

Engineering Justification Paper

CPM6728 Kingslaw (Tranent IP)

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2. Introduction

Reinforcement has been identified within the Tranent IP system, specifically relating to an anticipated system capacity failure at Prestonpans. This project is part of a wider programme of reinforcement associated with the RIIO-GD2 Business Plan Appendix for Capacity Management.

2.1. General Background

The SGN distribution system is built to ensure security of supply for all our customers. Our networks operating at pressures below 7bar are designed to meet a peak six-minute demand level that could be experienced under 1 in 20 conditions, supporting a safe, secure and reliable service to those customers and meeting requirements outlined within our Licence Condition, including, but not limited to, Condition 16 contained therein.

Link: [Gas Transporters Licence – Standard Conditions](#)

Where capacity constraints are identified that are likely to impact on SGNs ability to ensure security of supply to all customers, Network Planning will look to establish optimum, cost-efficient reinforcement strategies to mitigate that risk. Such constraints may arise as a result of a number of factors, but the most common is increased demand levels, often resulting from new connections.

SGN has initiated an extensive programme of stakeholder engagement, working closely with Local Authorities, both in Scotland and the south of England, to establish a fully informed and independently sourced picture of planned development.

This engagement has provided SGN with confidence that the sites identified will progress to development and, to support this level of growth, SGN has developed a programme of reinforcement across its network.

2.2. Site Specific Background

Development within the Aberlady-Tranent IPMP Grid is covered by the East Lothian Local Development Plan (LDP) and associated documents. The LDP sets out how and where the requirements of the Strategic Development Plan (SDP) for East Lothian can be met.

East Lothian's population has grown steadily since the mid/late 1980's. The 2011 Census indicates that East Lothian's total usually resident population was 99,717 which is an increase of 10.7% per cent over the equivalent 90,100 population at 2001. This growth is largely as a result of the area's proximity to Edinburgh and because it is part of the wider Edinburgh labour market as well as housing market areas.

Furthermore, the National Records of Scotland 2010 population projection (published 2012) anticipates that by 2035 East Lothian's population will increase by 33% to around 129,229, the highest percentage rate of growth in Scotland during this period.

The driver(s) for this reinforcement project are four Local Development Plan sites, primarily the Blindwells development near Tranent which SGN has recently committed to supply.

3. Equipment Summary

The Aberlady-Tranent Grid is supplied via two TRS.

Tranent IP is supplied via Tranent TRS which feeds a section of IP main to Tranent, running around and beyond the town, before terminating at Fishergate DPG to the north. In addition, the IP system feeds the villages of Ormiston and Pencaitland to the south and east, along with a short section of MP main within the town of Tranent.

Fishergate DPG operates in tandem with Aberlady TRS, both feeding the MP system which runs along the coast. Aberlady TRS is the sole feed east to North Berwick via Gullane, with Fishergate DPG supplying Prestonpans, and both combining to feed Longniddry.

Security

4. Problem Statement

Why are we doing this work and what happens if we do nothing?

New connections to our networks reduce available capacity and when pressures are predicted to fall below minimum acceptable levels it is necessary to reinforce or increase pressures to facilitate increased capacity in the system.

In the case of the Tranent IP system, significant on-going committed development at existing GT sites, combined with potential development identified within the LDP/HLA and associated documents, will see the network approach capacity in the latter part of RIIO-GD2.

Failure to reinforce the network will restrict the delivery of these developments.

What is the outcome that we want to achieve?

Maintain SGN's Licence Conditions to ensure security of supply and support economic prosperity by not becoming a blocker to development.

How will we understand if the spend has been successful?

On completion of the proposed reinforcement, SGN will monitor system performance to ensure expected system pressures are maintained. This will take the form of regular system performance checks and localised pressures surveys to ensure a successful outcome has been achieved.

At a customer level, SGN will have delivered a reinforcement that ensures a safe and secure network, meets stakeholder aspirations and ensures developments progress timeously.

4.1. Narrative Real-Life Example of Problem

Several areas around Tranent have been identified for major development, with a significant impact on the Tranent IP system. Major developments are also earmarked for Blindwells and Longniddry, with further extensions a possibility at both locations.

A recent example of good planning to meet customer expectation, whilst also ensuring security of supply, occurred following the acceptance of a quotation to supply a new development at New Mills Balerno (P17141081).

Network analysis confirmed a requirement to reinforce SGN's system in advance of connecting the fully developed site load. However, network analysis also confirmed an interim load/connection of 30 new properties in advance of reinforcement, thereby meeting the GT/Developer's schedule of works.

Reinforcement to supply the full development was subsequently planned and completed in advance of connections beyond the interim load, ensuring security of supply to approximately 350 new/existing customers.

The developments driving this reinforcement projected are listed in Table 1 below:

Table 1: Development Summary

Development Name	Site Usage	Site Status	Confidence
New Secondary, Musselburgh	Non-Domestic	Planning Permission	Highly probable (>90% confidence)
Longniddry South	Mixed Dev. (Incl. 450 houses)	Planning Permission in Principle	Highly probable (>90% confidence)
Blindwells Phase 1	Mixed Dev. (Incl. 1,600 houses)	Planning Permission in Principle	Highly probable (>90% confidence)
Barbachlaw, Wallyford	Mixed Dev. (Incl. 94 houses)	Partial Planning Permission	Highly probable (>90% confidence)

Please see Appendix A of this document which gives further details of the criteria applied when determining the attributable 'confidence' level of the above sites progressing to development.

Through this determination SGN have deemed the requirement for this reinforcement within the RIIO-GD2 period as 'High' and have therefore included the funding request in both our Base Growth and High Growth scenarios.

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4.2. Spend Boundaries

The spend associated with these reinforcement works provides capacity within the Tranent IP system to support projected development during RIIO-GD2.

The monies associated with these works ensures security of supply for existing customers and connection of planned development to the network. Costs have been prepared using average contracted rates at depot level and validated against known costs for similar, completed projects.

Not included within this spend are the costs for subsequent phases of reinforcement required to support demand out-with the RIIO-GD2 period and/or any costs associated with reinforcement of the upstream Edinburgh-Borders Transmission system.

5. Probability of Failure

As development identified for this area progresses, the Tranent IP Network is predicted to fail at 75% peak demand by winter 2025/26, putting at risk supplies to approximately 5,500 customers at Prestonpans, Cockenzie and Longniddry.

5.1. Probability of Failure Data Assurance

Model Validation

To ensure the accuracy of the Network Analysis models, validation is carried out in line with the published requirement under Section 17 of SGN's Safety Case and is a fundament of SGN's Licence to Operate.

Validation ensures that the current models are an accurate representation of the actual gas transportation system and can be used to predict network behaviour under a variety of conditions, including the 1 in 20 design condition.

In addition to the validation programme, a robust model maintenance process and annual winter system performance checks ensure that the models continue to be accurate and fit for purpose.

The latest system performance review confirmed the accuracy of the model against actual pressures recorded on 31st January 2019.

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Table 2: System Performance Review – 31st January 2019 (82% peak demand)

System	Site	System Pressure (82% Pk hr)		Yr1 System Pressure (1 in 20)	
		Recorded Actual	Modelled Predicted	Minimum Acceptable	Modelled Predicted
Tranent IP	Fishergate DPG	5.88bar	5.79bar	2.76bar	5.32bar*

*Prestonpans DPG temporarily operating in “top-up” mode to protect Tranent IP

Network Growth

The East Lothian Local Development Plan and associated documents have been reviewed and an assessment made as to the probability of sites contained therein progressing to construction (see Table 1).

The resulting outputs have been applied to the network model, providing confidence that pre-emptive repair of the network (i.e. reinforcement) will be required during RIIO-GD2 to ensure SGN meets its Licence Conditions, maintaining minimum supply pressures under all demand conditions.

6. Consequence of Failure

Loss of Supply to Customers

Failure to reinforce will put at risk the supply to those customers on the Aberlady – Tranent MP system that are supplied via Fishergate DPG.

Insufficient inlet pressure to Fishergate DPG will ultimately cause failure of the DPG with the loss of supply to approximately 5,500 customers at Prestonpans, Cockenzie and Longniddry and a failure to meet SGN's Licence Conditions, attracting adverse publicity and damage to the company's reputation.

Financially, after the first 24 hours, affected householders will be compensated for time without gas. Domestic customers will receive £41 for each 24-hour period without gas, small businesses will receive £69 for each 24-hour period without gas.

Table 3: Projected RIIO-GD2 Pressures (2025/26) without Reinforcement

Location	Min Required Pressure (bar)	Min. Modelled Pressure (bar)
Fishergate DPG	2.76	0.34

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Safety Impact of Failure

Reinforcement of the Tranent IP system is required to meet the obligations of our Licence Condition.

In this instance, a failure to reinforce will result in a system failure during peak winter conditions. The resulting loss of supply may have serious health and safety implications for vulnerable customers who rely on gas for essential heating and cooking facilities.

Environmental Impact

A system failure on this scale will result in a major recovery exercise. Environmental impacts will include increased travel to site by SGN operatives, leading to an increase in greenhouse gas emissions and disruption to the public.

On site, the use of fossil fuels to power plant and equipment required in the restoration of supplies will further increase greenhouse gas emissions, as will subsequent travel/plant in use for the reinstatement of public highways following the conclusion of these works.

7. Options Considered

Options Summary

In accordance with the guidelines set out in the Ofgem guidance document 'Engineering Justification Paper Frameworks for RIIO-GD2 and RIIO-GT2' – Appendix B (Section 7), the following options have been considered:

Replace on Failure

Wait until the network fails then replace the system. This option has been discounted due to non-compliance with SGN's Licence Condition.

Repair on Failure

Mains reinforcement after the network has failed. This option has been discounted due to non-compliance with SGN's Licence Condition.

Pre-emptively Replace

This option has been discounted as asset replacement does not inherently provide additional capacity.

Pre-emptively Repair

Mains reinforcement and/or Interruption based on model data prior to network failure. Four options have been considered for further investigation, three of which are main-laying solutions.

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Do Nothing

Not considered practicable as on-going committed development at existing GT sites, combined with potential development identified/programmed within the LDP/HLA and associated documents, will see the Tranent IP system approach capacity towards the latter part of RIIO-GD2.

7.1. First Option Summary: Kingslaw (1)

The technical detail of the option i.e. capacity, system rating, availability etc.

The first option considered for further investigation, **Kingslaw (1)**, involves the construction of approximately 2.4km x 315mm HDPE IP or equivalent ST.

The basis for the cost estimate/unit cost

Costs for this option, amounting to £1.397M, have been prepared using average contracted rates at depot level and validated against known costs for similar, completed projects.

The perceived benefits of the option

The proposed works provide capacity for committed/planned development identified for construction during RIIO-GD2.

Delivery timescales

This project has been scheduled to commence in 2024/25 and is expected to be completed in the same financial year.

Key assumptions made

Disruption to the public is minimised by the adoption of a cross-country route away from the town of Tranent. Land Easements will be required.

Any other items that differentiate the option from the others considered

The proposed route avoids areas identified for potential future development, thereby avoiding any costs associated with a future diversion of the proposed reinforcement main. This does, however, result in the longest of the identified routes.

7.2. Second Option Summary: Kingslaw (2)

The technical detail of the option i.e. capacity, system rating, availability etc

The second option considered for further investigation, **Kingslaw (2)**, involves the construction of approximately 1.8km x 315mm HDPE IP or equivalent ST.

The basis for the cost estimate/unit cost

Costs for this option, amounting to £1.070M, have been prepared using average contracted rates at depot level and validated against known costs for similar, completed projects.

The perceived benefits of the option

The proposed works provide capacity for committed/planned development identified for construction during RIIO-GD2.

Delivery timescales

This project has been scheduled to commence in 2024/25 and is expected to be completed in the same financial year.

Key assumptions made

Disruption to the public is minimised by the adoption of a cross-country route away from the town of Tranent. Land Easements will be required.

Any other items that differentiate the option from the others considered

Future development may encroach on the line of the proposed reinforcement main, incurring potentially significant diversion costs.

7.3. Third Option Summary: Ormiston Road

The technical detail of the option i.e. capacity, system rating, availability etc

The third option considered for further investigation, **Ormiston Road**, involves the construction of approximately 1.6km x 315mm HDPE IP or equivalent ST.

The basis for the cost estimate/unit cost

Costs for this option, amounting to £1.439M, have been prepared using average contracted rates at depot level and validated against known costs for similar, completed projects.

The perceived benefits of the option

The proposed works provide capacity for committed/planned development identified for construction during RIIO-GD2.

Delivery timescales

This project has been scheduled to commence in 2024/25 and is expected to be completed in the same financial year.

Key assumptions made

Of the three options identified, this solution is likely to result in the greatest disruption to the public as the route passes directly through Tranent.

Due to the proposed route, it has been assumed that the reinforcement main will be partially constructed in steel to maintain minimum proximity distances.

Any other items that differentiate the option from the others considered

This solution is likely to incur additional traffic management, material and reinstatement costs.

7.4. Fourth Option Summary: Interruption

In addition to the above, consideration was given to Interruption.

As part of Interruption Reform, also known as the Mod 90 process, SGN has the option to offer a tender for interruptible contracts to customers to offset the need to invest for capacity.

Interruptible consumers receive discounted transportation charges for the flexibility they provide to the system for demand side management at times of high demand.

There are currently no sites within Aberlady – Tranent IPMP Network that meet the criteria for an interruptible supply. This option has been discounted.

7.5. Options Technical Summary Table

Table 4: Options Technical Summary Table

Option	First Year of Spend	Final Year of Spend	Volume of Interventions	Design Life (years)	Total (£M)
1/ Kingslaw (1)	2024/25	2024/25	2.4km x 315mm HDPE IP or equiv. ST	10	1.397
2/ Kingslaw (2)	2024/25	2024/25	1.8km x 315mm HDPE IP or equiv. ST	10	1.070
3/ Ormiston Road	2024/25	2024/25	1.6km x 315mm HDPE IP or equiv. ST	10	1.439

7.6. Options Cost Summary Table

Table 5: Options Cost Summary Table

Option	Volume of Interventions	Total (£M)
1/ Kingslaw (1)	2.4km x 315mmHDPE IP or equiv. ST	1.397
2/ Kingslaw (2)	1.8km x 315mmHDPE IP or equiv. ST	1.070
3/ Ormiston Road	1.6km x 315mmHDPE IP or equiv. ST	1.439

Note: Option 2 does not include additional future diversionary costs associated with potential development en-route.

8. Business Case Outline and Discussion

Validation of the network analysis model, a robust model maintenance process and system performance checks have confirmed the accuracy of the Aberlady - Tranent IPMP model for use in network analysis.

A full review of the relevant Local Development Plans and associated documents, followed by close engagement with stakeholders, has provided confidence in the level of development expected during RIIO-GD2.

The development outputs have been applied to the validated network model which predicts a failure at 75% peak demand by winter 2025/26, putting at risk supplies to 5,500 customers.

To mitigate this risk and meet Licence Conditions it will be necessary to pre-emptively reinforce the network during the RIIO-GD2 period.

There have been no external costs incurred in assessing the options considered as these have been prepared by the in-house Network Planning and Design teams.

8.1. Key Business Case Drivers Description

Pre-Emptively Repair: Option 1, Kingslaw (1)

This option provides a robust reinforcement solution in support of sites identified by the East Lothian LDP and associated documents for development during RIIO-GD2.

Disruption to the public is minimised by the adoption of a cross-country route away from the town of Tranent.

Initially more expensive solution than Option 2, Kingslaw (2). However, future diversion costs are avoided by following a route away from potential future development.

Pre-Emptively Repair: Option 2, Kingslaw (2)

This option provides a robust reinforcement solution in support of sites identified by the East Lothian LDP and associated documents for development during RIIO-GD2.

Initially a less expensive solution than Option 1 Kingslaw (1). However, future development may encroach on the line of the proposed reinforcement main, incurring potentially significant diversion costs.

Pre-Emptively Repair: Option 3, Ormiston Road

This option provides a robust reinforcement solution in support of sites identified by the East Lothian LDP and associated documents for development during RIIO-GD2.

Of the three options identified, this solution is likely to result in the greatest disruption to the public as the route passes through Tranent.

This is the costliest reinforcement solution.

Table 6: Summary of Key Value Drivers

Option No.	Desc. of Option	Key Value Driver
1	Kingslaw (1)	Least cost, long-term solution
2	Kingslaw (2)	Least cost, medium-term solution
3	Ormiston Road	Most expensive, medium and long-term solution

8.2. Business Case Summary

This project is driven by SGN's Licence Conditions to ensure security of supply

Table 7: Business Case Matrix

	Kingslaw (1)	Kingslaw (2)	Ormiston Road
Cost (£M)	1.397	1.070	1.439
Positive Benefit (Pros)	A robust reinforcement solution. Minimise disruption to public. Routed away from future development/encroachment.	A robust reinforcement solution. Minimise disruption to public. The least cost reinf. solution.	A robust reinforcement solution. No requirement for Land Easements.
Negative Impact (Cons)	Land Easements will be required and are expected to be granted. The longest route of the options identified.	Land Easements will be required and are expected to be granted. Future development may encroach on the line of the proposed reinforcement main, incurring significant additional cost.	The most expensive solution. The shortest but most disruptive route of the options identified. Additional labour, material and traffic management costs.

Costs inclusive of Overheads and Efficiencies

9. Preferred Option Scope and Project Plan

9.1. Preferred option

Pre-Emptively Repair - Option 1, Kingslaw (1): 2.4km x 315mm HDPE IP or equivalent ST.

9.2. Asset Health Spend Profile

Table 8: Summary of Schedule of Spend

Asset Health Spend Profile (£M)						
Pre GD2	2021/22	2022/23	2023/24	2024/25	2025/26	Post GD2
0	0	0	0	1.397	0	0

Costs inclusive of Overheads and Efficiencies

9.3. Investment Risk Discussion

The requirement for reinforcement of the Tranent IP system is demand driven, primarily development at Blindwells. SGN is committed to supplying this site following a recent acceptance via SGN Connections. In addition to a review of committed demand, a full assessment has been made of planned development contained within the East Lothian Local Development Plan and associated documents, resulting in a clear understanding of development planned for RIIO-GD2 and beyond.

Through this determination SGN has identified this requirement for reinforcement within the RIIO-GD2.

However, a risk exists that the planned development does not materialise or proceeds more slowly than anticipated. As reinforcement will not be required until late RIIO-GD2, the progress of development will be monitored during the early 2020's and, if required, reinforcement will be modified to suit at that time.

SGN has prepared costs using average contracted rates at depot level and has validated them against known costs for similar, completed projects. Nevertheless, whilst all reasonable steps have been taken to ensure accuracy of costs outlined in this paper, it is recognised that external variables may change and subsequently impact on actual costs at the time of construction. Examples of such could include unforeseen increases in contractor rates driven by a surplus of market demand for labour or sharp cost increases for materials.

Factors such as market driven demand linked to the economy, the UK's potential exit from the European Union, emerging decarbonisation strategies and industry innovation can potentially impact on the scope of works outlined in this paper. SGN has proposed a volume driver funding mechanism to de-risk underspend/overspend for these works and further details of our proposal can be found in Section 6.2 in the RIIO-GD2 Business Plan Appendix for Capacity Management.

As stated in our Environmental Action Plan, and in line with current Scottish Governments targets, SGN's long term target is to achieve Net Zero emissions by 2045. This means a decarbonisation of the energy network and supporting the transition to an environmentally sustainable low-carbon energy system. Indeed, SGN recognise that there have been preliminary government targets set facilitating a move toward a renewable or low carbon heat solutions by the end of the RIIO-GD2 period. As such, throughout the RIIO-GD2 period we will continue to closely monitor this emerging heat strategy with a view to refining any potential impact on current growth forecasts.

Appendix A - Categorisation of Potential Load Growth

The following Table sets out the manner in which identified potential load growth has been categorised and applied, leading to customer driven reinforcement, when looking to establish the optimum investment strategy for our networks.

DEFINITION TABLE				
Confidence	Definition	Factors to be considered	Base Growth	High Growth
Highly probable (>90% confidence)	Connection expected in RIIO-GD2 for all sites	<ol style="list-style-type: none"> 1. Quotation accepted but not yet on stream 2. Building is in progress. 3. Detailed planning permission granted. 4. Economic conditions indicate that sites for consumers of a particular type are likely to be developed, e.g. <ol style="list-style-type: none"> a. Domestic sites where there is a high demand for housing and there is a shortage of land available. b. Interest has been shown in having a connection made to a non-domestic site and economic factors suggest development will go ahead. 	✓	✓
Probable (>75% confidence)	Connection Likely in RIIO-GD2 for majority of sites	<ol style="list-style-type: none"> 1. Outline planning consent has been granted. 2. Recent development has been carried out in the area. 3. The land is a prime site for development, but no connection enquires have yet been received. 4. Adopted Local Plan Site 	✓	✓
Good prospects (>50% confidence)	Connection expected for some sites in RIIO-GD2	<ol style="list-style-type: none"> 1. Proposed Local Plan Site 2. No indication of planning permission being granted for the site. 3. The site is outside existing gas supply areas. 4. The site would involve physical problems in delivering a gas supply. 5. The site would require substantial additional infrastructure, e.g. additional roads, schools. 6. Site marked “reserve” in Local Plan. 7. Site is known to be contaminated ground. 8. Site has “protection” orders served over it – e.g. SSSI. 		✓
Poor prospects (<50% confidence)	Significant time or investment required to progress	<ol style="list-style-type: none"> 1. Does not meet the above planning criteria. 2. Site has been deemed as ‘speculative’. 3. The site would require significant additional infrastructure, e.g. additional roads, schools. 		

Appendix B - Summary of Towns

Tranent (Population 11,642)

Tranent's identity has been defined by mining. Coal was first discovered in the 13th century. Other industries such as tanning, brewing and distilling also emerged in the town. There is still a distillery. Housing was built as mining expanded. In the 20th century production slowed, and the pits shut in 1961 and the opencast mine also closed. It remains a local service centre.

This type of medium-sized town is a suburban or commuter locality with a prevalence of higher income and private housing. A large proportion of the population are over 45, and many are retired. Many people own their home. There is also a high proportion of people in professional employment and a high proportion of residents are educated to HNC level or above. Many residents own two or more cars.

Prestonpans (Population 9,140)

Prestonpans is probably best known for the Battle of Prestonpans in 1745. It dates from the 1600s and was a burgh. As the name suggests it produced salt. It was also known for pottery and brewing. Prestongrange was the port and it traded with Hanseatic League countries. Coal was found early and developed commercially most recently at Prestongrange Colliery which closed in 1962. Much new public housing was built in the town and more recently new private housing has been built with most residents commuting.

Social and council housing are the norm in this type of medium-sized town. Manufacturing and construction are the dominant forms of employment. Health and social work services are particularly active. There is a higher level of unemployment. Educational attainment is low. Car ownership is low, meaning that many residents in these towns are reliant on public transport.

Cockenzie (Population 5,551)

Cockenzie in East Lothian was a 17th century fishing and whaling village with the port known as Port Seton. Mining saw the town expand. The coal fired Cockenzie power station closed in 2013. Today the town is a commuter settlement for Edinburgh.

This type of medium-sized town is extremely mixed in terms of demographics. There is a particularly wide range of people, housing and activities. The number of older couples with no children are higher than average. There is a mix of professional and non-professional jobs, and part-time and self-employment are both important for a significant proportion of residents. Socioeconomic status is higher than in other kinds of town and there is a mix of professionals and nonprofessionals, those with higher and lower educational attainment.

Longniddry (Population 2,488)

Longniddry was a mining settlement from the 16th century. It was developed in the early 20th century as a veteran's garden city. It is an expanding commuter settlement with local services.

This type of small town is a suburban or commuter locality with a prevalence of higher income and private housing. A large proportion of the population are over 45, and many are retired. Many people own their home. There is also a high proportion of people in professional employment and a high proportion of residents are educated to HNC level or above. Many residents own two or more cars.

Musselburgh (Population 22,639)

Musselburgh is known as 'the honest town'. Textiles, fishing, wire and paper were among historic industries. It continues to be a local service centre, but residents are mainly commuters to Edinburgh facilitated by the expansion of public and private housing over the last 30 years. Several industrial estates house companies providing local services.

This type of small town is a suburban or commuter locality with a prevalence of higher income and private housing. A large proportion of the population are over 45, and many are retired. Many people

own their home. There is also a high proportion of people in professional employment and a high proportion of residents are educated to HNC level or above. Many residents own two or more cars.

Source:

[Scotland's Towns Partnership](#)

Appendix C - Acronyms

Acronym	Backronym (spelled out acronym)	Definition / explanation
Pressure Tiers ○ IP ○ MP ○ LP	○ Intermediate Pressure ○ Medium Pressure ○ Low Pressure	○ Intermediate Pressure i.e. 2 – 7bar ○ Medium Pressure i.e. up to 2bar ○ Low Pressure i.e. up to 75mb
CSEP	Connected System Exit Point	A connection point for one of more Individual System Exit Points, most usually supplying a GT Network (see GT below).
DG	District Governor	Pressure regulator primarily used for reducing pressures from IP and MP tiers to LP.
DPG	Distribution Pressure Governor	Pressure regulator primarily used for reducing pressures from IP tier to MP.
GT	Independent Gas Transporter	GT networks are directly connected to the Gas Distribution Network (GDN) via a Connected System Entry Point or indirectly to the GDN via another IGT.
HDPE	High Density Polyethylene	Pipe material for use in 7bar rated systems.
HLA	Housing Land Audit	Local Authority planning document.
LDP	Local Development Plan	Local Authority planning document.
PE	Polyethylene	Pipe material.
RIIO-GD1	Revenue=Incentives + Innovation + Outputs – Gas Distribution 1	8-Year price control period (2013-2021)
RIIO-GD2	Revenue=Incentives + Innovation + Outputs – Gas Distribution 2	Proposed 5-Year price control period (2021-2026)
SHP	SHP File Format	SHP is a file extension for a Shapefile shape format used in geographical information systems (GIS) software.
ST	Steel	Pipe material.
TRS	Transmission Reduction Station	Pressure regulator primarily used for reducing pressures from Local Transmission System tier to IP/MP.
1:20	1:20 Demand Conditions	Designing a network to operate whilst experiencing demand conditions historically only seen every 20 years, during severe weather events.