

Gas to the West

Technical Advice on Low Pressure Submissions

Context

The Utility Regulator (UR) is currently conducting a competitive licence application process to award the necessary gas conveyance licence(s) to extend the natural gas network in Northern Ireland. Two exclusive gas conveyance licences will be awarded, one for high pressure assets and another for low pressure assets. Rune Associates has supported UR with advice on the content of the operational business plans to be submitted by applicants.

The applicant submissions have now been received and are being evaluated against DETI Published Criteria by a three member Committee acting on behalf of the Authority. Rune Associates has been asked to provide advice regarding certain identified aspects of the three low pressure applications from firmus energy (connected)¹, Phoenix Natural Gas and Scotia Gas Networks. UR has indicated that it would like Rune Associates to set out for these aspects:

1. The information and evidence Rune Associates would expect to see submitted in a strong and well-evidenced application against each of the identified headings.
2. Rune Associates' view as to the nature and quality of the information and evidence submitted by each applicant against those headings.

This following table provides responses on this basis for the identified aspects:

¹ Rune Associates has not reviewed the firmus energy unconnected submission but from information provided by UR following a comparison between that and the firmus energy connected submission, it appears that there are no material differences between the two documents



Criteria 3.17 (a) (iv): Its identification and proposals as to the management of risk

Requirements of a strong and well-evidenced submission

1. Policy and processes to identify and manage risk issues are described, including procedures to mitigate risk and monitor actions to completion.
2. Significant GTTW project and asset risk issues and mitigating control actions are identified and subject to high level management

Nature and quality of submitted evidence

firmus energy

1. ² Section 4.1.2 describes firmus' policy and processes to identify and manage risk issues and indicates *'firmus energy's risk process consists of the five interrelated components set out in the Figure 4.1.2, culminating in a risk radar and 'Key Risk Indicators', which are reviewed quarterly at firmus energy's Board meeting. The Risk Management process is supported by a clearly defined Risk Management structure with assigned roles & responsibilities³*, this Section also outlines the processes for risk identification, assessment and evaluation. Section 4.1.3 sets out the procedures to mitigate risk and monitor actions to completion and indicates that risk owners in conjunction with the Senior Management Team *'prepare the Key Risk Indicators (KRI's) (including target levels and triggers). KRIs assist management in measuring and monitoring both current and potential future shifts in risk conditions by acting as triggers for intervention/escalation and for putting mitigating actions in place in a timely manner'* and that *'On an annual basis, the Board Audit & Risk Committee undertakes a review of risk and the effectiveness of internal controls. The Internal Audit and Risk function also, on a regular basis, performs an independent assessment of the effectiveness of internal controls in place to mitigate risks based on an agreed Internal Audit Plan'*.
2. Section 4.1.1 identifies and quantifies a range of risk issues associated with *'operating a licence for the conveyance of natural gas for GTTW'*, including asset risks from terrorism during construction and operations and environmental risk issues. In respect of the former the Section indicates *'An awareness of the potential for damage, both accidental and malicious, will be factored into all engineering plans and security arrangements accordingly and will also be addressed in the Licence terms negotiated with the UR's office. Outside normal working hours and working in vulnerable areas are already built into firmus energy's procedures'*. The Section also indicates that in relation to engineering risks, *'firmus energy employs the 'E.R.I.C.' protocol to all risks: 1. Eliminate the risk through design or planning; 2. Remove the risk through substitution; 3. Isolate the risk through Permit of Works; and 4. Control the risk through suitable and sufficient engineering/procedural methods'* and that *'The same protocol will be extended to GTTW'*. Section 5.7.4 identifies proposals to identify and manage asset risk issues.

The submission suggests a robust policy and supporting processes for the identification and management of risk, there is evidence that this approach has been applied to identify specific risks for the GTTW project and to propose mitigating control actions.

² Numbering relates to requirements set out above

³ Text shown in italics is quoted from the relevant company submission



Criteria 3.17 (a) (iv): Its identification and proposals as to the management of risk**PNGL**

1. Section 4.1 of the submission sets out Phoenix's risk management processes that facilitate identification and quantification of risk issues, including significant asset risk issues and also describes the policy and processes to identify and manage risk issues and the procedures to mitigate risk and monitor actions to completion. The submission provides detailed information on Corporate and Operational Risk Registers, risk assessment processes, the work of the Risk Review Committee and Network Safety Group and the role of audit in providing the Directors with assurance that risks identified are being appropriately managed. The submission indicates that *'It is envisaged that the risk management processes currently in operation in Phoenix would be replicated for the GTW distribution business'*.
2. There is evidence in various parts of the submission of the identification of specific risks and mitigating control actions associated with the GTTW project, for example construction of feeders in advance of the availability of gas from the high pressure pipelines to facilitate gas to consumers as early as possible results in *'the possibility of a third party contractor damaging the gas main and, as there is no actual gas leaking, failing to notify the gas company of the damage. To mitigate this risk, Phoenix will then leave the mains charged with a small amount of air, at a pressure that minimises the risk posed by the stored energy in the event of a sudden release'*. Section 5.7 identifies proposals to identify and manage asset risk issues.

The submission suggests a robust policy and supporting processes for the identification and management of risk, there is evidence that this approach has been applied to identify specific risks for the GTTW project and to propose mitigating control actions.

SGN

1. Section 1.2.2 indicates that *'The management of risk and safe control of operations are at the heart of our business; we will import our business processes in this areas to ensure the new operation benefits from the best practice procedures we currently operate'*. Section 4.1 describes SGN's policy and processes to identify and manage risk issues and indicates that *'We employ an Enterprise Risk Management approach to ensure that all risks to our business are identified and controlled. Our risk governance structure is underpinned by our risk management policy and procedures and covers all areas of our business (Engineering, Operations, IT, Finance etc). At a strategic level, our Risk Committee monitors the effectiveness of our risk processes and controls and provides assurance to our Executive and Board.'* The Section also indicates that once identified, *'risks are assessed to 'consider the significance of the risks to SGN, the likelihood of the risks materialising, our ability to reduce the impact if the risk was to materialise and the costs of operating controls relative to the benefit obtained in managing the risks'*. SGN also applies the *'ERIC' principle'* to identify and implement appropriate control measures.
2. Section 1.2.2 indicates that SGN has applied their *'robust and detailed approach to risk management'*, *'to the risks perceived within the Gas to the West project. We have limited the risks listed to those deemed to have a significant potential impact on the project. Each risk has been assessed and scored to allow appropriate ranking and review'*, Section 8.3 sets out the risks that have been identified, their assessment and proposed mitigating actions; the highest rated engineering related risk is *'Lack of appropriately qualified engineers in NI, resulting in additional travel and accommodation to provide support from Scotland/Southern networks'* and the proposed mitigation is *'We will work to develop this*



Criteria 3.17 (a) (iv): Its identification and proposals as to the management of risk

market over time and liaise with other gas distribution networks to promote the gas industry as a strong employment opportunity'. Section 3.7.1 indicates that 'A separate comprehensive risk register will be prepared for the project and risks will be reviewed (and actions agreed) at each project board meeting'. Section 5.7.4 identifies proposals to identify and manage asset risk issues.

The submission suggests a robust policy and supporting processes for the identification and management of risk, there is evidence that this approach has been applied to identify specific risks for the GTTW project and to propose mitigating control actions.



Criteria 3.17 (a) (v): Its proposals as to the use of tendering arrangements

Requirements of a strong and well-evidenced submission

1. Accountability for development and management of procurement processes clearly identified in the organisation structure
2. Proposed policies and procedures to ensure compliance with EU procurement regulations set out
3. Processes, authority levels and financial controls are specified
4. Competitive tendering arrangements specified
5. Supply contracts specified for essential requirements
6. Services contracts specified for essential requirements

Nature and quality of submitted evidence

firmus energy

1. Accountability for procurement processes is not clearly identified in the organisation structure, however, Section 6.1.1 indicates that '*Accountability for ongoing development and management of procurement processes resides with the Financial Controller and the finance function, who draw on appropriate legal advice as required*'.
2. Section 6.1.1 confirms that '*Procurement processes have been developed to comply not only with EU Utility procurement requirements, but also with more stringent Public Sector Procurement regulations*'. The following section of the submission, Section 6.1.2, provides a detailed summary of proposed policies and procedures to ensure compliance with EU requirements.

Section 6.1.4 provides detailed information regarding competitive tendering and the arrangements that apply below and above the EU Directive threshold.

Section 3.6.5 indicates that '*firmus energy does not anticipate a requirement for an OJEU level competition at the mobilisation phase. A similar competitive tender process has just been completed and future competitions will be run, based on this experience and in line with procurement principles*'
3. Section 6.1.3 states that '*Procurement processes and procedures are managed on a day-to-day basis by the finance department. The purchase order/contract management IT system ensures that authority levels, legal and insurance documents and contracts are monitored and reviewed as appropriate for the proposed purchase.*' Current authority levels are aligned with the organisation structure and clearly specified, and '*Purchase order requests are to be approved at various authority levels dependant not only on the value of the purchase order request, but also the nature of expenditure. Final approval is given by the Purchasing Department once they have confirmed that a valid contract is in place with a supplier,*



Criteria 3.17 (a) (v): Its proposals as to the use of tendering arrangements

having complied with appropriate procurement rules'.

4. Section 6.1.4 provides detailed information regarding competitive tendering procedures. The information covers processes for advertising, pre-qualification, award criteria, technical specifications/ variant tenders.
5. Materials required for network construction and maintenance activities are generally procured under the terms of the various services contracts.
6. The primary essential service contract requirement is the framework contract for distribution network construction services. The submission includes proposals in this respect as described in Section 2.2.1; *'McNicholas Construction services – contractor for period contract 2014 – 2020 in the Ten Towns network. Construction teams are multi skilled and qualified to carry out mains work, service works and emergency works. For GTTW, they will be responsible for providing a detailed programme of construction work and to notify all works in accordance with the NISRANS ensuring all works are completed in accordance with all relevant legislation, recommendations and industry best practice. McNicholas have extensive experience within the natural gas industry and have been the main gas Contractor in Northern Ireland since 1996.'* Section 3.6.3 states *'As firmus energy has only recently awarded its Period Contract, we are confident that these arrangements will offer the best value for money and avoid the resources and costs that would be involved in a new tender. However, we are open to re-tendering.'*

Section 2.2 includes details of the proposals for procurement of the other essential services required which will be provided by extension of the contract arrangements with existing service providers. These services include activities such as emergency call handling (NGG) and maintenance of network assets (Scotia Gas Networks)

The submission provides detailed information on tendering arrangements based on the application of firmus' existing policies and procedures. firmus' experience of the range of procurement arrangements associated with construction and operation of distribution networks provides confidence regarding this aspect of the requirements for the GTTW project. Utilisation of relevant existing framework contracts is a contributing factor in terms of assurance regarding project delivery capability.

PNGL

1. Section 2.2 – Existing procurement services resources within the Phoenix centralised corporate services department will be utilised to provide the range of support required for the GTTW project.
2. Section 6.1 – High level information on policies and procedures to ensure compliance with EU procurement regulations are provided; financial thresholds for advertisement in the EU Journal are specified. Reference to established policies and procedures that address compliance is included, *'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.'*

Section 2.1 includes reference to the current construction contract and compliance with the EU Directive, *'Phoenix is subject to the Official Journal of the European Union ("OJEU") procurement thresholds and as such the construction contract has been tendered three times with McNicholas being*



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awarded a contract in 1996, in 2001 and in 2006.' after an extensive tendering process advertised in the OJEU'.

3. Section 6.1 includes the following reference to procurement procedures, *'The Procurement Procedure details the process to be followed with regards to the acquisition of works, supplies or services for the business' and also a reference to financial authority levels 'As noted in section 4.1, Phoenix utilise a financial authority matrix to assign procurement spending limits to budget holders'. Section 4.1 states, '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'.*
4. Section 6.1 provides high level information that summarises tendering arrangements; there is no specific reference or detail regarding the competitive aspect. Section 6.3 provides information in general terms for mobilisation proposals to initiate the competitive tender process for provision of services.
5. Section 6.2 describes in general terms only the proposed arrangements for procurement of essential materials required for construction and operation of the distribution network. Proposals for the GTTW project are summarised in the following extract; *'With regards to procurement of materials, the necessary planning arrangements would largely centre on the development of an overall project delivery strategy of which the contract strategies for the various works, supplies and services would be determined.'* Proposals for initiation of materials procurement during the mobilisation phase are provided in Section 3.6 which states; *'With regards to materials to be incorporated into the gas network construction (gas engineering and civil engineering related), Phoenix would propose to procure these as part of the main construction contract' and 'Phoenix has procured and awarded a number of similar construction contracts in the past (see section 2.1) and as part of our overall contract strategy we have reviewed the merits of separate contracts for both materials supply and network construction.'*
6. Section 6.3 provides a high level indication of Phoenix' proposals for development of construction, maintenance and specialist services required for the GTTW project; *'The model developed within the existing Licensed Area would be replicated in the GTW Licensed Area'.*

The submission addresses the GTTW specific contracts and materials procurement requirements and procedures at high level. Phoenix intends to implement procurement processes similar to those that apply to the existing Licensed Area which include competitive tendering to achieve best value.

SGN

1. Section 1.2.1 includes a high level key business operational objective related to procurement; *'We will use a centralised procurement function to drive value and use best practice contractual and financial management processes to monitor and control our activities'.* Sections 2.2.1 and 2.2.4 indicate that the project management team will establish a Managed Service Agreement with SGN Corporate for procurement services support. Section 6.1.1 provides a high level summary statement regarding organisational arrangements and accountability for procurement; *'The management of procurement will be shared between the NI business, the SGN Executive and Board and the SSE Procurement function, our shared*



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service provider. The procurement director for SSE has accountability into both the SGN and SSE Board for procurement process governance and compliance. The Director, Northern Ireland will have responsibility for compliance within SGN NI.' The following extract describes the management and process control principles; *'To ensure compliance across the NI business, processes will be clearly defined, and, where possible, embedded within systems and subject to internal audit to ensure the effectiveness of controls and compliance. All procurement activity will be conducted in accordance with the policies and procedures documented in our Procurement Manual.'*

2. Section 6.1.2 provides detailed information regarding policies and procedures to ensure compliance with EU procurement regulations. The process that will apply to the GTTW project is outlined.
3. Section 6.1.3 provides information regarding procurement process levels of authority. The levels of authority are appropriately structured to support the range of expenditure approval required for the GTTW project.
4. Section 1.2.2 indicates that SGN proposes to *'secure external resources for mobilisation through existing framework agreements with suppliers, wherever possible.'* High level details of the competitive tender and award processes that will apply to mobilisation contract arrangements are provided in Section 3.6.1. Competitive tender activity categories and associated timescales are specified in Section 6.1.4.
5. Section 3.6.1 *'The majority of materials will be procured under existing framework agreements. Where there is a need for new contracts to be put in place, we will adopt best practice procurement principles in line with the EU regulatory procedures'*. Section 6.2.1 provides a high level indication of the existing framework arrangements that SGN propose to utilise: *'As an existing operator of two large networks, we have strategic long-term framework contracts in place for the supply of the majority of materials necessary to construct the distribution network. In procuring materials for our work in NI we will use these framework arrangements and our group's associated buying power to bring advantage and best value to our customers.'* Proposed arrangements for materials contracts awards, requirements planning and stockholding are provided in Sections 6.2.2, 6.2.3 and 6.2.4 respectively.
6. Information regarding the contracts required for construction, maintenance and specialist services is provided in Section 6.3, and it is intended that the majority of these contracts will be awarded during the first 3 months of mobilisation. SGN proposes to utilise existing contracts for specialist services if possible as indicated in Section 6.3.1; *'We already have a number of specialist contracts in place to support operations in our existing networks. We will extend or renegotiate these as necessary to accommodate our work in NI, or look towards working with equally competent local providers.'*

The submission provides detailed information of SGN's proposed tendering arrangements, based on the application of existing policies and procedures. Procurement support provided by SGN Corporate provides assurance with this aspect of project delivery capability.



Criteria 3.20 (a) (i): the applicant's experience of managing the processes and resources necessary to construct a lower pressure network

Requirements of a strong and well-evidenced submission

1. Evidence of designing, obtaining the necessary resources and constructing a lower pressure network and connecting customers in accordance with regulatory requirements.

Nature and quality of submitted evidence

firmus energy

1. firmus energy was awarded its' initial gas distribution license in 2005 and since that date has developed an extensive gas supply network within the Ten Towns area which is geographically located in close proximity to the proposed GTTW network area and which supplies gas to approximately 22,000 consumers currently. The scale of network development achieved demonstrates that firmus has the required resources and organisational capability to design, construct and operate gas distribution networks in accordance with regulatory requirements. The following extracts from the submission summarise relevant aspects performance to date.

Introduction to the submission:

- *'To date within our (next door) Ten Towns Licence area we have surpassed our initial licence targets by:*
 - o *Building 870km of gas mains;*
 - o *Connecting 4,250 customers per annum, with 22,000 Customers connected overall;*
- *Trusted safety and build record. No Health and Safety Executive NI or DRD Road Authority fines in 9 years of operation;*
- *Excellent Customer Service. Since 2005, we have received the lowest number of Stage 2 Consumer Council NI complaints of any regulated network company;*
- *Strong Regulatory Performance. In the last price control (PCR02), firmus energy:*
 - o *Was 8% underspent on operating expenditure;*
 - o *Has exceeded volume targets; and*
 - o *Achieved 49% more connections to our distribution network than our regulatory target.*
- *.... Proven Track Record in building a provincial greenfield gas distribution network in Northern Ireland;*



Criteria 3.20 (a) (i): the applicant's experience of managing the processes and resources necessary to construct a lower pressure network

- *A background of bringing innovative solutions to the development of gas distribution networks in Northern Ireland;*

Section 1.2 (2) - *'firmus energy has installed over 870km of mains and over 22,000 Industrial & Commercial (I&C) and domestic services since construction began in the Ten Towns network. During this time we have implemented processes and procedures to ensure the highest standards with regard to safety, quality and environmental considerations.'*

Section 1.3 - *'Our development to date has been undertaken by Maximising the development of our network, whilst seeking additional regulatory consent to extend our network to areas and customers that were not included within our original business plan assumptions.'*

firmus energy's submission provides detailed information on their capability to construct gas distribution networks and connect customers in accordance with regulatory requirements. Network development performance under the existing license for the Ten Towns area provides confidence that firmus has the resources and organisational capability required for GTTW.

PNGL

1. PNGL was awarded its' initial gas distribution license in 1996 and since that date has successfully developed an extensive gas supply network in the greater Belfast area. Gas supply is available to approximately 301,000 properties (December 2013), and the network currently supplies gas to approximately 170,000 customers via 3000 kms of IP, MP and LP distribution mains. The scale of network development achieved demonstrates that PNGL has the required resources and organisational capability to design, construct and operate gas distribution networks in accordance with regulatory requirements. The following extracts from the submission summarise relevant aspects performance to date.

Section 1.1 - *'Phoenix has the skills and experience within its current operation to deliver a successful network, customer connections and wider natural gas industry. Through utilisation of these existing skills....Phoenix is confident that it can make the GTW Licensed Area as successful as the existing Licensed Area.'*

Section 1.2 - *'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.'*

Section 3.1 - *'To date Phoenix has designed and constructed over 3,000 kilometres of distribution gas mains in its existing Licensed Area and has the processes and procedures in place to develop Engineers, ensuring competency in all aspects of the natural gas industry from network design through to construction and operation.'*

PNGL's submission provides detailed information on their capability to construct gas distribution networks and connect customers in accordance with regulatory requirements. Network development performance under the existing license for the Belfast area provides confidence that PNGL has the



Criteria 3.20 (a) (i): the applicant's experience of managing the processes and resources necessary to construct a lower pressure network

resources and organisational capability required for GTTW.

SGN

1. Currently SGN has gas distribution licenses awarded by Ofgem for operation of large supply networks in both Scotland and the South of England. Performance in these areas against regulatory requirements demonstrates that SGN has the required resources and organisational capability to design, construct and operate gas distribution networks. The following extract from the submission summarises relevant aspects of performance to date.

Section 1.2 – 'We currently manage 74,000km of distribution network infrastructure in Scotland and the South of England and our two networks have demonstrated a track record in both financial and operational excellence during the recent five year price control (GDPCR1). Our two networks are currently ranked first and second out of the eight networks for opex efficiency and have consistently delivered our 97% emergency standard (a key licence condition) even during extreme winters. The SGN group ranks first throughout GDPCR1 on customer service compared to other ownership groups and we have delivered all our mains replacement targets with the Health and Safety Executive. During the last five years we have delivered around 100,000 new connections and have significantly exceeded our fuel poor connection targets with more than 20,000 customers connected to date.'

Although SGN does not have evidence of similar experience in NI to support its' submission for award of the GTTW license, Section 1.2 of the submission states '*Scotia Gas Networks (SGN) has long been active in NI supporting both low and high pressure operators, as well as supporting the commissioning of existing pipelines; this opportunity allows us to develop our business relationships and share the benefits of developments in the GB regulatory market with NI.'*

SGN's submission provides detailed information on their capability to construct gas distribution networks and connect customers in accordance with regulatory requirements in GB. Network development performance under the current Ofgem licenses for Scotland and the South of England areas gives confidence that SGN has the resources and organisational capability required for GTTW.



Criteria 3.20 (a) (iii): Experience of system operation in the context of a lower pressure network;

Requirements of a strong and well-evidenced submission

1. Evidence of operating experience of, and work and asset management processes for, lower pressure network(s),
2. Evidence of existing system operation arrangements to monitor and control lower pressure networks
3. Evidence of operating lower pressure network(s) under Network Code arrangements

Nature and quality of submitted evidence

firmus energy

1. Section 1.2 references *'the successful build out and safe operation of a new 'greenfield' gas distribution network in the "Ten Towns" licence area which runs from Derry/Londonderry, via Antrim to Warrenpoint', this has involved the installation of 'over 870km of mains and over 22,000 Industrial & Commercial (I&C) and domestic services since construction began'*. The Section also indicates that since the award of the Ten Towns licence *'firmus energy has developed procedures and processes to monitor the system and to respond effectively to incidents ensuring the safety of the general public, our personnel and maintaining security of supply'*. Section 5.7 covers asset management processes and Section 5.7.1 indicates that *'We operate a system of annual inspection on all of our sites which fall under the governance of the PSSR: 2000. We carry out function checks on safety devices and condition assessments of all equipment installed at these sites at the same visit'*.
2. Section 5.5.1 sets out the system control arrangements for the Ten Towns network this indicates that the AGIs feeding the network are monitored by the Transmission System Operator and that its *'duty engineer will liaise with firmus energy's Standby Manager if deemed necessary. In the event of an incident the situation would be managed using the existing incident procedures'*. The Section further indicates that *'firmus energy utilises Technolog's PMAC (Pressure Monitoring and Control) system to monitor the distribution system at key locations within each town'* and that *'PMAC is set up to notify High Pressure (HP) and Low Pressure (LP) alarms at any of the monitored sites and these alarms are sent to the Bord Gais 24/7 Network Control Centre at Finglas, North Dublin', who will notify firmus.*
3. Section 5.4.1 indicates that *'firmus energy has an agreed Network Code for its Ten Towns network'* which *'sets out the common terms and conditions between firmus energy and industry players who use firmus energy's network to convey natural gas through the distribution pipeline'* and its proposal that *'This Network Code will also be used for the use and operation of the distribution gas pipeline within GTTW.'*

The submission provides evidence of firmus energy's experience of system operation in the context of a lower pressure network and gives confidence that they will be able to apply this appropriately in the GTTW project.



Criteria 3.20 (a) (iii): Experience of system operation in the context of a lower pressure network;

PNGL

1. Section 1.2 references Phoenix's existing gas distribution network activities in Northern Ireland indicating '*The Phoenix network currently extends to over 3,000 kilometres of intermediate, medium and low pressure mains (7 to 4bar, 4bar to 800mb and 75mb to 25mbar respectively), which distribute natural gas throughout the existing Licensed Area*'. Section 5.7 sets out Phoenix's existing asset management policy, strategy and plan and indicates that its '*existing Asset Management System will be further developed by Phoenix over the next 18 month 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*'.
2. Section 5.5 indicates that '*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 for more than nine years. It has a proven record of monitoring the current distribution network and the previous transmission network in the existing Licensed Area. It enables the control and delivery of several other vital risk, operational and maintenance processes whilst assisting the engineering team in areas such as network design and database development.*' It also indicates that the existing Phoenix distribution network '*has telemetry installed in all district PRSs. This telemetry links into a central system in the control room and allows Phoenix to monitor each district PRS's operational status, performance and security status 24 hours a day seven days a week*'.
3. Section 5.4 indicates that '*Phoenix has successfully facilitated the delivery of a competitive retail market in the existing Licensed Area. In fact the Phoenix Distribution Network Code (the "Code" or the "Network Code") and its key Code processes is the blueprint for expanding the competitive arena to other Licensed Areas in Northern Ireland*'.

The submission provides evidence of Phoenix's experience of system operation in the context of a lower pressure network and gives confidence that they will be able to apply this appropriately in the GTTW project.

SGN

1. Section 1.2 indicates that SGN '*currently manage 74,000km of distribution network infrastructure in Scotland and the South of England and our two networks have demonstrated a track record in both financial and operational excellence during the recent five year price control (GDPCR1)*'. Section 5.7.1 indicates that '*SGN already has a robust asset management system (covering the full asset life cycle) that is externally certified to BSI PAS55. We were audited by Lloyds Register in March 2014 and are being recommended for continued certification to the standard and to the new international standard ISO 55001*'.
2. Section 5.5 indicates that '*We control and monitor the performance of our existing networks in Scotland and Southern England from our Gas Control Centre at Horley. SGN is also contracted by Mutual Energy to provide Gas Control services for their networks in NI. The centre at Horley is fully replicated at Horsham to provide continuity in the event of the Horley centre being unavailable*'. The section further indicates that '*We propose to incorporate our NI network into our existing Gas Control operations, via an MSA. As the DSO, we will share (gain access to) the telemetry data*



Criteria 3.20 (a) (iii): Experience of system operation in the context of a lower pressure network;

gathered by the TSO at the entry points to the distribution networks' and that 'monitoring equipment will be installed to provide assurance that the networks are operating safely and within the expected tolerances'.

3. Section 5.5 indicates that *'To avoid adding complexity for Shippers, our intention (current working assumption) is that initially we will mirror the Phoenix Natural Gas and Firmus Energy Network Codes'* but that *'we recognise the benefits of creating a single uniform network code and would be willing to actively engage in delivering this'*. As a GB gas distribution network operator licensed by Ofgem, SGN has developed network codes to cover its existing networks in Scotland and Southern England.

The submission provides evidence of SGN's experience of system operation in the context of a lower pressure network and gives confidence that they will be able to apply this appropriately in the GTTW project.



Criteria 3.20 (a) (v): Its proposals as to the securing, mobilisation and management of the internal resources necessary to construct a lower pressure network

Requirements of a strong and well-evidenced submission

1. Detailed proposals are presented in a credible plan supported by evidence drawn from previous experience and are comprehensively detailed, defined and justified
2. Robust and clear organisational arrangements based on a detailed and justified rationale are set out
3. Manpower numbers and competence to manage the process are specified and credible
4. Arrangements to establish required information systems are set out

Nature and quality of submitted evidence

firmus energy

1. Section 1.2 makes reference to firmus proposal to extend capability under the terms of its current license to undertake GTTW; *'firmus energy already operates a very similar network in the Ten Towns to the proposed GTTW network. The Ten Towns network was developed through a similar mobilisation process to that envisaged in this licence application and with the similarities in the two networks firmus energy is well placed to extend its experience from Ten Towns to the resources required for the efficient construction, operation and maintenance of GTTW.'* This view is reinforced by the statement in Section 2.1.1, *'Through our existing business, firmus energy already has internal operating teams, processes and procedures, external agencies, contractors, stakeholder relations and a governance structure in place. firmus energy has the relevant experience and a fit for purpose organisational structure.'*
2. Section 2.1 provides detailed information regarding the existing organisation structure and capability to absorb responsibility for the GTTW license with no structural change required. Section 2.1.1; *'Through our existing business, firmus energy already has internal operating teams, processes and procedures, external agencies, contractors, stakeholder relations and a governance structure in place. firmus energy has the relevant experience and a fit for purpose organisational structure. We see GTTW as a natural fit with this existing organisation.'*
3. Section 2.2.1 states: *'Internal manpower resource requirements will include current manpower allocations from firmus energy Distribution, Management; Engineering, Sales and Marketing, Finance, HR and Regulation and Pricing, together with a build-up of specific contracted GTTW employees.'*

An estimate of the manpower numbers required for the GTTW license activities, in addition to the existing internal manpower resource level, is provided in Section 2.1.2 as summarised in the following extract, *'Our manpower calculation has been undertaken on the basis of the incremental staff needed to undertake GTTW; over and above our existing business. firmus energy's distribution manpower allocation currently sits at 55 FTEs.'*



Criteria 3.20 (a) (v): Its proposals as to the securing, mobilisation and management of the internal resources necessary to construct a lower pressure network

However with the close alignment of Ten Towns and GTTW activities firmus energy believes that additional staff requirement can be limited to 23 during the first 10 years for GTTW.'

The existing Senior Management team will manage GTTW and the increase in manpower is at lower levels in the organisation structure. Section 2.2.3, Figure 2.2.3 provides a detailed summary of the additional manpower roles categorised by department, role, pay band and date. Section 2.2.4 provides high level justification for the additional personnel is as follows; *'We have considered the GD14 determined 55 staff for firmus energy distribution at 2014. We have pro-rated this to take account of the difference in size of the GTTW networks and the number of customer numbers and gas pipeline required. On a straight pro-rata this would equate to 37 staff. However, given synergies with current operations in the Ten Towns and leveraging existing resources including SMT and central support functions, we have determined an additional 23 staff will be sufficient for GTTW.'*

Section 2.3 describes the competence management and training/development arrangements for all employees. Details of the competences and accountabilities of the members of the Senior Management Team are included.

4. Section 3.4.2 indicates that firmus propose to utilise their existing IT systems to support management of the GTTW network; *'firmus energy already has the requisite information systems in place required to provide management information necessary to manage the GTTW network. As such there will be no significant change to the existing information system architecture ...'*

The submission provides detailed information to support the organisational and manpower proposals for GTTW project, based on development of the existing arrangements for the current 'Ten Towns' license area.

PNGL

1. As indicated in Section 1.1, the proposal from Phoenix is based on utilisation and extension of the organisational capability for the existing Licensed Area; *'Phoenix has the skills and experience within its current operation to deliver a successful network, customer connections 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 tried and tested staff development programmes, Phoenix is confident that it can make the GTW Licensed Area as successful as the existing Licensed Area.'* In terms of the overall submission, the various detailed proposals and justifications are substantially based on the principle of utilising and extending the existing arrangements for managing all aspects of the existing License Area business to include GTTW wherever possible.
2. High level details of the corporate organisational arrangements are provided in Section 2.1. There is no organisation structure diagram to depict the existing arrangements that Phoenix propose to develop to include GTTW, but descriptive details are provided in the text.
3. Section 2.1, Table 1 specifies the total additional internal manpower resources required for GTTW years 1 to 5, categorised by role; similar information s provided for individual years 6 through to 10. Detailed information is provided to justify the manpower numbers and, in Section 2.4, the arrangements for deployment into the GTTW area.



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Section 2.3.1 describes in general terms the Phoenix arrangements for competence management and includes details of the professional and academic qualifications and experience associated with all levels of key personnel. The information covers personnel responsible for management, design, planning and supervision of live gas and construction activities in the existing Licensed Area and also for the GTTW business.

4. Section 3.5 refers to the IT systems that Phoenix has developed to support management of the existing License Area business and proposes to substantially utilise for GTTW; *'Whilst successfully constructing the network in the existing Licensed Area, Phoenix has created and developed a comprehensive suite of proven works management processes'.....'Each Senior Manager is responsible for his/her departmental processes within Phoenix and each of their remits will be expanded to include the GTW Licensed Area. Fully documented processes will be reviewed, updated and approved for the GTW distribution business.'*

Section 3.5 also includes specific reference to asset management and work issue processes, *'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.... This means all the key systems and processes required to successfully locate, monitor and maintain Phoenix's existing assets will be deployed to carry out the same function within the GTW distribution business.'*, and *'Phoenix currently operates a works issue system for construction which is a bespoke database..... Phoenix will utilise the same system for issuing work in the GTW Licensed Area. There are no additional costs associated with this.'* Arrangements to procure required GIS related information systems are described.

The submission provides detailed information to support the organisational and manpower proposals for the GTTW project, based on development of the existing arrangements for the existing Licensed Area.

SGN

1. The proposal from SGN is based on experience from the arrangements established for the existing Ofgem Licensed GDN businesses. In terms of the overall submission, the various detailed proposals and justifications are based on the principle of utilising and extending the existing arrangements for application to the GTTW license area.
2. Section 2.1.1, Figure 1 and 2.1.2, Figure 2 illustrate the Group Structure incorporating the new SGN NI business unit and the proposed organisation structure under the Director NI respectively. Information regarding the roles of the direct reports to the Director and the rationale for the proposals are provided in the associated text in the submission.

The high level rationale regarding the relationship between the NI Management Team and SGN Group is described in Section 2.2.1; *'The management team will establish MSAs for specialist services including Procurement, Safe Control of Operations, Network Policy, Legal and Regulatory support. We will also draw significantly on our group resources for centralised services using an outsourced/in-house model. Services will include Customer Service, Finance Services, Corporate Communications and Human Resource Management.'*

3. High level information regarding the proposed numbers of internal personnel for GTTW, categorised by role, for each year to year 10 is presented in Section 2.2.1, Figure 3. Section 2.2.2 includes details of the assumptions underpinning the build-up of the manpower requirements, taking into



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account efficiency improvement.

Competence management arrangements are specified in Section 2.3.1 and are summarised by the as following extract from the submission; *'Our approach is enshrined in our Management Standard for Competence, SGN/MS/7 and the associated management procedure for our Competence Assurance System, SGN/PM/SHE/77. We have a Head of Competency Development who leads a Competence Management Group which is responsible for maintaining the required competence and capability of our workforce. This covers training requirements across all aspects of the business (eg technical, administration, management training etc).'* Professional and academic qualifications and experience associated with named key personnel in the Senior Management Team and the Project Team are provided in Section 2.3.2.

4. Section 3.5 refers to the IT systems that SGN has developed to support management of its' existing Licensed GDN businesses and, proposes to utilise for GTTW; Section 3.5.2 states *'Other than the revisions required to ESRI, we do not envisage any significant procurement events, as we plan to utilise and/or extend our existing systems to meet NI business requirements.'* The revisions to the ESRI mapping system are necessary to enable functionality in NI.

The submission provides detailed information to support the organisational and manpower proposals for the GTTW project, based on SGNs' arrangements for its' existing Licensed GDN businesses.



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Requirements of a strong and well-evidenced submission

1. Detailed proposals are presented in a credible plan supported by evidence drawn from previous experience and activities are comprehensively detailed, defined and justified
2. Evidence of a detailed review of the gas load and network proposals set out in the Fingleton McAdam study
3. Credible alternatives to the high and low pressure approach proposed in the Fingleton McAdam study based on network analysis and high level cost benefit analysis
4. Robust proposals to:
 - a) establish the network design process
 - b) initiate materials procurement processes and award supply contracts and to prepare construction contract tender documents
 - c) establish the project management team and information system

Nature and quality of submitted evidence

firmus energy

1. Sections 3.1 through 3.7, of the submission provide detailed information on the proposed activities necessary to construct a lower pressure network and reference the Ten Towns network which *'was developed through a similar mobilisation process to that envisaged in this licence application. The Ten Towns network now extends to over 870km of mains and over 22,000 domestic and I&C services'*. firmus indicates that *'During mobilisation there will be close interaction with BGE (UK) in relation to the construction of the transmission pipeline and the above ground installations (AGIs)'*. The proposed approaches to project management, design, site investigation, engineering matters, environmental considerations and stakeholder engagement, some of which will be integrated with BGE(UK)'s high pressure proposals, are described in detail. Figure 3.3.1 provides a mobilisation timeline which is *'predicated on the assumption that the licence is awarded in October 2014'* and firmus indicates that *'We remain confident that mobilisation will represent an extension of our existing activities, (key internal skill sets and Period Contact arrangements already in place to cover the mobilisation phase)'*.
2. Section 3.6.2 indicates *'firmus energy has investigated the possibility of substituting transmission pipelines for distribution mains. The cost of transmission mains exceed the cost of lower pressure distribution mains and it would be the intention to substitute transmission pipelines for distribution main wherever possible to reduce costs and to make gas available to more households as individual connections cannot be taken off transmission pipelines.'*



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3. Section 3.6.2 indicates that *'firmus energy would suggest that the extension of the transmission pipeline from Derry/Londonderry to Strabane is substituted for a distribution main. We have carried out a load survey of the town and are confident that the town can be adequately supplied gas using a 4 barg distribution main connected to the firmus energy network in Derry/Londonderry at Maydown roundabout'* and that *'We would estimate that installing distribution main from Derry/Londonderry to Strabane could save up to £8.6m in construction costs relating to the transmission network, inclusive of proposed AGI costs and 'hot tap' connection costs to the northwest pipeline'*. The Section also indicates that *'We have carried out a detailed load survey of Cookstown, Moneymore, Magherafelt, and Toome and are confident that the AGI could be located closer to Dungannon and the transmission pipeline substituted for distribution mains to save in the region of £1.5m'*.
4. Responses below:
 - a) Section 3.6.2 indicates that *'The network design process will employ proven design techniques similar to Ten Towns network utilising IGEM/GL/1 and IGEM/TD/3 and TD/4. The systems will be designed to meet the peak six-minute gas flow requirements which are forecast to be required for 1 in 20 winter conditions. The designs will represent fitness for purpose at the best-cost solution'* and *'Pipe sizing and routing is determined by firmus energy's Project Engineers. The design package used by firmus energy for gas flows and pipe sizing is SynerGEE gas. This is an industry standard network analysis tool and has been used to carry out the design of the existing Ten Towns gas network which now extends to over 870km of mains.'*
 - b) Section 3.6.3 indicates that *'firmus energy could apply its current Period Contract which runs until March 2020, to help deliver the materials procurement process required within the mobilisation plan. This would avoid the need to initiate procurement processes during the mobilisation phase. As firmus energy has only recently awarded its Period Contract, we are confident that these arrangements will offer the best value for money and avoid the resources and costs that would be involved in a new tender. However, we are open to re-tendering'*. In Section 3.1.1 firmus indicates that *'We recognise external key resource requirements will include a Period Contractor to construct the network and provide connections, to assist with our internal designs and will operate under internal supervision'*. Section 3.1.2 indicates that *'External Period Contract resource is already in place and the existing contract has provision to 2020. However, firmus energy would be happy to discuss tendering for Mains and Service laying services if deemed appropriate.'* In Section 3.5.4 firmus also indicates that *'firmus energy has secured a Period Contract for the third time since 2005 in the Ten Towns, which is directly adjacent to the area to which this application relates, and intends to apply the learning from these processes to future material procurement processes and contract awards.'* A more detailed commentary on firmus' proposals in relation to tendering is provided in the response to 3.17 (a) (v) above.
 - c) Section 3.1.1 indicates the intention to establish a single project management team with BGE(UK) for both low and high pressure applications *'which would reduce Design and Project Management costs'* and provide *'a single point of contact for stakeholders such as statutory bodies, third parties, and the public'*. Section 3.2.2 indicates that initially the firmus resource will be drawn from their existing team and in relation to additional internal resource required Section 3.7.1 indicates that *'It is anticipated that by expanding the organisation to deliver the project, development and promotional opportunities will present themselves for existing experienced staff, whilst offering opportunities for newly qualified staff to gain further experience'*. Section 3.7.3 indicates in relation to information system to support management of the mobilisation



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process 'existing systems are used to manage an existing system will be used and where appropriate separate instances of systems will be created'

The submission provides detailed information related to securing, mobilisation and management of external resources necessary to construct a lower pressure network, based on the application of firmus energy's existing policies, procedures and systems. firmus' track record of lower pressure network construction provides confidence regarding these aspects of project delivery capability. firmus energy has reviewed the Fingleton McAdam study and proposed a credible alternative approach with an indication of possible capital expenditure reductions. It has not explicitly stated that the alternatives are based on the use of network analysis.

PNGL

1. Sections 3.1 through 3.7, of the submission provide detailed information on the proposed activities necessary to construct a lower pressure network and reference the development of the lower pressure network within Phoenix existing licensed area '*From the commencement of construction in 1996 through to the present day Phoenix has designed and constructed a LP natural gas system comprising of over 3,000 kilometres of gas mains.*' The proposed approaches to project management, design, site investigation, engineering matters, environmental considerations and stakeholder engagement, are described in detail. A timetable for the overall delivery of the GTTW LP Pipeline System is provided in Table 3.1 of the submission and the submission indicates that '*Phoenix aims to make gas available as soon as possible after the award of the licence by UR. This is contingent on gas being made available, via the transmission system, and therefore the programme proposed is based, in part, upon the Phoenix High Pressure Operational Business Plan*'
2. Section 3.6 indicates that Phoenix created a high pressure network model that replicated the basic configuration of the GTTW HP Pipeline System as proposed by Fingleton McAdam and a replica model to '*operate at Distribution Pressures and using the maximum diameters that have been employed in the Phoenix network*'. These models were then used '*to discount, or otherwise, the possibility of using Distribution Pressures pipelines as an alternative to high pressure pipelines*'.
3. Section 3.6 also sets out the results of the analysis, which concludes '*From this analysis that Phoenix has carried out, subject to the assumptions mentioned above, there is considerable scope for considering 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 compared to the FMA costs.*'
4. Responses below:
 - a) Section 3.6 indicates that Phoenix has design procedures in place to specify the parameters and processes to be used in designing new networks or extensions to existing networks. '*These procedures, which have been in place since the commencement of construction in 1996, are continuously reviewed and, where necessary, refined*'. Section 3.1 also indicates that '*Phoenix uses the ArcGIS suite of GIS software supplied by*



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Esri. This GIS is utilised in conjunction with SynerGee which is an industry standard network analysis package supplied by Stoner Software'.

- b) Section 3.1 indicates that *'In order to construct the LP Network, Phoenix will engage a construction contractor who will carry out the construction of the network. This contractor will be responsible for the detailed design and construction of the network, including the delivery of all materials procurement, detailed design, statutory notifications and as-laid records.'* The Section also indicates that *'Phoenix has developed considerable experience in the procurement and management of such contracts and is currently in the process of completing the tender process for the fourth Period Distribution Contract for the existing Licensed Area. This fourth contract is due to commence July 2014.'* A more detailed commentary on Phoenix's proposals in relation to tendering is provided in the response to 3.17 (a) (v) above.
- c) Section 3.7 indicates that the existing Phoenix Directors *'will lead Phoenix and the GTW distribution business across the existing and the GTW Licensed Areas respectively'* and the submission indicates that the GTTW project will be staffed by an extension of existing Phoenix team. Section 9.2 indicates that *'Phoenix intends to manage its construction activity across the GTW Licensed Area in accordance with the established management practice in the existing Licensed Area. The "Engineering & Project Management" activity will therefore cover activities associated with managing Phoenix construction activity across the GTW Licensed Area'*

The submission provides detailed information related to securing, mobilisation and management of external resources necessary to construct a lower pressure network, based on the application of Phoenix's existing policies, procedures and systems. Phoenix's track record of lower pressure network construction provides confidence regarding these aspects of project delivery capability. Phoenix has reviewed the Fingleton McAdam study with the use of network analysis and proposed a credible alternative optimised design with an indication of possible capital expenditure reductions.

SGN

1. Sections 3.1 through 3.7, of the submission provide detailed information on the proposed activities necessary to construct a lower pressure network which draws on its experience as a licensed gas distribution network operator in GB and in 2013/13 *'Extended our network by designing, installing and commissioning 45km of extension mains and provided 17,000 connections to existing housing. Provided mains and services, (together with the necessary meter installations) for 753 connections to the industrial and commercial customers. Commissioned some 20km of mains and close' to 4,000 connections to new housing.'* Section 1.2 also indicates that *'During the last five years we have delivered around 100,000 new connections and have significantly exceeded our fuel poor connection targets with more than 20,000 customers connected to date'*. The proposed approaches to project management, design, site investigation, engineering matters, environmental considerations and stakeholder engagement, are described in detail. An outline mobilisation plan is provided in Figure 2, the supporting text indicates that *'dependent upon the transmission construction programme and that our full mobilisation plan would commence 12 months in advance of that date.'*
2. Section 3.6 indicates that *'We believe there are options to substitute sections of the proposed HP steel pipelines with LP alternatives and we would welcome the opportunity to discuss this further with the NIAUR. One example of this relates to the sections to Strabane, Coalisland, and Derrylin'*. No evidence of analysis is provided to support this statement nor to suggest a detailed review of the Fingleton McAdam design. Sections 2.2.2 and 8.5 both indicate that *'Our initial assessment indicates that the proposed Medium Pressure distribution system could be operated at 2bar rather than*



Criteria 3.20 (a) (vi): Its proposals as to the securing, mobilisation and management of the external resources necessary to construct a lower pressure network

4bar. This would bring savings in terms of materials and reduce the risk to the public if the network is damaged.'

3. The alternative to the Fingleton McAdam design identified, the proposed low pressure pipeline to Strabane, is not supported with evidence neither is the assessment that operating the medium pressure network at 2 bar rather than 4 bar will result in savings and reduce risk.
4. Responses below:
 - a) In Section 3.6.1 SGN indicates that *'We have considerable experience in network design and the provision of new connections' and that 'We manage 948 Network models – essential for effective capacity management and safe operation of the networks'*. With regard to the 2012/13 construction mentioned above, SGN indicates that *'All of the design work for this construction was managed internally using industry recognised design tools, modelling techniques, and based on our internal planning standards and procedures'*.
 - b) Section 3.6.1 indicates that *'The majority of materials will be procured under existing framework agreements. Where there is a need for new contracts to be put in place, we will adopt best practice procurement principles in line with the EU regulatory procedures'*. In relation to construction contract preparations, SGN indicates *'We will use an MSA or extend existing contracts where required and already have arrangements in place for specialist services that we expect will cover our arrangements in NI. Where new contracts are required, our tender timetable allows for early engagement with stakeholders to ensure efficient planning, execution and delivery of all tender activity, in readiness to place contracts on time'*. A more detailed commentary on SGN's proposals in relation to tendering is provided in the response to 3.17 (a) (v) above.
 - c) Section 2.3.2 indicates *'Until recruitment of the NI management team and staff, the initial activities associated with the creation of our NI business will be led by the Managing Director, Scotland, our Director of Financial Operations and our SGN Head of Business Development. They will be supported by members of the project team that has brought together our competition bid'*. Section 3.7.1 indicates that *'We will establish a 'Project Board' with appropriate terms of reference to manage delivery of the project. A detailed project programme will be prepared showing all tasks, milestones and critical interdependencies. A suitable project management tool (most likely Microsoft Projects) will be used to give visibility to the programme and to track progress'*.

The submission provides detailed information related to securing, mobilisation and management of external resources necessary to construct a lower pressure network, based on the application of SGN's existing policies, procedures and systems. SGN's track record of lower pressure network construction provides confidence regarding these aspects of project delivery capability. SGN has not presented evidence to suggest that a detailed review of the Fingleton McAdam design has been undertaken to identify credible alternatives.



Criteria 3.21: Proposals for innovation

Requirements of a strong and well-evidenced submission

1. Demonstrable track record of identifying and successfully implementing new technology, techniques, materials, processes etc. in relation to all aspects of lower pressure network development, construction and operations including environmental sustainability, operational efficiency and new sources of gas
2. Evidence of securing funding from other governmental or regulatory authorities from innovative developments
3. Credible and robust proposals to apply innovative approaches to the project

Nature and quality of submitted evidence

firmus energy

1. firmus has provided an Innovation and Technology Transfer document to support its application, this provides evidence of developing and implementing innovative engineering approaches including the use of excess flow valves / flow limiters on I&C gas services, the use of pre-manufactured small diameter pupped valves and PE valves and introduction of hand held devices for data capture and recording of assets. Section 11.1 of the document addresses the role of innovation in environmental sustainability and includes references to implementation of a range of 'no dig' techniques. The Section also refers to customer technology and the development of Climote which *'is a smart energy controller which allows domestic customers to control their heating from any computer or enabled smart device'*. Section 11.2 addresses efficiency in the use of gas and references decentralised heating, combined heat and power and direct fired heating. The Executive Summary of the submission refers to *'A background of bringing innovative solutions to the development of gas distribution networks in Northern Ireland'*. Section 7 mentions *'Innovative vulnerable customer delivery mechanisms in association with Bryson Energy'*. Section 3 summary refers to innovative alternative network designs, it should be noted that examination of alternative design proposals is part of an effective design process and in the context of gas network development, cannot be considered to be innovative.
2. There is no direct evidence of securing funding for innovative developments but in its Innovation and Technology Transfer document firmus has provided evidence of obtaining funding for customer to switch to gas under the Northern Ireland Sustainable Energy Programme and for boiler replacement under the Department of Social Development's Funding Schemes.
3. There is limited evidence of specific proposals to apply innovative approaches to the GTTW project beyond those already identified in the Innovation and Technology Transfer document, this indicates that *'As an indigenous Northern Ireland company, with a locally based workforce, firmus energy is committed to develop and/or bring new innovative best practice into its operations'*

firmus energy has provided evidence of a track record of innovation which supports their GTTW submission but little by way of specific proposals to apply further innovative approaches to the GTTW project.



Criteria 3.21: Proposals for innovation

PNGL

1. Phoenix has provided an Innovation and Technology Transfer document to support its application, this provides evidence of developing and implementing innovative engineering approaches, which as well as designing and operating the first 4 bar medium pressure network in the UK, includes the integrated flow limiter to enhance safety related to consumer supplies and the pre-assembled meter installation. The document also includes references to the development of alternative network designs to substitute high pressure pipelines with those of lower pressure, it should be noted that examination of alternative design proposals is part of an effective design process and in the context of gas network development, cannot be considered to be innovative. There are no explicit references in the document to environmental sustainability, although reductions in gas usage and emissions flowing from some initiatives are mentioned, as is Phoenix's involvement in a consortium to introduce compressed natural gas vehicles to NI. The Executive Summary of the submission indicates that *'Within its distribution business Phoenix has undertaken innovative pipe laying techniques'*. Section 3.5 refers to *'the implementation of innovative GIS solutions'*. Section 7.2 mentions the innovative use of social media in communicating with stakeholders referring to *'new channels of communication include a Phoenix Twitter account and a bespoke Phoenix You Tube channel'*.
2. There is no direct evidence of securing funding for innovative developments but in its Innovation and Technology Transfer document Phoenix has provided evidence of working closely with Government agencies to convert housing stock to natural gas. Phoenix indicates that it pioneered the 'Boiler Scrappage Scheme' and works closely with the Northern Ireland Sustainable Energy Programme and Warm Homes to develop the gas market.
3. There is limited evidence of specific proposals to apply innovative approaches to the GTTW project beyond those already identified in the Innovation and Technology Transfer document. The Executive Summary of the submission indicates that *'Phoenix's cost build-up is largely derived from UR's assessment of Phoenix's allowable operating expenditure'* and that *'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 distribution 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 opex forecasts delivers efficiencies for the GTW distribution business more aligned to a mature business.'*

Phoenix has provided evidence of a track record of innovation which supports their GTTW submission but little by way of specific proposals to apply further innovative approaches to the GTTW project.

SGN

1. SGN has provided an Innovation Annexe to support its application, this sets out its innovation strategy and process and provides evidence of developing and implementing innovative engineering approaches including implementation of a turbo expander to generate electricity as part of pressure reduction at an AGI and keyhole excavation. There are no explicit references in the document to innovative approaches to develop environmental sustainability, although SGN do evidence their involvement in the construction of the *'UK's first Biomethane demonstration project at Didcot Sewage Works'* and subsequently *'installing the UK's first commercial 'biogas to grid' project at Poundbury estate near Dorchester'*. Sgn further indicates that *'we now have 12 projects at various stages of commercial approval or technical discussion, with four expected to be injecting*



Criteria 3.21: Proposals for innovation

biomethane this year'. Section 7.2.3 of the submission refers to innovation in making gas available and improving energy efficiency for vulnerable and fuel poor consumers and indicates that *'in partnership with the Scottish Federation of Housing Associations, we have just launched an energy ideas fund that will allow their members to bid for funding in support of innovate projects that will improve the energy efficiency of their homes'*.

2. The Innovation Annexe indicates that SGN has secured funding from Ofgem under the Network Innovation Competition for 2 innovation projects, the development of robotics for gas main and service operations and trials of wider gas characteristics to open the gas market to sources that do not meet the current quality specification without treatment.
3. The Innovation Annexe indicates that SGN *'are confident there is significant opportunity for technology transfer from our current (and future) projects that will bring efficiencies to any network we operate NI'* and lists a number of these projects which include, alternative reinstatement materials, *'Integrating Microgeneration to the Gas Grid'* and the use of ground source heat pumps for gas pre-heating.

SGN has provided evidence of a track record of innovation which supports their GTTW submission and securing funding for the development of innovative approaches. They have also provided specific proposals to apply further innovative approaches to the GTTW project.

