

Additional Information

Non-operational IT&T Capex Reopener

Wholesale Line Rental Phase-out (non-telemetry sites)

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OFGEM Feedback

Section for OFGEM Comments and references to update following SQs & FDs.

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2 Exec Summary

This paper is SGN's submission to cover a modification to SGN's business plan under the non-operational IT&T reopener category. This modification is necessary to enable SGN to respond to a change programme driven by the Telecom industry to migrate legacy copper-line based telephony services to IP based services - the Wholesale Line Rental (WLR) withdrawal programme.

The WLR withdrawal programme is withdrawing the legacy copper-line based services which has an impact on 3733 remote gas sites which have pressure management equipment and 300 metering data loggers. These sites have telecommunications equipment which connect the remote sites to our central controlling infrastructure through the copper-line telephony network – Public Switched Telephone Network (PSTN services).

The legacy copper-line network in addition to providing data connectivity to the remote sites also provided the electricity charge needed to power the telecommunication equipment / trickle-charge the battery. This electric charge is no longer provided through IP based services and hence the impact of this change requires an alternative telecommunication technology to the copper-line services and a suitable source of power to run alternative telecommunication equipment.

OpenReach who are the primary network providers of copper-line services used by SGN have set out a programme under which OpenReach will be turning-off all WLR services by 2025 with the first 'stop-sell'¹ notices for exchanges in June 2021. In January 2021, OpenReach published the first list of over 200 exchanges that will be impacted by these notices and this will be updated every quarter. This will culminate in a national 'stop-sell' in 2023 and a removal of service 2 years later. For exchanges with an 'stop-sell' announced prior to 2023 there will be a removal of service 2yrs after the 'stop-sell' was announced for that exchange.

The impact of these stop-sell notices leads to an inability to order new copper PSTN lines at these exchanges. New fibre lines can be prohibitively expensive (even if available at the exchange) to provide at remote locations and are unpowered. Secondly, when a threshold of number of lines to an exchange have been migrated off copper-line services, OpenReach has the option to turn off all the other copper-line services entirely.

If the legacy copper-line services are turned-off without alternative communications equipment and associate power supply being in place, then this will severely impact SGN's ability to continue to optimise pressure across our network. As of May 2018, Openreach's published position was that they did not intend to retire copper until it had switched off PSTN in December 2025², this programme was then accelerated by OpenReach with the new dates proposed in Sept 2020. These changes were consulted upon by Ofcom in June 2020³ and the withdrawal conditions were consulted on again in October 2020⁴.

As Networks have actively engaged with the telecom industry change programme over the last year through the Energy Network Associations (ENA) Strategic Telecoms Group (STG). We strongly

¹ The stop sell means that Openreach would be allowed to stop selling new copper services, when a customer moves premises, changes service or switches provider.

² https://www.ofcom.org.uk/__data/assets/pdf_file/0022/204853/consultation-copper-regulation-withdrawal-conditions.pdf

³ https://www.ofcom.org.uk/__data/assets/pdf_file/0036/197289/consultation-copper-retirement-process.pdf

⁴ https://www.ofcom.org.uk/__data/assets/pdf_file/0022/204853/consultation-copper-regulation-withdrawal-conditions.pdf

argued during this engagement that these were additional costs that need to be taken into account in defining the programme and that this change should be avoided, if not deferred, due to the increase in the cost to the service we provide to our consumers.

Due to the complex nature of the programme and the uncertainty around when OpenReach will terminate legacy copper-line services at individual exchanges, we have planned a programme of work which will enable us to complete the foundation activities in the early years of GD2 with a ramp-up in roll-out as we get closer to the 2025 deadline. This means we need to commence work in year 1 of GD2, to ensure critical services don't get terminated due to lack of action.

We have set out in the rest of the document the options we have considered and the costs that we will incur to implement the necessary changes to the telecommunications equipment at the 3733 impacted pressure management sites (we have not yet included proposals for the replacement of circa 300 metering data loggers sites at this time due to lack of sufficient alternatives). Responding appropriately to Openreach's WLR withdrawal programme will have a cost of [REDACTED]

A summary of our costs is shown here:

Capex						
Summary	2021-22	2022-23	2023-24	2024-25	2025-26	Total
Resources	[REDACTED]					
Third Party (Resources)						
Software						
Hardware						
Services (Third party)						
Risk						
Total						
Contingency (10%)						
Grand Total (20/21 prices)						
Equivalent 18/19 Prices	[REDACTED]					

3 Introduction

Historically SGN's pressure management infrastructure and a subset of our metering data loggers have relied on copper-line telephony services - Public Switched Telephone Network (PSTN services) - to provide connectivity from our remote sites, to our central infrastructure, to ensure effective operations of our gas network. These are provided by the OpenReach network, which was legally separated from BT in 2017.

OpenReach have launched the Wholesale Line Rental (WLR) withdrawal change programme, as part of the telecom industry drive, to provide super-fast broadband services to all parts of the country. The impact of the WLR change programme is the withdrawal of legacy services provided through the copper-line network, including PSTN services, which some parts of SGN's telephony infrastructure relies on.

OpenReach started to engage through the Energy Network Association (ENA) Strategic Telecom's Group (STG) in summer of 2019, and SGN have been actively engaging with OpenReach, directly and through the STG, from early 2020 to understand the impact of the withdrawal of copper-line services on the services we provide to our customers.

Through these engagements, SGN have highlighted to OpenReach the criticality of the reliance on these legacy services, and how their change programme has been focused on domestic consumers, rather than businesses that have operational sites which have critical equipment connected through these copper-lines.

As part of this exercise we've assessed the impact on our infrastructure and have identified 2 areas of direct impact

- a. Pressure management equipment sites
- b. Metering data logger sites.

There are 3733 sites which host pressure management equipment and around 300 sites which have metering data loggers connected via PSTN copper-lines. These changes were not provided for within our business plan submission as at the time of submission, as we anticipated WLR services would remain in place until the PSTN was switched off at the end of 2025 (and there was a reasonable expectation that this may be delayed).

OpenReach have suggested that to continue to provide the copper-line services in parallel with the fibre-based services required for superfast broadband is expensive and will issue a national 'stop-sell' notice in 2023 and will have fully retired all WLR services by the end of 2025.

The legacy copper-line network, in addition to providing data connectivity to the remote sites, also provided the electricity charge needed to power the telecommunication equipment / trickle-charge the battery, and hence the impact of this change is not only on needing to identify alternative telecommunication technology to the copper-line services but also suitable source of power to run alternative telecommunication equipment.

OpenReach are in the process of identifying suitable alternatives to all their legacy WLR products, and have currently identified two fibre-based products as suitable alternatives for our use, Fibre to the Premise (FTTP) and Fibre to the Cabinet (FTTC) to replace the PSTN services we use.

While OpenReach can provide fibre-based products as replacement to the copper line services, they are unable to recommend suitable power alternatives, as these replacement fibre products do not allow us to draw on the electric charge from the copper line network as this is being turned off as part of WLR phaseout and so any alternatives identified need to also solve the power challenge which exists with the withdrawal of copper-line services.

As part of their change programme, OpenReach issued the first stop-sell notices for exchanges which will commence in June 2021. OpenReach have as of January 2021 issued stop-sell notices for over 200 exchanges and every quarter are publishing a list of exchanges impacted by these notices.

The impact of these stop-sell notices leads to an inability to order new lines at these exchanges, increases in operating costs of lines as the legacy products are no longer being provided by Communication Providers (CP) (retailers of telecom services), as well as OpenReach having the option to turn off copper-line services, when a threshold of number of lines having been migrated off copper-line services.

OpenReach offered all GDNs to get involved in the trials they were undertaken in 2020/21 in the Salisbury area, and SGN took the opportunity to use one of our sites located at [REDACTED] to better understand the impact on our services.

The direct experience of this on one of our sites has emphasised to us the importance and implications of these changes and has enabled us to establish the issues we will face with the roll-out of the change. This trial has also provided direct recognition, and understanding of, the shortcomings of the OpenReach alternative solutions.

SGN continues to engage actively with OpenReach directly through our quarterly meetings to discuss progress with the Salisbury Trials as well as with the rest of the industry through the ENA's Strategic Telecom Group forums.

4 Alignment with GD2 business plan

SGN had not included within its IT Capex projects submission in GD2 any allowances to cater for this telecom industry driven change and this paper presents a set of initiatives to address this requirement.

The initial plans for the withdrawal of the PSTN were announced back in 2017. However there was limited awareness of the programme outside of the telecoms industry this combined with a slow pace of progress, and the lack of clear planning or programme, limited any awareness of the impact or the implications that such a change would have.

Partially due to political concern and due to the importance of the connectivity during the COVID pandemic, the programme has been rapidly accelerated, and the plans for phasing out the WLR have become more established and the associated risk better understood.

This accelerated programme has been supported by Ofcom who has put in place the regulatory structures necessary to support and accelerate the move.

Accordingly, the implications of the WLR programme were not clear at the time of business plan preparation and at the time of GD2 business plan submission. At that time, SGN were of the view that we would be able to work closely with the rest of the Gas Distribution Networks (GDN) to continue to engage BEIS through the Strategic Telecom Group (STG), and work constructively with OpenReach to explain the financial impact of this change programme on the GDNs. These activities began in mid 2019, with a presentation from OpenReach about the change programme and gained momentum with further conversations through 2020.

SGN continues to work closely with the industry through the Energy Network Association (ENA) Strategic Telecom Group (STG) and have had various conversations with BEIS on the possibility to defer this change. These arguments have been rejected and the WLR programme has been confirmed. The only option available to us therefore would have been to enter a legal challenge and which SGN have been advised would require judicial review.

A judicial review would look to challenge the Department for Digital, Culture Media & Sport (DCMS) instruction to Office of Communications (OFCOM)/OPENREACH to allow this to occur, and the Government policy of high speed fibre rollout across the UK. OFCOM have highlighted their inability to stop this and DCMS are committed to the fibre roll out.

OpenReach are of the view they are unable to continue to supply PSTN service due to its age and reliability. We have also been informed by BEIS that they will not support the request to halt the WLR phase out programme but will support the GDNs in any way possible to enable the switch.

OpenReach's WLR programme is already under-way and the local exchange shut-offs are fast approaching. OpenReach have as of Jan '21 issued stop-sell notices for over 200 exchanges and every quarter are publishing a list of exchanges impacted by these notices. Although we are continuing to engage with the ENA to delay / reverse the decision to phase out WLR product we do not consider it plausible that the decision will be reversed or delayed at this stage.

Given the lack of clarity on the timing of the telecom change programme at the time of SGN's business plan submission, we did not include funding for the impact of this change in our business plan.

- a. It is now clear that this change will incur increased costs to our customers by forcing a change to a service which was otherwise adequate and fit for purpose. As mentioned above, we are now at the stage where we need to plan for this change despite our best efforts to defer / delay this change.
- b. The technology solutions and alternatives are now established and we have engaged with our technology partners, to establish the best way to manage the transition with minimum disruption on our operations and our network. These have been established over the last 6 months with the trials we have been undertaking at our Salisbury site.

Hence in order to manage the risk on our network and our ability to continue to serve our customers, we have included in this Non-Operational IT&T Capex Reopener, the case for investment to remedy the situation faced due to the WLR phase-out programme imposed on us by the telecom industry change.

SGN has provided, as part of its GD2 business plan submission, information about our business strategy and priorities and how our IT strategy aligns to our overall business strategy.

- Section 8b of our business plan explains our approach and strategy towards providing cyber resilience to our Operational Technology (OT) and Information Technology (IT) and
- Section 17.9 covers our submission for IT systems and covers our IT strategy and table 17-24 includes details of our IT Capex and references to relevant Engineering Justification Papers (EJP).
- Section 9.5 sets out our strategy to optimising pressure management and in section 17.2.5 we describe the role of metering data loggers to support our license obligation.
- Our pressure management strategy included specific engineering justification papers (EJPs)
 - To maintain existing gas profiling and logger system - SGN DINT - 006 ModProLog So - EJP Dec 19 and SGN DINT - 016 ModProLog Sc - EJP Dec 19
 - For Remote Pressure Monitoring PCD - SGN DINT - 010 RemMonLon So - EJP Dec 19 and SGN DINT - 011 RemMonSouth So - EJP Dec 19

We are ensuring the communications technology used for our remote pressure monitoring systems use the latest communication technology and not reliant on WLR. This reopener submission identifies the need to transform the communications technology for our gas profiler and logger systems, to ensure we can maintain our network in a safe and reliable manner and manage the network pressure appropriately.

There is no overlap between the resubmission deliverables set out in this reopener and those we set out in our business plan at the end of 2019.

In all the documents mentioned above, we have focused on the operational asset which need to be refreshed and any impact of the copper-line services being stopped has not been included.

5 SGN site changes

SGN have a portfolio of operational assets which rely on fixed telephone lines WLR products to provide connectivity ensuring the proper working of these assets. SGN has roughly 6,000 impacted lines which use the copper-line services and need to be migrated to new services.

This paper focuses on two business areas impacted by this change. These are grouped as ‘non-telemetry’ sites and cover the following operational assets:

- a. [REDACTED]
- b. [REDACTED]

There are 3733 pressure management profiling assets which are connected via copper line products and about 300 data loggers which still rely on fixed line copper line products to provide meter data. With the announcement by OpenReach to phase out these legacy products, SGN needs to identify alternative communication technologies which will provide the necessary connectivity along with establish suitable power source to operate the telecommunication equipment. If alternative solutions are not identified, SGN will be unable to fulfil its license obligations to maintain the safety of our gas network by managing pressures and providing periodic meter readings.

This change poses two significant issues to pressure management:

- a. [REDACTED]
- b. [REDACTED]

5.1 Risks Identified

SGN take a formal approach to assessing risk and SGN’s risk management methodology is underpinned by two main industry standard methodologies. ISO27005 (for OT) and the Octave Allegro methodology which has been tailored to SGN and aligned to the Enterprise risk management process.

Risks are identified, assessed and actions are decided and followed up through Governance structures.

The Risks were assessed through a series of risk workshops conducted between the Information Security Team and the Operational Technology teams, including Physical Security and Gas Control following an established Risk Management and Assessment Methodology and utilising agreed criteria for Likelihood and Impact.

The impact of not continuing to provide secure connectivity to our operational sites will lead to the following business risks materialising.

- [REDACTED]
- [REDACTED]

- [REDACTED]
- [REDACTED]

In addition to the business risks mentioned above, the following IT and Cyber risks have been identified:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

Having spoken to our technology partners and the business, we have decided to prioritise identifying alternative solutions for our 3733 pressure management sites first ahead of the 300 metering data logger sites. The main drivers for this approach were:

- The number of metering data loggers still on PSTN is manageable and can be replaced within a year of identifying suitable alternatives.
- The telecommunications technology currently available for metering data loggers is either fixed line replacement or GSM mobile data. Our current equipment providers have mentioned that other technology including NB-IOT based technology will be available within the next two years and they would be a more future proof fit for our requirements in this space. As these products are in prototype stage and have not been launched in the market it is not possible to gauge the feature list / cost implications of these alternative products.
- Through our network and location surveys we have established that GSM coverage is not suitable at the sites we have fixed lines for metering data loggers and the cost of implementing fixed line alternatives to PSTN is extremely cost prohibitive to justify the replacement.

As a result of the drivers mentioned above, the focus of this paper will be on replacing the pressure management equipment we have at our operational gas sites, and we will be revisiting the subject of metering data loggers as part of the Reopener process in 2023 when we have a better understanding on approach and alternative technology for metering data loggers.

5.2 Site Information

The assumed break-down of our pressure management sites (metering data loggers have been excluded as mentioned in previous section) between the various types of installation is listed below:

	Intelligent Profiled Governors	Drawn/Clocked Profiled Governors	Intelligent Profiled Low Points	Logger Only Sites (with phone line)
Scotland Network	578	172	294	535
Southern Network	1162	375	518	99
Total	1740	547	812	634
Sites needing replacement modems	3733			

Type of Asset / Install Type	Scotland Network	Southern Network	Total
Above ground District Governors & Loggers – Simple Install	560	512	1072
Above ground District Governors & Loggers –Complex Install	575	612	1187
Below ground District Governors & Loggers – Complex Install	150	512	662
Low Points – Simple Install	294	518	812
Total	1579	2154	3733

This information will be further validated as part of site surveys / inventory and any differences will need to be considered during deployment planning. See all risk - WLR-R010 below on how this will be dealt with.

5.3 Options Considered

5.3.1 Detailed Options Comparison

In order to manage the risks posed by the Wholesale Line Rental Phase-out, the following options have been considered:

- Option 1 – Do Nothing. Continue to engage the industry to delay / reverse decision to phase out WLR products.
- Option 2 – Identify & implement appropriate alternative communication technology and suitable power source as replacement for WLR products.

The section below describes the options considered and reason for recommendation.

Option 1 - Do Nothing. Continue to engage the industry to delay / reverse decision to phase out WLR products. (not recommended)

SGN continues to engage the industry through the Energy Network Association (ENA) Strategic Telecom Group (STG) and have various conversations with BEIS on the possibility to defer this

change. We have also enquired on the possibility of a legal challenge and have been advised this would require judicial review.

The review would look to challenge the Department for Digital, Culture Media & Sport (DCMS) instruction to Office of Communications (Ofcom)/OPENREACH to allow this to occur and the Government policy of high-speed fibre rollout across the UK. Ofcom have highlighted their inability to stop this.

DCMS are committed to the fibre roll out. Openreach are saying they are unable to continue to supply PSTN service due to its age and reliability.

OpenReach's WLR programme is already under-way and the local exchange shut offs are fast approaching. OpenReach have as of Jan '21 issued stop-sell notices for over 200 exchanges and every quarter are publishing a list of exchanges impacted by these notices. Although we are actively engaging to delay / reverse the decision to phase out WLR product, there is no guarantee this will be successful.

We analysed the impact of a delay on our ability to complete the switch-over within the current OpenReach published deadlines, and as shown in the chart below, every 3 months delay adds more risk / cost to the programme by increasing the number of sites we will need to manage the change to. This would result in an increase to the risk that connectivity at data logger and pressure monitoring sites could be shut off.

If no action is taken, we could end up in a scenario where PSTN gets turned off at individual exchanges leading to this scenario, [REDACTED]

[REDACTED]

Option 2 – Identify & implement appropriate alternative communication technology and suitable power source as replacement for WLR products. (recommended)

Following the trials, we've undertaken with various partners over the last 6 months, we've identified the target architecture we are looking to put in place to manage this change.

As shown above, we are looking to replace the existing communications technology (ISDN/PSTN) with an alternative communications technology – Fibre solution from OpenReach, Mobile Data solution from our telecom partners, IIoT technology from our telecom partners.

We are also looking to implement the necessary modem technology, which will allow the communications technology to transfer the data from our pressure management units to the systems centrally so that two-way communications can be established with minimum impact on our ability to manage our network.

Due to the withdrawal of power from these sites, (which was previously provided through the copper lines), we have also considered including a suitable power source (Solar panel with rechargeable battery) to power the communications unit.

5.3.2 Recommended Option.

Option 2 – Identify & implement appropriate alternative communication technology and suitable power source as replacement for WLR products is recommended as it best mitigates the risk posed by the WLR phase-out and allows SGN to continue to safely manage pressures on the network and enable us to operate our network effectively.

The table below shows the scenarios that are available for communications & power (which are both required in the replacement solutions) and as detailed in section 6 the costs are based on the recommended solution (mobile data with Solar Panel & Battery).

The costs for the alternatives detailed below are incremental to those considered for the recommended solution.

Telecommunications Solution Considered

	Fixed Line replacement from OpenReach (FTTP/FTTC)	Satellite Technology like ISAT Data pro	Mobile Data (Recommended)
Availability / Coverage	Limited to high density areas / existing sites	Widely available	Widely available
Easy of deployment	Lead time to get fixed line to site if not already present	No fixed line connectivity required	No fixed line connectivity required
Cost of deploy	Expensive to install / higher operating costs	Expensive to install / higher operating costs	Lower cost to install / cost to operate
Power usage	High power usage	High power usage	Low power usage
Total Cost for 5 years (per site)	██████████	██████	████
Incremental Capex vs Recommended Solution (per site)	██████████	██████	-
Incremental Opex vs Recommended Solution for 5 years (per site)	██████	██████	-

* - The range is based on simple vs complex installation of fibre to premise plus setup costs. The life expectancy of the equipment on the various solutions identified above are broadly similar.

Power Solution Considered

	Mains Powered	Battery Powered	Solar Panel with Battery Back-up (Recommended)
Ease of deployment	Difficult if suitable source is not available nearby	Easy	Easy
Cost to deploy	Expensive to install / higher cost of maintenance	Lower than mains power but higher total cost of ownership due to need to replace periodically	Higher install costs than battery power but lower total cost of ownership as battery can be re-charged
Operational Visits	Additional visit by E&I technician to ensure site safety.	Monthly visits will be required to replace battery which will not be practical / cost effective.	Annual visit for site checks.
Incremental Capex vs Recommended Solution (per site)	[REDACTED]	[REDACTED]	-
Incremental Opex vs Recommended Solution (per site)	[REDACTED]	[REDACTED]	-

(1) - Based on average cost of new installation for domestic premises (SGN sites vary between rural and urban settings and hence a range is provided as each site will need a unique quote). The cost of adaptors, fittings to step-down power from mains 240v to 15v DC is estimated around [REDACTED].

(2) - [REDACTED] per battery x 3 battery (one onsite, one on charge and one spare) plus [REDACTED] (cost for charger) will nett off against cost of solar panel estimated less than [REDACTED].

(3) - Additional annual visit by E&I engineer @ 10 sites per day for 3733 sites (373 @ [REDACTED] x 5 years / 3733) plus [REDACTED] per month mains power charge per site.

(4) - Engineer visits on rolling basis every month to replace rechargeable battery 10 sites per day over 3733 sites (373 @ [REDACTED] per day for 60 months / 3733)

The life expectancy of the battery and solar panel solution is between 10 – 15 years while the mains powered solution should have a longer life span (over 25 years).

Due to the reasons mentioned in the table above, we have focused on costing up the project on the recommended option () as the most appropriate and cost effective solution for our replacement technology.

5.3.3 Preferred options detail

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

1. [REDACTED]

2. [REDACTED]

3. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

5.3.4 Sites relating to Project and Install types

Pressure Management sites still connected to copper lines are in 3733 sites and break-down can be found further in the document.

In order to plan the migration of the sites impacted we have classified our pressure management sites into two categories – District Governors and Loggers and Lowpoints.

As briefly mentioned in section 3 above, we use our pressure management equipment to monitor pressure on our pipes which deliver gas to customer homes.

This equipment is primarily used to:

- [REDACTED]
- [REDACTED]
- [REDACTED]

While the technology has evolved slowly over the last 30 years, they consist of a mixture of various systems using different types of equipment but all of them have been supplied by a couple of providers – [REDACTED].

We have included within our GD2 plan in section 9.13 how we are trialling further innovation in remote pressure management and are undertaking a pilot on it.

Since the [REDACTED] was implemented in GD1 we have ensured that they communicate via GSM mobile data and do not rely on the PSTN network.

The Key characteristics of our pressure management equipment are:

- [REDACTED]
- [REDACTED]

There are two types of pressure management equipment present, pressure regulating district governors and loggers and low points which measure pressure at our network extremities.

District Governors & Loggers

Pressure regulation is typically done by district governors & loggers, and they include valves for maintenance, filters, Pressure regulators and Safety equipment
A couple of examples of this type of setup is provided below:

Lowpoints

We also have pressure monitoring equipment at our network extremities, and these report by exception and are usually interrogated once a day from our network operating centres, to get details on their performance. These are located at the side of roads and ends of network points and play a key role in a closed loop control of our network.

[REDACTED]

[REDACTED]

A picture below is an example of this type of installation:

Types of Installation

The table below summarises the installation options for the various types of assets we have in our estate:

	Above Ground District Governors	Below Ground District Governors	Lowpoints
Simple Install	Yes	No	Yes
Complex Install	Yes	Yes	No

We have two types of district governors & loggers

- Above Ground District Governors & Loggers

Figure: Example of above ground district governor beside the kerb

There are two typical installation options possible for above ground district governors & loggers

- 

- [REDACTED]

- Below Ground District Governors & Loggers

[REDACTED]

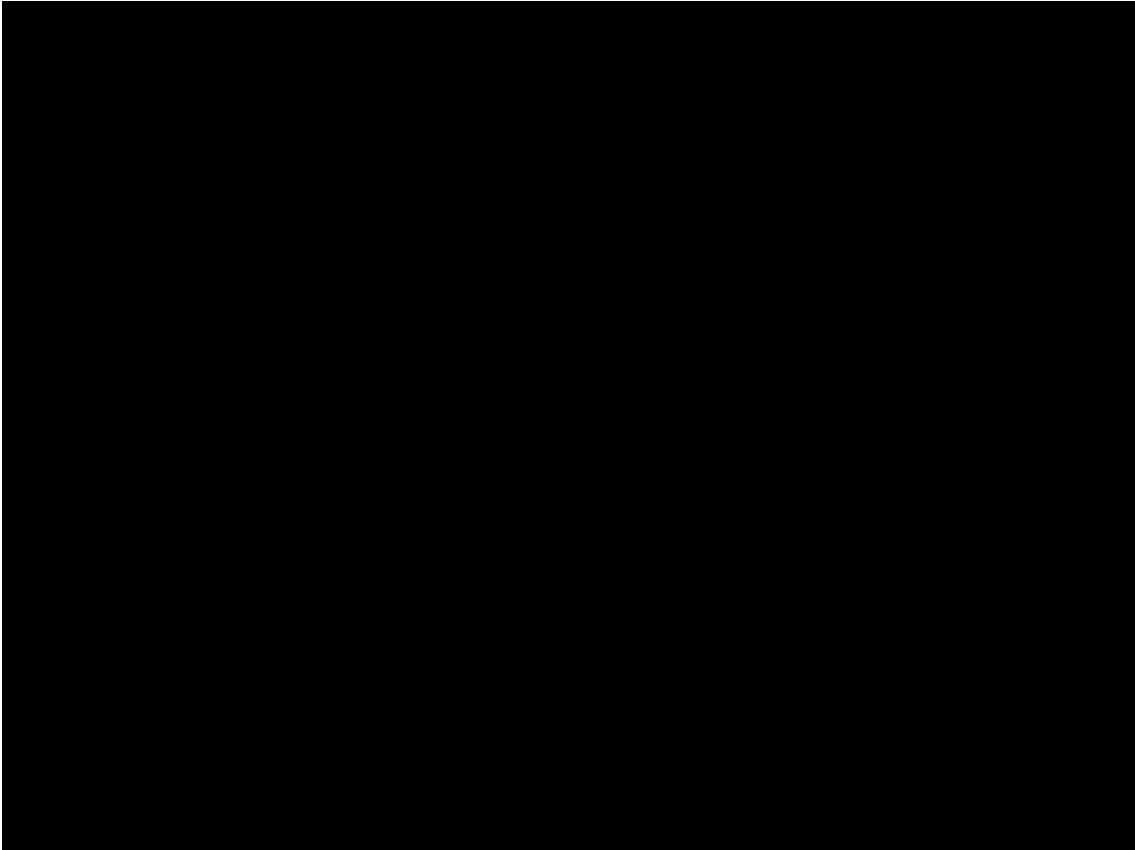
[REDACTED]

- Lowpoints

[REDACTED]

[REDACTED]

[REDACTED]



5.4 Technical feasibility and consumer benefit

As stated in Section 5.1 above, we have undertaken a comprehensive risk assessment of the impact of not undertaking the project and have arrived at the conclusion that we need to undertake the project to continue to safely manage our gas network.

We have been able to undertake limited trials at one of our sites in Salisbury to understand the risks involved with the implementation of the new solutions. The risks we have identified so far are:

Ref	Risk Description	Mitigation	Costed Risk
WLR-R004			

[illegible]

Ref	Risk Description	Mitigation	Costed Risk
	[REDACTED]	[REDACTED]	
	[REDACTED]	[REDACTED]	
	[REDACTED]		
[REDACTED] [REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	
	[REDACTED]	[REDACTED]	
	[REDACTED]	[REDACTED]	
	[REDACTED]		
	[REDACTED]		
	[REDACTED]		
[REDACTED] [REDACTED]	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	[REDACTED]
	[REDACTED]	[REDACTED]	
	[REDACTED]	[REDACTED]	

[illegible]

6 Cost basis

6.1 Cost Breakdown of preferred option.

The below tables outline the Capex costs of [REDACTED] (20/21 prices) across the two networks. A high-level table can be seen below outlining the yearly spend

Capex						
Summary	2021-22	2022-23	2023-24	2024-25	2025-26	Total
Resources	[REDACTED]					
Third Party (Resources)						
Software						
Hardware						
Services (Third party)						
Risk						
Total						
Contingency (10%)						
Grand Total (20/21 prices)						
Equivalent 18/19 Prices	[REDACTED]					

The inflation factor used to reduce the 20/21 prices to 18/19 prices was [REDACTED] based on the yearly average of 20/21 and 18/19.

The details of the costs are available in the cost break-down spreadsheet in Appendix A.

As the cost of this paper has not been included in our original GD2 submission, we have included costs for incremental resources to deliver this project.

The costs of various hardware / equipment required for the solutions identified in the previous section are included within the hardware line in the table above.

The third party services line, contains the cost of incremental operational resources required to undertake the migration of current technology to recommended technology at the operational gas sites.

The items of risks identified in section 5.4 above, which have quantifiable costs to mitigate have been identified in the risk line.

Resource costs and quotes received from third parties are based on 2020/2021 prices.

The Opex assumption is that the data charges are broadly equivalent to the existing line rental and call charges and that the maintenance costs remain broadly equivalent and we have included a risk in Section 5.4 to deal with this.

Due to the nature / complexity of the project, an element of risk has been identified, additionally it is prudent to incorporate a 10% contingency and the table in Section 5.4 identifies the risks which have been costed and those considered within project contingency.

The costs have been split between the two networks Scotland / Southern on the basis of number of sites impacted at each site. The number of sites is available in Section 5.2 above and is summarised below:

	Scotland	Southern	SGN
Split of Sites	1,579	2,154	3,733
% split	42%	58%	

The split between the two networks is summarised in the table below:

Scotland Network	2021-22	2022-23	2023-24	2024-25	2025-26	Total
Total Cost						
Contingency (10%)						
Grand Total (20/21 prices)						

Southern Network	2021-22	2022-23	2023-24	2024-25	2025-26	Total
Total Cost						
Contingency (10%)						
Grand Total (20/21 prices)						

6.2 Project Maturity and Cost Certainty

As funding is not yet confirmed, this project has not yet entered the procurement stage and due to the cost of the project exceeding the OJEU cost threshold, it will need to go through a full regulated tender process.

However, estimated costs have been obtained from our existing providers / partners who have detailed and extensive knowledge of our estate. These ROM estimates have been used in our cost models.

None of the third-party costs have been commercially negotiated and are subject to change, however appropriate costed risks have been applied where deemed necessary.

7 Project delivery and monitoring

7.1 Project Scope

The scope of the project is to replace communications technology at operational sites using legacy WLR services to connect pressure management systems as listed in Section 3.1.3 above.

The key workstreams within the scope of the project include the following:

Workstream	Key Outcomes
WK1 - Design & Field Benchmark Activities	Ensure enough information is available from field benchmark activities to design and implement the various types of installations described in Section 3.1.3 above and enable detailed planning of project execution. Completion of designs for various types of installations identified.
WK2 - Tender / Procurement Process	Ensure regulated procurement processes are followed to tender and procure the various components involved in project execution.
WK3 - Validate Site inventory / Survey	Ensure enough information is available about each site within the replacement programme including confirming communications coverage, installation type, design variance and necessary permits to undertake change at site.
WK4- Migration Phase 1	Undertake migration of sites earmarked in Phase 1 of the project as per OpenReach's planned Stop-sell schedule, target a mixture of simple and complex installs of sites and equipment types identified in Section 3.1.3 above, where there is adequate coverage of GSM network and only the modem unit needs changing.
WK5 - Migration Phase 2	Undertake migration of sites earmarked in Phase 2 of the project as per OpenReach's planned Stop-sell schedule, target a mixture of simple and complex installs of sites and equipment types identified in Section 3.1.3 above, where there is adequate coverage of GSM network and only the modem unit needs changing.
WK6 - Migration Phase 3	Undertake migration of remaining sites where GSM or alternative technology will be required to ensure completion of all sites impacted by the change including the scenarios where the modem unit cannot be replaced without changing out the entire profile unit (See risk WLR-R011 above).

7.2 Project Out of Scope

The following are deemed to be out-of-scope deliverables for the project:

- Any sites not identified in Section 3.1.3 above
- Any pressure management equipment currently not connected via PSTN network
- Any metering data logger equipment as stated in Section 2.3 above
- Any operational equipment connected via PSTN not related to metering data loggers or pressure management equipment.

7.3 Project Objectives

- Successful completion of workstreams defined in Section 3.3.1 above leading to replacement of equipment reliant on PSTN network enabling SGN to continue to manage pressures within all areas of our Gas Network.

7.4 Project Assumptions, Constraints and Dependencies

7.4.1 Assumptions

- The solutions identified will continue to be available from the product vendor as we get to the end of the roll-out.
- By undertaking standard engineering designs based on site types, we will not need any further site level designs.
- Contractor resources will be used to supplement field operational staff to support site surveys and installations in line with planned deployment plans.
- Due to the scale of the change IT resources will be supplemented with contract resources.
- Adequate notice will be provided by OpenReach on when exchanges will get converted to fibre allowing phased implementation of swap-outs on site.
- Field activities will be undertaken during working hours and any overtime / weekend working has not been factored in the plans / costs.
- Phasing of roll-out is assumed to be evenly spread through the year and will need to be validated based on roll-out schedules during deployment planning.

7.4.2 Constraints

- Speed of roll-out will be constraint by technical designs being available at site as well as design approvals being obtained during the pandemic.
- Operational pressures will influence the speed of roll-out as availability of field engineers to support the roll-out will depend on climate conditions and other capacity constraints with the Ops teams.

7.4.3 Dependencies

- Reliance on OpenReach continuing to publish a list of exchanges where stop-sell will be implemented for WLR services to plan our roll-out at sites.

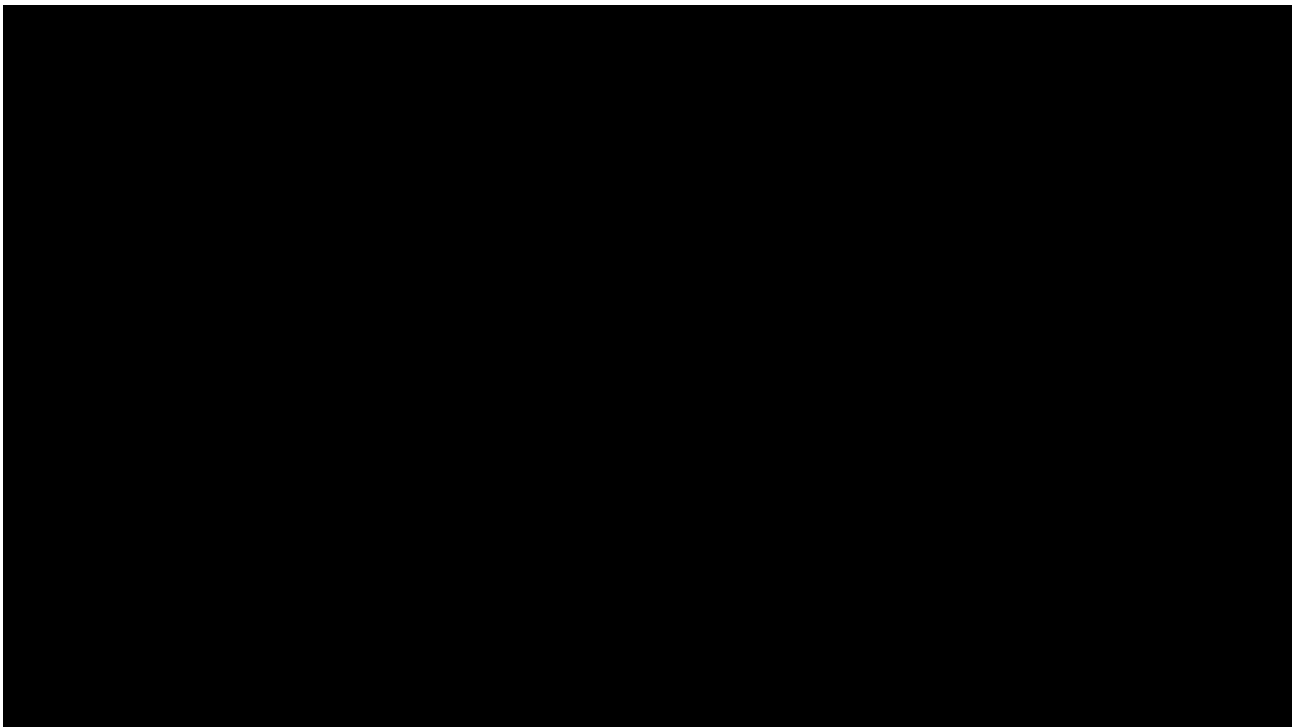
7.5 Project Deliverables (Documentation)

A summary of the documentation that will be completed in the lifecycle of the project:

- IT Design Documents
- Engineer Design Documents
- Detailed Deployment Plan
- Test Approach
- Test Exit Report
- Service Design
- Service Transition Document
- Project Plan
- Project Control Book
- Closure Report

7.6 Project Plan and Timeline

The picture below shows a high-level view of the project and its various workstreams as well as a project plan with key milestones. Due to the complex nature of the project, it will follow a waterfall delivery methodology.



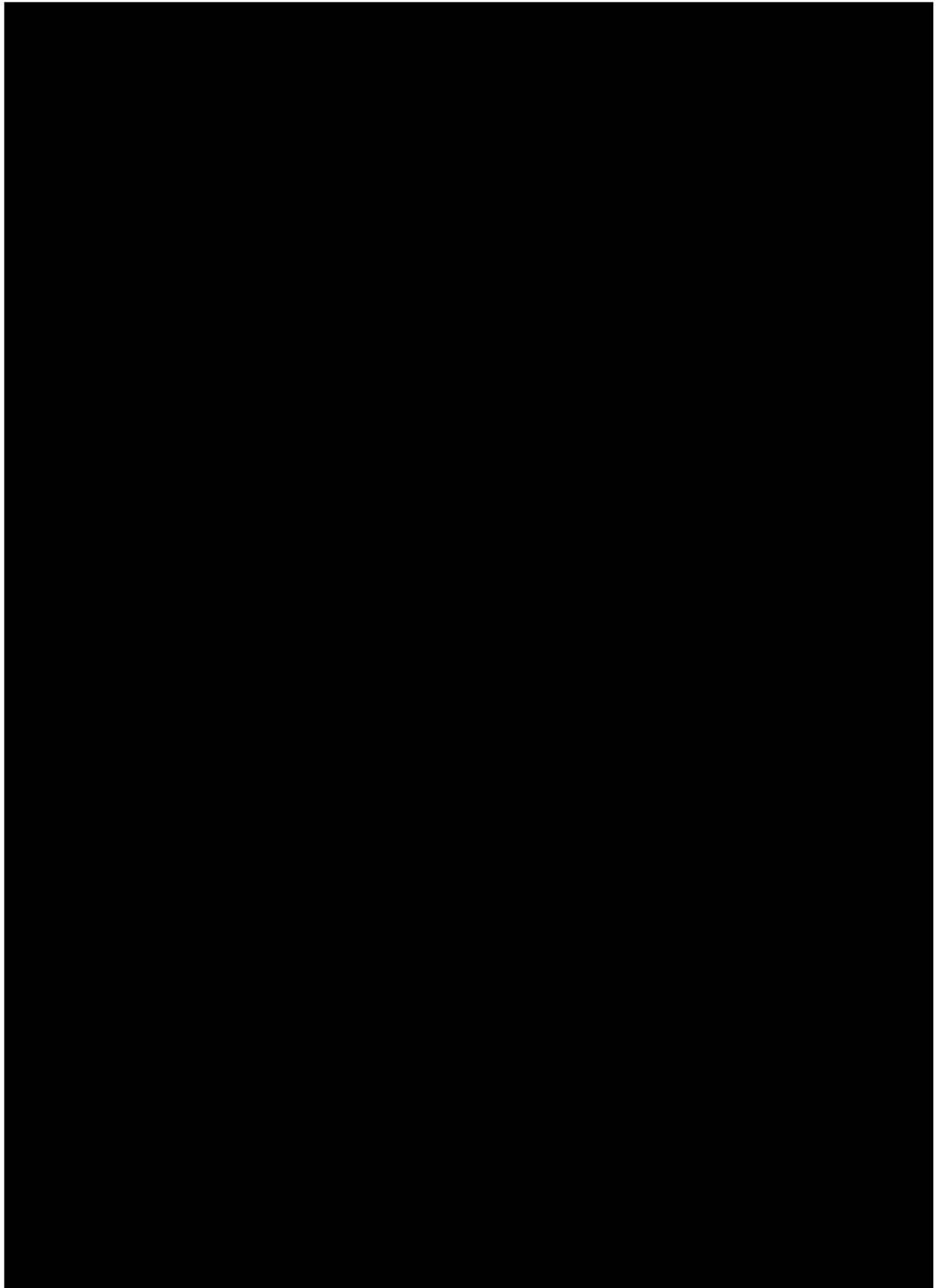


Figure. Gantt Chart

7.7 Agile Project Details (Agile Projects Only)

As described in Section 7.6 above, this project will follow the waterfall approach and not agile project delivery.

8 Appendix A – Supporting Documents

- *Cost Breakdown - SGN Cost Breakdown - WLR Phase-out Pressure Mgmt.xls*
- *High Level Plan - SGN WLR Phase-out High Level Plan.pdf*