



MEL GT17 Submission

**Recommendations on Maintenance
and Asset Replacement**

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(Confidential)

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EXECUTIVE SUMMARY

This report provides Rune Associates recommendations on MEL's forecast costs for maintenance and asset replacement, set out in its Business Plan Reporting Template, with supporting text in Chapters 5 and 7 of its GT17 submission and further clarified through the Question and Answer process.

Rune Associates has reviewed the MEL maintenance forecast costs for the GT17 period and is of the opinion that the forecasts are reasonable.

Rune Associates has also reviewed the asset replacement forecast costs for the GT17 period and has provided recommendations of the reasonableness of the work proposed and associated costs. In addition to higher value items, MEL's submission contains a large number of relatively low value items. Some of these items could be considered as maintenance type activities and Rune Associates has commented on these.

1 CONTEXT

The Utility Regulator (UR) is undertaking the GT17 price control review for the four high pressure gas networks in Northern Ireland, which covers the period from October 2017 to October 2022. The four gas conveyance licence holders subject to this price control are:

- GNI (UK) is a subsidiary of Ervia, a utility infrastructure company owned by the government of the Republic of Ireland.
- Premier Transmission Limited (PTL), Belfast Gas Transmission Limited (BGTL) and West Transmission Limited (WTL)¹ are all part of the Mutual Energy Group (MEL).

MEL submitted business plan documents and data tables setting out their proposals for the GT17 period.

Rune Associates was commissioned by UR to assist with its evaluation of the business plans and advise on the reasonableness of the forecast costs for maintenance and asset replacement. Rune Associates has reviewed the business plan submissions, raised clarification queries to which the company has responded through a formal Question and Answer process and taken part in teleconferences with MEL.

This report provides Rune Associates' recommendations on the forecast costs for maintenance and asset replacement.



2 MAINTENANCE

2.1 Overview

The commissioning of the WTL pipeline system during the GT17 period substantially increases MEL's asset base, adding 77km to the existing pipeline portfolio of 170km and a further 5 AGIs and 3 block valve sites to the existing 5 and 5 respectively.

The business plan submission for maintenance shows a significant increase in cost between the historical actual values for 2012/13, 2013/14 and 2014/15 and those forecast for the GT7 period. The annual average for the 3 historical years is £2.023m compared with a forecast annual average of £3.175m for GT17, an increase of 57%. If the intermittent expenditure related to pipeline inspections is removed, the increase is 47%.

Rune Associates has sought to clarify, particularly for pipelines and AGI maintenance, the contribution of the increasing asset base, the most recent rates negotiated with SGN for providing Maintenance and Emergency Response Contract (MERC) services and any changes in maintenance frequencies to the forecast increases.

The other key factor is the forecast intermittent costs associated with sub-sea and on land inspection, the former in particular represents a significant expenditure item and further detailed information on both activities was sought and provided.

2.2 Rune Associates Review

Rune Associates has reviewed MEL's proposals for the costs associated with maintenance, the related explanation in its business plan document and has sought further clarification through the Question and Answer process.

UR asked Rune Associates to consider whether benchmarking of maintenance costs between the companies and with other potential comparators might offer additional insights on which to assess the forecast costs. In Rune Associates' experience benchmarking of gas transmission maintenance which consists of mainly low volume, variable frequency activities on relatively small numbers of assets, makes it difficult to produce productive conclusions. In addition to the difficulty of comparing the different maintenance activities that may be applied to gas transmission assets depending on their configuration, duty, condition and stage in their lifecycle, confirming consistent cost allocation at activity level, particularly in relation to contract and own labour, is a major challenge. Regulators such as Ofgem and CER have, to date, based their assessments of gas transmission maintenance on 'bottom up' analysis rather than benchmarking.

Rune Associates has therefore reviewed the cost trends, in particular between the actual values reported for the 3 historical years and those forecast for the GT17 period and its views on the maintenance submission are as follows:

2.2.1 Asset Management and Compliance

The most significant cost line in this area is engineering compliance which MEL indicates derives from Pressure System Safety Regulation (PSSR) inspections and overhauls in both NI and Scotland. The forecast costs vary during the period appearing to track the level of PSSR inspection and TD1 MOP review activity shown in the submission document, they appear to be consistent with historical costs for comparable years in the inspection profile and as such are seen as reasonable.

The forecast costs for work planning appear broadly reasonable for the activities described as do those for asset management. MEL has indicated that the bulk of the asset management activity in 2017 to 2021 is the implementation of the ISO 55000:2014 standard, with the work being delayed to this date to ensure the cost effective addition of WTL in the process.

2.2.2 Emergency Response

MEL indicates that the MERC fixed costs forecasts are based on actual historical costs with an increase in 2016/17 for the addition of emergency response provision and specialist Centralised Emergency Materials and Equipment (CEME) scheme provision for West Transmission. They further indicate that the forecast additional costs are based on the most recent rates negotiated with SGN for providing these services, which align with those competitively tendered when last procuring the MERC service. This results in an increase of some 26% over the historical actual values. Rune Associates has no information to suggest the new rates are not reflective of the market and in its view the emergency response costs appear reasonable.

The MERC variable costs are of a lower magnitude to the fixed costs and result from call outs to deal with equipment faults, security alarms and public reported issues. MEL expects the number of call outs and hence costs, to increase with both ageing of existing assets and the addition of new assets associated with the west developments. The MERC variable cost forecasts and those associated with emergency spares and exercises appear reasonable.

2.2.3 Pipeline Inspection

The forecast cost associated with sub-sea surveys is the single largest item in the maintenance portfolio, MEL reports that it has reviewed its survey strategy for the submarine element of SNIP and concluded that the full scope survey could be moved from two yearly to four yearly cycles on the condition that the intervening period is supplemented by a survey which will gather information on spanning as well as an internal survey which will assess possible damage, i.e. a full survey and lighter survey planned reciprocating every two years. MEL indicates that the revised approach offers significant savings, whilst maintaining the integrity assessment of the pipelines to reaffirm their fitness for continued operation.

MEL has indicated that survey costs are very volatile and that the costs of the summer 2016 survey have been used as a benchmark for forward costs. Rune Associates requested a detailed breakdown of the 2016 costs and received further



information, after examining this information no changes to the forecast costs are proposed.

The in line inspection element of on-land inspections also represents a material cost activity. The forecast in line inspections include onshore SNIP and the BGTP in 2017/18 and the WTP in 2018/19. MEL provided further evidence on the actual historical costs and assumptions used to forecast the future costs. Following an examination of this information, no changes to the forecast costs are proposed.

MEL reports that the forecast costs for aerial surveys are based on actual contract costs with forecasts for WTL included from 2018/19 based on the latest rates received from SGN for survey of the WTL pipeline. This results in a doubling of the forecast costs in 2018/19. MEL confirmed that the additional length of the WTL pipeline, and the distance between the WTL and existing pipelines are the primary drivers for this increase and no changes to the forecast costs are proposed.

2.2.4 Routine Maintenance

Forecast pipeline maintenance costs increase by 80% compared with historical actual values, with the forecast increase appearing to precede the WTL developments. Rune Associates requested information on the timing and specific drivers for the increase and how they relate to the WTL developments. MEL has confirmed that this is due to the scheduling of some more material but less frequent maintenance, including at Ballylumford and Knocknagoney in 2015/16 and 2016/17. As a result of this information no changes to the forecast costs are proposed.

The costs for sub-sea maintenance are not material and appear reasonable.

AGI maintenance costs are the second largest individual item in the maintenance portfolio, and these are forecast to increase by only 9% compared with historical actual values, which is surprising given the scale of the WTL developments. MEL has confirmed that the forecast costs have been derived by using the current MERC scheduled rates for PTL and BGTL, and the current AGI inspection and maintenance activity frequencies which are time based and follow industry standard procedures. Forecast costs associated with the WTL developments have been derived in a similar way. No changes to the forecast costs are proposed.

Forecast costs for landowner liaison double compared with historic values. MEL attributes this to the age profile of the BGTP and the introduction of a significant number of landowners along the WTP corridor necessitating a dedicated Northern Ireland Land Liaison Contractor. The forecast costs appear reasonable.

The other elements of routine maintenance are AGI utility costs and security. The forecast costs for both of these follow the profile of the WTL developments and appear reasonable.

2.2.5 Unplanned Maintenance

Historical drainage costs show significant annual variation and forecast costs for the GT17 period increase by 72% compared with the average of historical actuals.

MEL has indicated that drainage claims can be expected to increase as pipelines age and with the increased asset length. As the overall pattern of the forecast costs is consistent with WTL developments, in Rune Associates' opinion they appear reasonable.

The costs for other unplanned maintenance are forecast to more than double compared with historical actual values. MEL has indicated a recent sharp rise in unplanned maintenance activities primarily resulting from equipment failure due to the age of the assets and points out the effect of the WTL developments. Rune Associates accepts that an increase can be expected for GT17 and that the proposed costs appear reasonable but would expect with the targeted replacement of assets based on condition and the addition of new assets, would not expect significant growth in unplanned maintenance in future review periods.



2.3 Summary

Rune Associates has reviewed MEL's maintenance forecast costs for the GT17 period and is of the opinion that the proposed costs are reasonable.

Table 1 below shows the proposed costs in £m for each activity mentioned above:

		2017-18	2018-19	2019-20	2020-21	2021-22	Total
A	Asset Management & Compliance						
1	Engineering Compliance	0.101	0.165	0.103	0.219	0.095	0.683
2	Work Planning	0.054	0.034	0.044	0.034	0.044	0.210
3	Asset Management	0.015	0.020	0.025	0.025	0.010	0.095
4	Total	0.170	0.219	0.172	0.278	0.149	0.988
B	Emergency Response						
5	MERC Fixed Costs	0.258	0.258	0.258	0.258	0.258	1.291
6	MERC Variable Costs	0.016	0.026	0.026	0.026	0.026	0.120
7	Emergency Spares	0.023	0.035	0.031	0.031	0.031	0.151
8	Emergency Exercise	0.015	0.040	0.035	0.015	0.040	0.146
9	Total	0.312	0.360	0.350	0.330	0.356	1.708
C	Pipeline Inspection						
10	Sub-Sea Surveys	1.328	-	0.956	-	1.328	3.612
11	On-Land Inspections	0.659	0.626	0.106	0.087	0.088	1.567
12	Aerial Inspections	0.072	0.145	0.145	0.145	0.145	0.652
13	Total	2.059	0.771	1.207	0.232	1.561	5.831
D	Routine Maintenance						
14	Pipeline Maintenance	0.215	0.212	0.211	0.223	0.212	1.073
15	Sub-Sea Maintenance	0.054	0.048	0.040	0.026	0.043	0.211
16	AGI Maintenance	0.370	0.592	0.598	0.603	0.604	2.766
17	Landowner Liaison	0.036	0.083	0.083	0.083	0.083	0.368
18	Specialist Equipment	-	-	-	-	-	-
19	Non-MERC Contracts	0.211	0.259	0.258	0.258	0.258	1.246
a	<i>Utility Costs at AGIs</i>	0.024	0.061	0.061	0.061	0.061	0.269
b	<i>Security</i>	0.188	0.198	0.197	0.197	0.197	0.978
20	Total	0.886	1.194	1.190	1.193	1.200	5.663
E	Unplanned Maintenance						
21	Drainage	0.174	0.130	0.145	0.145	0.145	0.737
22	Fault Repairs						
23	Other Unplanned Maintenance	0.160	0.213	0.188	0.204	0.183	0.947
F	Cost Totals						
24	Planned Maintenance	3.427	2.544	2.920	2.033	3.266	14.190
25	Unplanned Maintenance	0.334	0.342	0.332	0.349	0.327	1.685

Table 1

3 ASSET REPLACEMENT

3.1 Overview

MEL has identified proposals for GT17 that extend across a range of assets and at an activity level significantly higher than seen historically. In the 3 year' period 2012/13 to 2014/15, replacement expenditure averaged £0.426m per annum. Forecast costs provided by MEL for 2015/16 and 2016/17 are £1.131m and £1.207m respectively, and for the GT17 period they average £0.974m per year.

MEL uses a range of models which they claim assist them in identifying, assessing and prioritising replacement requirements. Rune Associates has reviewed some limited extracts of these tools, provided in response to queries raised. MEL also demonstrated the application of its asset risk modelling tool for one of the proposed projects. It is apparent from a review of their submission, together with the responses to queries raised, that there is limited evidence in some cases to support specific proposals.

3.2 Rune Associates Review

Rune Associates' has reviewed each of the proposals and established its recommendations.

MEL identified in their submission a large number of individual projects of widely varying value. This included a range of items where proposed annual costs are in the low thousands of pounds per annum. The approach adopted by Rune Associates to assist their review has been to separate the proposals in to three categories, specific higher value programmes, other lower value items, which are grouped together and activities which could potentially be considered as maintenance.

Rune Associates has provided comments against each of the higher value items below.

Rune Associates has also considered each of the lower value items proposed and has provided recommendations in aggregate below. Comments have been provided for a limited number of these items, and also in respect of those items that could potentially be considered as maintenance activities.

The references quoted against each item below are the relevant clauses from Chapter 7 Asset Replacement, and Table 7 of MEL's submission.

Boilerhouse replacement at Knocknagoney and Larne (7.61, and table 7 2.001/2.002)

The justification provided by MEL and the need for this work is accepted. Rune Associates notes that the out turn costs at Torytown (confirmed in response to query 22) are c£100k less than forecast in their table 7 submission, line 2.039. MEL subsequently identified some additional incomplete activity during discussions.

Rune Associates acknowledges that some cost elements will vary due to scale. However, it also considers that there are likely to be procurement benefits



available from packaging certain components, albeit that the work at the 2 sites would be undertaken serially. A 7.5% saving against the forecast has been assumed for these benefits.

Costs (£m)	2017-18	2018-19	2019-20	2020-21	2021-22
MEL Proposal	0.054	0.484	0.082	0.323	-
Rune Recommendation	0.050	0.447	0.076	0.298	-

Table 2

Ballylumford water bath heaters (7.44, 7.45, table 7 1.032, and 1.033)

MEL has outlined the current uncertainty with the driver of this investment, i.e. the decommissioning date of the AES Ballylumford 'B' power station, which was anticipated as 2020 but may be extended.

MEL has explained the steps they have taken to maintain pre-heat on the site over the last few years whilst deferring the full replacement of the water bath heaters. MEL has commissioned a study to assess the available contingency options. Whilst the study report has not yet been completed MEL has confirmed that an option may be available that enables a satisfactory solution for the medium term which avoids the need for a full replacement. The approximate costs of this option have been provisionally estimated at £250k by MEL, who has indicated in response to query 50 that "The favored option and the quantum of spend will be more apparent in the next iteration of the report. We estimate it will be at least £250k and we will be happy to share the report and present the findings and options when it is closer to final form". UR has indicated its intention to treat this project as a 'relevant item' i.e. make no allowance at this stage but accept a submission on this for money in the GT17 period when options have been fully considered and a decision has been made on the 'B' station. Rune Associates acknowledges this as a prudent course and in its recommendation has not included an allowance at this stage.

MEL also proposed replacement work on the water bath heater control system (table 7 1.032) which spanned the last 2 years of the GT12 period and 2017-18. Forecast costs of £81k are proposed in 2017-18 and these are accepted.

Costs (£m)	2017-18	2018-19	2019-20	2020-21	2021-22
MEL Proposal	0.081	0.806	-	-	-
Rune Recommendation	0.081	-	-	-	-

Table 3

C&I Panel PLC (7.31, and table 7 1.006, 1.007 and 2.003 to 2.005)

MEL has proposed this work with an age/obsolescence driver. The proposed replacement is across 5 sites at c£115k per site.

Rune Associates acknowledges that such work is required during the life of an AGI, and is of the view that there would be procurement and scale benefits from such a programme, which it is assumed would represent a saving of 7.5% against the proposal.

Costs (£m)	2017-18	2018-19	2019-20	2020-21	2021-22
MEL Proposal	0.115	0.115	0.147	0.147	0.052
Rune Recommendation	0.106	0.106	0.136	0.136	0.048

Table 4

Fire Detection Systems (7.39, and table 7 1.024 and 2.024)

MEL has proposed the installation of fire detection systems on 8 sites during the period, and has provided reasonable justification for the activity in their response to query 22. Rune Associates acknowledges the need for, and benefit of, such systems.

The request is for £27K per site, 1 per year from 2018/19 on each pipeline. Rune Associates is of the view that there would be procurement and scale benefits from such a programme, which it is assumed would represent a saving of 7.5% against the proposal.

Costs (£m)	2017-18	2018-19	2019-20	2020-21	2021-22
MEL Proposal	-	0.054	0.054	0.054	0.054
Rune Recommendation	-	0.050	0.050	0.050	0.050

Table 5

Transformer rectifier (7.49, table 7 1.040 to 1.044, and 2.040 to 2.042)

The supporting justification provided by MEL appears to be based on limited recent experience, and the proposals aren't site specific.

Rune Associates acknowledges that such work is required during the life of a pipeline. The estimated costs of £19k per site across 8 sites appear high. Rune Associates has recent knowledge of these activities in GB which indicates that c£10-13k per site (including electricity company isolation/reconnection, civils, reconnecting to ground bed as well as swap out of T/R) would be a reasonable estimate.

NB MEL has confirmed in their 'Repex Response word document dated 26.10.16.' that the £38k proposed at Larne in 2020/21, should be £19k (line 2.042).

Costs (£m)	2017-18	2018-19	2019-20	2020-21	2021-22
MEL Proposal	0.019	0.038	0.038	0.038	0.019
Rune Recommendation	0.013	0.026	0.026	0.026	0.013

Table 6

Lagging Replacement (7.67, table 7 1.059, 2.073, and 2.075)

Rune Associates considers that these proposals are appropriate to ensure that inspection regimes can be completed. The proposed costs vary by installation and reflect the size and extent of the pipework and plant being lagged. The costs appear broadly reasonable.

Costs (£m)	2017-18	2018-19	2019-20	2020-21	2021-22
MEL Proposal	0.037	0.037	0.022	0.005	0.043
Rune Recommendation	0.037	0.037	0.022	0.005	0.043

Table 7

Replacement/Overhaul of Valves/actuators (7.46, and table 7 1.034 and 2.035)

The supporting justification provided by MEL appears to be based on limited recent experience where some valves were showing signs of degradation. As such there is minimal historical experience to support a programme forecast to cost £33k each year through the period.

Rune Associates recommends that a that a limited programme at a lower level would be appropriate until a specific site based programme is developed or clarified.

Costs (£m)	2017-18	2018-19	2019-20	2020-21	2021-22
MEL Proposal	0.033	0.033	0.033	0.032	0.032
Rune Recommendation	0.013	0.013	0.013	0.013	0.013

Table 8

Valve Actuator Replacement (Internal) - Block Valves 1/2/3 and Painting (7.54, and table 7 1.051 to 1.053)

MEL has indicated that, although the actuators and valves are operated annually, the pneumatic actuators have not had their internal parts replaced since installation in 1996 and the valve operation has become laboured through pneumatic operation and inoperable through the back up manual hydraulic pump. The proposal incorporates the painting of the block valve installations.

Our recommendation is that the proposed refurbishment work is appropriate and that we would anticipate that some further scale benefit of 5% should be achievable.

Costs (£m)	2017-18	2018-19	2019-20	2020-21	2021-22
MEL Proposal	0.048	0.048	0.048	-	-
Rune Recommendation	0.046	0.046	0.046	-	-

Table 9

UPS and UPS Battery Replacement (7.63, and table 7 1.061 - 1.065, 2.044, 2.045 - 2.056)

Rune Associates considers that the proposals are appropriate to ensure that resilience in the power supplies to these installations is maintained.

We would anticipate that a scale benefit of 7.5% should be achievable across the programme proposed based on knowledge of GB based comparators.

Costs (£m)	2017-18	2018-19	2019-20	2020-21	2021-22
MEL Proposal	0.026	0.045	-	0.014	0.043
Rune Recommendation	0.024	0.042	-	0.014	0.040

Table 10

Other Asset Replacement Items

Rune Associates has reviewed the low value proposals made by MEL and separated out those that could be considered as maintenance, which are covered in the following sub section. The aggregate proposed costs for other asset



replacement items (less the potential maintenance activities) and the Rune Associates' recommendations are shown in Table 11 below.

Costs (£m)	2017-18	2018-19	2019-20	2020-21	2021-22
MEL Proposal	0.296	0.153	0.149	0.188	0.129
Rune Recommendation	0.210	0.136	0.153	0.135	0.000

Table 11

As indicated previously there are a large number of projects under the other asset replacement items heading, commentary on three of the slightly larger proposals follows:

Generator Replacement (7.38, and table 7 1.020 and 2.016)

Rune Associates considers that either refurbishment or replacement is appropriate given the age of the plant and the single skin bunding currently installed. However, the evidence for replacement is limited, Rune Associates considers the proposed costs to be high based on a review of MEL's response to query 56, and knowledge of GB based comparators.

Costs (£m)	2017-18	2018-19	2019-20	2020-21	2021-22
MEL Proposal	0.060	0.054	-	-	-
Rune Recommendation	0.035	0.035	-	-	-

Table 12

Emergency Exit Gates and Exit Paths (7.50, and table 7 1.045 and 2.058),

MEL has confirmed that these proposals relate to the construction of paths external to the site at 5 identified installations. Rune Associates considers that the proposals are appropriate to ensure the safe egress of personnel in the event of an incident on site. However, it is considered appropriate to assume that a scale benefit of 25% could be achieved from the wider procurement options available from this work type and from possibly accelerating the work to achieve the safety benefit.

Costs (£m)	2017-18	2018-19	2019-20	2020-21	2021-22
MEL Proposal	0.022	0.022	0.022	0.022	0.022
Rune Recommendation	0.017	0.017	0.017	0.017	0.017

Table 13

Gas Chromatograph Replacement (7.40, and table 7 1.25)

Rune considers that the proposed replacement at Ballylumford is appropriate albeit that the evidence for the timing is relatively weak. Rune Associates notes that the proposal includes the replacement of associated auxiliary equipment, and has recommended an allowance based on knowledge of the installation of broadly equivalent equipment in GB.

Costs (£m)	2017-18	2018-19	2019-20	2020-21	2021-22
MEL Proposal	-	-	-	0.097	-
Rune Recommendation	-	-	-	0.090	-

Table 14

Examples of further activities under the Other Asset Replacement Items heading for which allowances linked to outputs have been recommended, are AGI pipework coating, below ground pits, Larne meter replacement, drawing validation, Scotland security works and marker buoys.

Potential Maintenance Activities

Rune Associates also notes that MEL has made 21 lower value proposals where the activity could be considered as maintenance. These amount to a proposed total of £590k compared with Rune Associates recommendation of £380k, the MEL proposal and Rune Associates' recommendations are shown in Table 15 below:

Costs (£m)	2017-18	2018-19	2019-20	2020-21	2021-22
MEL Proposal	0.111	0.099	0.141	0.119	0.119
Rune Recommendation	0.079	0.084	0.090	0.064	0.065

Table 15

Rune Associates does not have a firm view as to whether these activities should be considered as refurbishment, replacement or maintenance but has not taken account of any such potential transfer in its review of maintenance.

3.3 Summary

Rune Associates has reviewed MEL's asset replacement forecast costs for the GT17 period and based on the information currently available has provided recommendations on the reasonableness of the work proposed and associated costs.

As indicated above Rune Associates has categorised MEL's proposals into specific higher value programmes, other lower value items, which are grouped together and activities which could potentially be considered as maintenance.

Tables 16 and 17 below show MEL's proposals and Rune Associates' recommendations respectively:



Asset Replacement	MEL Proposals (£m)					Total
	2017-18	2018-19	2019-20	2020-21	2021-22	
Boiler house Replacement	0.054	0.484	0.082	0.323	0.000	0.942
Ballylumford Water Bath Heaters	0.081	0.806	0.000	0.000	0.000	0.887
C&I Panel PLC Replacement	0.115	0.115	0.147	0.147	0.052	0.575
Fire Detection System - Kiosks	0.000	0.054	0.054	0.054	0.054	0.215
Transformer Replacement	0.019	0.038	0.038	0.038	0.019	0.151
Lagging Replacement	0.037	0.037	0.022	0.005	0.043	0.143
Replacement / Overhaul of Valves	0.081	0.081	0.081	0.032	0.032	0.306
UPS & UPS Battery Replacement	0.026	0.045	0.000	0.014	0.043	0.128
Other Asset Replacement Items	0.296	0.153	0.149	0.188	0.129	0.915
Potential Maintenance Activities	0.111	0.099	0.141	0.119	0.119	0.590
Total	0.819	1.910	0.712	0.920	0.491	4.851

Table 16

Asset Replacement	Rune Associates Recommendations (£m)					Total
	2017-18	2018-19	2019-20	2020-21	2021-22	
Boiler house Replacement	0.050	0.447	0.076	0.298	0.000	0.871
Ballylumford Water Bath Heaters ¹	0.081	0.000	0.000	0.000	0.000	0.081
C&I Panel PLC Replacement	0.106	0.106	0.136	0.136	0.048	0.532
Fire Detection System - Kiosks	0.000	0.050	0.050	0.050	0.050	0.199
Transformer Replacement	0.013	0.026	0.026	0.026	0.013	0.104
Lagging Replacement	0.037	0.037	0.022	0.005	0.043	0.143
Replacement / Overhaul of Valves	0.059	0.059	0.059	0.013	0.013	0.203
UPS & UPS Battery Replacement	0.024	0.042	0.000	0.014	0.040	0.120
Other Asset Replacement Items	0.210	0.136	0.153	0.135	0.000	0.634
Potential Maintenance Activities	0.079	0.084	0.090	0.064	0.065	0.380
Total	0.658	0.987	0.610	0.741	0.271	3.266

Table 17

¹ Treated as a 'relevant item', allowance to be established during GT17 when full information on the preferred option is available