



Consultation

Energy

**Consultation on the potential for extending the natural gas network in
Northern Ireland**

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Department of
**Enterprise, Trade
and Investment**
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Department of Enterprise,
Trade and Investment

Consultation on the potential for extending the natural gas network in Northern Ireland

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MINISTERIAL FOREWORD



As Minister of Enterprise, Trade and Investment, I am very pleased to launch this consultation document which is seeking the views of all stakeholders on how the natural gas network in Northern Ireland might be extended.

Natural gas was first introduced to Northern Ireland in 1996 and is now available to industrial and commercial users, the public sector and domestic customers in the Greater Belfast and Larne area and to customers in ten towns and cities along the route of the South-North and North-West pipelines, that is, Londonderry, Limavady, Ballymena, Ballymoney, Coleraine, Newry, Craigavon, Antrim, Banbridge and Armagh.

Natural gas is the least polluting fossil fuel and the Strategic Energy Framework, which was published last year, recognises the scope for further developing the natural gas network where it is economic to do so. Extending natural gas to new areas could bring greater choice for consumers, help shift the dependence on coal and oil for household heating and increase the potential for businesses and the public sector to use a cleaner more efficient fuel.

My Department is keen to hear the views of the natural gas industry and the wider public on the key issues raised in this document, including:

- (a) To which further towns in Northern Ireland would it be appropriate to develop new natural gas infrastructure, either as one major new licence area, or as a number of smaller new licence areas?
- (b) What are the most feasible options, both financially and technically, for developing new natural gas transmission and distribution networks?; and
- (c) What would be the most appropriate business model(s) for developing gas infrastructure in any new licence areas?

My Department will carefully consider all responses to the consultation and, if there is broad support for gas network extension, will engage further with the Utility Regulator, representatives of the natural gas industry and other key stakeholders as necessary to help formulate how the benefits provided by natural gas might be accessed by a greater number of the population.

Further gas roll-out will, of course, be dependent on the economic viability of any new natural gas transmission and distribution networks. It will be important for the Department, in cooperation with the Utility Regulator, to fully address all of the issues outlined in the consultation document before deciding the best way forward.

A handwritten signature in black ink that reads "Arlene Foster". The signature is written in a cursive, flowing style.

Arlene Foster MLA
Minister of Enterprise, Trade and Investment

INTRODUCTION

1

- 1.1 The Department of Enterprise, Trade and Investment (**the Department**) wishes to consult the energy industry and the wider community on the potential for extending the natural gas network in Northern Ireland.
- 1.2 This consultation paper has been informed by a feasibility study “Potential Extension of Natural Gas and Related Services in Northern Ireland” which was jointly commissioned by the Department and the Northern Ireland Authority for Utility Regulation (**the Utility Regulator**) to determine the technical and economic feasibility of bringing gas to additional towns in the North-West and West of Northern Ireland. The executive summary of the study has been published on the Department’s web site and can be accessed via the following link: <http://www.detini.gov.uk/deti-energy-index.htm>.
- 1.3 The paper has also been informed by separate consideration of the merits of extending the natural gas network to towns adjacent to the existing licensed areas, for example, to East Down.

Policy context – DETI Strategic Energy Framework

- 1.4 Natural gas is the least polluting fossil fuel and, in the Strategic Energy Framework (2010), the Department recognises the scope for both deepening and further development of the natural gas network throughout Northern Ireland. The Department believes that extending the provision of natural gas to new areas will bring greater consumer choice, help shift the dependence on coal and oil for household heating and increase the potential for businesses to use a cleaner, more efficient fuel.
- 1.5 The Strategic Energy Framework, however, also recognises that the extension of the gas network can only take place where it is economically viable to do so and states that, where it is not economically viable, the Department will seek to maximise other alternatives, such as renewable heat and/or biomass. This is in line with a key aspect of the Department’s principal objective, as outlined in Article 14 (1) of The Energy (Northern Ireland) Order 2003, which is to promote the development and maintenance of an efficient, economic and co-ordinated gas industry in Northern Ireland in a way that is consistent with the objectives

set out in paragraphs (a) to (h) of Article 40 of the Third Gas Directive¹, which include the need to protect the interests of vulnerable customers.

Structure of this consultation paper

1.6 **Chapter 2** of this paper outlines the existing gas network in Northern Ireland and considers those remaining areas which do not currently have access to natural gas. **Chapter 3** looks at the recent feasibility study on “Potential Extension of Natural Gas and Related Services in Northern Ireland” and outlines its key findings regarding the financial, quantitative and qualitative effects of taking natural gas to six additional towns in the West and North-West of Northern Ireland. **Chapter 4** discusses a number of issues which must be considered in relation to the further roll-out of natural gas in Northern Ireland and **Chapter 5** addresses equality issues. **Chapter 6** explains how to respond to this consultation paper. **Annex 1** provides further detail on the key assumptions made in the feasibility study. **Annex 2** provides a brief overview of renewable heat policy which has to complement any action to extend the natural gas network in Northern Ireland. **Annex 3** shows a map of the current natural gas network in Northern Ireland. Finally, **Annex 4** shows a map of the potential route option for new natural gas transmission pipelines which was explored in the feasibility study. The **Glossary** at the end contains a list of definitions.

Scope and extent of this consultation

1.7 This consultation paper seeks to build on the feasibility study conclusions and invites views on the following key issues in respect of further development of the gas network:

- (a) Those areas of Northern Ireland where it would be most appropriate to seek to develop new natural gas infrastructure, either as one major new licence area, or as a number of smaller new licence areas.
- (b) The financial feasibility of, and potential options for, new natural gas transmission and distribution networks; and
- (c) The most appropriate business model(s) for developing gas infrastructure in any new licence areas.

1.8 This consultation paper is seeking initial views on the main issues associated with extending the natural gas network and, in particular, on how this can be achieved in accordance with the Department and Utility Regulator’s obligations as outlined above. Further consultation may be required in due course on any specific proposals which may arise as policy on extension of the natural gas network is further developed.

1.9 Views are sought on all the proposals and issues identified in this consultation paper. **Chapter 5** provides information on how to respond.

¹ European Parliament and Council Directive 2009/73/EC concerning common rules for the internal market in natural gas.

EXISTING NATURAL GAS NETWORK AND REMAINING AREAS TO BE DEVELOPED

2

Overview of current gas network development and existing licenced areas

Greater Belfast/Larne licenced area

- 2.1 Natural gas was first introduced to Northern Ireland via the Scotland to Northern Ireland gas pipeline in 1996. Initially, natural gas was only available to customers in Greater Belfast, the immediate surrounding area and Larne. The gas distribution network in this area was developed by Phoenix Natural Gas (**PNG**) and, in recent years, PNG has extended the natural gas network to Temple (2007); Comber (2008) and the McQuillan quarries (2009) adjacent to its existing licenced area. PNG has also signalled some interest in the possibility of extending its natural gas network into areas adjoining Greater Belfast, such as Whitehead, and to towns in East Down. This could be via a gas corridor to the principal town, Downpatrick, which would supply other towns along its route.
- 2.2 By the end of 2010, natural gas was available to circa 280,000 properties in the PNG licenced area with approximately 140,000 of these already enjoying the benefits of natural gas. This means that one half of the potential market in Greater Belfast has made the switch to natural gas.
- 2.3 PNG's licence is based upon making natural gas available to as many industrial and commercial (**I & C**), public sector and domestic customers as possible where it is financially viable to do so. The gas market for all I & C customers in this licenced area has been open to competition since July 2006 and, for domestic customers, since January 2007.

10 towns/cities licenced area

- 2.4 *firmus energy (firmus)*, a subsidiary of Bord Gáis Eireann (**BGE**), is engaged in work to develop the gas market outside Greater Belfast along the routes of the North-West gas transmission pipeline, which was completed in November 2004, and the South-North gas transmission pipeline, which was completed in October 2006. This covers rolling out the gas distribution network in the 10 towns and cities of Londonderry, Limavady, Ballymena, Ballymoney, Coleraine, Newry, Craigavon, Antrim, Banbridge and Armagh.

- 2.5 BGE recently completed work on a £1 million second spur to the South-North gas transmission pipeline at the Kernan above-ground installation near Portadown in County Armagh. This provides reinforcement for gas supplies in the Portadown and Armagh areas. The spur is also sized to accommodate a potential future network extension to take natural gas to both Dungannon and Cookstown.
- 2.6 During 2010, *firmus energy* further extended its gas network towards Cullybackey village, near Ballymena in County Antrim, and to Portstewart on the north coast of Northern Ireland. Work is also underway on a network extension to Warrenpoint in County Down and to Ballyclare in County Antrim.
- 2.7 To date, *firmus* has connected around 10,600 properties in the 10 towns/cities licence area. The *firmus* business model is based on connecting key gas loads, i.e. primarily businesses, but also public sector buildings; social housing as provided by the Northern Ireland Housing Executive or housing associations; and new private housing developments. Domestic customers in owner-occupied private housing may be connected to the gas network if they are adjacent to routes developed to meet business demand for gas.
- 2.8 The gas supply licence held by *firmus energy* gives it exclusivity to supply gas to the towns along the routes of the North-West and South-North pipelines, outside the Greater Belfast area, for a limited period. Following a recent revision of *firmus'* licence, in February 2011, the Utility Regulator announced that this period of exclusivity will run up to October 2012 for large I & C customers, and up to April 2015 for small I & C and domestic customers.
- 2.9 A map outlining the current natural gas transmission network in Northern Ireland is attached at **Annex 3**.

Connections to the natural gas network

- 2.10 Increasing the number of connected gas customers in a licensed area benefits all gas consumers, through spreading the cost of the overall network across a larger number of customers. As already indicated, in the Greater Belfast and Larne area, PNG has connected close to 140,000 properties to date, comprising 11,000 I & C properties and some 128,000 domestic properties out of a possible 283,000 properties. This represents a market penetration rate of just over 49%.
- 2.11 To date, *firmus* has connected approximately 10,600 properties in the ten towns and cities area, comprising 1,400 I & C properties and some 9,200 domestic properties out of a possible 41,000 properties. This represents a market penetration rate of around 26% to date.
- 2.12 It is important to note that, as the current gas network has already connected many of the large industrial and commercial loads available within Northern Ireland, any further development of the network is likely to be more economically challenging. In particular, any new infrastructure would have to be laid over greater distances to connect the remaining I & C loads, together with some degree of domestic loads, within any further towns or cities.

Overview of current market share of each fuel type

2.13 Natural gas now accounts for approximately 17% of all fuel consumed for heating purposes within Northern Ireland. A breakdown of the market share of the different fuels used in Northern Ireland is shown in **Figure 1** below ²:

Figure 1: Breakdown of fuel used for heating within Northern Ireland

Fuel/Energy Type	Domestic (GWh)	I&C (GWh)	Total (GWh)	% Split
Oil	12,159	5,399	17,558	76%
Gas	1,239	2,661	3,900	17%
Economy 7 Electricity Tariffs	281	109	217	1%
Biomass	No info on split	No info on split	314	1%
Coal	314	729	1044	5%
Total	-	-	23,033	

Remaining areas to be developed

2.14 Some of the key remaining areas of Northern Ireland in which the natural gas network might be further developed include a number of towns in the West and North West of Northern Ireland, i.e. Dungannon, Cookstown, Magherafelt, Omagh, Strabane and Enniskillen, as well as some towns in East Down such as Saintfield, Ballynahinch, Crossgar and Downpatrick. Additionally, towns such as Whitehead in County Antrim and Hillsborough in County Down are not currently connected to the gas network.

2.15 These areas can be seen on the map attached at **Annex 4** showing possible new gas transmission routes.

Potential network extension

2.16 It is anticipated that towns in the West might be connected to natural gas via transmission infrastructure linked to the existing gas network at Portadown where the new gas transmission spur from the South-North pipeline was completed in 2010 to provide network reinforcement. The recent feasibility study commissioned by the Department and the Utility Regulator, "Potential Extension of Natural Gas and Related Services in Northern Ireland", considered the costs and benefits of extending the transmission pipeline along this route and establishing distribution networks in five new towns, i.e. Dungannon, Cookstown, Magherafelt, Omagh and Enniskillen/Derrylin.

2.17 The feasibility study also considered the costs and benefits of connecting Strabane to the natural gas network via the North-West pipeline. The outcome of the study is discussed in **Chapter 3** of this paper.

2.18 Some initial consideration has also been given by PNG to the possibility of developing the gas network along the East Down corridor by extending the existing gas network from Belfast to Downpatrick. PNG has already had a number of extensions to its existing gas licence granted to facilitate extending the availability of

² Source – DETI report "Assessment of the Potential Development of Renewable Heat in Northern Ireland".

natural gas to further areas on the periphery of its licenced area. The Utility Regulator will continue to engage with PNG as appropriate on any further potential extensions.

Compatibility with renewable heat policy

2.19 It should be noted that, in tandem with its consideration of the potential for extending the natural gas network in Northern Ireland, the Department is also examining proposals for the development of a renewable heat incentive. The Department is mindful of the implications that a renewable heat incentive might have for the on-going development of the natural gas industry and recognises that it has the potential to displace current/future gas volumes, resulting in higher gas transmission and distribution charges for consumers. The Department will seek to ensure that, where possible, plans to extend the gas network complement the deployment and incentivisation of renewable energy technologies – and vice versa. Further details on renewable heat policy, which will be subject to a separate consultation exercise, are outlined at **Annex 2.**

Questions

- (a) Do respondents agree that the areas outlined above, i.e. key towns to the West and North West of Northern Ireland and in East Down represent the key remaining areas in which the natural gas network in Northern Ireland might feasibly be developed? If not, what further areas might be considered?
- (b) What criteria should be set in order to determine which towns are connected?
- (c) How might other energy technologies, such as renewable heat, impact upon the potential extension of the natural gas network?

KEY FINDINGS OF THE FEASIBILITY STUDY

3

Natural gas network extension study

- 3.1 The 2010 feasibility study which was jointly commissioned by the Department and the Utility Regulator, “Potential Extension of Natural Gas and Related Services in Northern Ireland”, examined a number of options for taking gas to the remaining towns in the West and North West which are not currently covered by the natural gas network. Some details on the key assumptions underlying the study are included at **Annex 1**. As noted in Chapter 1, the executive summary of the study has been published on the Department’s web site and can be accessed via the following link: <http://www.detini.gov.uk/deti-energy-index.htm>.
- 3.2 The options considered by the study covered extending the network along the following routes:
- (a) Portadown – Dungannon
 - (b) Portadown – Dungannon – Cookstown
 - (c) Portadown – Dungannon – Cookstown – Magherafelt
 - (d) Portadown – Dungannon – Omagh
 - (e) Portadown – Dungannon – Omagh – Enniskillen/Derrylin
 - (f) Northwest Pipeline – Strabane
 - (g) All six towns mentioned above
- 3.3 The study used two different business models (BM1 & BM2) to assess the viability of each option. The two models assumed similar rates of uptake of natural gas by businesses, the public sector, social housing and new build private housing developments. The key difference in the two models centered upon their differing approaches to providing natural gas to existing owner-occupied housing. The two differing approaches affect the design of the natural gas distribution system within any new towns which has key implications for the associated level of capital/operation expenditure.
- 3.4 Looking at potential connections over a 40 year period, BM1 assumed a lower uptake (1.25%) for existing owner-occupied houses, while BM2 assumed that up to 70% of existing owner-occupied housing would ultimately connect to the natural gas network. The Estimated Annual Consumption (**EAC**) and total I & C and domestic customer numbers for each of the towns (at year 40) are shown in **Figure 2** below:

Figure 2: Estimated uptake of natural gas

Town	Business Model BM1			Business Model BM2		
	No. of Customers	Therms (Million)	GWh	No. of Customers	Therms (Million)	GWh
Dungannon	1,789	4.0	118	5,324	5.7	168
Cookstown	827	3.3	96	4,143	4.9	143
Magherafelt	614	1.1	33	3,160	2.3	68
Omagh	2,039	3.6	104	8,174	6.5	191
Strabane	957	2.8	82	4,710	4.6	135
Enniskillen	1,432	1.5	43	5,876	3.6	105
Total	7,658	16.3	476	31,387	27.6	810

*The above volume figures have been based on key assumptions outlined in **Annex 1**.*

- 3.5 The study estimated the cost of providing gas transmission networks to the six towns listed above to be around £75 million. An extra £10 million would be required to take gas to Derrylin. Additionally, the respective gas distribution networks required to connect the gas to individual premises were estimated to cost between £26 million (BM1) and £86 million (BM2).
- 3.6 The results of the study further demonstrated that extending the natural gas network to all six towns would generate positive Net Present Values (NPVs) in respect of distribution using both business models, with the exception of Strabane which generated a marginally negative NPV for distribution using BM2. Thus it may be concluded that, with the exception of Strabane, the gas distribution networks in each of the six towns should be self-financing, based on the assumed volumes and estimated capital and operating costs.
- 3.7 However, the study also revealed that the transmission network required to provide the necessary major natural gas pipeline to each town produced a negative NPV. This is explained by the very high transmission capital costs for each route and the volumes captured, which are not sufficient to cover the capital and operating expenditures.

Financing/funding options

- 3.8 The study identified two ways in which the new transmission network could be financed. It could be financed through cross-subsidy by all gas customers throughout Northern Ireland or through some form of government subvention.
- 3.9 Cross-subsidy would entail an allowed increase in the postalised transmission charge paid by all gas customers in Northern Ireland in order to fund new transmission network to the West and North West. Initial estimates suggest that this would result in an increase of between 2.9% (to fund the transmission pipeline to Strabane) and 11.3% (to fund the transmission pipeline to Enniskillen). Taking all routes together as one project, the overall increase in the gas transmission tariff for Northern Ireland gas customers would be 14.7%.

- 3.10 This would represent an overall increase of approximately 1% - 1.5% in retail bills for gas customers. Electricity prices would also be affected as gas transported through the transmission network is used to generate electricity (both Ballylumford and Coolkeeragh power stations are gas-fired). In essence this would mean that all current and future gas customers in the Greater Belfast and the 10 towns and cities areas, along with all electricity customers, would help to fund the transmission network connecting the six new towns.
- 3.11 The second option for funding gas network extension would assume that the postalised transmission tariff is not increased across Northern Ireland in order to maintain lower gas prices, but that the project is supported instead by a level of subvention from Government. However, it is likely that this option would be very difficult to realise in the current fiscal climate.
- 3.12 Deciding upon how much cross-subsidy or subvention should be allowed (or is necessary) will be driven by the option selected in terms of the number of towns to be connected, as well as what is considered to be the maximum permissible increase in gas transmission charges. This has to be considered within the context of ensuring that retail energy prices do not adversely affect Northern Ireland's international competitiveness and that gas prices remain competitive against other fuels. This will be particularly pertinent given the likely increase in energy bills over the coming years due to the electricity grid development required to meet the Department's Strategic Energy Framework target of 40% renewable electricity by 2020; the additional support required to support Northern Ireland's renewable sector; and the impact of UK government proposals, such as Electricity Market Reform.

Extending the natural gas network to other areas

- 3.13 Although not part of the study, it is apparent that similar financial issues would have to be considered as part of any plans to extend the gas network along the East Down corridor. In the case of East Down, gas transmission pipelines are unlikely to be required since a distribution pipeline may suffice. However, the distribution network may not be self-financing and could require some form of cross-subsidy or subvention. One possible way to address this issue would be for gas customers in the Greater Belfast and Larne licensed area to cross-subsidise the financing of distribution infrastructure in these new areas. This could result in marginally higher bills for all customers in this licensed area as the gas distribution element of their gas bills would increase.

Non-monetary benefits of natural gas

- 3.14 As well as acknowledging the difficult decisions which will have to be made with regard to financing any new natural gas network, the study highlighted a number of other non-monetary factors which will affect any decision on the best way forward. These include the benefits of:
- Lowering business costs and increasing competitiveness (in theory, increasing fuel choice should lead to greater competition with the potential for lower energy prices);
 - More customers switching to natural gas which is a cleaner fuel and produces less CO₂ than oil or coal;
 - Greater consumer choice and convenience; and

- Greater security of supply (having alternative sources of fuel should help to ensure Northern Ireland is better placed to withstand any shocks to its fuel supply).

3.15 Based on the likely incidence of consumers switching to natural gas from more heavily polluting fossil fuels, particularly oil and coal, connecting all six towns considered in the feasibility study, and/or any other new areas, could produce substantial environmental benefits and make a significant contribution towards helping Northern Ireland to reduce its CO2 emissions. The targets set by the European Union for Member States are very challenging and include a minimum cut of 20% in greenhouse gases by 2020.

3.16 The study further found that providing greater access to natural gas for consumers across Northern Ireland would increase customer choice and may result in savings for consumers who switch to gas. This could in turn result in increased economic activity. Increasing consumer choice may also help to reduce Northern Ireland's high level of fuel poverty. Low income and fuel poor households are likely to find it easier to budget for their energy needs with natural gas. Pay As You Go meters can be topped up using relatively small amounts of money on an ongoing basis rather than requiring a significant payment at wider intervals as, perhaps, would be the case for a coal or oil delivery.

Questions

- Do respondents agree that the gas load estimates in **Figure 2** for the towns assessed within the study seem realistic?
- Do the assumptions made in the study, as outlined in **Annex 1**, e.g. in relation to potential uptake rates, broadly reflect industry experience?
- Are there alternative options for taking natural gas to the West and North West to those routes outlined in **paragraph 3.2**?
- Do respondents consider that it would be both appropriate and viable to use cross-subsidies to finance network development?
- How do respondents consider that an increase in the postalised transmission charge for all gas customers in Northern Ireland might impact on the gas industry; on existing and potential gas customers; on electricity generation costs; or on Northern Ireland's overall economic competitiveness?
- Do respondents consider that the potential benefits of extending the gas network outweigh the costs?

FURTHER ISSUES FOR CONSIDERATION

4

4.1 There are a range of further issues which will require careful consideration as part of any decision to extend the existing natural gas network in Northern Ireland. The Department would welcome the views of key stakeholders on the issues outlined below and on any additional issues which respondents feel may be relevant to this process.

New licence areas

4.2 In considering the feasibility of extending the natural gas network to further towns in Northern Ireland, including those in the West and North West and in East Down, the Department, in liaison with the Utility Regulator, would have to consider how best to establish any new licence areas. That is, whether any new gas areas should be treated as a single major new licensed area, or separated into two or more smaller new licensed areas.

4.3 There may be benefits associated with treating any new gas areas as one large licensed area, e.g. in the same way as the 10 towns along the North-West and South-North gas transmission pipelines represent a single licensed area. There will be varying gas loads in different towns, and it might be considered beneficial to off-set some areas where gas loads are low with towns which perhaps have a much higher industrial or public sector gas load. Having one new licensed area may also allow for greater competition in any bidding process for a licence and may also result in economies of scale when constructing gas networks.

4.4 Alternatively, due to their separate geographical locations, the towns in the West and in East Down could be considered as two or more separate gas licence areas for the purpose of increasing competition and reducing the risk associated with dependency on a single company to develop the network.

Staging of gas extension

4.5 In considering an extension to the existing natural gas network, the Department, in liaison with the Utility Regulator, would also have to consider whether any new infrastructure should be developed as one project or in incremental stages. That is, whether all of the new network should be developed at the outset, or rolled out in stages. An incremental roll-out of the new network could begin by providing the necessary transmission pipelines and distribution networks in towns/areas where the potential gas loads are greatest.

The network could then be extended to further areas when gas connection targets in the initial areas have been realised. This option may offer fewer upfront risks and therefore be a more viable approach to gas network extension.

Business models

- 4.6 As outlined in **Chapter 3** above, the recent feasibility study, “Potential Extension of Natural Gas and Related Services in Northern Ireland”, analysed two potential business models that could be used to develop any additional natural gas areas. The main difference between BM1 and BM2 was that BM1 assumed that a much lower level of existing domestic ‘owner occupier’ properties would be connected.
- 4.7 The benefit of BM1 is that a much smaller distribution network is required with associated reductions in capital expenditure. BM1 would also incur less operational expenditure, e.g. in relation to advertising and sales etc., which should result in fewer costs having to be recovered from customers. Furthermore, as BM1 would maintain the potential for commercial volumes, the overall risk profile for the gas company could be reduced which may provide a more cost effective way to bring gas to new areas.
- 4.8 However, the disadvantage with this model in comparison with BM2 is that fewer existing domestic customers would have the potential to avail of the benefits of natural gas and there would be fewer overall economic and environmental benefits from extending the gas network.

Rates of return

- 4.9 Another critical component of any business model which will have to be considered concerns the rate of return required to allow the necessary finance to be raised and adequately reward the gas companies for the risks they are likely to incur. At present both *firmus* and PNG earn a 7.5% pre tax real rate of return. This compares to lower rates applied to network investment in Great Britain where the typical weighted average cost of capital (WACC) is 4.84%³.

Identifying key gas loads and driving connections

- 4.10 Ultimately, the Department recognises that further roll-out of the natural gas network will be dependent upon the willingness of the gas industry to apply for a licence for construction and operation of the necessary gas transmission and distribution networks. For gas network extension to happen, therefore, any investment in new infrastructure must be clearly seen to be cost effective. This means that it must be possible to identify a viable base load for natural gas in any proposed new towns. As previously noted, increasing the number of connected gas customers in a licensed area would also benefit gas consumers through spreading the cost of the overall network across a larger number of customers.
- 4.11 On this basis, it is important that careful consideration is given as to how best to ensure that key customer groups in new towns, such as potential I & C and public sector customers, are fully committed to using natural gas. The support of one or two key I & C customers, or a group of smaller I & C customers, could provide the vital ‘anchor’ load’ which would justify investment by the gas industry in new infrastructure. Alternatively, there may be a need for specific public sector buy-in to the natural gas network, particularly

³ <http://www.ofgem.gov.uk/Networks/GasDistr/GDPCR7-13/Documents1/final%20proposals.pdf>

important where there are towns with few significant business loads, and/or for some form of incentives to drive connections within both the I & C and domestic sectors.

4.12 In considering gas network extension, the Department and the Utility Regulator will also wish to take into account the likely level of interest by consumers in more innovative uses of natural gas which could help to build viable gas loads in any proposed new areas. For example, businesses or public sector buildings converting to gas could choose to install a Combined Heat and Power (**CHP**) unit. CHP can reduce the total energy demand by over 25% compared with using natural gas purely for heating and purchasing electricity. Or those businesses or public services which use large transport fleets could consider using Compressed Natural Gas (**CNG**) to run their vehicles, a choice which is now gaining more popularity across Europe and other parts of the world.

Questions

- (a) Do respondents agree that there would be benefits from developing the natural gas infrastructure to any new towns as one licensed area, or should consideration be given to establishing a number of new licence areas? If the latter, how should the licensed areas be constituted?
- (b) How should gas network extension be delivered, e.g. by roll-out in stages with connections to those towns with the highest potential gas loads first, followed by connections to other areas in due course, or by roll-out to all new areas in one project?
- (c) Which business model, BM1 or BM2, would respondents consider to be the most appropriate option for extending the natural gas network? Are there alternative models which should be considered?
- (d) What rates of return would be necessary to make investment in new areas by gas companies feasible?
- (e) Is there a need for strong support and/or commitment from the business sector and from public sector organisations, such as District Councils, Health Trusts, Education and Library Boards and the Northern Ireland Housing Executive, before the gas network is extended to additional towns? How best might such support/commitment be developed?
- (f) Are further incentives necessary to drive I & C and domestic connections to any new natural gas infrastructure or could gas network extension be delivered without additional incentives?
- (g) What are the views of respondents on the potential for CHP projects or transport fleets powered by CNG to help build the necessary gas loads which would make extension of the natural gas network economically viable?

EQUALITY

5

Equality and other impact considerations

5.1 Section 75 of the Northern Ireland Act 1998, which came into force on 1 January 2000, states that:

A public authority shall in carrying out its functions relating to Northern Ireland, have due regard to the need to promote equality of opportunity:

- (a) between persons of different religious belief, political opinion, racial group, age, marital status or sexual orientation;*
- (b) between men and women generally;*
- (c) between persons with a disability and persons without; and*
- (d) between persons with dependants and persons without.*

Without prejudice to its obligations above, a public authority shall, in carrying out its functions relating to Northern Ireland, have regard to the desirability of promoting good relations between persons of different religious belief, political opinion or racial group.

5.2 The Department would welcome any views on the potential impact of extending the natural gas network on the equality categories outlined above. The Department will carefully consider all comments submitted as part of this consultation exercise and will pay particular attention to the equality considerations underlying any proposals on gas network extension which may emerge as part of the policy development process. All proposals which eventually emerge will be subject to the appropriate range of exercises, including screening

for equality impact, rural proofing and environmental/sustainable development impacts as appropriate. The outcomes of these screening exercises will be published in due course.

Questions

- (a) Do respondents have any views on specific equality-related issues that they would wish the Department to consider as part of its developing policy on gas network extension?

HOW TO RESPOND

6

- 6.1 The Department would welcome your views and comments on the issues set out in this consultation paper, or any other relevant points which respondents may wish to raise.
- 6.2 The consultation period will close on **30 September 2011**. Responses to this consultation should be forwarded to reach the Department on or before that date, and may be sent by either post or e-mail to:

Irene McAllister
Energy Markets
Department of Enterprise, Trade and Investment
Room 44
Netherleigh House, Massey Avenue,
Belfast

OR

gasextension@detini.gov.uk

Confidentiality & data protection

- 6.3 Your response may be made public by DETI. If you do not want all or part of your response or name made public, please state this clearly in the response by marking your response as 'CONFIDENTIAL'. Any confidentiality disclaimer that may be generated by your organisations IT system or included as a general statement in your fax cover sheet will be taken to apply only to information in your response for which confidentiality has been specifically requested.
- 6.4 Information provided in response to this consultation, including personal information, may be subject to publication or disclosure in accordance with the access to information regimes (these are primarily the Freedom of Information Act 2000 (FOIA) and the Data Protection Act 1998 (DPA)). If you want

other information that you provide to be treated as confidential, please be aware that, under the FOIA, there is a statutory Code of Practice with which public authorities must comply and which deals, amongst other things, with obligations of confidence.

- 6.5 In view of this, it would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded as binding on the Department.

Copies of the consultation

- 6.6 This consultation document is being produced primarily in electronic form and may be accessed on the DETI Energy website: www.energy.detini.gov.uk or may be obtained in hard copy from the address above or by telephoning 028 9052 9398. If you require access to this consultation document in a different format – e.g. Braille, disk, audio cassette – or in a minority ethnic language please contact Irene McAllister on 028 9052 9398 and appropriate arrangements will be made as soon as possible.

GLOSSARY

BGE means Bord Gáis Eireann.

CCNI means the Consumer Council for Northern Ireland.

CHP means Combined Heat and Power

CNG means Compressed Natural Gas

Department means the Department of Enterprise, Trade and Investment in Northern Ireland.

DETI means the Department of Enterprise, Trade and Investment.

Energy Order means the Energy (Northern Ireland) Order 2003.

firmus means Firmus Energy.

Gas Order means the Gas (Northern Ireland) Order 1996.

GB means Great Britain.

I&C means industrial and commercial.

NI means Northern Ireland.

PNG means Phoenix Natural Gas Limited.

PSL means Phoenix Supply Limited.

Utility Regulator means the Northern Ireland Authority for Utility Regulation, the electricity, gas, water and sewerage regulator for Northern Ireland.

ANNEX 1

“Potential Extension of Natural Gas and Related Services in Northern Ireland” (2010)

The followings key assumptions were made in the process of conducting the feasibility study:

Business Models

The study is conducted on the basis of two Business Models (BM1 & BM2). The two models took a different approach to addressing the roll out of distribution networks within each of the six towns (Dungannon, Cookstown, Magherafelt, Omagh, Strabane and Enniskillen/Derrylin) based on two different licensing scenarios. The essential difference between BM1 and BM2 is the level of penetration or uptake assumed for existing domestic customers with their associated capital and operational costs for sales, mains and connections. BM1 assumes a small proportion, i.e. 1.25% of total existing households, will ultimately connect to the new natural gas network while BM2 assumes 70% will ultimately connect.

Load Analysis

Existing Housing

The 2008 estimate for existing housing was extrapolated from 2001 census and 2006 estimates from Northern Ireland Statistics and Research Agency (NISRA). These are summarised in the table below:

Estimates of Existing Housing

Town	2008 Estimate	
	Population	Number of households
Dungannon	12,924	4,778
Cookstown	11,745	4,481
Magherafelt	9,227	3,420
Omagh	21,639	8,270
Strabane	13,937	5,104
Enniskillen	14,648	6,012

The Estimated Annual Consumption (EAC) for each existing household connection is taken as 480 therms.

New Housing

The new build assumptions for each town were derived based on a review of historical house building levels over the past five years and following consultation with DOE Planning Service. The 40 year projections are summarised as follows:

Estimates of New Housing

Town	New Housing Units
Dungannon	3,125
Cookstown	1,210
Magherafelt	890
Omagh	3,540
Strabane	1,610
Enniskillen	2,470

The Estimated Annual Consumption (EAC) for each new residential connection is 400 therms.

Industrial & Commercial

A list of potential users was compiled from town surveys. Large I&C load estimates were derived from direct discussions with the potential customers. Carbon allocations for each site were also used to cross check the size of estimated load. Potential I&C customers were divided into categories depending on EAC as summarised in the table below.

I&C Customer Categories

Customer Category	EAC (therms)
Contract I&C	EAC > 75,000
Large I&C	25,000 < EAC < 75,000
Medium I&C	2,500 < EAC < 25,000
Small I&C	EAC < 2,5000

Uptake Rates

As all potential customers will not connect to the natural gas network, certain assumptions are made about customer uptake or the extent of market penetration. It is assumed that 80% of the remaining potential contract (large I & C) customers are connected. The following uptake rates over the 40 year period have been assumed for the two business models.

Customer Category	Uptake Rates	
	BM1	BM2
Contract I&C	80%	80%
Large I&C	70%	70%
Medium I&C	50%	50%
Small I&C	1.25%	70%

Network Design

Transmission System

Pipeline sizing for transmission was based on the forecasted 40 year loads. The following criteria were used in deriving the optimum pipe diameter.

- Minimum Inlet Pressure: 50bar
- Minimum Terminal Pressure: 22bar
- Gas Velocity: 11 – 15 m/s

Note: Currently the stated minimum pressure in the South North Pipeline is 35bar.

Distribution System

The pipe sizing for distribution system was based on the projected 40 year loads.

The following criteria were used in deriving the optimum pipe diameter.

- Minimum Inlet Pressure: 4 bar
- Minimum Terminal Pressure: 2 bar
- Gas Velocity: 11 – 15 m/s

A 75mbar system was chosen in the town centres as metering & regulation will have to be within buildings.

ANNEX 2

Renewable Heat Policy

In September 2010, DETI committed to a target of 10% renewable heat by 2020⁴, this is a challenging target considering that the current level of renewable heat within Northern Ireland is estimated at around 1.7%. In reaching this target, DETI will be supporting the wider UK target of 15% renewable energy by 2020, set under the EU Renewable Energy Directive.

Renewable heat is simply heat from renewable sources. Applications can range in scale from industrial scale technologies to micro-generation technologies for domestic use. The most commonly used renewable heating technologies include biomass boilers, solar thermal water heating units and heat pumps (either ground-source or air-source). By developing the local renewable heat market there is potential to increase fuel security and decrease carbon emissions; there will also be opportunities for new 'green jobs' in this sector.

In Great Britain, the Department of Energy and Climate Change (DECC) plan to introduce a Renewable Heat Incentive (RHI) ⁵ from July 2011. This incentive is the key policy driver in meeting the DECC target of 12% renewable heat. The RHI will reward new renewable heating technologies with a quarterly payment, the amount of which is dependent on the size and type of technology in question. The tariffs will be for 20 years and are designed to provide a rate of return of 12% for each of the technologies barring solar thermal which has a lower rate of return. Initially the RHI will only be open to non-domestic applications, however, it is likely to be extended to the domestic sector in October 2012, in the interim domestic customers can apply for "Renewable Heat Premium Payments" which will support the capital cost of installing renewable heat technologies.

The RHI, as it stands, is only available in England, Scotland and Wales. The differences between the heat markets in Great Britain and Northern Ireland has meant that it has been more appropriate for a separate assessment on how the local market can be incentivised and development. These differences include fuel prices, the levels of fuel poverty, the rural nature of Northern Ireland, as well as the existing heating fuel mix. In Great Britain the heating market is dominated by natural gas, however Northern Ireland is heavily dependent on heating oil with an emerging natural gas market. It has been important that these issues are considered as DETI considers the most appropriate method of developing the renewable heat market.

DETI will soon consult on the preferred method for incentivising and developing the Northern Ireland renewable heat market to a level of 10% by 2020. Various options are being considered by DETI, including

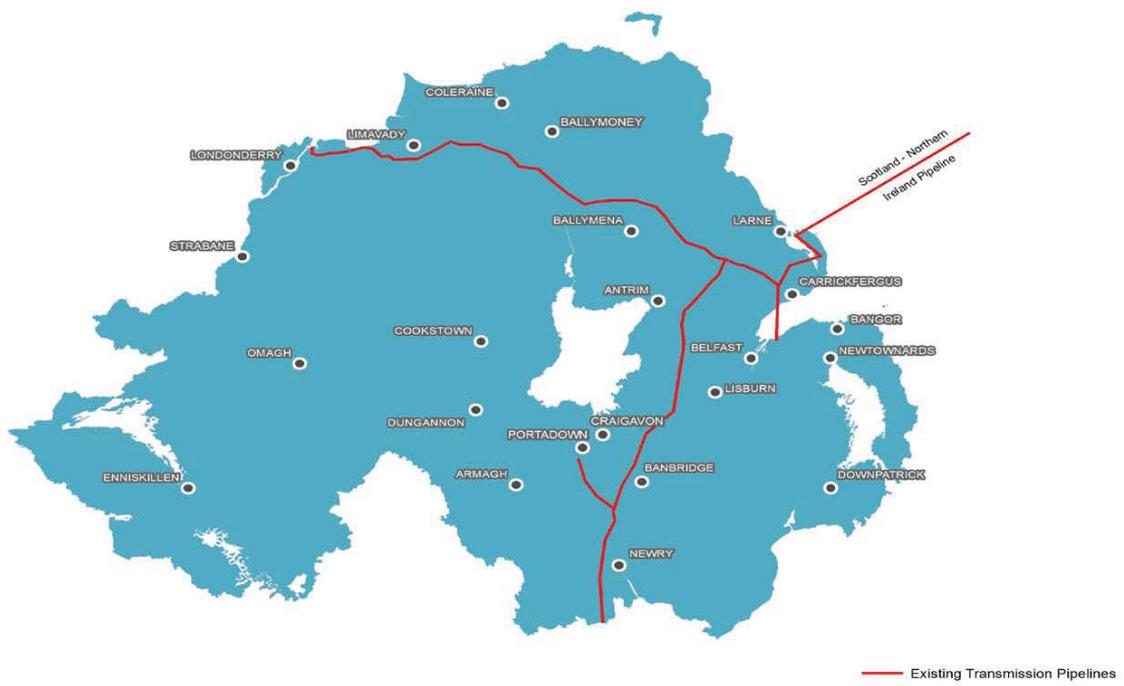
⁴ <http://www.northernireland.gov.uk/index/media-centre/news-departments/news-deti/news-deti-september-2010/news-deti-200910-foster-recognises-importance.htm>

⁵ http://www.decc.gov.uk/en/content/cms/what_we_do/uk_supply/energy_mix/renewable/policy/incentive/incentive.aspx

a Northern Ireland form of the GB RHI and other capital grant options. Funding of £25m for the next four years has been secured through Her Majesty's Treasury for developing renewable heat in Northern Ireland. It is important that this money is spent for the maximum impact.

In responding to this consultation you may wish to consider the impact that Government support for the renewable heat industry may have on the roll-out of natural gas in Northern Ireland.

ANNEX 3



ANNEX 4

