementioned construction and services agreements.

7. BUSINESS DEVELOPMENT

7.1 SYSTEM DEVELOPMENT AND OPERATION

Explanation of how the applicant will interact with ≤ 7bar networks licence holder(s) to coordinate network development plans

It is critical that the parties awarded the transmission and distribution licences for the GTW Licensed Area develop a close working relationship and discuss both parties' network development plans at the outset to ensure the required coordinated approach is achieved.

Phoenix believes that a working group should be established and the terms of reference should include the requirement for the sharing of relevant network information such as:

- construction programme updates;
- targeted gas availability dates ;
- volume assumptions including details of any large end user requirements;
- capacity requirements including peak day and minimum day requirements; and
- numbers of connections including the connection profiles for future years.

It is also essential that as part of this working group the development of a TSO DNO interface agreement is considered, which would clearly define the operational arrangements required at the connected system point(s). The flow of information required between the transmission and distribution licencees would also form an essential element of this interface agreement.

Phoenix can readily deliver this coordinated approach by being granted both the distribution and the transmission licences under this connected application.

Phoenix are also aware of the requirement of the new EU Network Codes for transmission networks which contain provisions obliging an increase in the sharing of information between a TSO and DNO and therefore it would be essential that any interface agreement recognises these requirements and they are considered as part of the network development plan project. Phoenix understands that these interface requirements will also be discussed between existing TSOs and Phoenix (as the DNO in the existing Licensed Area), and have a current proposed implementation date of October 2015. Therefore, given the timescales proposed for the GTW project, it would seem appropriate that the necessary GTW TSO DNO interface uses the template agreed for the existing Licensed Area to ensure EU compliance and consistency across Northern Ireland from the outset.

It is also critical that the coordination of network development plans continues post commissioning of the transmission pipeline to ensure that Phoenix can continue to undertake detailed assessments of the ability of Northern Ireland's transmission network to meet future demands. The provision of network development information by DNOs to TSOs will be essential to this ongoing assessment process.

Proposals to ensure development/provision of High pressure system capacity to support the planned growth of connections to the ≤ 7bar networks

Phoenix believes that a critical part of ensuring that the HP networks have sufficient capacity to support the planned growth of the Northern Ireland distribution networks is the need for a close working relationship with other TSOs to ensure the full requirements are understood and managed effectively in a coordinated and structured manner. Phoenix understands that as part of the Northern Ireland EU compliance project the TSOs will deliver a regime managed on a day-to-day basis by a single TSO. This approach, either delivered in the form of a joint venture between TSOs or through the appointment of a single entity, will assist in providing a coordinated approach to system management and in particular will allow the transmission regime to have full sight of GTW HP Pipeline System capacity requirements.

As the current owner and operator of a distribution network in Northern Ireland, Phoenix has a full appreciation of the importance of the availability of capacity to meet the increasing growth needs of the distribution operations and therefore believes a further essential element of ensuring the Northern Ireland HP network can meet current and future projected demand is the relationship the TSO has with DNOs and Shippers utilising their networks. This relationship, and in particular the provision of information by the DNOs and Shippers in relation to their network development plans, annual demand assumptions, capacity requirements and projected growth, will be critical to the TSOs assessment of the ability of the Northern Ireland HP network to provide sufficient pipeline capacity and to identify any congestion management issues or potential technical capacity issues.

Phoenix believes that the current process for the capture of essential volume and capacity requirements data on an annual basis should be expanded to the GTW project and should assist in informing the production of the annual Northern Ireland Capacity Statement ("**NICS**").

Based on the most recent NICS published, Phoenix is aware of the key drivers which will inform the development of the transmission networks for the next ten years and the issues which need to be addressed in order to ensure that the transmission system capacity can continue to support the planned growth of connections on the distribution networks. The key drivers include the introduction of additional distribution networks as part of the GTW project, the operating pressures on the upstream HP networks and the potential introduction of a gas storage facility in Northern Ireland, with potential solutions to addressing any capacity shortfalls or LP issues to include use of the South North transmission pipeline, use of fuel switching processes for Power Stations in Northern Ireland as well as consideration been given for the introduction of a compressor on the Scotland to Northern Ireland pipeline at Twynholm.

7.2 PUBLIC RELATIONS ("PR")

Phoenix has established and continues to maintain good relations with its stakeholders, third parties and consumers. Phoenix has established a strong and trusted brand and has a world class reputation as a responsible business. Furthermore Phoenix is recognised as the leader in its field in being a good corporate citizen. The activities that Phoenix has engaged in and the stakeholders that that Phoenix has engaged with, in the existing Licensed Area, will form the basis of the PR plan for the GTW transmission business. A full program of activities will be required to ensure that the communities where natural gas will be developed are supportive of the GTW project.

Notably Phoenix has created a number of campaigns which have used the free press to encourage favourable coverage of natural gas. Changing customer behaviour is one of the most difficult challenges in developing any new market or indeed product and consumers trust the press far more than they trust advertisements. Because of this, Phoenix has run a number of successful PR campaigns that have got natural gas and Phoenix into the press. Phoenix is able to demonstrate the overall impact that these campaigns have had compared to a traditional advertisements.

Homes and businesses in the GTW Licensed Area have little experience of natural gas. Natural gas will need to establish a good reputation to ensure positive take-up. The 2013 G8 Summit in Fermanagh encouraged many protests in opposition to shale gas extraction. Phoenix's experience to date indicates that there is limited understanding of the difference between shale gas and natural gas. Protests of this nature could therefore be disruptive to the construction phase of both the HP and the LP networks.

An extensive education program will need to be undertaken with stakeholders and members of the public to gain their support for the GTW project, explain the benefits of natural gas and the implications for development of any shale gas production in the area. The link between shale gas extraction and GTW has arisen due to a lack of PR and a full program of engagement with stakeholders will be essential to ensure that there is a clear understanding that the GTW project is not linked to shale gas extraction and is not dependent on any shale gas production.

In particular the cooperation of the local farming communities and landowners whose land is required for the construction of the networks will need to be reassured to gain their approval for the overall development. It will be important that farmers and landowners are not made to feel alienated within their local community in consenting to have the networks constructed on or through their land.

Whilst it is accepted that the PR campaign undertaken for the LP network will be the most extensive, it is imperative that there is a coordinated approach to delivering a coherent and coordinated communications strategy. Phoenix can readily deliver this coordinated approach by being granted both the distribution and the transmission licences under this connected application. Phoenix also has experience of working with other organisations that operate within the existing Licensed Area to ensure the effective delivery of messages e.g. the introduction of supply competition - Phoenix

undertook a wide range of PR activities and campaigns to enable customers, both domestic and commercial, to understand the complexities of a market that was fully open to competition. Phoenix worked alongside suppliers to ensure that whilst introducing the complexities of supply competition, the number of new customers who wished to connect to the network were not confused or put off from connecting. Clear lines of communication were established with customers being directed to their intended target in a professional and seamless fashion.

Testament to this is that no customer complaints have been logged with CCNI and market research indicates that there is an extremely high awareness by consumers that they can choose their supplier, and the processes that have been established by Phoenix are now being rolled out to other areas.

Organisations involved with development of networks need to work together. The most successful approach would be one where the same organisation is developing both the transmission and the distribution networks. There are many advantages to this approach, the main one being the clarity for stakeholders regarding responsibilities and accountabilities. A strong brand that gives confidence to consumers is essential to the success of the project and further advantage can only be gained from having the same developer of both low and high pressure networks. Phoenix can readily deliver this coordinated approach by being granted both the distribution and the transmission licences under this connected application.

Phoenix has developed a range of integrated and well tested PR activities. Phoenix understands that that a balance has to be maintained between achieving short term goals and sustaining long term benefits. The following are examples of the range of activities undertaken by Phoenix which have achieved these aims:

Publicity

The following is a list of headlines from stories printed in a range of daily/weekly newspapers and journals over the last number of months.

i. Gas Utility Company Grabs Big Tick Record

ii. Millisle Embraces Fuel choice

iii. Phoenix Deliver Heating solution to Eco-Village

iv. Gas company says Old Oil Boilers should be given the Boot

v. Jail for Gas Meter tamper Crook

vi. Gas in to the west is good news for consumers with prospect of new form of Energy

vii. Gas Industry Apprentices continue to shine

viii. Leading Gas Energy Figure praises Gas Development in Belfast

ix. Natural Gas and the environment

x. Gas arrives in Lord Wardens Bangor

xi. Support for Gas Safety Week

The following are examples of PR articles on taking gas to the GTW Licensed Area:

Ulster Tatler (July 2013)

Business

GAS TO THE WEST PROJECT PICKS UP PACE

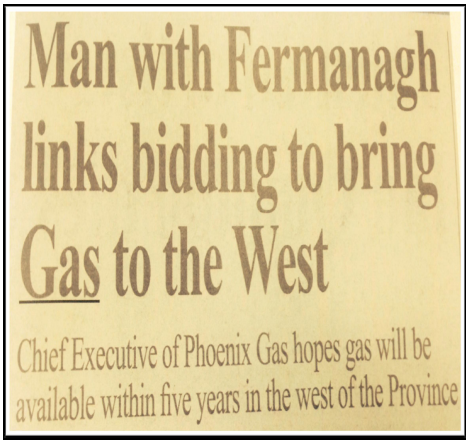
Phoenix Natural Gas, Northern Ireland's largest gas distribution company, has been on the ground in Fermanagh as part of a process of assessing demand for the product across the geographic area that is included in the NI Executive's 'gas to the west' plans.

There was confirmation from the NI Executive in 2012 that the project would benefit from government subsidy to help with its cost, and construction work could start as early as next year. It is currently proposed that both gas transmission and distribution pipelines will be built across Mid-Ulster and into Fermanagh going as far as Enniskillen and Derrylin.

The process for deciding how this will be done is currently being managed by the Utility Regulator and the Department for Enterprise, Trade and Investment. It is not yet known which companies will carry out the work, but Phoenix Natural Gas is one of the companies on record as having registered its interest in looking at the project.

Phoenix hosted a seminar in Enniskillen for local business leaders and key stakeholders. Alastair Pollock, Phoenix Business Development Director, reflected: "We had met with political representatives at Stormont to discuss the project and together we believed it was likely that many businesses in the west were not fully aware of the benefits natural gas availability in their areas would bring. We decided to be proactive and were very encouraged by the response we had from businesses on the day. There was a clear demand for more fuel choice to be made available and ultimately everyone present seemed to understand natural gas's key role in providing economic, social and environmental benefits."

Tom Elliott MLA (UUP), Alastair Pollock (Phoenix Natural Gas), Lord Maurice Mórrow MLA (DUP) and Phil Flanagan MLA (Sinn Fein).



Man with Fermanagh links bidding to bring Gas to the West

Chief Executive of Phoenix Gas hopes gas will be available within five years in the west of the Province

Public Information

Phoenix has a proven suite of integrated public information activities.

Phoenix has a track record of working with stakeholders who are supportive of the development of natural gas and will use these groups to engage with stakeholders in the GTW Licensed Area to inform them of the benefits of natural gas.

The following are examples of the activities that Phoenix has established and are regularly held in the existing Licensed Area that will be extended across the GTW Licensed Area:

- Regular media Breakfast Briefings;
- Northern Ireland Natural Gas Association ("**NINGA**") opportunities;
- seminars on new technologies e.g. micro CHP, natural gas air conditioning systems etc.;
- information days in shopping centres, community halls, churches, Local Councils etc.;
- Political Party Briefings;
- roadshows for public landowners and businesses regarding development of the network; and
- Local Council Briefings.

Lobbying

Phoenix has campaigned on a number of issues to the benefit of the wider gas industry and has been successful in persuading a number of organisations, including political parties, of the social and economic benefits of natural gas e.g.

i. NIHE's Fuel Policy that recommends natural gas is installed where available (see box below);

ii. NIHE's Heating Replacement Policy that recommends heating systems are replaced every 15 years (see box below);

iii. Extension of natural gas to more towns in Northern Ireland e.g. Phoenix's application to extend the existing Licensed Area to include Comber; and

iv. Qualification to allow operatives to work to the standard dictated by the Northern Ireland Street Works Order.

Northern Ireland Housing Executive

The Northern Ireland Housing Executive ("**NIHE**") is the single public sector housing body in Northern Ireland. Phoenix established a professional working relationship with the NIHE and in 2001 persuaded them to adopt the policy that natural gas would become its fuel of choice (where natural gas was available) for all heating replacements on its 15-year replacement cycle. This was an important milestone in Phoenix's and the Northern Ireland natural gas industry's development; the NIHE has over 40,000 properties within Phoenix's existing Licensed Area and to date over 30,000 have converted to natural gas.

To achieve this, Phoenix had to persuade the management of NIHE and its tenants. Phoenix established a program of engagement and lobbying events across Greater Belfast with all concerned stakeholders. NIHE's Heating Replacement Policy at the time placed the decision on the replacement fuel with the tenant. Natural gas had not yet established a track record in terms of either thermal efficiency or input price and as tenants were sceptical, the majority chose oil.

Phoenix lobbied NIHE and the policy that was introduced in 2001 recommended natural gas be installed where available. As tenants were not forced to have natural gas installed, Phoenix continued with its PR campaign to persuade them of the benefits of natural gas alongside continuing to press NIHE to insist that natural gas systems be installed. Whilst the vast majority of properties were connected to natural gas between 2001 and 2012, NIHE took the decision in 2012 that, where a heating system is due for replacement (normally every 15 years), a natural gas heating system must be installed where natural gas is available. Any refusal by the tenant means that no heating system is installed and the tenant is required to carry out any further repair and maintenance on the system.

Achieving this radical policy change has benefited Phoenix in the existing Licensed Area and firmus energy and is an example of the effective lobbying work undertaken by Phoenix that will also benefit consumers in the GTW Licensed Area.

Corporate Responsibility

Phoenix has established itself as a socially responsible company through its award winning integrated CSR programme "**LIFE**" - **L**eadership in the marketplace, **I**nvesting in our people, **F**ostering our community and **E**nvironmental responsibility. This programme will be extended across the GTW transmission business.

LIFE was developed when Phoenix was first established to provide an overarching framework for the range of ongoing initiatives carried out by Phoenix that positively impact its marketplace, environment and community.

Leadership in the Marketplace

Phoenix has continued to improve, evaluate and show leadership in every area targeted under the LIFE objectives.

In 2013 Business in the Community announced that Phoenix had won their organisation's Big Tick award more times than any other business throughout the United Kingdom.

Investing in our People

Phoenix continues to invest in its most important asset – its people. Feedback from staff indicates that they view their time spent volunteering as beneficial – even beyond the sense of fulfilment that they gain from the experience. 84 per cent. of staff have indicated, through research, that volunteering has enhanced a number of their job related skills. In 2013 over 180 staff participated in one or more voluntary activities amounting to more than 2,000 hours.

Increasingly, there is evidence that Phoenix's reputation as a socially responsible organisation is helping to attract customers as well as job candidates who recognise the business as being one with a strong focus on its people and in supporting their development e.g. in 2013 a training and skill development program was provided to over 2,000 local independent gas installers/Engineers which aided opportunities for growth for individual businesses and business start-ups who went on to generate a total turnover for the year in excess of £30m. Phoenix acts as an incubator to these local small independent companies.

Fostering our Community

Phoenix has established a track record of supporting young people and providing them with help in meeting their potential goals. This has involved work with:

i. Ulster Rugby Academy;

ii. Gaelic Athletics Association ("**GAA**")with the creation of the Phoenix Ulster GAA Elite Academy;

iii. Belfast Grand Opera House; and

iv. Cinemagic.

Impressed with the ongoing partnership between Phoenix and Cinemagic, Arts & Business Northern Ireland also provided further funding for a bespoke film project to focus on what Phoenix does and promote Science, Technology, Engineering and Maths ("**STEM**") projects i.e. those disciplines that Government has highlighted as key to the nation's future economic success.

Environmental Responsibility

The strong Health, Safety and Environmental culture throughout Phoenix has been recognised by two British Safety Council Swords of Honour; the processes that underpin this recognition were tested again in 2013 by a detailed ARENA Network survey which saw Phoenix accredited by ARENA Network as being of 'Quintile One' standard – amongst the best in Northern Ireland.

Environmentally, over 3m tonnes of CO_2 has already been prevented from entering the local atmosphere by natural gas consumers in the existing Licensed Area, with continued savings of c.270,000 tonnes of CO_2 per annum (or the equivalent of removing almost 100,000 cars off Northern Ireland's roads every year). Phoenix have also promoted the installation of the latest high efficiency technologies and through its teams of highly trained Energy Advisors have established natural gas as the energy source to replace more polluting fuels like oil and coal.

In 2013 Phoenix was delighted to have, for the ninth year running, received national recognition for its efforts in this area by collecting a Business in the Community 'Big Tick' award for CSR excellence.

The Energy for Children Charitable Trust

The Energy for Children Charitable Trust ("**the Trust**") highlights where the Public Relations activity undertaken by Phoenix has a positive impact on local communities.

Set up as a formally constituted charity to facilitate the charitable interests of the local natural gas industry, the Trust was formed by Phoenix in 2005. Since then it has continued to break new ground and reach deeper into the heart of local communities throughout Northern Ireland in order to really make a difference to disadvantaged children's' lives.

The Trust is governed by trustees made up of representatives from Phoenix and local people linked to the communities served by the natural gas industry. It focuses on supporting those needy causes that are slipping through the net of the more established Charity network, and is founded on the principle that 'all monies raised go directly to local children and young people'. Behind the scenes Phoenix provides all administrative support and funding for the work of the frontline staff that facilitate the funding bids.

Although the Trust was founded initially by the natural gas industry, it is now supported by a variety of different sectors and organisations locally as it continues to grow.

Fundraising is primarily undertaken by Phoenix staff and members of the wider Northern Ireland gas industry e.g. merchants, installers, retailers, distributors, contractors, trade suppliers and training organisations. The Trust is relatively unique in that those who are responsible for raising the money are also those who identify the potential causes it will go towards; the wider natural gas industry who works in homes, businesses and communities every day, are well placed to identify individuals that are in real need.

The Trust transcends Northern Ireland's traditional religious divide and often it is inner city/extreme rural areas that are most in need. The Trust works alongside public representatives in order to find those most in need and target funding where it is most effective.

To date the Trust has raised close to £500,000, helped over 6,000 local disadvantaged children and continues to help more and more local disadvantaged children every month.

Stakeholder Engagement

Phoenix has an annual program of ongoing engagement with a wide range of stakeholders.

There are number of channels through which Phoenix communicates with stakeholders. As well as direct meetings, new channels of communication include a Phoenix Twitter account and a bespoke Phoenix You Tube channel. These social media channels are innovative examples of how Phoenix:

- provides advice;
- highlights the benefits of natural gas;
- provides information to consumers regarding grants; and
- highlights the work undertaken by Phoenix in achieving it CSR objectives.

The popularity of social media is evidenced by Phoenix in terms of increasing interactions, followers and views.

The specific reason Phoenix engages with stakeholders varies and, for the GTW Licensed Area, may change over time with the development of the network.

Some examples of the activities Phoenix engages in to facilitate stakeholder engagement include:

- **Community News Magazine**: aimed at MLAs, MPs and Councillors. By promoting the targeted community work of Phoenix, Phoenix actually prevents requests for additional programmes which would require additional expense on activities not identified as beneficial to the consumer.
- **Northern Ireland Business Trust**: 42 meetings per annum. MLAs engage with the business sector to gain an understanding of the issues affecting their operation. In turn, the business community gain an insight into how local government is working and the issues it faces.
- **Membership of Bodies**: Phoenix is a member of a wide range of range of organisation and bodies and through this network seeks to engage with a range of stakeholders to promote the values and benefits of natural gas. These organisations include Confederation of British Industry ("**CBI**"), Institute of Directors ("**IoD**"), Northern Ireland Independent Retail Trade Association, Federation of Small Business, Chamber of Commerce, Large Users Group, Manufacturing Northern Ireland and the Northern Ireland Food and Drink Association. Phoenix continues to engage with fuel poverty organisations such as National Energy Action the Home Energy Conservation Authority as well as Citizens Advice Bureau, the Age Sector Platform and the Pensioners Parliament.

Gaining a wide appreciation of the extent of the network to be developed, the level of work and or disruption involved as well as the wider community benefits are all issues that will affect

stakeholders to a greater or lesser degree. For the GTW project to succeed successfully stakeholders need to be given the time and opportunity to understand the overall strategic goals as well as being able to assess the impact that this may have on them personally or as an organisation.

An example of some of the stakeholders Phoenix currently engages with is provided below. Phoenix will continue to engage with these stakeholders in relation to development of the GTW transmission business. These stakeholders provide Phoenix with a better understanding of the impacts that may be felt by an individual or group and allow Phoenix to articulate its own values, strategy, explain its commitments and proactively improve relationships.

i. DETI, Department for Social Development and Department of the Environment Ministers;
ii. Committee for Enterprise, Trade and Investment;
iii. MLAs with an interest in the GTW Licensed Area;
iv. UR;
v. CCNI;
vi. Invest Northern Ireland;
vii. Northern Ireland Farmers Union;
viii. CBI;
ix. Manufacturing Northern Ireland;
x. Large Users Group;
xi. Northern Ireland Independent Retail Trade Association;
xii. Federation of Small Business;
xiii. Construction Employers Federation;
xiv. Agri Food Strategy Board;
xv. National Energy Action;
xvi. NIHE;
xvii. Landlords Association for Northern Ireland;
xviii. Age NI;
xix. NINGA;
xx. Gas Safe Register;
xxi. HSENI;

xxii. Local and National Press; and

xxiii. All District Councils within the GTW Licensed Area.

8. OPERATIONAL COSTS

Introduction

Phoenix has a proven track record in the natural gas market in Northern Ireland, having developed a network and a market for natural gas over the last c.17 years from scratch.

Phoenix uses bottom-up analysis when preparing any cost forecast to ensure that efficiencies for consumers are captured within each individual cost line:

- Phoenix's operations are streamlined and when preparing any cost forecast, Phoenix considers where improvements can be made and also ensures that Phoenix has a sufficient allowance such that the business can maintain the safe operation of the network, its current level of operations, customer service and drive to increase connections under typical working conditions. Phoenix therefore accounts for potential efficiencies arising as the business grows and develops when preparing its cost forecasts.

The following sections detail the main activities that Phoenix considers would need to be undertaken to ensure the GTW transmission network is operated and maintained safely, effectively and securely. These activities are based on the experience Phoenix has gained having operated and maintained safely, effectively and securely a transmission network for c.12 years and the c.17 years of experience Phoenix has gained facilitating the secure, safe, reliable, efficient and economic development and operation of the LP network in the existing Licensed Area.

No opex cost forecasts (note that mobilisation costs are fully detailed along with their rationale in chapter 3 and are not repeated here) are required as part of this application, however Phoenix expects that its opex cost requirements will largely be derived from UR's assessment of Phoenix's allowable opex for GD14. This is an appropriate basis for forecasting the opex cost requirements within the GTW transmission business, given:

- the GD14 determination is the result of UR's detailed assessment and review of evidence provided by Phoenix that has been verified by UR from Phoenix's previous experience;

- the GD14 determination captures any efficiency for customers already realised by Phoenix along with potential efficiencies forecast by Phoenix within each individual cost line; and

- the timely publication of the GD14 determination in relation to this licence application ensures that the allowable opex therein is up-to-date.

Further detail on the opex cost requirements is provided under each activity below.

8.1 ALIGNMENT WITH THE BUSINESS PLAN

Phoenix will draw on the strengths, knowledge and experience of existing FTEs including Senior Managers and the Directors who intend to develop the natural gas network in the GTW Licensed Area using the proven policies and procedures in place in the existing Licensed Area.

Phoenix's existing management structures, coupled with appropriate policies and procedures on how the business functions, are designed to enable the achievement of the GTW transmission business objectives detailed in chapter 1 while controlling the risks associated with the environment within which it operates (see further "*Identification and quantification of risks*" below).

8.2 ACTIVITY BUILD UP

The range of opex activities that will be incurred under the GTW transmission licence are:

- mobilisation costs;
- corporate affairs;
- emergencies;
- allocation of single TSO costs;
- network maintenance;
- manpower;
- office;
- insurance;
- professional and legal fees;
- IT;
- miscellaneous;
- rates; and
- licence fees.

Full detail of each activity along with the rationale follows. Note that mobilisation costs and activities are fully detailed along with their rationale in sections 3.3 and 3.4 and are not repeated here. The activities and rationale detailed below therefore cover "business as usual" opex incurred post mobilisation.

Corporate Affairs

This activity covers the range of activities (e.g. CSR, stakeholder engagement, lobbying, public information and publicity) proposed in section 7.2 to deliver a successful network in the GTW Licensed Area.

Emergencies

This activity covers the emergency service provision proposed in section 5.8 to maintain the safe operation of the GTW HP Pipeline System and will form part of the MERC.

Allocation of single TSO costs

As detailed in section 5.4 Phoenix's assumption for this application is that a single TSO will be in operation as per the UR timetable of October 2015. Therefore Phoenix expects that it will be allocated a proportion of the costs associated with the operation of the single TSO.

Network Maintenance

GSMR, the Gas Safety (Installation and Use) Regulations (Northern Ireland) 2004 ("**GSIUR**"), PSR and PSSR advises that maintenance should be carried out on a risk-based basis. In the absence of appropriate operational data, manufacturer's guidance should be sought and followed until such time as sufficient operational data has been captured. Similarly, IGE TD1 advises that the manufacturer's instructions should be taken into consideration when developing a maintenance regime. Phoenix will take into consideration these recommendations as well as those set out in IGEM/TD/1 Ed5 and in the United Kingdom Onshore Pipeline Operators' Association ("**UKOPA**") Recommendations for the Inspection and Maintenance of Buried Pipelines. The majority of maintenance tasks will be covered by the MERC.

The key areas for maintenance and the associated intervals are detailed in the table in section 6.3 and replicated below. This table also indicates what activities will be outsourced through the MERC contract and what activities Phoenix will contract out directly to individual service providers:

Activity	Recommended Frequency	Resource
Aerial Survey	Every 2 weeks	Phoenix
Vantage point survey	Every 2 weeks if replacing aerial survey, as required for local risk control	Phoenix
Line walk	Every 4 years	Phoenix / MERC
Owner / occupier liaison	Annual	Phoenix
River Crossing Survey	Every 1-5 years, depending on type	Phoenix / MERC
Road / Rail Crossings	Every 1-4 years, depending on type	Phoenix / MERC
Online Inspection	Every 10 years (if not integrity / risk based)	MERC
CIPS	Every 5 years	MERC
Pearson / DCVG	As indicated by CIPS	MERC
Valves	Every Year	MERC
Protective Devices	Every Year	MERC
Sleeve / Casing Assessment	Every Year	MERC
Pig Traps	Prior to use	MERC
Infrastructure Survey	Every 4 years	MERC
MOP Declaration	Every 4 years	Phoenix

These activities have been categorised into three key areas, Pipeline, PRS and Systems and are detailed below.

Pipeline

Close Interval Potential Survey

CIPS determines the actual level of CP being experienced along the pipeline by measuring the voltage gradient of the impressed current from the CP system flowing from the pipe.

CP Monitoring

Phoenix assumes that the telemetry equipment will be installed as part of the construction. Running costs will be based on quotes obtained from Active Energy Controls for a similar telemetry system for Phoenix. It is assumed that batteries will last five years and that Phoenix will carry out the battery exchanges. The number of measuring points will be based on the current PTL system.

Direct Current Voltage Gradient Survey / Pearson Survey

The DCVG survey is used to assess the condition of the pipeline coating, while the Pearson Survey is used to pinpoint coating defects. One or both surveys should be carried out in areas as indicated by the CIPS survey.

Internal Online Inspection

Where practical an internal inspection, utilising online inspection tools, should be carried out. If an internal inspection is not possible / practical, external inspection techniques should be utilised.

Aerial Survey

See “Third Party Damages” below.

Insurance

See below.

Owner / occupier liaison

See “Third Party Damages” below.

Line Walk

In conjunction with the aerial and vantage point surveys, a full line walk should be carried out every four years jointly between the MERC and Phoenix.

Marker Post Maintenance

Marker posts are installed during the construction of the pipeline and provide a visual indication of the line of the pipeline to assist in aerial surveys. While it is reasonable to assume that some posts will be damaged / degrade over time, it should be noted that BGE(NI) requested an allowance as part of their price control submission to ensure that the marker posts met the requirements of the IGEM-TD1 standard. This allowance was rejected by UR.

Maximum Operating Pressure Declaration

In line with guidance from UKOPA the MOP should be declared every four years. This is based on the results of any inspections maintenance carried out on the pipeline. In the past MERC has assisted in carrying out this declaration.

River Crossing Surveys

Survey intervals will be based on the nature of the water course, the construction methods used for the pipeline etc. Guidance is given in the UKOPA document. These surveys will be carried out by Phoenix and the MERC.

Road / River Crossings

Survey intervals will be based on nature of crossing, the construction methods used for the pipeline etc. Guidance is given in the UKOPA document. These surveys will be carried out by Phoenix and the MERC. The number and nature of crossings are:

Sheet	Motorways	Major Roads	Minor Roads	Major Rivers	Minor Rivers
1	1	5	19	1	22
2	0	4	25	2	15
3	0	3	7	2	6
4	0	0	0	0	0
5	0	1	22	3	12
6	0	2	13	5	10
7	0	1	13	6	0
8	0	4	22	7	10
9	0	1	5	0	2
10	0	1	18	2	7
11	0	2	12	1	3
Total	**1**	**24**	**156**	**29**	**87**

Vantage Point Survey

See “Third Party Damages” below.

Pressure Reduction Stations

Boiler Maintenance

The boilers feeding water heater systems at the PRSs need to be maintained on a regular basis.

Electricity

Costs will be incurred for electricity usage at each of the sites.

Safety Devices Functional Checks

The operation of all Safety Devices will be as specified within the PSSR Written Scheme of Examination and will be carried out by the MERC.

Generator Maintenance

Each of the PRSs will have a backup generator installed as part of the construction phase for use in the event of loss of power to the site.

Ground Maintenance

This includes weed killing, grass cutting etc.

Instrumentation Repairs

Costs will be incurred for repairs to the instrumentation on site.

Odorisation

As the transmission pipelines will be new, there is the possibility of the odorant being stripped out by the pipeline. A cost for each station per annum will be incurred.

Own Use Gas

In order to operate the heating systems at each of the AGIs, Phoenix will use an amount of gas which is termed Own Use Gas. A reasonable assumption of 0.1% of the transmission volumes can be used.

Security (CCTV, Alarm, Fence) Maintenance

It is expected that the physical security of the AGIs will be constructed as per the advice / guidance from CPNI and PSNI. The operational costs associated with security will include:

- Security Fence Maintenance and breakdowns
- CCTV Maintenance and breakdowns
- CCTV Operating Costs
- Redcare Line (or equivalent) Operating Costs
- Phoenix Control Room Costs

Security CCTV Licences

Two licences for CCTV software will be required - one for the control room and one for the Disaster Recovery site.

Security Monitoring

This is for a dedicated Redcare, or equivalent alternative, line to each of the sites. This will provide an independent backup to the security systems on site.

Spares (up-front purchase)

In previous MERC contracts a volume of spares has been purchased upfront.

Spares Replacements

Costs will be incurred for spares e.g. for valve, other plant repairs and PSSR VS02 inspections.

System

Critical Valve Operation

Movement of all critical valves in the system should be carried out on an annual basis. This functional check provides a basis for monitoring the condition of the valve and helps prevent the onset of stiction.

Third Party Damages

As the Operator of the pipeline, Phoenix will have a statutory duty to work to prevent damages to the pipeline. This is a complex area and will involve a number of different strands of work:

- *Aerial Surveys.* Industry Best Practice is to carry out Aerial Surveys of the pipeline on a regular basis (UKOPA recommend every two weeks). The purpose of this is to identify unauthorised construction activity above or adjacent to the pipeline. The Aerial Surveys are also used to identify and monitor changes to the environment e.g. land movement, flooding etc.
- *"Dial Before You Dig".* Phoenix currently operates a system whereby third parties carrying out works in the vicinity of Phoenix plant can contact Phoenix for a copy of drawings. For areas deemed high risk, Phoenix can provide on-site mark-ups and, if necessary, on-site supervision of the works. This system will also be required for the operation of the GTW transmission network.
- *Land Owner / Occupier Liaison*. It will be necessary to maintain regular contact with all land owners / occupiers. As a minimum it will be necessary to meet with each owner / occupier on an annual basis.
- *Liaison with Planner / Local Authorities*. As noted in section 7.2, the GTW project will bring an unfamiliar fuel into the GTW Licensed Area. This will require guidance and education of many groups of people. From a transmission point of view Phoenix will be required to liaise regularly with both Local Planners and Local Authorities. Both bodies have influence over developers and builders. It will be necessary to ensure that everyone is aware of the implications of working in the vicinity of a Major Accident Hazard ("**MAH**") pipeline and their duty / responsibilities. Liaison with Local Planners and Local Authorities will therefore be ongoing and although this will diminish with time as the education beds in, there will always be a requirement for some degree of liaison.

GIS

As detailed in section 4.5, the current GIS operated by Phoenix will be capable of storing the records associated with the GTW HP Pipeline System. The GIS operating costs for the GTW transmission business will be related to the provision of As-laid information to developers etc. i.e. the costs associated with *"Dial Before You Dig"* and the licensing cost for transmission related LPS tiles.

Manpower

This activity comprises three cost elements:

1. Gross Salaries (a detailed breakdown of the costs covered under gross salaries is provided in section 2.2);

2. National Insurance Contributions; and

3. Fleet costs.

The internal resource requirement from year one is three FTEs:

- One GTW Operations Manager and one GTW Operations Officer, both covering physical and transportation services operations i.e. dedicated resources; and
- one FTE will be required to manage the consolidated activities within Phoenix for the existing and the GTW Licensed Areas i.e. consolidated resources.

Full detail is provided in section 2. In summary the manpower costs would cover:

Gross Salaries

Phoenix will determine gross salaries for:

- dedicated FTEs using the average unit costs derived by UR in the GD14 determination for each band; and
- consolidated FTEs using the total manpower costs determined by UR in the GD14 determination to derive an average unit cost per FTE.

National Insurance Contributions

Phoenix will build-up from first principles the calculation of NIC and reflect the current charging level. Car NIC costs are 13.8 per cent. of benefit in kind costs, assumed to be £3,664 per mobile employee.

Fleet Costs

An average fleet rate per vehicle will be determined based on the GD14 determination. There are several elements considered in the build up of fleet costs (lease charge, fuel costs, mileage). Whilst the unit rate of lease charges and fuel costs will remain consistent with that assumed in the GD14 determination, it is anticipated that unit mileage rates will increase due to the geography of the GTW Licensed Area.

Office

This activity covers costs related to:

- the provision of business premises;
- communications infrastructure and usage (with the exception of IT); and
- stationery.

Buildings

Phoenix HQ is based at Airport Road West.

Phoenix currently provides centralised corporate services to the whole Phoenix Group. As detailed in section 2, similar efficiencies can be achieved for the GTW transmission business by consolidating some of the functions within Phoenix for the existing and the GTW Licensed Areas and will ensure that the GTW transmission business benefits from the knowledge and experience of existing FTEs including Senior Managers and the Directors.

Efficiencies can also be achieved by consolidating the disaster recovery sites for Phoenix and the GTW transmission business at Phoenix's current disaster recovery site at [redacted] (see section 4.5).

This activity line covers the costs for the provision and maintenance of Phoenix HQ in respect of the three FTEs required in the GTW transmission business.

The costs for the provision and maintenance of Phoenix HQ include:

- costs for rental of Phoenix HQ;
- building repairs and maintenance;
- minor machinery and equipment;
- office facilities at Phoenix HQ (including security, cleaning, waste disposal, canteen);
- photocopiers; and
- service charge.

As noted in the introduction to this section 8, UR's GD14 determination for Phoenix's office costs cost line is an appropriate basis for forecasting costs associated with apportioning the costs of Phoenix HQ to the GTW transmission business.

Based on Phoenix's previous experience the total number of FTEs gives a reasonable approximation of the main driver for the provision and maintenance of Phoenix HQ.

Therefore the cost forecast that Phoenix will determine in relation to the GTW Licensed Area will be based on this principle.

Telephone, Postage and Stationery

This activity covers costs related to provision and usage of communications infrastructure (excluding IT) and stationery. The costs classified by Phoenix within the telephone, postage and stationery cost line are:

- costs for provision, maintenance and usage of telephony, including relevant hardware (handsets, car kits etc.), line rental costs and usage costs for both, landline and mobile devices;
- costs for the provision, maintenance and usage of franking and mail stuffing/sorting equipment as well as postage fees; and
- costs for stationery.

Based on Phoenix's previous experience:

- the total number of mobile phones gives a reasonable approximation of the main driver of the mobile phone cost line; and
- the total number of FTEs gives a reasonable approximation of the main driver of the stationery cost line.

Therefore the cost forecast that Phoenix will determine for mobile phones and stationery will be based on this principle.

An additional cost will be included to cover the telephone and postage requirements for establishing business operations in the GTW Licensed Area.

Insurance

This activity covers costs related to the management of risks and claims.

Business Insurance

This activity covers the costs of managing the risks that may occur during the normal course of business.

The costs classified by Phoenix within the business insurance cost line are:

- Directors and Officers
- Commercial All Risks Section E - Computer (Material Damage)
- Contractors all Risk
- Computer Breakdown and Loss
- Fidelity Guarantee
- Employers Liability, Public Liability and Products Liability
- Excess Employers Liability

- Excess Public Products Liability
- Group Personal Accident and Travel
- Commercial combined (Marine Pipeline) includes Business Interruption Insurance
- [redacted]

As noted in the introduction to this section 8, UR's GD14 determination for Phoenix's business insurance cost line is an appropriate basis for forecasting the costs associated with insuring the GTW transmission business.

Based on Phoenix's previous experience allowed revenue gives a reasonable approximation of the main driver of the significant business insurance cost lines. Therefore the cost forecast that Phoenix will determine for business insurance will be based on this principle.

Car Insurance

UR based the GD14 determination for car insurance on the AA's average premium for annual comprehensive car insurance in 2013 of £750 (£2012). As noted in the introduction, this is an appropriate basis for forecasting the costs associated with insuring the vehicle fleet and for the level of cover required in the GTW transmission business.

Therefore the cost forecast that Phoenix will determine for car insurance will be based on this principle.

Building and Contents Insurance

This activity covers the costs of managing the risks associated with business premises and any other associated sites i.e. building and contents insurance.

As noted in the introduction to this section 8, UR's GD14 determination for Phoenix's building and contents insurance cost line is an appropriate basis for forecasting building and contents insurance for the GTW transmission business.

Based on Phoenix's previous experience the total number of FTEs gives a reasonable approximation of the main driver of the building and contents insurance cost line. Therefore the cost forecast that Phoenix will determine for building and contents insurance will be based on this principle.

Professional and Legal Fees

This activity covers the costs relating to professional and legal services required for business operations e.g.

- consultancy costs (payroll, engineering, HSE, security, regulation and general);

- legal fees (corporate, commercial, HR, regulatory and competition); and
- audit and accountancy fees.

As there are no financial ring-fencing or corporate governance conditions applicable to the GTW transmission business, Phoenix will normalise UR's GD14 professional and legal determined cost line accordingly. Therefore the cost forecast that Phoenix will determine for professional and legal fees will be based on this principle.

In addition Phoenix may include a fixed cost given that some costs e.g. Audit and Accountancy Fees are largely fixed and will not vary significantly over time.

Information Technology

This activity covers costs related to the provision of IT i.e.

- hardware;
- software, including software licences;
- networks and associated costs;
- maintenance fees;
- system upgrades and enhancements;
- help desk and support services; and
- management of data centres.

As noted in the introduction to this section 8, UR's GD14 determination for Phoenix's IT cost line is an appropriate basis for forecasting the costs associated with IT in the GTW transmission business.

Based on Phoenix's previous experience the total number of FTEs gives a reasonable approximation of the main driver of the IT cost line. Therefore the cost forecast that Phoenix will determine for IT will be based on this principle.

Miscellaneous

The following activities are not covered by any of the previous activities, and as such, have been captured as miscellaneous:

- *Recruitment and Training;*

As noted in the introduction to this section 8, UR's GD14 determination for Phoenix's HR cost line is an appropriate basis for forecasting the costs associated with recruitment and training in the GTW transmission business.

Based on Phoenix's previous experience the total number of FTEs gives a reasonable approximation of the main driver of the recruitment and training cost line. Therefore the cost forecast that Phoenix will determine for recruitment and training will be based on this principle.

- *Travel and Subsistence;*

This activity is largely driven by activity associated to financing and the rating processes, and attendance at industry forums. In addition travel associated with specialist training events in GB will also impact on these costs. Note that fleet costs are categorised under the manpower cost line.

As noted in the introduction to this section 8, UR's GD14 determination for Phoenix's travel and subsistence cost line is an appropriate basis for forecasting the costs associated with travel and subsistence in the GTW transmission business.

Based on Phoenix's previous experience the total number of FTEs gives a reasonable approximation of the main driver of the travel and subsistence cost line. Therefore the cost forecast that Phoenix will determine for travel and subsistence will be based on this principle.

Rates

This covers:

- Network Rates; and
- Office Rates.

Costs will be as determined by UR for the GTW Licensed Area.

Licence Fees

Licence fees cover the licence fees for the natural gas conveyance licences for the GTW Licensed Area.

Costs will be as determined by UR for the GTW Licensed Area.

Proposals for which activities will be tendered

Full details of the activities to be tendered are included in the "Emergency" and "Network Maintenance" sub-sections above.

Identification and quantification of risks

The main risk faced by the GTW transmission business in relation to opex is cost forecasts.

Cost forecasts

Phoenix uses bottom-up analysis when preparing any cost forecast to ensure that efficiencies for consumers are captured within each individual cost line. This methodology mitigates the risk of forecasting error.

Furthermore Phoenix's cost forecasts are largely derived from actual costs incurred by the business over the last c.17 years. This means that Phoenix's cost forecasts are supported by factual evidence and experience gained in the Northern Ireland market. This also mitigates the risk of forecasting error.

Phoenix's price control cost forecasts have been subject to UR's detailed assessment and review on five separate occasions between 1996 and 2013. UR focuses its review on the evidence provided by Phoenix and verifies this from Phoenix's previous experience. As such, the allowances set by UR and upon which this application is based are robust having been scrutinised and widely consulted upon. This further mitigates the risk of forecasting error.

8.3 COST MANAGEMENT

Group level

The Phoenix Group exercises strong financial and management accounting controls through the consolidation of all financial and treasury requirements within the finance function within Phoenix.

Long-term business plans and shorter term budgets and forecasts are tracked monthly against actual performance at both a company and consolidated group level in line with obligations under financing agreements, thereby enabling financial requirements to be monitored against the cash resources available to both the Group as a whole and its constituent parts.

A mixture of long-term debt, raised through the issue of fixed rate bonds, and short-term debt available within our banking facility, are used to ensure that there are sufficient resources available for operational requirements. The Group does not use derivative financial instruments for speculative purposes.

The Group has delegated the responsibility of monitoring financial risk management to the Finance Committee, a sub-committee of the Board. The policies set by this committee are directly implemented by the finance function.

Phoenix's finance function

Phoenix's Business Planning and Regulation Departments support management of business plans and forecasts, collation of data and statistics, liaison with key agencies and other third parties.

Phoenix's Contracts and Procurement Department is responsible for the management of all contracts and services, provision of facilities and fleet requirements and the effective operation of the office.

Phoenix's Finance Department is responsible for accounting and treasury functions. This incorporates financial reporting to meet all statutory, regulatory and financing requirements, internal management accounting and reporting, audit and review of costs under the McNicholas contract arrangement, bank and other treasury management functions, tax management and compliance, stock and asset management, purchase and sales ledger control.

As noted in section 4.1, Phoenix utilise a financial authority matrix to assign procurement spending limits to budget holders. The authority matrix is reviewed and approved by the Finance Director on annual basis.

Purchase orders are independently reviewed by personnel with appropriate authority prior to the placing of all procurement orders.

Phoenix currently provides centralised corporate services to the whole Phoenix Group. As detailed in section 2.2, similar efficiencies can be achieved by consolidating some of the functions within Phoenix for the existing and the GTW Licensed Areas. Phoenix departments will therefore be expanded to support cost monitoring and control, including operational activity based cost information, across the GTW Licensed Area. This will ensure that the GTW transmission business benefits from the knowledge and experience of existing FTEs (including Senior Managers and the Directors) and the strong financial and management accounting controls already in place.

Explanation of information systems for managing costs

As noted in section 4.5, it is envisaged that Phoenix's existing robust information systems would simply be extended through the addition of additional data sets to enable processing for the GTW transmission business.

As noted in section 3.7, the main system within Phoenix is Concerto, which records and manages assets and any movements thereto at a customer's premise. Phoenix currently uses the ArcGIS suite

of GIS software supplied by Esri which provides a graphical record of the network and in conjunction with SynerGee enables effective management of the distribution network. These systems coupled with those used in Finance (Total), Contracts and Procurement (6 over 6), HR/Payroll (ICS Unicomp) together with mail, internet, office desktop solutions for current users within Phoenix will be used to support management of costs.

The existing hardware is stable and the processes robust so extrapolation across the GTW transmission business will be straightforward. This approach will ensure that Phoenix has the same ability to disseminate operational activity based cost activity, and therefore manage costs, in the GTW transmission business as has been proven, not least at the time of each price control review, for Phoenix.

8.4 EFFICIENCY IMPROVEMENT PLANS

Phoenix has a proven track record in the natural gas market in Northern Ireland, having developed a natural gas industry in the existing Licensed Area over the last c.17 years.

As noted in the introduction to this section 8, Phoenix's cost build-up will be largely derived from UR's assessment of Phoenix's allowable opex for GD14. This is an appropriate basis for forecasting the opex requirements within the GTW transmission business given the GD14 determination captures any efficiency for customers already realised by Phoenix along with potential efficiencies forecast by Phoenix within each individual cost line. Therefore the GTW transmission business would immediately benefit from the innovation, improvements and efficiency gains already embedded within Phoenix's operation. Phoenix's cost build-up will therefore deliver efficiencies more aligned to a mature business.

Throughout the HP Business Plan and also within Phoenix's Innovation and Technology Transfer submission Phoenix has detailed how, through initiatives such as Alliance contracting, open-book project management, Design Review Groups, internal skill development, bespoke fit-for-purpose IT development, multi-skilled/tasked staff etc., the company has been able to continuously improve its unit costs and its customer service offering and therefore deliver efficiency improvements, cost reduction and additional value for all key stakeholders. It is envisaged that these efficiency improvement plans currently in operation in Phoenix would be replicated for the GTW transmission business. Further examples of important initiatives adopted by Phoenix to drive efficiency improvements and cost reductions within its business and their rationale are:

1. Business Improvement Plans ("**BIPs**") play a key part in delivering results e.g. one of Phoenix's more recent BIPs is to deliver the challenging targets set by UR in the GD14 determination and reduce the overall cost of providing the emergency service. A group has been established (sponsored by the Commercial Operations Director and chaired by the Senior Operations Manager) with members from Phoenix's Operations, Customer Service, Transportation Services, Risk Assurance and Sales teams. This group has reviewed all the

processes, procedures, system and paperwork of the entire emergency service and has (i) identified why a call is generated to the ECC; and (ii) outlined actions aimed at reducing the level of non-emergency calls to the ECC and the level of non-emergency calls attended by PES Service Engineers etc. This group has produced a detailed action plan, with responsible managers identified and timescales assigned for implementation. The group meets on a regular basis to review progress and to provide an update report to the sponsoring director. The use of BIPs has been and will continue to be a critical element in Phoenix's ongoing delivery of efficiency improvements both within Phoenix and the GTW transmission business.

2. Group Development Forums ("**GDFs**") are another important approach to delivering continuous improvement. The culture within Phoenix largely sees each Senior Manager as responsible for their 'own business' i.e. their own department. At the start of each financial year, each Senior Manager must produce and present to the Directors a business plan for their department. This business plan must:

    a. be aligned with the overall targets and objectives of Phoenix;

    b. detail the department's contribution to the overall company targets i.e. where efficiency improvements and cost reductions have been identified; and

    c. how these will be delivered.

    The Directors (including the appropriate Senior Managers' own Director) can challenge the business plans and/or suggest new initiatives for further enhancing performance. These business plans are continuously evolving and are reviewed:

    a. monthly by the Chief Executive Officer and the Finance Director at budget panel reviews to establish if targets are being met; and

    b. mid-year when Senior Managers must present to the Directors an update i.e. performance against target and further initiatives under consideration and/or implemented.

    GDFs give all Senior Managers ownership of their own activity and ensure focus is targeted at the key areas of the business by both Directors and Senior Managers. GDFs are vital to delivering further value enhancements within Phoenix and would therefore be replicated for the GTW transmission business.

3. UR has recognised that benchmarking Phoenix's performance against comparable network operators' businesses is challenging due to the different (i) scales of operation; (ii) stages in life cycle; and (iii) ways in which costs have been allocated or apportioned across the range of activities. However, Phoenix continues to work closely with UR and during the GD14 price control review, has made considerable progress on benchmarking performance.

Aside from this formal process for benchmarking (which, notably has determined that Phoenix is an efficient network operator), Phoenix also undertakes more informal benchmarking at an 'input' level (as opposed to the 'output' approach adopted by UR at the time of each price control review) e.g. Phoenix compares (i) the unit cost of purchasing materials; (ii) the productivity of its construction teams; and (iii) the level and cost of its manpower, with other network and connection companies in Great Britain. These informal comparisons also confirm that Phoenix is operating a highly efficient business.

The use of informal benchmarking, where possible, has been and will continue to be a critical element in Phoenix's ongoing delivery of efficiency improvements both within the Phoenix and the GTW transmission business. Phoenix is also committed to continuing to develop with the UR the formal benchmarking templates.

9. CAPITAL EXPENDITURE COSTS

9.1 ALIGNMENT WITH THE BUSINESS PLAN

Phoenix has a proven track record in the natural gas market in Northern Ireland, having developed a network and a market for natural gas over the last c.17 years from scratch.

Phoenix will draw on the strengths, knowledge and experience of existing FTEs including Senior Managers and the Directors who intend to develop the natural gas network in the GTW Licensed Area using the proven policies and procedures in place in the existing Licensed Area. Further detail and examples of Phoenix's innovation and technology advancements are provided within Phoenix's Innovation and Technology Transfer submission.

Phoenix provides full detail of the range of capex activities that will be incurred in section 9.2.

Phoenix's management structures, coupled with appropriate policies and procedures on how the GTW transmission business functions, are designed to enable the achievement of the business objectives detailed in chapter 1 while controlling the risks associated with the environment within which it operates (see section 9.3).

9.2 ACTIVITY BUILD UP

Range of activities

The range of capex activities that will be incurred under the GTW transmission licence are:

a) Project Management
    a. contract negotiation;
    b. 'kick off' initial meetings; and
    c. project management and regular meetings;
b) Pipeline Route Verification;
c) Planning/Consultation Stage
    a. legislation confirmation;
    b. consultations with authorities/third party agencies;
    c. planning application preparation and submission; and

   d. Planning Authority interface during review and granting of permission for application;

d) Environmental Impact Assessment;

e) Land Issues

   a. land referencing (creation of Book of Reference); and

   b. wayleave negotiation.

f) Front End Engineering Design

   a. FEED;

   b. site investigation; and

   c. material procurement for linepipe, bends and AGI materials.

g) Invitation To Tender

   a. prepare construction Invitation to Tender package;

   b. advertise project (OJEU);

   c. evaluate construction bids; and

   d. award construction contract(s).

h) On site construction project management

   a. project management construction on site of Scheme A;

   b. project management construction on site of Scheme B; and

   c. management of 'free' issue linepipe , bends and AGI materials.

i) Construction Contract

   a. contractor detailed design and procurement Scheme A;

   b. construction contract to precommissioning Scheme A;

   c. contractor detailed design and procurement Scheme B; and

   d. construction contract to precommissioning Scheme B.

j) Commissioning of Scheme A and Scheme B

Activities a)-h) and the project management tasks associated with activity j) form the bases of the cost proposals under the Design/Project Management cost line in the Capex workbook.

Detail of each activity and the rationale

Full detail of each activity identified above along with the rationale is as follows:

Project Management

As detailed in section 3.7, the project will be managed by a Project Management Team consisting of the PMC, the GTW Operations Manager and the GTW Operations Engineer. The PMC will assume the role of Project Manager; managing the overall delivery of the project and be responsible for administration, invoicing, maintaining the project programme, handling commercial and technical issues and chairing monthly Project Management meetings throughout the duration of the project. Phoenix is currently working with Penspen who is one of a number of companies capable of providing the full Project Management Team following the completion of the necessary tendering process detailed in sections 3.6, 3.7 and 6.

Pipeline Route Verification

Phoenix's first task will be to assess the pipeline routes that have been proposed by FMA in its feasibility report. This task will entail an initial desk top study using Google Earth and available mapping, followed up by site visits to verify the routes and to consider engineering and construction issues. Site visits will be carried out from public rights of way only. Routing maps and a verification report will be produced as part of this activity.

Planning Consultation

As detailed in section 3.6, the PMC will handle the planning issues and consultations. Their initial task will be to review the relevant legislation. Any consultation in relation to the statutory consents for an energy infrastructure project will be directed through the SSU.

The application will be dealt with under the Planning (Northern Ireland) Order, 1991, as an Article 31 project (of regional importance), in which case the standard timescales for dealing with a normal application are set aside and the interval between application and granting of approval can be variable.

However, this determination of Article 31 status allows the local district councils and divisional planning offices, across which the pipeline routes will traverse, to be dealt with as consultees, thus preventing delay in decisions by discerning bodies and allowing the SSU to grant planning permission subject to conditions.

It is likely that the approvals process will be completed within 12 months of lodging any application and supporting documents. However, it will be important to remain fully engaged with

the Planning Service and key consultees during this period to facilitate the approvals process. To allow for any delays this task has been allocated a conservative 18 months.

Environmental Impact Assessment

As detailed in section 3.6, this task will be the responsibility of the PMC who will consult with the Planning Service to request a formal determination under the Planning (Environmental Impact Assessment) Regulations (Northern Ireland) 2012, regarding this scheme and the need for an EIA.

Planning Service will also be asked to conduct a formal scoping exercise to determine the issues which the statutory consultees may want to see addressed in an Environmental Statement regarding the proposed scheme. This formal scoping process will be carried out under Article 7(1b) of the Planning (EIA) Regulations (NI) 2012, whereby the competent authorities provide an opinion as to the information to be provided in the Environmental Statement at the request of the developer. This will ensure that all issues that the statutory consultees are concerned with, will be dealt with adequately under the EIA process and will supplement the scoping study carried out by the consultants.

Since the programme is critical for any major infrastructure project, it will be crucial that the Project Team facilitates the approvals process by ensuring that extensive consultations are undertaken at all stages of the project to reduce environmental and planning issues prior to submission of the application so that objections are minimised and a public inquiry can be avoided. Consideration should be given to engaging with the Planning Service and relevant consultees through formal PAD, particularly for strategic projects.

The primary purpose of the PAD is to allow Planning Service to provide general advice and identify key issues that need to be considered as part of the application submission. An indicative programme with expected timescales for the processing of the planning application will also be provided. Key dates such as the submission of the application with the required documentation and key milestones during its processing will be agreed.

Early consultations will enable key environmental issues to be fully addressed during the study with follow up meetings to discuss mitigating measures, resolve outstanding impacts and agree monitoring programmes.

Other Environmental Legislation such as the Habitats Directive will also need to be considered particularly if the pipeline has the potential to impact, either directly or indirectly, on a Natura 2000 site (Special Area of Conservation or Special Protection Area). This will require a Habitats Regulations assessment to be undertaken.

Land Issues

As detailed in section 3.6, the PMC will appoint land agents with local knowledge to prepare a Book of Reference that will list those landowners/tenants that lie along the pipeline routes. These project land agents will arrange visits with each landowner/tenant to explain the pipeline project in general terms and the consenting process.

Financial negotiations are not discussed in detail at this early stage, but it will be explained just what a "wayleave" consists of and what rights it provides the developer to gain access to the pipeline during its lifetime. Sums of money will be paid to the landowner and tenant, which are normally split 75 per cent. / 25 per cent. respectively, and calculated on a rate per meter run. These sums of money are normally paid in stages, with the last payment made upon the handing back of the land to the landowner, provided reinstatement is accomplished satisfactory. In addition, crop loss compensation will be explained too.

Normally, some landowners may already have a local land agent acting on their behalf where land matters are concerned, whilst others may choose to engage a land agent too, to handle consent negotiations. Landowners' land agents will also be entitled to a fee for their services. However, at this early stage it is only necessary to obtain a provisional verbal agreement in order to draw up the Book of Reference which will form part of the planning application package.

Normally, most companies do not wait for planning approval before negotiating further with landowners/tenants because the process can be arduous and there is a likelihood of a small number of objectors that may require further persuasion. These negotiations can be sensitive and should be undertaken with the view to agreeing wayleaves for the pipeline by agreement and without the need to apply to the DETI for a necessary wayleave under the terms of the license agreement.

During this period, the PMC will prepare wayleave plans, normally called "**PLATS**", for every landownership and tenancy. Each one will carry a unique number that will be shown on the PLAT and on the Consent form for signature by the landowner / tenant and client. Access onto land to commence construction will not occur until all consents have been agreed and signed off. This is one activity that is difficult to place a timeframe on, but for the purpose of preparing a programme, 16 months has been allocated spread over a period of 27 months.

Front End Engineering Design

As detailed in section 3.7, companies such as Penspen will carry out the FEED. Again in order to get the pipeline operational as soon as reasonably practicable Phoenix's current view is that it would accept the risk of proceeding with the FEED whilst waiting for the authorities to complete processing the planning application. Otherwise, a year could be wasted to the overall project programme.

This detailed design is referred to as the FEED. The FEED is expected to take nine months to complete. In order to minimise possible delays in the delivery of the overall programme, Phoenix will accept the risk of starting and completing the FEED in advance of receiving final planning approval. This is necessary as to delay commencement of the FEED until after receipt of Planning Approval would introduce at least nine months delay into the project and possibly longer as a full construction season may be missed.

At the start of the FEED stage, Phoenix will appoint a CDM Coordinator in accordance with the conditions of the CDM Regulations. This person can be a member of the FEED team, preferably with a recognised qualification such as NEBOSH. One of the CDM Coordinator's first duties will be to formally notify HSENI that work is commencing on the design of a major construction project. In time, when

the project is closer to construction, the CDM Coordinator will again contact HSENI to notify them that construction is due to start.

Engineering design will be in accordance with a recognised Code of Practice. In this case, it will be IGEM/TD/1: Steel Pipelines for High Pressure Gas Transmission – (Pipelines over 16 bar).

The AGIs will be designed in accordance with IGEM/TD/13 – Pressure Regulating Installations.

Once the pipeline routes have been agreed in general and subject to landowner agreements, it will be necessary for Phoenix to appoint a Site Investigation Sub-Contractor to carry out a series of boreholes and trial pits, also subject to landowner permission to enter private land, to determine ground conditions.

The results of the site investigations will allow the PMC to establish the methods of construction, particularly at road / rail / watercourse crossings. As part of the site investigations, a resistivity survey on the ground will be conducted to determine the soil resistance conditions. This will inform the Cathodic Protection System design.

Meanwhile the PMC will use their Mechanical, Civil, Electrical and Instrumentation facilities to prepare the necessary specifications, procedures, calculations, CADD drawings and other documentation in accordance with a General Register of Deliverables and, from this, a programme of works.

Phoenix and its nominated advisor (a company such as Penspen) will issue enquiries to suppliers for the free issue materials, such as: linepipe, hot bends, piping, barred tees, isolation joints, ball valves, actuators, pig traps and control kiosks.

Invitation to Tender

As detailed in section 3.7, once the FEED is complete, Phoenix and its nominated advisor will prepare the Invitation to Tender package.

A Contract will be drawn up for tenderers to bid against. It is anticipated that the tender will use the NEC3 Engineering and Construction Contract terms and conditions, for the purpose of this project.

In due course Phoenix will be obliged to advertise the proposed construction contract in various publications, including the OJEU in which all tenders from the public sector which are valued above a certain financial threshold according to EU legislation must be published.

Once the Invitation to Tender package is issued the tenderers will normally have one to three months in which to prepare and submit their technical and commercial tenders to the client for evaluation.

Phoenix's current view is to split the works into two Schemes so that construction can be completed in one season. Further detail is provided at section 3.7.

Project Management on site during Construction

As detailed in section 3.7, Phoenix will outsource the project management on site during construction work to a company such as Penspen who will provide the personnel required to act as Phoenix's engineer on site during construction of the two Schemes. Two teams will be needed headed by an overall Project Manager. Each of these teams will comprise:

- Construction Manager x 1 FTE;
- Field Engineer x 2 FTEs;
- Agricultural Liaison Officer x 1 FTE;
- Safety Advisor x 1 FTE;
- Senior Pipeline Inspector x 1 FTE; and
- Inspector x 2 FTEs.

Construction Contract

Full detail is provided at section 3.7. In summary, upon award of the construction contract, the successful Construction Contractor will finalise their construction schedule and arrange to mobilise to site and erect site establishments. These sites will have been identified and planning approval obtained by the client in advance of awarding the construction contracts.

Phoenix, working with a company such as Penspen, will receive the linepipe, bends and other free issue materials at the pipe dumps which is normally carried out ahead of the Construction Contractors' arrival.

Phoenix will ensure that all landowner consent agreements have been signed and that any agreed conditions are met before the Construction Contractor is allowed access to private land. The land agents will be monitoring these matters closely during the course of construction.

Prior to the beginning of bird nesting season, all hedgerows in the path of the pipeline route will be cut down to ground level to prevent birds nesting there. If the temperature is above 5°C, any requirement for Great Crested Newt fencing will be erected before heavy plant access the land.

The Construction Contractor will prepare and issue Method Statements and Risk Assessments to cover every activity. Those documents will be reviewed by The Engineer before any activity commences on site. The Construction Contractor will also maintain a Health and Safety file which will be populated during the course of the construction contract.

Pipeline construction will commence on site. Whilst pipeline construction will be progressing, work on the AGIs will have commenced to build the offtakes, pigging facilities, meter skids and block valve stations.

Once all works are completed the Construction Contractor will then reinstate the site office and pipe dump areas and de-mobilise from site. Approximately one month later, the contractors will hand over the Health and Safety file that will contain the as-built drawings and completion certificates and other essential documentation.

At this point, the pipeline system becomes the responsibility of Phoenix and Phoenix will appoint a MERC to carry out regular maintenance and surveillance, and to monitor the CP system. However, during the "warranty period" which kicks in immediately after the handover, the construction contractor will be responsible to repair any defects. This period will usually run for a period of two years.

Commissioning

As detailed in section 3.7, when Phoenix is satisfied that all conditions for the safe introduction of live gas into the pipeline system have been met, the PMC will prepare a Non-routine Operation procedure that will be followed to gradually introduce natural gas. This be carried out under the Northern Ireland Safe Control of Operations system and be subject to Permit to Work.

Close liaison with the existing TSO's will be required. The commissioning will be by the MERC, with Phoenix's own technicians and engineers, along with contractor support as required and will be in accordance with IGEM/TD/1**.**

Proposals for which activities will be tendered

Phoenix would intend to put in place contracts which would be tendered, subject to the necessary tendering rules, to support Phoenix's own personnel with delivering the activities listed in (a) to (j) above.

9.3 COST MANAGEMENT

The following section details Phoenix's cost management of its current distribution construction contract. Phoenix's high level finance function and cost management at a Group level is as detailed in section 8.4.

Explanation of the review process for costs incurred

Phoenix intends to manage the transmission construction contract in accordance with the established principles already in use in the existing Licensed Area for the management of its distribution contract.

Phoenix manages the existing construction contract and day-to-day activities with our contractor, McNicholas, through "Alliance" contracting principles. In summary:

(a) the contract is based on a philosophy that both parties can have shared objectives but the party best able to manage the risk manages that risk;

(b) there is shared co-ordination but collective accountability;

(c) the contract provides an incentive for innovation and for minimising costs while still delivering quality through the application of a pain gain mechanism;

(d) regular and focused reviews of costs incurred enable Phoenix to manage construction activities within tight allowances; and

(e) relationship with key suppliers ensure that best price and value is delivered from material suppliers.

Using these key principles as the foundation for any construction contracts issued for the GTW project Phoenix is confident best value for the consumer can be delivered. At the regular meetings between the Project Management Team and the contractor, a full review of work completed against schedule and costs incurred against target will be undertaken. Where it is identified that costs have exceeded target, a full review of the reasons why will be conducted. Action plans will be determined to eliminate such overspend going forward. Additionally if efficiencies against target are identified, the reason for that efficiency will also be determined. If this can be replicated going forward to improve costs still further, an action plan will be implemented.

Explanation of the information systems used for monitoring costs

All transmission construction work will be initiated through systems and processes which allow full traceability.

Following the completion of the Pipeline Route Verification, the FEED and the Construction bid price established as part of the construction tender, Phoenix will have a detailed build-up of the target cost for undertaking each of the core activities.

The Project Management Team and Phoenix's Commercial Operations department will audit and verify works for interim payments using the contractors own works valuation software and Phoenix's GIS mapping systems (see sections 3.5, 4.5 and 5.7) as well as actual measurements on site to measure work completed with regular audits carried out to check valuations.

The Construction Contractor's site operation produces a wide variety of informative data which is gathered and collated prior to reporting to Phoenix. This information provides a key link from the site operative through to management.

It is imperative that the contractor provides a fully transparent audit trail from the initial target costing through to the closure of the work to provide Phoenix with full site of each individual cost item.

10.FINANCE COSTS

10.1 WACC

This section sets out the basis for our underlying assumptions in respect to the cost of capital incorporated within the workbook submission and provides an:

- ***Explanation of build-up of the WACC; and***
- ***Explanation of assumptions used and their appropriateness***

Phoenix's application categorises the development of the GTW HP Pipeline into three distinct periods:

- The 'construction period' which relates to the period from granting of the licence up to the commissioning of the asset and first operational commencement date ("**FOCD**").
- The 'interim period' of operation which Phoenix have suggested will be two years providing the required time to enable the asset to be granted a credit rating and thereafter to facilitate the fundraising required to sell to a mutual vehicle.
- The 'mutual period' is the period post sale where the asset will be 100% debt financed and operate within an 'operating cost pass through' model.

Construction Period

In respect to the construction period, Phoenix has assessed the cost of financing of the project on the basis of the forecast capital expenditure provided by UR to all bidders within a three year time frame from the date the licence is granted in October 2014.

Phoenix has assumed that the 'DETI grant' will be received and paid on a quarterly basis on the basis of receipted invoices during the construction period. Phoenix has also assumed as per section 3.38 of the Applicant Information Pack that an interest rate of LIBOR +0.5% will be added to those costs allowed in determination of the opening asset value.

Phoenix has approached several banks to provide indicative terms in respect to providing the necessary support for this project and in addition has assessed the residual equity risks associated with the project during this construction period.

As a result of this Phoenix has included £3.727m within the 'Other Costs' line in the workbook submission the cost of financing the project up until the date of commissioning (FOCD).

In assessing the debt cost Phoenix has assumed that debt will be provided on a project finance basis, however due to the nature of such finance, terms will not be finally agreed with these finance providers until the specification of the project is finalised.

With respect to equity cost, it has been necessary for Phoenix to consider the construction risks associated to a project of this type and have benchmarked these risks against other comparable projects. In addition Phoenix has had to consider the residual risks associated to the provision of debt, most notably the risk associated with the amount of debt funding and its pricing not being finalised until sometime after the bid has been submitted and the licence granted.

Interim Period

Following on from FOCD, Phoenix's assumptions are based on the fact that the HP Pipeline will be designated within the postalised regime and thereby income will be generated on a 'flat real' basis from day one of operation.

Phoenix will therefore own and operate the asset within the terms and conditions of this regime and during the interim period it is assumed that it will be subject to the normal price control regime.

As stated above the purpose of this interim period of two years is to facilitate a reasonable timeframe for the asset to be prepared for sale to either Mutual Energy or some other form of mutual vehicle. Whilst it is envisaged that a significant amount of work will be undertaken during construction to finalise the terms of such a sale, it would be expected that in order to get the necessary credit rating required to raise the debt on the markets, a period of time after FOCD will be required to facilitate this sale.

Phoenix is committed to the sale of the GTW transmission business any time within that two year period after FOCD however it is recognised that the status of the financial markets in respect to such financings is an unknown and therefore Phoenix will be prepared to work with UR to agree an optimal period for such a sale and if necessary the continued ownership of the asset until such a time can be properly identified.

In respect to the two-year period Phoenix has assessed the return required by considering that from a debt point of view, the business will continue to make use of the project finance raised for its construction as for such a short period it would not make sense to refinance the business.

With regard to the equity return required, Phoenix has taken account of the fact that income will be generated from a postalised regime and has benchmarked against transmission returns determined elsewhere.

Phoenix Interim WACC submission (Years 1-2)	
Gearing	70%
Cost of debt	1.78%
Cost of equity	7.21%
Real, pre-tax WACC	3.41%

Mutual Period

As highlighted elsewhere, Phoenix is fully committed to a sale of the GTW transmission business to Mutual Energy however in event that such a sale cannot be facilitated it is prepared to set up a mutual vehicle for ownership of this pipeline.

In that regard the actual WACC for the mutual period will be determined by the markets at the time it is being refinanced and therefore the WACC included within our bid document is illustrative of the types of return achievable for such assets currently.

Phoenix would expect to work closely with Mutual Energy and UR to discuss an appropriate strategy to facilitate sale at the optimal time and believes the two-year period provides an adequate window to facilitate such a sale.

However it is recognised that the timing of such a sale is very much dependent on how 'open' the markets are to such a fundraising and therefore should it be required to extend the period of ownership after FOCD beyond the two-year period, Phoenix would be willing to do so on the basis of a revenue cap with a WACC determined by UR taking account of the specific financing issues related to extended ownership of the asset.

Phoenix has approached several banks to provide an indication of the pricing of a long dated index linked bond issued by a newly created mutualised vehicle. As noted above, the terms and pricing of any such instrument will depend on market conditions at the time of issuance and on the credit rating achieved by GTW transmission.

On the assumption that GTW transmission were to achieve a strong investment grade rating (A/A1) and would be funded through the issuance of a long dated, amortising index linked bond Phoenix has indicatively included a WACC of 1.0% as illustrative of the coupon that could be achieved based on current market conditions.

In providing this, WACC Phoenix has assumed that the price control framework will treat all other costs associated with the funding structure, including fees and the repayment of the indexing principal amount of the bond, and tax as pass through costs.

Phoenix 'Mutual' WACC (Year 3 onwards)	
Gearing	100.0%
Cost of debt	1.0%
Cost of equity	n/a.
Real, pre tax WACC	1.0%