



Price Control for Northern Ireland's Gas Transmission Networks GT22

Annex 1 – Replacement Expenditure
December 2021



About the Utility Regulator

The Utility Regulator is the independent non-ministerial government department responsible for regulating Northern Ireland's electricity, gas, water and sewerage industries, to promote the short and long-term interests of consumers.

We are not a policy-making department of government, but we make sure that the energy and water utility industries in Northern Ireland are regulated and developed within ministerial policy as set out in our statutory duties.

We are governed by a Board of Directors and are accountable to the Northern Ireland Assembly through financial and annual reporting obligations.

We are based at Queens House in the centre of Belfast. The Chief Executive leads a management team of directors representing each of the key functional areas in the organisation: Corporate Affairs, Markets and Networks. The staff team includes economists, engineers, accountants, utility specialists, legal advisors and administration professionals.



Our mission

To protect the short- and long-term interests of consumers of electricity, gas and water.



Our vision

To ensure value and sustainability in energy and water.



Our values

- Be a best practice regulator: transparent, consistent, proportionate, accountable and targeted.
- Be professional – listening, explaining and acting with integrity.
- Be a collaborative, co-operative and learning team.
- Be motivated and empowered to make a difference.



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Acronyms and Glossary

ACRT	Annual/Cost Reporting Template
AGI	Above Ground Installation
ARR	Actual Required Revenue
ATEX	Equipment for explosive atmospheres
BGTL	Belfast Gas Transmission Limited
BGTP	Belfast Gas Transmission Pipeline
C&I Panel	Control & Instrumentation Panel
Capex	Capital expenditure
CBA	Cost Benefit Analysis
CP	Cathodic Protection
CPI	Consumer Price Index
DSEAR	Dangerous Substances and Explosive Atmospheres Regulations
e.g.	for example
GMO NI	Gas Market Operator for Northern Ireland, the Contractual Joint Venture to deliver a single system operator
GNI	Gas Networks Ireland (parent company of GNI (UK))
GNI (UK)	Gas TSO operating in Northern Ireland
GT17	This is the name given to the price control period from October 2017 to September 2022
GT22	This is the name given to the price control from October 2022 to September 2027
ISO	International Organisation for Standardisation
IT	Information Technology
m	Million
MEL	Mutual Energy Limited
NI	Northern Ireland



NWP	North-West Pipeline
Opex	Operating Expenditure
p.a.	Per annum (per year)
PLC	Programmable Logic Controllers
PTL	Premier Transmission Limited
Repex	Replacement Expenditure
RIGs	Regulatory Instructions and Guidance
RPEs	Real Price Effects
RPI	Retail Price Index
SCADA	Supervisory Control and Data Acquisition
SNIP	Scotland to Northern Ireland Pipeline
SNP	South-North Pipeline
SONI	System Operator Northern Ireland (electricity network)
TR	Transformer Rectifier
TSO	GNI (UK), PTL, BGTL and WTL. WTL is not a TSO (Transmission System Operator) as defined by the European Commission but it is referred to as a TSO in this document for simplicity.
UK	United Kingdom
UPS	Universal Power Supply
UR	Utility Regulator
WTL	West Transmission Limited
WTPS	West Transmission Pipeline System



1. Introduction

Purpose of this Document

- 1.1 This annex details the considerations of the Utility Regulator (UR) in relation to replacement expenditure (repex) for GT22.
- 1.2 Much of what might be described as capex in terms of accounting rules, we consider as being maintenance/repex. It does not add to the capacity of the existing pipeline network but rather replaces or upgrades existing equipment. We treat such spend in the same way as controllable operating expenditure (opex).
- 1.3 The purpose of the repex analysis is to capture the larger (>£50k) ad hoc replacement projects. These projects have definable outputs which can be captured and measured as part of the reporting process. TSOs (Transmission System Operators) were however given the opportunity to submit lower value projects if they so wished.

Detailed Approach

- 1.4 As part of their business plans, TSOs submitted a list of repex projects for which they sought an allowance. With the aid of specialist consultants we considered the TSO submissions regarding the GT22 repex programme.
- 1.5 When determining an allowance the principal issues considered were need, costs and risks. Each project has been categorised as follows:
 - **Category 1** – Both need and cost are well supported and justified. These projects attract full or majority allowance.
 - **Category 2** – Need is established but costs are not supported. These projects can be subject to partial allowance if we have a clear view on the reasonable level of spend.
 - **Category 3** - Need is established but costs are very uncertain. These projects can be considered as a *Relevant Item* where no ex-ante allowance is given but costs can be requested during the GT22 period when the scale of spend is better understood.
 - **Category 4** – Both need and costs are unjustified. These projects are subject to full disallowance.
- 1.6 In making assessments, our consultants advised as to both the need and reasonableness of costs. In order to reach a draft determination, we have considered their views alongside:



- a) TSO representations;
 - b) Experience from other utilities; and
 - c) Benchmarking (where possible).
- 1.7 We have detailed each project, cost, outputs, project categorisation and recommendation in the chapters that follow. Where full allowance has not been provided, we have set out the rationale and information/justification which is considered to be missing.



2. GNI (UK) Repex Programme

Repex Projects

2.1 UR analysis of the GNI (UK) projects is set out in the tables below.

Table 1 – Cathodic Protection Analysis

Project Name	Cathodic Protection
Amount Requested in GT22	£169k
Project Synopsis <ul style="list-style-type: none">GNI (UK) is requesting funds to update the cathodic protection of the pipelines.Request of £169k compares to GT17 allowance of £227k.	
Outputs <ul style="list-style-type: none">2 Transformer Rectifiers.40 CP test posts.9 Remote monitoring units.	
Issues / Summary <ul style="list-style-type: none">Limited spend to date in GT17. TSO won't deliver anode ground beds but this seems reasonable as replacement is not needed.However, GNI (UK) expect to spend close to budget on other GT17 outputs.Given the materiality and project importance, this request seems reasonable.	
Classification	Category 1
Recommendation	Approve in full
DD Actions <ul style="list-style-type: none">No action required.	

Table 2 – Site Instrumentation Analysis

Project Name	AGI Site Instrumentation
Amount Requested in GT22	£759k
Project Synopsis <ul style="list-style-type: none">GNI (UK) is requesting funds to replace three RTUs and upgrade the communications at 16 other AGIs to accommodate the new SCADA provider.Request of £759k compares to GT17 allowance of £344k.	
Outputs <ul style="list-style-type: none">3 RTUs.16 Communication upgrades.	
Issues / Summary <ul style="list-style-type: none">Limited spend to date in GT17 on similar projects.GNI (UK) indicate that they will be able to deliver 3 RTUs, 1 UPS and 7 battery charger units for £324k in GT17.	



<ul style="list-style-type: none"> If this is the case, delivery of GT22 outputs appears expensive. It is not totally clear how the communications upgrade spend links to the separate and material SCADA cost request under system operation. UR recommend partial allowance until certainty can be provided on GT17 spend and the costs of the communications upgrade can be established. 	
Classification	Category 2
Recommendation	Partial allowance (50%)
DD Actions <ul style="list-style-type: none"> For a full allowance to be supported, GNI (UK) would need to explain: <ol style="list-style-type: none"> The basis and certainty of the cost forecasts? Why the level of costs are in excess of GT17 for similar outputs? How the communications upgrade spend relates to the separate SCADA request under system operation? 	

Table 3 – Site Electrical Analysis

Project Name	AGI Site Electrical
Amount Requested in GT22	£1.048m
Project Synopsis <ul style="list-style-type: none"> GNI (UK) is requesting funds to replace electrical equipment at AGIs. Request of £1,048k is one of the more material repex schemes. Costs are forecast to be incurred fairly evenly across all years. 	
Outputs <ul style="list-style-type: none"> 7 Battery chargers. 15 Distribution boards. 15 Isolating transformers. 6 Generators. ATEX and general lighting at 17 sites. 	
Issues / Summary <ul style="list-style-type: none"> This is new spend so not really an issue with GT17 projects. Would seem to be quite a lot of asset replacement for the amount requested. However, there a couple of concerns for instance: <ol style="list-style-type: none"> Gormanstown costs are £96k but are only getting lighting upgrades. Design and construction costs for this AGI seem questionable (see Q43 breakdown). Derryhale is planned for distribution board and isolating transformer replacement despite being 5-6 years younger than the rest of the network. MEL are only now planning replacement of distribution boards despite an older network. This raises concerns that some of the work is not required. UR recommend that the sites in most need are addressed in GT22 with the remaining AGIs undertaken in GT27. 	
Classification	Category 2
Recommendation	Partial allowance (50%)
DD Actions <ul style="list-style-type: none"> For a full allowance to be supported, GNI (UK) would need to explain: 	



- 1) The basis and certainty of their cost forecasts?
- 2) Why distribution boards are being replaced earlier than MEL?
- 3) Why Gormanstown costs are so material despite only undertaking ATEX lighting work?
- 4) Why Derryhale work is necessary given younger age of this asset?

Table 4 – Security Refurbishment Analysis

Project Name	Security Refurbishments
Amount Requested in GT22	£602k
Project Synopsis <ul style="list-style-type: none">GNI (UK) is requesting funds to replace CCTV cameras and the intruder detector systems at 16 AGI installations.	
Outputs <ul style="list-style-type: none">31 CCTV cameras spread across 16 different AGI locations.16 IDS systems at the same 16 locations (TSO response to Q25).	
Issues / Summary <ul style="list-style-type: none">We expected investment in this area given that it was a relevant item in GT17.Costs look fairly reasonable compared to comparable projects.TSO response to Query 24 only identifies 15 sites yet costs are for 16 sites.Within the business plan there is 16 sites but one is Maydown where costs may not be expected having been constructed in 2016.UR recommend full allowance on the basis that the design for Maydown AGI would have been undertaken prior to the publication of BS8418:2015, which is identified as a driver for investment.	
Classification	Category 1
Recommendation	Approve in full
DD Actions <ul style="list-style-type: none">No action required.	

Table 5 – Aerial Marker Analysis

Project Name	Aerial Markers
Amount Requested in GT22	£212k
Project Synopsis <ul style="list-style-type: none">GNI (UK) is requesting funds to replace or add aerial location marker posts.Need is based on IGEM TD1 standard compliance.GNI (UK) state, “Prior to GT17 the marker coverage on the pipeline was approximately 17% and during GT17 the marker post coverage will be brought up to just below 50%. During GT22 GNI (UK) intends to reach 100% coverage and install a marker post at every field boundary and road crossing.” (Annex 2, p30)	



Outputs <ul style="list-style-type: none"> 1,074 aerial marker posts. 	
Issues / Summary <ul style="list-style-type: none"> GNI (UK) intend to spend £120k on 600 marker posts without an allowance in GT17. This indicates a level of need. Unit costs in GT22 are similar to that forecast for GT17. Response to Query 45 indicates that 268 of the posts are replacements for M4 posts. Given the increased visibility and reduced risk from new markers, need for replacement of the M4 posts is somewhat uncertain. UR recommend allowance for 806 posts and retention of the M4 posts. 	
Classification	Category 2
Recommendation	Majority allowance (£159k)
DD Actions <ul style="list-style-type: none"> For a full allowance to be supported, GNI (UK) would need to explain why the M4 posts are not sufficient given lower risk associated with new marker coverage. 	

Table 6 – Actuator Analysis

Project Name	Actuators
Amount Requested in GT22	£260k
Project Synopsis <ul style="list-style-type: none"> GNI (UK) is requesting funds to replace 20 actuators. Need is based on deterioration and the fact that these actuators are not well supported anymore. GNI has replaced these actuators in RoI. 	
Outputs <ul style="list-style-type: none"> Replacement of 20 actuators at 8 different AGI sites. 	
Issues / Summary <ul style="list-style-type: none"> Unit costs in GT22 are £13,000 per actuator. MEL have also costed an actuator replacement programme at £10,400 per actuator. Given the similarities with these assets, the lower benchmarked unit rate would seem appropriate in this instance. UR suggest replacing 50% (10) of the actuators in GT22 based on the AGI risk priority and the remaining 50% in GT27. Spare parts from the actuators removed in GT22 can form emergency parts. 	
Classification	Category 2
Recommendation	Partial allowance (£104k)
DD Actions <ul style="list-style-type: none"> For a full allowance, GNI (UK) would need to explain why unit costs are higher than benchmarked rates and why all actuators must be replaced in GT22? 	


Table 7 – Valve Controller Analysis

Project Name	BM5 Slam Shut Valve Controllers
Amount Requested in GT22	£120k
Project Synopsis <ul style="list-style-type: none"> GNI (UK) is requesting funds to replace 20 BM5 slam shut valve controllers. Need is based on age and deterioration. GNI has replaced these actuators in RoI in 2014. 	
Outputs <ul style="list-style-type: none"> Replacement of 20 valves at 10 different AGI sites. 	
Issues / Summary <ul style="list-style-type: none"> Unit costs in GT22 are £6,000 per valve. UR has no particular concerns with this project. Full allowance is recommended. 	
Classification	Category 1
Recommendation	Full allowance
DD Actions <ul style="list-style-type: none"> No action required. 	

Table 8 – Heating System Analysis

Project Name	Gas Pre-Heating System Replacement
Amount Requested in GT22	£832k
Project Synopsis <ul style="list-style-type: none"> GNI (UK) is proposing to replace two boiler package systems in GT22. One at Coolkeeragh and one at Ballymagaraghan AGI. Systems were selected based on the Decision Support Tool (DST). 	
Outputs <ul style="list-style-type: none"> Replacement of 2 boiler package units. 	
Issues / Summary <ul style="list-style-type: none"> UR would be expecting some expenditure in this area given the asset life of boilers. Costs appear reasonable compared to the forecast delivery costs in GT17 of the Coolkeeragh power station package and the costs incurred by MEL when replacing the Knocknagoney boiler house unit. The principal concern is the level of GT17 underspend which is estimated to be in the region of £242k. UR consider that this should be factored into the GT22 allowance given the monies already funded by customers for this activity. 	



Classification	Category 2
Recommendation	Partial allowance (£590k)
DD Actions <ul style="list-style-type: none"> For a full allowance to be supported, GNI (UK) would need to explain why GT17 underspend should not affect the allowance for boiler work in GT22 given the activity customers have already funded. 	

Table 9 – Pilot Control Valve Analysis

Project Name	Pilot Valves
Amount Requested in GT22	£100k
Project Synopsis <ul style="list-style-type: none"> GNI (UK) proposes to replace 20 pilot control valves on the NWP. 	
Outputs <ul style="list-style-type: none"> Replacement of 20 pilot valves (Annex 2, p56, Table 40). 	
Issues / Summary <ul style="list-style-type: none"> There is no particular concern with this project. UR recommends full allowance. 	
Classification	Category 1
Recommendation	Full allowance
DD Actions <ul style="list-style-type: none"> No action required. 	

Table 10 – Cyber Security Analysis

Project Name	Cyber Security
Amount Requested in GT22	£1.26m
Project Synopsis <ul style="list-style-type: none"> GNI (UK) proposes to undertake significant cyber security upgrades. Need is based on NIS Directive compliance. 	
Outputs <ul style="list-style-type: none"> 1 Tier 1 site with station control system. 1 Tier 1 RTU site. 6 Tier 2/3 RTU sites. 	
Issues / Summary <ul style="list-style-type: none"> UR has no particular concern with project need. However, we do not yet have a clear breakdown of these project costs nor the reason for selection of the various Tier 2 sites. 	



<ul style="list-style-type: none"> Response to Query 18 on cyber security maintenance costs indicated that a procurement exercise will be held in Q4 of 2021 which will give full visibility of costs. UR therefore propose a holding allowance of £1m in the DD until the procurement exercise can be complete. 	
Classification	Category 2
Recommendation	Holding allowance (£1m)
DD Actions <ul style="list-style-type: none"> For an appropriate allowance to be supported, GNI (UK) would need to set out detailed costs and activities following completion of the procurement exercise at the end of 2021. 	

Table 11 – Meter Replacement Analysis

Project Name	Meter Replacement
Amount Requested in GT22	£1.01m
Project Synopsis <ul style="list-style-type: none"> GNI (UK) proposes to spend £1m on meter replacement/refurbishment. Need is largely based on age and replacement after 20 years. 	
Outputs <ul style="list-style-type: none"> 15 Meters (4 ultrasonic, 10 turbine, 1 refurbishment). 3 Gas chromatographs. 12 Flow computers. 12 Metering enclosures. 40 Pressure transmitter valve blocks. 	
Issues / Summary <ul style="list-style-type: none"> Cost appears reasonable given the MEL cost request for four ultrasonic meters. However there are a number of material concerns with this project including: <ol style="list-style-type: none"> Virtually no spend on GT17 meter programme has occurred to date. Ability to replace 9 turbine meters and 1 chromatograph in the final year of GT17 seems doubtful. Programme appears to be based on age rather than obsolescence. Response to Query 42 indicates that TSO has work to do on the In-Service Testing (IST) programme which will inform investment. Meters requested by MEL are at AGIs constructed 6-8 years earlier than the GNI (UK) sites. This suggests that the need may not be that pressing UR recommends 25% allowance with a relevant item for GNI (UK) to request further revenues depending on the findings of the IST programme. 	
Classification	Category 3
Recommendation	25% allowance (£253k)
DD Actions <ul style="list-style-type: none"> For a full allowance to be supported, GNI (UK) would need to explain: <ol style="list-style-type: none"> The certainty of need for the sites proposed? Why similar activity has not being progressed in the GT17 period? Why ex-ante allowances are appropriate before the results of the in-service testing programme are known? 	



GNI (UK) Repex Conclusions

2.2 The pre-efficiency repex request and allowances are set out below:

Table 12 – GNI (UK) Repex Request vs Allowance (Pre-Efficiency)

Project Name	GNI (UK) Request	UR Allowance	DD Proposals
Cathodic Protection	£0.17m	£0.17m	Category 1 - Full allowance
AGI Site Instrumentation	£0.76m	£0.38m	Cat. 2 - 50% allowance
AGI Site Electrical	£1.05m	£0.52m	Cat. 2 - 50% allowance
Security Refurbishments	£0.60m	£0.60m	Cat. 1 - Full allowance
Aerial Markers	£0.21m	£0.16m	Cat. 2 - 806 posts allowed
Actuators	£0.26m	£0.10m	Cat. 2 - Lower unit rate
BM5 Valve Controllers	£0.12m	£0.12m	Cat. 1 - Full allowance
Gas Pre-Heating Systems	£0.83m	£0.59m	Cat. 2 - Removed GT17 underspend
Stabilising Pilot Valves	£0.10m	£0.10m	Cat. 1 - Full allowance
Cyber Security	£1.26m	£1.00m	Cat. 2 - Holding allowance
Meter Replacement / Refurbishment	£1.01m	£0.25m	Cat. 3 - 25% allowance
Total Cost	£6.37m	£4.00m	

2.3 The draft determination makes provision for around 63% of the pre-efficiency repex request. We are also proposing relevant items for the meter replacement project where further cost requests are expected and can be requested throughout the GT22 period. A holding allowance has also been proposed for cyber security upgrades.



3. MEL Repex Programme

Repex Projects

3.1 UR analysis of the MEL projects is set out in the tables below.

Table 13 – SCADA Refresh Analysis

Project Name	SCADA Refresh
Amount Requested in GT22	£2.3m
Project Synopsis <ul style="list-style-type: none"> MEL is requesting funds to update the SCADA systems and provide cyber security. Project was expected to happen in GT17 but was delayed to align with SNIP agent procurement. Request of £2.3m compares to GT17 allowance of £0.9m in GT17. MEL has stated that the increase is due to cyber security obligations. 	
Outputs <ul style="list-style-type: none"> 1 Site providing normal live service to the main control room with a SCADA / Leakfinder service duplicated in “hot” standby mode. 1 Standby SCADA / Leakfinder service must be hosted on servers at a site away from the LIVE servers and with power and communications SCADA servers are required to maintain 99.95% availability. 	
Issues / Summary <ul style="list-style-type: none"> Need is clear and GNI (UK) has made a material claim for cyber security measures which would support the MEL position. However, there remains a couple of concerns i.e. <ul style="list-style-type: none"> a) UR don't yet have a detailed cost breakdown of this project. b) It is unknown who the new provider will be or the solution to be implemented i.e. physical servers or cloud-based solution. c) UR don't know how the preferred solution will impact on costs. MEL are currently out to procurement and expect contracts to be let in November 2021 (Query 24 part A response). Given this, proposal at the DD is for a holding allowance of £2.0m with the final amount to be determined based on the actual contract figures. 	
Classification	Category 2
Recommendation	Holding allowance (£1.73m)
DD Actions <ul style="list-style-type: none"> MEL to provide a breakdown of actual costs and activity when the procurement process is completed. 	


Table 14 – PLC Panel Replacement Analysis

Project Name	PLC Panel Replacement
Amount Requested in GT22	£686k
Project Synopsis <ul style="list-style-type: none"> MEL is requesting funds to replace 5 programmable logic controllers (PLCs). Cost of £827k but some projects commence in 2021-22, hence the lower GT22 request. All work to be undertaken in year 1 and 2 of GT22 and year 5 of GT17. 	
Outputs <ul style="list-style-type: none"> 5 Programmable Logic Controllers. 	
Issues / Summary <ul style="list-style-type: none"> Would expect this project given activity undertaken in GT17. No major concerns around need for the activity. Main concern is cost of delivery. MEL indicate that 5 PLCs were delivered in GT17 for around 50% of the GT22 project request at £165k per PLC. Response to Query 44 does not provide a good explanation for why costs have increased, particularly given the recent completion of projects. Given the relevant GT17 cost evidence, recommendation is a reduced allowance of £110k per PLC. 	
Classification	Category 2
Recommendation	Partial allowance (£456k)
DD Actions <ul style="list-style-type: none"> MEL would need to provide further level of justification for the cost increases above GT17 levels for the full request to be supported. 	

Table 15 – Transformer Rectifier Analysis

Project Name	Transformer Rectifier Replacement
Amount Requested in GT22	£301k
Project Synopsis <ul style="list-style-type: none"> MEL is requesting funds to replace the TRs on the SNIP and BTP which will have been operational for over 25 years. 	
Outputs <ul style="list-style-type: none"> 8 Transformer rectifiers. 	
Issues / Summary <ul style="list-style-type: none"> Need and activity seem reasonably certain. Was planned for some activity in GT17 but, “<i>Inspections performed in the period confirmed satisfactory operation with any degradation not sufficient to merit replacement within this period</i>”. However, there a couple of concerns around the cost for instance: 	



a) MEL request in GT22 amounts to £37.6k per TR site. b) For the same projects in GT17, MEL asked for funds of £21.4k per TR. c) The Rune report (p10) in GT17 estimated similar projects to cost £14.8k per site after uplifting for inflation. d) In their response to Query 45, MEL has claimed that the difference between price controls is due to design costs (£11k) which were not included at GT17. This does not seem that likely as design would have been a requirement in GT17.	
<ul style="list-style-type: none"> Given the relevant GT17 cost evidence, UR has proposed an allowance of £26k per TR which would reflect the Rune recommendation plus design costs. This would also represent a c.20% increase on the GT17 request from MEL. 	
Classification	Category 2
Recommendation	Partial allowance (£208k)
DD Actions <ul style="list-style-type: none"> MEL would need to provide further level of justification for cost increases for the full request to be supported. 	

Table 16 – Lagging Analysis

Project Name	Lagging
Amount Requested in GT22	£30k
Project Synopsis <ul style="list-style-type: none"> MEL is requesting funds to replace lagging on heat exchangers at WTP pressure reduction sites. 	
Outputs <ul style="list-style-type: none"> Lagging replacement. 	
Issues / Summary <ul style="list-style-type: none"> Need is unclear as would not have expected to need replacement of these WTP assets at such an early stage. Request is below the £50k threshold and activity should be captured as part of general maintenance. UR recommends no allowance. 	
Classification	Category 4
Recommendation	No allowance
DD Actions <ul style="list-style-type: none"> For a full allowance to be supported, MEL would need to explain: <ol style="list-style-type: none"> Why the WTP assets require this activity? What evidence has been used to determine this need? Why such activity is not captured by general maintenance? 	

**Table 17 – UPS and Battery Replacement Analysis**

Project Name	UPS & Battery Replacement
Amount Requested in GT22	£201k
Project Synopsis <ul style="list-style-type: none">MEL is requesting funds to decommission UPS systems at non-critical sites.Plan is to replace the UPS systems with a safer, smaller stored energy 24V battery system on the sites where back up power is essential.Expect costs of £249k but £48k to be spent in year 5 of GT17.	
Outputs <ul style="list-style-type: none">Non-critical sites decommissioned.24V battery system installed at critical sites.	
Issues / Summary <ul style="list-style-type: none">RIGS details the low cost of UPS and battery replacement in GT17 i.e. £12k in the first three years of GT17 for five UPS systems and two battery charging units.Unless there is good reason, the cost of decommissioning sites and new 24V batteries appears more costly than just replacing UPS systems on a regular cycle.It is unclear how many sites are in view in terms of an output.For the DD, UR recommend provision of £50k to maintain current replacement cycle. Would ask MEL to justify why their BP proposals are preferable.	
Classification	Category 2
Recommendation	Minor Allowance (£50k)
DD Actions <ul style="list-style-type: none">For a full allowance to be supported, MEL would need to explain:<ol style="list-style-type: none">Why their more expensive preferred option should be adopted?What evidence has been used to determine this?What is deficient in the current UPS systems?	

Table 18 – Pipework Coating Analysis

Project Name	Pipework Coating
Amount Requested in GT22	£698k
Project Synopsis <ul style="list-style-type: none">MEL is requesting funds to undertake pipework coating at block valves and AGIs.Need is based on industry practice of 5 year maintenance to prevent corrosion.Request of £698k is significant uplift from £143k allowance in GT17.	
Outputs <ul style="list-style-type: none">4 block valves.14 AGIs / Pressure Reduction Stations.	
Issues / Summary <ul style="list-style-type: none">MEL has requested a material uplift on the GT17 allowance, but this would be expected to some extent given addition of WTL assets.	



- Need for some activity is clear but costs at the end of the price control are somewhat uncertain. This conclusion is based on the fact that;
 - a) Certain AGIs have had a longer repainting interval in the past e.g. Ballylumford incurred costs in 2014-15 but is not due for a refresh until 2021-22 (7 years).
 - b) MEL recognise that a significant element of the work is supervision rather than purely timetabled activity.
 - c) GNI (UK) only begun a material pipework coating programme in GT17, over 10 years after network construction.
- Need for work on the WTL assets is somewhat unclear given GNI (UK) precedent.
- UR recommend allowance for PTL assets in year 1 of GT22.
- Have proposed a relevant item for the other AGIs in question where the need is somewhat uncertain.

Classification	Category 2 / 3
Recommendation	Partial Allowance (£118k)
DD Actions	
<ul style="list-style-type: none"> • For a full allowance to be supported, MEL would need to detail the certainty of delivery of the painting programme. 	

Table 19 – Meter Replacement Analysis

Project Name	Meter Replacement
Amount Requested in GT22	£1.49m
Project Synopsis <ul style="list-style-type: none"> • MEL proposes to spend almost £1.5m on meter replacement. • Need is largely based on age and other issues i.e. Larne operating outside capacity. 	
Outputs <ul style="list-style-type: none"> • 4 Ultrasonic meters – Knocknagoney, Torytown, Ballylumford and Larne. 	
Issues / Summary <ul style="list-style-type: none"> • The need seems fairly clear given age and other issues. • However there are a number of material concerns regarding the cost request: <ol style="list-style-type: none"> a) GNI (UK) are proposing a much larger meter replacement programme for c. 30% less cost. b) Cost of the Larne meter was planned for GT17 where MEL made a cost request for £152k for this project. The GT22 project request for Larne is £296k, approximately 94% more expensive. c) Response to Query 43 did not provide a satisfactory response to this forecasted uplift in costs. d) Looking at the cost breakdown, some of the elements appear questionable i.e. project management costs as well as site supervision fees etc. • UR recommends a much lower provision of 50% for DD. Despite the detailed breakdown in costs, it is not evident that the level of expenditure is well justified. 	
Classification	Category 2



Recommendation	Partial allowance (£744k)
DD Actions <ul style="list-style-type: none"> For a full allowance to be supported, MEL would need to explain: <ol style="list-style-type: none"> 1) The basis and certainty of their cost forecasts? 2) Why the level of costs are in excess of benchmarked rates? 3) Why the costs are so much more expensive than the GT17 request for the same projects? 	

Table 20 – Boiler House Analysis

Project Name	Larne Boiler House & Control Panel
Amount Requested in GT22	£395k
Project Synopsis <ul style="list-style-type: none"> MEL is requesting funds to replace the Larne boilers and pre-heat system. These assets are now 23 years old with a life expectancy of 15-20 years but have been extended using spares from TORYTOWN and KNOCKNAGONEY. 	
Outputs <ul style="list-style-type: none"> Replacement of Larne boiler house and pre-heat systems. 	
Issues / Summary <ul style="list-style-type: none"> Need for the project is clear. GT22 costs are actually slightly less than the GT17 request (£460k) for the same project. Costs of c. £400k per boiler package is on a par with the average unit cost requested by GNI (UK) at their two proposed AGIs. UR recommend full allowance. 	
Classification	Category 1
Recommendation	Full allowance (£395k)
DD Actions <ul style="list-style-type: none"> No action required. 	

Table 21 – Larne Inlet Analysis

Project Name	Larne Inlet
Amount Requested in GT22	£296k
Project Synopsis <ul style="list-style-type: none"> MEL is requesting funds to replace a safety valve on the Larne inlet bypass. Costs are based on assumption of diversion on a 'live' pipeline. 	
Outputs <ul style="list-style-type: none"> Replacement of Larne inlet valve. 	


Issues / Summary

- Need appears clear in this instance.
- Have no comparable benchmark for cost certainty.
- Looking at the costs, some of the elements appear unclear i.e. project management costs as well as site supervision.
- UR has however recommended full allowance given the project need.

Classification

Category 1

Recommendation

 Full Allowance (**£296k**)

DD Actions

- No action required.

Table 22 – Electrical Systems Analysis

Project Name	Electrical System Upgrades
Amount Requested in GT22	£494k
Project Synopsis <ul style="list-style-type: none"> • MEL proposes to replace ATEX lighting, general lighting and distribution boards at the PTL and BGTL AGIs. • Project is similar to the GNI (UK) electrical request. • Cost of the 6 AGIs is £556k but some spend is anticipated in GT17, resulting in a lower request for GT22. 	
Outputs <ul style="list-style-type: none"> • Replacement of lights and distribution boards at 6 AGIs. 	
Issues / Summary <ul style="list-style-type: none"> • Need is clear. MEL provided an electrical maintenance report for Knocknagoney supporting the work request. • GNI (UK) are also requesting similar work despite a younger network than MEL. • Main concern is cost. Despite very similar activities, the MEL sites are expected to cost £93k per AGI on average. This compares to the GNI (UK) request at £66k per site which also includes the replacement of 5 generators. • There can be variability in cost depending on size of site. On the assumption that MEL's AGI's are larger on average, UR propose an allowance of £70k per AGI. • Removing the GT17 spend would result in allowance of £277k for GT22. 	
Classification	Category 2
Recommendation	Partial allowance (£277k)
DD Actions <ul style="list-style-type: none"> • For a full allowance to be supported, MEL would need to explain: <ol style="list-style-type: none"> 1) The basis and certainty of their cost forecasts? 2) Why the level of costs are in excess of benchmarked rates? 	

**Table 23 – Actuator Analysis**

Project Name	Actuators
Amount Requested in GT22	£372k
Project Synopsis <ul style="list-style-type: none">MEL proposes to replace 37 actuators due to DSEAR compliance requirements.	
Outputs <ul style="list-style-type: none">Replacement of 37 actuators.	
Issues / Summary <ul style="list-style-type: none">Need is not totally certain, as MEL may be pursuing the option of an exemption.Response to Query 51 does indicate that the probability of exemption is low.GNI (UK) are proposing similar work.MEL unit cost at £10.1k is less than the GNI (UK) costs at £13k per actuator.UR recommend full allowance.	
Classification	Category 1
Recommendation	Full allowance
DD Actions <ul style="list-style-type: none">No action required.	

Table 24 – Throttle Flow Analysis

Project Name	Throttle Flow at Block Valve
Amount Requested in GT22	£116k
Project Synopsis <ul style="list-style-type: none">MEL proposes installing valve arrangement at the BV sites on the WTP which would allow the flow to be throttled in the event of an emergency, rather than switched off.	
Outputs <ul style="list-style-type: none">4 Throttle flow valves at Moss Road, Loughans Road, Tullybroom and Dungannon.	
Issues / Summary <ul style="list-style-type: none">No particular concern with this project.UR propose full allowance.	
Classification	Category 1
Recommendation	Full allowance
DD Actions	



- No action required.

Table 25 – Chromatograph Analysis

Project Name	Gas Chromatograph
Amount Requested in GT22	£259k
Project Synopsis <ul style="list-style-type: none">• MEL wish to replace the chromatograph at Ballylumford.• Need is largely based on Asset Health Model which has identified that the gas chromatograph is approaching end of life.	
Outputs <ul style="list-style-type: none">• 1 Gas chromatograph system at Ballylumford.	
Issues / Summary <ul style="list-style-type: none">• Need is not totally certain in GT222 as asset is not due to be replaced until year 5 i.e. 2026-27.• Business plan also refers to spares and back-up from other parts of the system.• Cost appears inflated compared to GNI (UK) request for chromatographs at £99k per unit and MEL request for the same project in GT17 at £110k.• UR propose project be deferred until GT27 or treated as a relevant item.	
Classification	Category 3
Recommendation	No allowance
DD Actions <ul style="list-style-type: none">• For a full allowance to be supported, MEL would need to explain:<ol style="list-style-type: none">1) The certainty or replacement in the GT22 period?2) The basis and certainty of their cost forecasts?3) Why the level of costs are in excess of benchmarked rates?4) Why the costs are more expensive than the GT17 request for the same project?	

Table 26 – Remote Operated Valve (ROV) Analysis

Project Name	Reactivate ROVs
Amount Requested in GT22	£61k
Project Synopsis <ul style="list-style-type: none">• MEL wish to reactivate ROVs at 5 sites.• Cost is £89k but some activity will occur in GT17.	
Outputs <ul style="list-style-type: none">• 5 ROVs at Ballylumford, South Cairn, Torytown, Portadown, Dungannon Tee.	


Issues / Summary

- Need is not yet totally certain as MEL has yet to undertake a risk assessment balancing the risk between needing fast closure and spurious closure.
- ROVs were deactivated following two such spurious events.
- Given the materiality, UR recommend full allowance as it would seem that MEL expect the remote operation to be re-instated.

Classification	Category 1
Recommendation	Full allowance
DD Actions	
<ul style="list-style-type: none"> • No action required. 	

Table 27 – Civils Analysis

Project Name	Civils Works
Amount Requested in GT22	£224k
Project Synopsis <ul style="list-style-type: none"> • MEL has requested £224k to undertake general civils work at PTL and BGTL sites. 	
Outputs <ul style="list-style-type: none"> • 3 kiosk roof repairs/replacements (Ballylumford, Torytown & Knocknagoney). • 1 entire kiosk replacement at Ballylumford. • Other ad hoc work. 	
Issues / Summary <ul style="list-style-type: none"> • Expect some general costs to be incurred but not much specificity on outputs. • Costs at £45k p.a. represent a substantial uplift from the GT17 period of £15k p.a. but might expect to see some increase in this area over time. • Given the ad hoc nature of the work, it is not clear why this activity is not part of general maintenance. • UR propose no repex allowance but some uplift (£125k) to AGI maintenance. 	
Classification	Category 3 / 4
Recommendation	No allowance
DD Actions <ul style="list-style-type: none"> • For a full allowance to be supported, MEL would need to explain: <ol style="list-style-type: none"> 1) The basis and certainty of their cost forecasts? 2) Why the costs are not part of general maintenance? 3) The specificity of the outputs expected? 	

Table 28 – Metering Consistency Analysis

Project Name	Metering Consistency
Amount Requested in GT22	£159k



Project Synopsis <ul style="list-style-type: none"> MEL wish to undertake a study of metering consistency to ensure compliance with the network code and the latest ISO: 6976 standard. 	
Outputs <ul style="list-style-type: none"> Metering consistency study. 	
Issues / Summary <ul style="list-style-type: none"> Need is not clear as the ISO standard was published in 2016. GNI (UK) has not requested such activity and the driver for the study is uncertain. UR do not propose any allowance subject to further detail being provided by MEL. 	
Classification	Category 4
Recommendation	No allowance
DD Actions <ul style="list-style-type: none"> For a full allowance to be supported, MEL would need to explain: <ol style="list-style-type: none"> The basis and certainty of their cost forecasts? Why the need for this project at this time? Should the activity not wait until new meters are installed? 	

Table 29 – Security Analysis

Project Name	System Security
Amount Requested in GT22	£56k
Project Synopsis <ul style="list-style-type: none"> MEL are requesting funds to upgrade security assets with 5-10 year asset life. 	
Outputs <ul style="list-style-type: none"> None listed. 	
Issues / Summary <ul style="list-style-type: none"> Outputs are not clear. However, GNI (UK) are requesting similar activity on younger assets so would expect some spend. Request is not material and given security priority, UR recommend full provision. 	
Classification	Category 1
Recommendation	Full allowance
DD Actions <ul style="list-style-type: none"> No action required. 	

Table 30 – Legacy Project Analysis

Project Name	Legacy Projects
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Amount Requested in GT22	£13k
Project Synopsis <ul style="list-style-type: none"> MEL are requesting funds to close out GT17 projects. 	
Outputs <ul style="list-style-type: none"> None listed. 	
Issues / Summary <ul style="list-style-type: none"> Need is not clear, neither are outputs. Costs are below threshold. UR recommend no allowance. 	
Classification	Category 4
Recommendation	No allowance
DD Actions <ul style="list-style-type: none"> No action required. 	

Table 31 – Other Items Analysis

Project Name	Other Items
Amount Requested in GT22	£1.01m
Project Synopsis <ul style="list-style-type: none"> MEL are requesting funds for a variety of smaller projects. 	
Outputs <ul style="list-style-type: none"> Instrumentation upgrades such as degraded cables. Abriox units replacement. Ballylumford generator. Unknown risks which might occur. Various other small items such as toilets, internet, cage bottles etc. 	
Issues / Summary <ul style="list-style-type: none"> Need is not always clear, neither are outputs. Many of the projects are small in nature and might be expected to be addressed via normal maintenance processes. Some of the projects have material costs without any associated outputs i.e. instrumentation upgrades (£523k) and ARR / RAR unknown actions (£321k). UR recommend no allowance given that most costs have no outputs and other projects have poor cost justification and could be considered as maintenance. 	
Classification	Category 4
Recommendation	No allowance



DD Actions

- For a full allowance to be supported, MEL would need to explain:
 - 1) The basis and certainty of their cost forecasts?
 - 2) The outputs associated with the instrumentation upgrade project?
 - 3) Why ex-ante allowances should be provided for unknown projects?
 - 4) Why small cost items are not addressed via general maintenance?

MEL Repex Conclusions

3.2 The pre-efficiency repex request and allowances are set out below:

Table 32 – MEL Repex Request vs Allowance (Pre-Efficiency)

Project Name	MEL Request	UR Allowance	DD Proposal
SCADA Refresh	£2.31m	£1.73m	Category 2 - Holding allowance
PLC Panel Replacement	£0.69m	£0.46m	Cat. 2 - £110k per PLC
Transformer Rectifier Replacement	£0.30m	£0.21m	Cat. 2 - £26k per TR allowed
Lagging Replacement	£0.03m	£0.00m	Cat.4 - No allowance
UPS and UPS Battery Replacement	£0.20m	£0.05m	Cat.2 - £50k provision for UPS
Pipework Coating	£0.70m	£0.12m	Cat.2/3 – Relevant Item
Site Meters	£1.49m	£0.74m	Cat.2 - 50% allowance
Larne Boiler House	£0.39m	£0.39m	Cat.1 - Full allowance
Larne Inlet	£0.30m	£0.30m	Cat.1 - Full allowance
Electrical System Upgrades	£0.49m	£0.28m	Cat.2 - Material disallowance
Actuator Replacement	£0.37m	£0.37m	Cat.1 - Full allowance
Throttle Flow at Block Valves	£0.12m	£0.12m	Cat.1 - Full allowance
Gas Chromatograph	£0.26m	£0.00m	Cat.3 - No allowance
ROVs	£0.06m	£0.06m	Cat.1 - Full allowance
Civil - Kiosks, Roads & Site General	£0.22m	£0.00m	Cat.3/4 – Moved to maintenance
Metering Consistency	£0.16m	£0.00m	Cat. 4 - No allowance
Security System Upgrades	£0.06m	£0.06m	Cat.1 - Full allowance
Legacy Projects	£0.01m	£0.00m	Cat. 4 - No allowance
Other items	£1.01m	£0.00m	Cat. 4 - No allowance
Total Cost	£9.17m	£4.88m	

3.3 The draft determination makes provision for around 53% of the MEL pre-efficiency repex request. We are also proposing relevant items for two projects (pipework coating and gas chromatograph) where further cost



requests may be expected throughout the GT22 period. This may increase the overall repex allowance for the period.

- 3.4 A holding allowance has also been proposed for the SCADA refresh. This will be updated based on actual costs when submitted and reviewed.
- a) Within the UR proposals we have proposed a lower allowance for pipework coating and use of the relevant item
 - b) We do accept the need for civils work but have provided this via maintenance allowances, not in repex.



4. Repex Conclusions

Summary

- 4.1 The graphs below detail the repex allowances against requests after accounting for efficiency. They also provide the context of GT17 actual and forecast spend.

Figure 1 – GNI (UK) Repex Request vs Allowance (Post Efficiency)

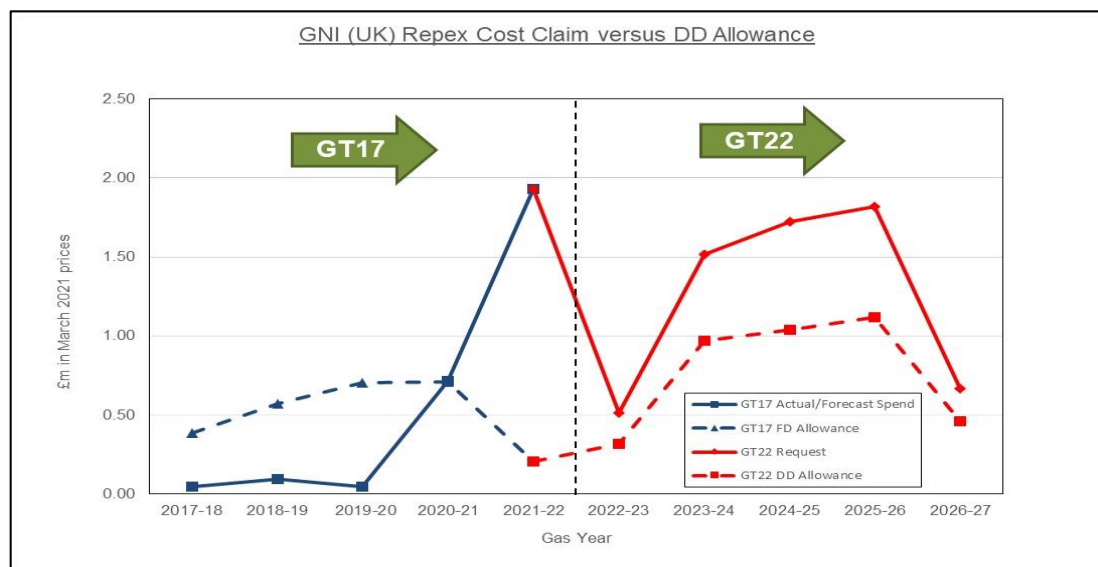
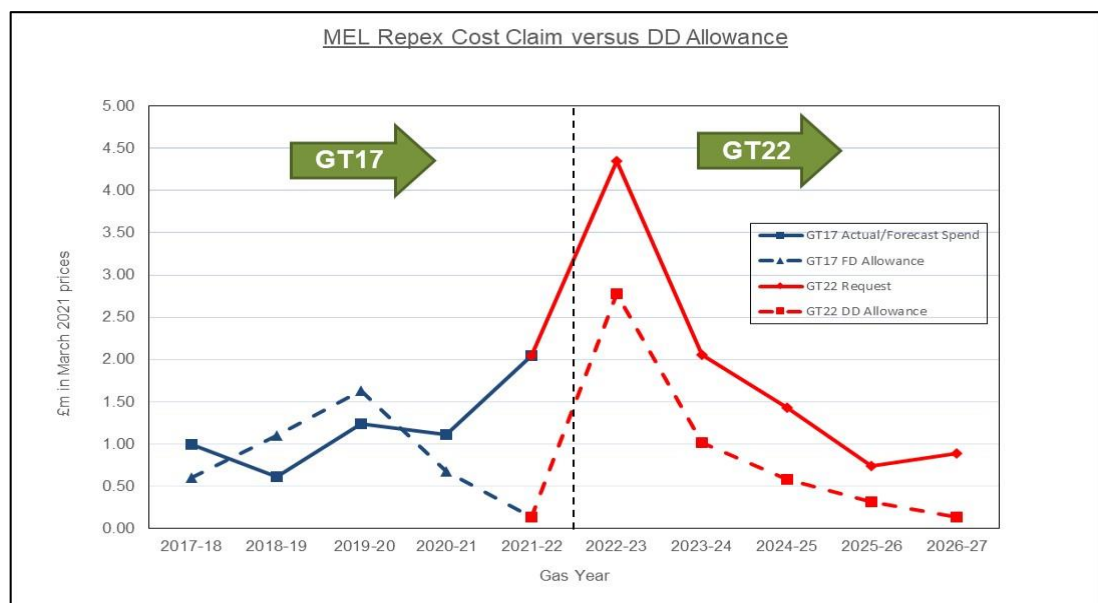


Figure 2 – MEL Repex Request vs Allowance (Post Efficiency)





- 4.2 For GNI (UK), the table below evidences the material uplifts in request from the GT17 allowances. Whilst the disallowances proposed at draft determination are material, the budget still represents a 42% increase from the GT17 allowance for the repex programme.

Table 33 – GNI (UK) Allowances (Post Efficiency)

GT17 Forecast Spend	GT17 Allowance	GT22 Request	GT22 DD Allowance	% Change in Request	GT22 % Change in Allowance
£2.83m	£2.58m	£6.23m	£3.90m	+142%	+51%

- 4.3 For MEL the table below evidences the material uplifts in request from the GT17 allowances. Again, the disallowances proposed at draft determination is material. However, UR proposals still represents a 16% increase from the GT17 allowance for the repex programme. These allowances will likely increase when relevant items are considered.

Table 34 – MEL Allowances (Post Efficiency)

GT17 Forecast Spend	GT17 Allowance	GT22 Request	GT22 DD Allowance	% Change in Request	GT22 % Change in Allowance
£6.00m	£4.14m	£9.47m	£4.81m	+129%	+16%

- 4.4 The analysis in this paper details UR's initial thoughts on the repex. For each of the projects not fully supported, we have detailed a list of points which need addressed for the allowance to be re-considered.
- 4.5 We would encourage both MEL and GNI (UK) to address these points comprehensively in the draft determination consultation phase. This will allow UR to make robust conclusions on the repex programme in the final determination.