UUW83

Costs (Wholesale) Water - Table Commentary

October 2023

Data Table Commentaries

This data table commentary is provided to support and explain the PR24 Costs (Wholesale) Water data tables

United Utilities

Water for the North West

Executive Summary

The *UUW* Water Resources and Water Network+ price control business plans have been developed to ensure that we can continue to provide a reliable supply of safe clean drinking water to homes and businesses across the North West, for an efficient cost. We are committed to ensuring that we continue to meet drinking water quality regulations, and our environmental obligations.

The purpose of these tables is to capture the operating and capital expenditure as set out in line definitions and the RAG guidance. Water cost data tables reflect the investment required to meet the expectations of customers and stakeholders today, as well as effectively planning for the future. The Water Network plus totex is £3,119m (including £15m of transitional investment) and the Water Resources totex for AMP8 is £782m (including £9m of transitional investment). We have challenged costs throughout the programme to develop an ambitious and efficient plan. For details on the approach taken to the build of totex, please refer to Chapter 8 of our main submission. Further detail on our plans for the Water Price Control is available in the Water Resources and Water Network+ Supplementary document *UUW57 - Water Business Plan*.

The efficient use of our assets will be central to the delivery of our core water supply services to customers. Tables CW4 through to CW6 show that we propose to broadly maintain our existing asset base, without significant numbers of new assets being added. This is in line with our commitment to efficient operation, whereby the maintenance and operation of existing assets represents better value / lower cost for customers than the development of new assets. A small number of changes to our asset base have been identified associated with operational changes.

In some areas, we propose to meet customers' needs through a programme of enhancement investment, where improvements in service have been identified as a customer priority. In table CW4 (Raw water transport, raw water storage and water treatment) we reflect the position at 5 water treatment works, where we propose interventions to enable us to address deteriorating raw water quality. These cases are also the subject of an enhancement business case described in table CW3. CW6 Water network + mains, communication pipes includes our commitments to work with customers to ensure that lead communication pipes are replaced, to reduce the health risks associated with lead. Lead pipe replacement is also the subject of enhancement business case described in table CW3.

Whilst *UUW* is committed to efficient delivery of best value options, there are some unique circumstances pertaining to the North West, which means that the base expenditure models do not reflect the costs that *UUW* is obliged to incur. Specifically for *UUW* water, our reservoir dam maintenance costs are not wholly accounted for in Ofwat's recommended model suite. We have therefore submitted a cost adjustment claim, related to reservoir dam maintenance (see *UUW44 - Cost Adjustment Claims – update to claims)*, which is set out in table CW18.

Our Water Resource Management Plan WRMP24 has challenging targets for reducing demand for water in AMP8 and beyond. Reducing leakage remains a major priority for us towards delivering our WRMP objectives. Table CW19 provides information on *UUW*'s leakage expenditure and activities using the PALM (Prevent, Aware, Locate and Mend) model, consistent with Water UK's "A Leakage Routemap to 2050". *UUW*'s leakage strategy is a transformation from find and fix to Dynamic Network Management, predicting and preventing leaks to drive continual improvement in our leakage performance. In part, this strategy is informed by improving understanding of the condition of our asset base. Table CW20 provides information on *UUW*'s water main asset condition using a grading from 1 to 5, based on historic burst history, grade boundaries and burst risk factors.

Reducing customer per capita consumption is a second major element of our demand management strategy. Metering plays a significant role in helping customers to manage their water use. As the North West is not a 'water stressed area', we do not propose compulsory metering. However we will continue to work with customers to ensure that customers can take advantage of the water efficiency and bill reduction opportunities that metering can unlock. Our metering programme is described in table CW7. A total of 920,891 meters will be

fitted in AMP8 at a cost of £281m (totex) excluding smart infrastructure costs. 54% of these (500,000) will be new meters for existing unmetered residential customers with an additional 1,140 meters for existing business customers. We will replace 202,000 basic meters (meters which require a visual read) and 218,000 AMR (Automated Meter Reading) meters with AMI capable meters for both residential and business customers. The plan is to install 184,000 meters each year from 2026–2030.

The benefits of fitting smart meters will include a reduction in demand of 35.7 Ml/d cumulative for AMP8 from PCC and leakage reduction. The *UUW* Revised WRMP predicts that fitting a new smart meter at an unmetered household property will, on average deliver a 14 per cent reduction in PCC. Replacing older non-household meters with smart enabled equivalents could deliver 2.5 per cent in demand reduction, as well as benefits from reduced leakage.

Metering is a key part of our demand side strategy from our WRMP24. Supply side options are intrinsically linked to our ambitions concerning national water transfer. The development of new water sources can both offer increased resilience for existing north west customers, and will unlock the water resources needed to enable us to engage in water exports to water stressed areas of the UK. Our water transfer / WRMP supply side plans are set out in table CW8.

These data tables outline the efficient costs and stretching outputs required to operate and enhance the Water Resources and Water Network+ business in AMP8 that will meet regulatory standards and increasing customer expectations.

Contents

1. CW1 – Totex analysis – water resources and water network + (post frontier shift and real price effects

1.1 Commentary

Principal use recharges

1.1.1 Where possible, fixed assets and associated depreciation are directly attributed to a single price control unit. Where this is not possible, the asset is assigned to the price control of principal use with recharges made to other price controls reflecting the proportion of the asset used by the other price controls.

1.1.2 Each commissioned asset in the financial register (SAP) register is assigned to a business unit code which determines the price control unit that the asset/depreciation is allocated using the 'principal use' method. Assets that are used across more than one price control are assigned a Management and General (M&G) business unit code. These codes determine the allocation percentages across the price controls. This is consistent with the approach taken in the APR. Using Financial Year 2023 APR data, c.11% of historic cost depreciation and amortisation relates to assets used by more than one price control (all M&G assets). The resultant annual recharges, as reported in APR23 (in current year prices) derived from historic cost depreciation, are presented below in Table 1.

Table 1 Resultant recharges

Price control	Water Resources £m	Water Network+ £m	Wastewater Network+ £m	Bioresources £m	Residential Retail £m	Total £m
Recharge from other segments	(0.1)	(13.8)	(2.8)	(3.1)	(3.1)	(22.9)
Recharge to other segments	0.0	3.6	18.7	0.1	0.5	22.9
Net recharge	**(0.1)**	**(10.2)**	**15.9**	**(3.0)**	**(2.6)**	**-**

1.1.3 The nature and extent of the most material principal use recharges are presented in Table 2.

Table 2 Material principal use recharges

Assets allocated over Price Control	Key assets	Drivers	Principal Use Price Control	Value of recharge (£m)
IT assets used by all employees	Microsoft, printer, internet, video conferencing	FTE allocation	Wastewater Network Plus	5.6
Mobile Asset & Resource Scheduling System	Systems	Number of assets in each price control	Wastewater Network Plus	3.1
Corporate systems	SAP system/Workforce Management systems	Number and type of licence/users	Wastewater Network Plus	3.0
Head office	Head office buildings	Floor space occupation	Wastewater Network Plus	2.3
Geographic Information System (GIS)	Systems	Analysis of data layers and usage	Wastewater Network Plus	1.1
Total				**15.2**

1.1.4 The principal use recharges are forecast to increase in 2024/25 as a project to replace desktop and laptop computers across *UUW* is commissioned in that year.

Equity issuance costs

1.1.5 Equity issuance costs of £3.66m have been included in AMP8, with £0.52m allocated to Water Resources and £3.14m allocated to Water Network Plus.

1.2 Cost changes over the period

CW1.1 Base operating expenditure

1.2.1 Base operating costs are higher in 2022/23 than the latter two years of AMP7 and into AMP8, as a result of responding to specific significant events and one-off costs in 2022/23, and efficiency through innovation and optimisation of solutions in the future years. Fluctuations within AMP8 are driven by the impact of business rates revaluation and power prices, which have been detailed within CW2.

CW1.2 Enhancement operating expenditure

1.2.2 Enhancement operating expenditure relates to wholly operating expenditure solutions, and cost varies year on year depending on the profiling of schemes. The increase within water resources in 2027-28 and 2028-29 relates to profiling of WINEP infrastructure removal projects.

CW1.5 Third party services

1.2.3 Third party services cost movements are predominantly due to client driven diversions, with increased activity expected in the remaining years of the AMP7. Diversions expenditure in AMP8 is expected to increase further again, predominantly due to the impact of HS2 Diversions.

CW1.7 Grants and contributions – operating expenditure

1.2.4 The impact of the increased diversions activity is leading to increased grants and contributions (operating expenditure) due to the majority of these costs being recoverable.

CW1.8 Base capital expenditure

1.2.5 Base capital expenditure reduces in the final two years of AMP7 as a result of forecast efficiencies and reduced activity as the period ends.

1.2.6 AMP8 activity is expected to increase back to average levels of expenditure, continuing to improve the non-infrastructure asset base through maintaining the operability of both process and network assets.

CW1.9 Enhancement capital expenditure

1.2.7 Enhancement capital expenditure varies throughout AMP8 as a result of the profiling of statutory commitments and delivery plan.

CW1.10 Developer services capital expenditure

1.2.8 Developer services capital expenditure movements in AMP7 predominantly relate to increased network reinforcement spend due to the expenditure profile of key projects. In AMP8 there will be further increased reinforcement expenditure required, due to the increased demand on the network based on current local authority development plans.

CW1.14 Grants and contributions - capital expenditure

1.2.9 Grants and contributions capital expenditure movement in AMP7 predominantly related to improved cost recovery, leading to increased income. The main contributing factor for increased income in AMP8 is the removal of income offset, as per Ofwat guidelines. The remaining difference relates to us recovering the increased reinforcement expenditure in AMP, as well as full cost recovery of site specific costs.

1.3 Net totex

CW1.15 Net totex

1.3.1 This is an auto-calculated line of the totals from the above lines

1.4 Cash expenditure

CW1.16-18

1.4.1 This line shows net totex (as per line 15) plus pension deficit recovery payments and other cash items. There are no pension deficit recovery payments or other cash items in the relevant time period, and therefore these values are as per CW1.15.

1.5 Atypical expenditure

CW1.19-24

1.5.1 We have not categorised any costs as atypical for the purpose of this table.

2. CW1a – Totex analysis – water resources and water network +

2.1 Whole Table

CW1a.1 - 24

2.1.1 This table mirrors CW1 but table SUP11 is presented prior to any adjustments for frontier shift and real price effects assumptions included in table SUP11.

2.1.2 Commentary completed for CW1 is also relevant for CW1a.

3. CW2 – Base expenditure analysis – water resources and water network +

3.1 General

3.1.1 This table is compiled on the same basis as Table 4J in line with RAG 4.11 guidelines, except where otherwise stated.

CW2.1 Power

3.1.2 Power expenditure is driven by a consumption decrease between 2022/23 and 2023/24 due to one-off incidents within 2022/23, this is offset with an increased unit cost in 2023/24. In following years, and into AMP8, movement in power costs is primarily as a result of real price effects of the unit price of power, with a relatively small decrease in consumption due to a reduction in demand. Power prices in 2023/24 and 2024/25 are reflective of our hedged position. AMP8 power prices are assumed to follow June 2023 Cornwall 'central' scenario price assumptions, including the cost of Renewable Energy Guarantee of Origin (REGO) certificates. Given that *UUW* is hedged below the Cornwall forecast for 2023/24 and 2024/25, there is an assumed unit cost increase into 2025/26, which is contrary to the Cornwall forecast year on year movement.

3.1.3 Water companies, through Water UK, jointly commissioned Cornwall Insight to provide delivered electricity cost forecasts (i.e. import prices) for the period to 2031-32 in order to support our business plan submissions to Ofwat. Cornwall Insight is a third party consultancy considered expert in its field, which provides price forecasting services to many businesses. Due to the nature of the electricity grid, the economic regulation of the network operators, and the diverse nature of each company's portfolio of assets, a separate forecast for each company which takes into account the specific nature of its portfolio was requested. Underlying macro-economic assumptions remain consistent across each of the forecasts, however company specific variations are accounted for as far as possible. Cornwall Insight provided two forecasts to each company, the first in October 2022 and the final in June 2023 forming the basis of the forecast used for electricity import costs in our business plan submission. We have used the most recent June 2023 forecast and the 'central' scenario as the basis for the price assumptions implicit in our business plan submission.

CW2.4 Renewals expensed in year (infrastructure)

3.1.4 Renewals expensed in year reduces in the remaining two years of AMP7 due to efficiency within the reactive repairs process. There is an increase in water resources IRE between AMP7 and AMP8 primarily due to an increase in number, and cost, of regulatory dam maintenance actions since release of the independent 2020 Bamforth Report.

3.1.5 We continually look to drive improvement and efficiency in our leakage performance and this is reflected in the downward trend of renewals expensed in the year (infrastructure) (IRE) expenditure within treated water distribution over the latter years of AMP7 and into AMP8. 2022/23 was a difficult year due to significant weather and operational incidents that lead to increased reactive IRE expenditure and an intensive leakage focus in 2023/24 results in sustained expenditure to ensure we remain on track to deliver our leakage performance commitments. To help us achieve cost efficiencies we are focusing on optimising our triage functionally and driving productivity efficiencies with repair volumes returning to typical levels in 2024/25.

3.1.6 This level of expenditure is continued into AMP8 in line with a transformative leakage strategy submitted in the WRMP that will largely sustain reduced levels of reactive IRE expenditure even with a growing network. Capital interventions that are key to this delivery include; Water dynamic network management increasing the number of integrated sensors on the network, smart metering and robust pressure management and air valve maintenance programmes with efficiencies also identified in the approach we take to reactive locate and mend activities such as implementation of automatic correlation for pinpointing leaks and following an effective repair prioritisation framework.

CW2.5 Renewals expensed in the year (non-infrastructure)

3.1.7 This line is nil. The purpose of this line is to capture any renewal expenditure against non-infrastructure that is not capitalised however *UUW*'s accounting policy is to treat any renewals expenditure on non-infrastructure as capex and write off any replaced / refurbished asset where applicable and as a result this line is zero.

CW2.6 Other operating expenditure

3.1.8 Other operating expenditure reduces as a result of chemical price reductions between 2022/23, and other efficiencies from 2023/24 into AMP8 through innovation and optimisation of solutions, robust cost challenge and effective use of markets.

3.1.9 Equity issuance costs of £3.66m have been included in AMP8, with £0.52m allocated to Water Resources and £3.14m allocated to Water Network Plus.

CW2.7 Local authority and Cumulo rates

3.1.10 The vast majority of the local authority business and Cumulo rates are based on a Cumulo assessment of the water operational assets established by the Valuation Office Agency (VOA). This assessment is periodically adjusted by the VOA at each 'revaluation date'. There has recently been a revaluation at April 2023 and there are two revaluation anticipated at April 2026 and April 2029. The Cumulo assessment is based on the pre-tax return the water business expects to generate during the relevant revaluation period. Hence the business rates liabilities from April 2026 onwards will almost certainly reference the PR24 DD & FD in estimating the pre-tax return the water business is expected to generate. The key inputs used by the VOA in establishing this return and the associated business rates liabilities are allowed revenues, PAYG & RCV run-off. Based on our current modelling of these figures in AMP8 we anticipate that this should increase our pre-tax return and hence increase these business rates liabilities as we progress through AMP 8.

CW2.11 Costs associated with the Traffic Management Act

3.1.11 Costs associated with the Traffic Management Act are those directly related to permit schemes incurred within our base expenditure excluding fines, in line with our APR submission methodology.

CW2.12 Costs associated with lane rental schemes

3.1.12 We have included costs associated with lane rental schemes from 2025/26 following the introduction of such schemes across the UK. Our assumptions include an introduction of lane rental costs for the 3 largest authorities in our region based on permitted job volumes included in base operating expenditure.

3.1.13 The costs for permits within the Water Price control are wholly allocated to Treated Water Distribution as most permits relate to jobs undertaken on the Water network. This does not include costs related to developer services.

CW2.14 Total base operating expenditure

3.1.14 Base operating expenditure is higher in 2022/23 than the latter two years as a result of specific incident and one-off costs in 2022/23, and efficiency built into 2023/24 and 2024/25. Fluctuations throughout AMP8 and primarily driven from power costs and local authority and cumulo rates.

CW2.16 Maintaining the long term capability of the assets – non-infra

3.1.15 This line reduces in the final two years of AMP7 as a result of forecast efficiencies and reduced activity as the period ends.

3.1.16 AMP8 activity is expected to increase back to average levels of expenditure, continuing to improve the non-infrastructure asset base through maintaining the operability of both process and network assets.

4. CW3 – Enhancement expenditure – water resources and water network +

4.1 Whole table

CW3.1 - 195

4.1.1 This table is compiled on the same basis as Table 4L in line with RAG 4.11 guidelines, except where otherwise stated.

4.1.2 Further detail to proportional allocations of costs between expenditure categories in table CW3 or between enhancement and base expenditure is found in *UUW117 Project allocations-CW3 and CWW3*.

CW3.1 to CW3.40 EA/NRW environmental programme (WINEP/NEP)

4.1.3 This block is populated with expenditure programmes driven by statutory obligations agreed with the EA and included in the National Environment Programme. Expenditure is incurred in line with the specific output delivery dates. The higher level of expenditure in the first year of AMP8 is driven by investigations, in particular our Flyde Aquifer Recharge Investigation. Costs then peak again in the third year driven by Biodiversity and conservation, in particular West Cumbria infrastructure removal schemes. For further detail refer to WINEP/NEP enhancement claims is found in *UUW60 – Water Quality Enhancement Claims.*

CW3.41 to CW3.59 Supply-demand balance

4.1.4 This block of expenditure includes investment related to water efficiency, leakage improvements and strategic regional resource solutions. Water efficiency relates to activity such as household visits and water efficiency devices, and as such has been classified as an operating expense, which is also evenly profiled throughout the AMP. Leakage improvement investment relates to enhancing existing mains to reduce leakage. Strategic regional resource includes investment to progress and deliver infrastructure to develop new water sources and engineering modifications of existing systems. Capital expenditure is profiled in line with expected delivery plan.

4.1.5 Further detail to supply-demand enhancement claims is found in *UUW61 – Water Supply Demand Enhancement Claims*

CW3.60 to CW3.90 Metering

4.1.6 Metering expenditure relates to installing new meters and smart meters for customers to help us influence customers' water consumption behaviour, and with identification of leaks, helping us to reduce leakage, and reduce per capita consumption. Expenditure is profiled in line with expected delivery plan.

4.1.7 Further detail to metering enhancement claims is found in *UUW61 – Water Supply Demand Enhancement Claims*

CW3.91 to CW3.117 Water quality improvements

4.1.8 Water quality improvements expenditure relates the completion of cleaning and re-lining of Vyrnwy Large Diameter Trunk Main project, enhancement of the removal processes of the secondary metabolites geosmin and 2-methylisoborneol (2-MIB) at specific water treatment works, and lead replacement schemes. The profile of the costs are driven by the expected delivery plan, with Vyrnwy delivering primarily in the first three years of AMP8.

4.1.9 Further detail to water quality enhancement claims is found in *UUW60 – Water Quality Enhancement Claims.*

CW3.118 to CW3.126 Water resilience and security

4.1.10 [✂

] Resilience expenditure primarily relates to the Haweswater Aqueduct Resilience Project (HARP). At PR19 *UUW* identified a need to improve the resilience of the continuous supply of potable water from the Haweswater Aqueduct (HA) to reduce the risk to water supplies for the long-term. The AMP8 enhancement case covers the next phase of activity, allowing *UUW* to deliver its obligations set out within the Project Agreement and Allowed Revenue Direction (ARD) during the construction phase, including management oversight of the Competitively Appointed Provider (CAP) and interaction with the Independent Technical Advisor (ITA).

4.1.11 Further detail to water resilience and security enhancement claims is found in *UUW67 - Cross Price Control Enhancement Case* and *UUW60 – Water Quality Enhancement Claims* - SEMD & NIS-D Enhancement.

CW3.127 - 129 Net zero

4.1.12 Net zero expenditure relates to various projects to deliver a reduction in our CO2e emissions, such as our green fleet and peatland restoration programmes. Expenditure is profiled in line with expected delivery plan.

4.1.13 Of all enhancement expenditure included within CW3, 99.98% has been allocated to a single cost driver. There are green fleet projects within the net zero cost driver block which have been split between CW3 and CWW3, this resulted in approximately 30% being allocated to CW3, in line with existing fleet costs.

4.1.14 Further detail to water resilience and security enhancement claims is found in *UUW67 - Cross Price Control Enhancement Case* and *UUW60 – Water Quality Enhancement Claims* - SEMD & NIS-D Enhancement.

4.2 Total other enhancement water expenditure

CW3.140

4.2.1 This is an auto calculated line of the totals from the above lines.

4.3 Total enhancement

CW3.141 - 143

4.3.1 This is an auto-calculated line of the totals from the above lines.

5. CW4 – Raw water transport, raw water storage and water treatment data

5.1 Whole table

Data quality confidence grade

5.1.1 We have graded this table data as A3. The exceptions to this are lines CW4.1 to CW4.5, CW4.8 to CW 4.12, CW4.51 and CW4.54 which we have assessed as B3, and CW4.6 and CW4.49 which we have assessed as C4.

5.2 Raw water transport and storage

CW4.1 Number of balancing reservoirs.

5.2.1 This line relates to the number of Impounding Reservoirs (IR) operated by United Utilities Water (*UUW*), which specifically act as balancing tanks on raw water aqueducts.

5.2.2 The flow along large aqueducts can take some time to be altered, because of the travel time along the aqueduct, and because aqueducts often have limited valve work available to control flow rates, due to them being deeply buried. Flows along aqueducts cannot therefore be altered to match diurnal customer demand. For this reason some aqueducts are equipped with balancing reservoirs, a reservoir located on the aqueduct close to the receiving WTW, where water can be stored (the reservoir filled) at a constant rate, but from which water can be drawn at a variable rate to match customer demand.

5.2.3 *UUW* operate 3 balancing reservoirs. These are:

- Godley Open IR, located adjacent to Godley WTW (which serves Tameside and East Manchester) which is itself at the end of the Longdendale Aqueduct, which transports water from the Longdendale Valley reservoir chain in the Derbyshire Peak District;
- Llanforda IR, located adjacent to Oswestry WTW. Water is taken from Lake Vyrnwy in Snowdonia, to Oswestry on the English / Welsh border, where the *UUW* operational area begins. At Oswestry water is treated, and then supplied to customers in Shropshire, Cheshire and Merseyside. Llanforda IR is located adjacent to Oswestry WTW, at the end of the Vyrnwy Raw Water Aqueduct; and
- Sutton Hall IR is located adjacent to Sutton Hall WTW on the Wirral. Water is taken from the River Dee at Chester, and passed along the Dee Aqueduct to Sutton Hall, where it is held in the reservoir.

5.2.4 Details of the balancing reservoirs are taken from APR data Table 6a, line 6.A.1.

5.2.5 There are no plans to cease operation of any of these balancing reservoirs, nor are there plans to construct any additional balancing reservoirs.

CW4.2 Total volumetric capacity of balancing reservoirs.

5.2.6 This line relates to the internal water storage capacity of balancing reservoirs operated by *UUW*. This data originates from the EA National Register of Large Raised Reservoirs, which contains details of all English reservoirs registered under the Reservoir Act 1975.

5.2.7 The volumetric capacities are:

- Godley Open IR 257 ML;
- Llanforda IR 236 ML; and
- Sutton Hall IR 56 ML.

5.2.8 Details of the balancing reservoirs are taken from APR data Table 6a, line 6.A.2.

5.2.9 There are no plans to cease operation of any of these balancing reservoirs, nor are there plans to construct any additional balancing reservoirs, nor are there plans to change the volumetric capacity of any of these balancing reservoirs.

CW4.3 and CW4.4 – Number and capacity of raw water transfer pumping stations

5.2.10 No change is expected for either the number or capacity of raw water transfer pumping stations and there are no strategic programmes currently planned to take place before the end of 2029/30 to install or upsize any raw water transfer pumping stations. Therefore, the latest 2022/23 number has been projected forward to 2029/30.

5.2.11 As part of the current plan for Water Transfer, there is a proposal to refurbish three existing boreholes and install an additional pump at an existing borehole site. However, these changes are not due until the beginning of 2022/23, so they have been excluded from these forecasts.

CW4.5 - Total length of raw water transport mains and other conveyors

5.2.12 No change is expected for the total length of raw water transport mains and other conveyors and there are no strategic programmes currently planned to take place before the end of 2029-30 to lay any new raw water transport mains and other conveyors. Therefore the latest 2022-23 number has been projected forward to 2029/30.

5.2.13 As part of the current plan for Water Transfer, there is a proposal to lay 13.7km of new raw water transfer mains to support the changes at the four borehole sites. However, these changes are not due until the beginning of 2022/23, so they have been excluded from these forecasts.

CW4.6 – Average Pumping Head (raw water transport)

5.2.14 Average pumping head varies year to year due to the impacts of weather and operational requirements. Since the beginning of AMP7, there have been varied weather patterns including prolonged dry spells, very wet periods and a severe freeze thaw event. Therefore, it is reasonable to assume that an average of the last three years for average pumping head (2020/21, 2021/22 and 2022/23) is representative of 'typical' operating conditions and can be used to project forward to 2029/30. Additional focus on data coverage and quality for Average Pumping Head may lead to a change in the reported value as estimated data is validated.

CW4.7 – Energy consumption - raw water transport

5.2.15 Increases from water WINEP, population growth and power resilience standard enhancement are offset in the forecast by reductions from other standard enhancements. The other standard enhancements are for leakage, water efficiency enhancement and metering and result in reduced demand and therefore reduced electricity consumption. Due to the way the electricity is allocated between different areas for water, this trajectory is seen across RES1.24, CW4.7 and CW4.50.

CW4.12 - Total length of raw and pre-treated (non-potable) water transport mains for supplying customers

5.2.16 No change is expected for the total length of raw and pre-treated (non-potable) water transport mains for supplying customers and there are no strategic programmes currently planned to take place before the end of 2029-30 to lay any new raw and pre-treated (non-potable) water transport mains for supplying customers. Therefore the latest 2022/23 number has been projected forward to 2029/30.

5.3 Treatment works split by complexity

CW4.13 - 26

5.3.1 Assumed that there is no change from previously submitted regulatory reporting data.

5.3.2 All known future changes to the total number of WTWs have been accounted for by adding or removing these works from anticipated future reporting years.

5.4 Treatment works split by size band

CW4.27 - 42

5.4.1 Assumed that there is no change from previously submitted regulatory reporting data.

5.4.2 All known future changes to the total number of WTWs have been accounted for by adding or removing these works from anticipated future reporting years.

5.5 Water treatment - other information

CW4.43 - 46

5.5.1 Assumed minimal change in future peak week production capacity (PWPCs) annual variation.

5.5.2 Assumed GAC enhancement projects should not be included in this measure as per direction from regulatory team.

5.5.3 There are no known dates for Green Enhancement Projects. The sum of PWPCs therefore include for all years. Further specification of these projects is ongoing and therefore may include WTWs, which ultimately will not be affected by projects e.g. for Bowland; South Pennines; West Pennines we have not yet specified exact catchments and associated works. We therefore can't guarantee which WTW will be impacted at the time of writing.

CW4.47 – Number of treatment works requiring remedial action because of raw water deterioration

5.5.4 A technical submission was made to DWI in March 2023 detailing the need to carry out essential upgrades to five water treatment works to address the treatment challenges associated with deteriorating raw water quality at these locations.

5.5.5 WTW requiring remedial action are:

- Cowpe WTW;
- Fishmoor WTW;
- Hurleston WTW;
- Lamaload WTW; and
- Ridgegate WTW.

5.5.6 This line is dependent on us gaining full support from DWI on WTW included in Raw Water Quality Deterioration PR24 Technical Submission submitted to DWI on 30 March 2023. Legal Instruments will be developed based on the information included in this submission for completion in AMP8.

CW4.48 – Zonal population receiving water treated with orthophosphate

5.5.7 No changes to the number of areas receiving water treated with orthophosphate is expected; it is assumed that there will be no additional areas receiving water treated with orthophosphate, and that no areas will have their orthophosphate dose removed.

5.5.8 The principle driver for change will be population change within the existing areas. Population is expected to grow in the North West throughout AMP8 and beyond. Regional population forecast figures from PR24 Table SUP1A have been used to calculate the annual rate of change which has then been applied to the zonal population receiving water treated with orthophosphate for 2022/23.

CW4.49 – Average Pumping Head (water treatment)

5.5.9 Average pumping head varies year to year due to the impacts of weather and operational requirements. Since the beginning of AMP7, there have been varied weather patterns including prolonged dry spells, very wet periods and a severe freeze thaw event. Therefore, it is reasonable to assume that an average of the last three years for average pumping head (2020/21, 2021/22 and 2022/23) is representative of 'typical' operating conditions and can be used to project forward to 2029/30. Additional focus on data coverage and quality for Average Pumping Head may lead to a change in the reported value as estimated data is validated.

CW4.50 – Energy consumption – water treatment

5.5.10 Increases from water WINEP, population growth and power resilience standard enhancement are offset in the forecast by reductions from other standard enhancements. The other standard enhancements are for leakage, water efficiency enhancement and metering and result in reduced demand and therefore reduced electricity consumption. Due to the way the electricity is allocated between different areas for water, this trajectory is seen across RES1.24, CW4.7 and CW4.50.

CW4.55 – Total number of water treatment works effluent discharges requiring new MCERTS flow monitoring

5.5.11 There are no strategic programmes currently planned to take place before the end of 2029/30 to install new MCERTS flow monitors at water treatment works discharge points.

6. CW4a – Transition and accelerated programme - Raw water transport, raw water storage and water treatment data

6.1 Whole Table

CW4a.1 - 55

6.1.1 This table has been left blank as there is no impact as a result of transitional and accelerated expenditure.

7. CW5 – Treated water distribution – assets and operations

7.1 Whole table

Data quality confidence grade

7.1.1 We have graded this table data as B3. The exception to this is line CW5.24 which we have assessed as C4.

7.2 Assets and operations

CW5.1 Number of booster pumping stations

7.2.1 No underlying change is expected for the number of booster pumping stations. Therefore the latest 2022/23 number is used as the foundation for the projection to 2029/30.

CW5.2 - 3 and CW5.21 - 22 – Number and capacity of service reservoirs and water towers

7.2.2 No underlying change is expected for either the number or capacity of service reservoirs and water towers. Therefore the latest 2022/23 number is used as the foundation for the projection to 2029-30.

7.2.3 [✂

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CW5.4 Water delivered (non-potable)

7.2.4 Forecast aligns with our Water Resources Management Plan 2024 (WRMP24) and reflects the additional non-potable water demands of the hydrogen industry.

CW5.8 - 15

7.2.5 It has been assumed that the pattern of abstraction and source utilisation will be broadly similar to that seen in 2022/23, other than the known changes associated with the final commissioning of the West Cumbria / Thirlmere transfer.

7.2.6 There are currently no plans to significantly change the pattern of abstraction or source utilisation (other than those associated with the West Cumbria scheme), and therefore this assumption is the best available information for use in this table.

7.2.7 Outages, and raw water quality, may influence small variations in patterns of source use on a year by year basis. This is unlikely to significantly impact these table values.

CW5.16 - 20 Number and capacity of booster pumping stations

7.2.8 No underlying change is expected for either the number or capacity of booster pumping stations. Therefore the latest 2022/23 number is used as the foundation for the projection to 2029/30.

7.2.9 [✂

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CW5.23 Energy consumption – water distribution

7.2.10 Energy consumption remains static, with a minor increase in the forecast in line with population growth, applied to electricity consumption.

CW5.24 Average Pumping Head (treated water distribution)

7.2.11 Average pumping head varies year to year due to the impacts of weather and operational requirements. Since the beginning of AMP7, there have been varied weather patterns including prolonged dry spells, very wet periods and a severe freeze thaw event. Therefore, it is reasonable to assume that an average of the last three years for average pumping head (2020/21, 2021/22 and 2022/23) is representative of 'typical' operating conditions and can be used to project forward to 2029/30. Additional focus on data coverage and quality for Average Pumping Head may lead to a change in the reported value as estimated data is validated.

7.3 Water balance - Company level

CW5.31 Measured household consumption (excluding supply pipe leakage)

7.3.1 Forecast aligns with our Water Resources Management Plan 2024 (WRMP24).

7.3.2 Measured household consumption increases due to population growth and new properties (metered when built), as well as the impact of our WRMP24 metering programme (shifting consumption from unmeasured to measured). Our WRMP24 water efficiency programme supports in offsetting some of the increase.

CW5.32 Unmeasured household consumption (excluding supply pipe leakage)

7.3.3 Forecast aligns with our Water Resources Management Plan 2024 (WRMP24).

7.3.4 Unmeasured household consumption decreases due to the impact of our WRMP24 metering programme (shifting consumption from unmeasured to measured).

CW5.33 Measured non-household consumption (excluding supply pipe leakage)

7.3.5 Forecast aligns with our Water Resources Management Plan 2024 (WRMP24).

7.3.6 Measured non-household consumption decreases due to the impact of our WRMP24 metering and water efficiency programmes, as well as forecast changes in the water consumption of certain non-household sectors.

CW5.34 Unmeasured non-household consumption (excluding supply pipe leakage)

7.3.7 Unmeasured non-household consumption decreases due to the impact of our WRMP24 metering programme (shifting consumption from unmeasured to measured).

7.3.8 In table OUT4, line OUT4.70 Total business consumption for 2022/23 to 2029/30 is auto-populated as the sum of table CW5 lines CW5.33 and CW5.34, which excludes the water use of non-household void properties (reported within line CW5.37). However, Ofwat has stated elsewhere "For the avoidance of doubt, where water is delivered to business premises that are recorded as void it should still be included in the business demand performance commitment." Therefore, we have adjusted Unmeasured non-household consumption excluding supply pipe leakage (CW5.34) to include the water use of non-household void properties and we have adjusted Water taken unbilled (CW5.37) to remove the water use of non-household void properties.

CW5.35 Total annual leakage

7.3.9 Forecast aligns with our Water Resources Management Plan 2024 (WRMP24) and reflects a baseline forecast (maintaining leakage levels) combined with the WRMP24 demand options selected to reduce leakage.

CW5.36 Distribution system operational use

7.3.10 Forecast aligns with our Water Resources Management Plan 2024 (WRMP24).

CW5.37 Water taken unbilled

7.3.11 Water taken unbilled decreases as we tackle the illegal use of water.

7.3.12 In table OUT4, line OUT4.70 Total business consumption for 2022/23 to 2029/30 is auto-populated as the sum of table CW5 lines CW5.33 and CW5.34, which excludes the water use of non-household void properties (reported within line CW5.37). However, Ofwat has stated elsewhere: "For the avoidance of doubt, where water is delivered to business premises that are recorded as void it should still be included in the business demand performance commitment."

7.3.13 Therefore, we have adjusted Unmeasured non-household consumption excluding supply pipe leakage (CW5.34) to include the water use of non-household void properties and we have adjusted Water taken unbilled (CW5.37) to remove the water use of non-household void properties.

CW5.38 - 39 Distribution input & Distribution input (pre-MLE)

7.3.14 Forecast aligns with our Water Resources Management Plan 2024 (WRMP24) and reflects a baseline forecast combined with the WRMP24 demand options selected to reduce consumption/usage and leakage.

7.4 Components of total leakage (post MLE) - Company level

CW5.58 Leakage upstream of a DMAs (district metered areas)

7.4.1 Forecast aligns with our Water Resources Management Plan 2024 (WRMP24).

7.4.2 Leakage upstream of a DMA or upstream leakage is forecast to decrease due to the implementation of WRMP24 demand options related to optimisation of the network upstream of DMAs (covering larger service reservoirs, trunk mains etc.).

CW5.59 Distribution main losses

7.4.3 Forecast aligns with our Water Resources Management Plan 2024 (WRMP24).

7.4.4 Total leakage minus non-household under supply pipe leakage (Ml/d). Reduction aligns to our forecast end of AMP7 position and the impact of expected enhancement cases in AMP8.

CW5.60 Customer supply pipe losses (measured households excluding void properties)

7.4.5 Forecast to increase due to population growth and new properties (metered when built), as well as the impact of our WRMP24 metering programme (shifting supply pipe losses/leakage from unmeasured to measured).

CW5.61 Customer supply pipe losses (unmeasured households excluding void properties)

7.4.6 Forecast to decrease due to the impact of our WRMP24 metering programme (shifting supply pipe losses/leakage from unmeasured to measured).

CW5.62 Customer supply pipe losses (measured non-households excluding void properties)

7.4.7 Forecast to be broadly stable.

CW5.63 Customer supply pipe losses (unmeasured non-households excluding void properties)

7.4.8 Forecast to be broadly stable.

CW5.64-67 Customer supply pipe losses (void properties)

7.4.9 Forecast to be broadly stable, in line with void property forecast.

8. CW6 – Water network + mains, communication pipes and other data

8.1 Whole table

Data quality confidence grade

8.1.1 We have graded this table data as B3. The exception to this are lines CW6.18 to CW6.27 which we have assessed as C4.

8.2 Treated water distribution – mains analysis

CW6.1 Total length of potable mains

8.2.1 Total length of potable mains is expected to increase in the future due to new growth and development. The rate of increase is in line with the 'Total length of new potable mains' reported in Table CW6 Line 4.

CW6.2 Total length of potable mains relined

8.2.2 We do not forecast any non-structural re-lining between the current reporting year and the end of AMP8.

CW6.3 Total length of potable mains renewed

8.2.3 Mains renewal activity for the remainder of the AMP7 period is expected to increase in line with the historic trend of mains renewal, with the addition of 37.2km of renewal activity as part of the Vyrnwy slip lining.

8.2.4 In AMP8, there is 926.2km of mains renewal activity proposed:

- 695km as part of the Leakage Enhancement;
- 128km to improve asset health;
- 38km for poor condition mains;
- 1km as part of the Coastal and River Erosion Enhancement; and
- 65.6km as part of the Vyrnwy slip-lining.

8.2.5 These figures have been evenly profiled over 5 years, apart from the Leakage Enhancement renewal, which is in line with the mains renewal required to achieve leakage targets, and the Vyrnwy renewal.

CW6.4 Total length of new potable mains

8.2.6 The forecast for the rate of new potable mains is aligned with data reported in DS6 – Network Reinforcement. This includes any new mains laid or mains upsized for Network Reinforcement (Incumbent and Self-lay), Requisitions (Incumbent and Self-lay), Maintenance, Resilience and Water Quality.

CW6.5 - 8 Total length of potable mains (size bands)

8.2.7 Linear regression has been applied to lengths reported in each age band from 2017/18 to 2022/23 to calculate the forecast to 2029/30. A reconciliation has been added to each cohort to ensure the values align with the total length of potable mains reported in Table CW6 Line 1; this reconciliation value is no more that 0.35% of the total length. There are some non-material changes to the size bands but this is in line with typical patterns seen at APR.

8.2.8 To forecast the lengths of treated water distribution main in the different size and age bands, we use a model based on historically reported data combined with a forecast of the impact of any planned programmes.

8.2.9 Total length of potable water mains (> 610mm) (line CW6.8) decreases from 2022/23 to 2023/24, but increases from 2023/24 to 2024/25 and beyond. This is purely a function of the modelling, as the trend was reducing from 2018/19 to 2020/21 and increased from 2020/21 to 2022/23 (primarily due to data

improvements and planned programmes). The 2023/24 figure will be reported within the annual performance report data ahead of the final determination.

8.3 Treated water distribution – mains age profile

CW6.9 - 17 Total length of potable mains (age bands)

8.3.1 A linear regression has been applied to lengths reported in each age band from 2017/18 to 2022/23 to calculate the forecast to 2029/30.

8.3.2 For age bands 1941-1960, 1981-2000 and 2001-2020 the result of the linear regression is an increasing trend. This is an artefact of the data and the length of main that was laid in the past cannot be increasing. Therefore a flat trend is drawn, and we project the latest 2022/23 number forward to 2029/30.

8.3.3 The trend for the length of mains laid during and after 2021 is the reconciliation between the sum of all of the previous age bands and the total mains length.

8.4 Communication and supply pipes

CW6.18 - 20 Number of communication pipes

8.4.1 The number of lead communication pipes is expected to decrease due to a programme of lead pipe replacement, as forecast in Table CW6 Lines 21 and 22.

8.4.2 No change is forecast in the number of galvanised iron communication pipes.

8.4.3 The number of other communication pipes is expected to increase due to:

- Lead communication pipes replaced using polyethylene; and
- New connections made during the year as forecast in Table SUP1B Line 11.

CW6.21 - 23 Number and Length of lead communication pipes replaced or relined

8.4.4 The number of lead communication pipes to be replaced or relined is in line with programmes of lead pipe replacement, as well as additional 'reactive' replacements (e.g. as a result of a lead sample failure). There is currently an existing Lead and/or Common Supply Pipe scheme and a performance commitment to replace 14,100 lead communication pipes during AMP7, as well as an enhancement case to replace 30,000 lead communication pipes in AMP8. The number of reactive lead communication pipe replacements was calculated using an average the historic data from 2021/22 to 2022/23.

8.4.5 Any lead communication pipe replacements that are carried out will be for water quality reasons, regardless of the initial reason for the job being raised (e.g. low pressure or leakage). This is consistent with the current reporting methodology and the DWI consideration that lead communication pipes are a hazard to the quality of the water at the consumers' tap, so lead communication pipes will not be repaired, they will be replaced due to the threat to water quality.

8.4.6 The average length of communication pipe replaced is 3.9m. The total number of lead pipes replaced (CW6.21 and CW6.22) is multiplied by this value to calculate the expected length of lead communication pipes that will be replaced between 2022/23 and 2029/30.

CW6.24 - 27 Number and Length of lead supply pipes replaced or relined

8.4.7 Assume that there will be no full lead service pipe replacements (water main to the compliance point; i.e. communication pipe, external supply pipe and internal supply pipe). Any internal or external supply pipe replacements are the responsibility of the customer, and a fully qualified plumber should be employed by the customer to carry out this work.

8.5 Other

CW6.28 Company Area

8.5.1 The clean water area boundary from the corporate Geographical Information System (GIS) has been used to calculate this line. The boundary is a well-established layer that combines the Water Supply Zone boundaries together which are automatically generated by the water supply zones database. Company Area is reported in our Annual Performance Report and no material change is expected during AMP8. The boundary can fluctuate very slightly in line with updates to the OST-5 background maps and the location of operational assets, as well as changes to the operational status of the network, open/closed valves, incidents etc. however this rarely impacts the company area boundary to a significant degree.

8.5.2 It has been assumed that 'Company Area' refers to the Water Supply Area of the company. Historic reported area has seen some variation in the past (2020/21 saw an increase to 15,137 km^2) but this was due to a change in the interpretation of the line definition (from water only area to the total area of the water and wastewater supply areas) and the merging of the associated boundaries. The line definition also states that: "No adjustment should be made to take account of areas supplied by NAVs" so it has been assumed that NAVs are to be included within the area. The area supplied by NAVs is 4.9 km^2 which is equivalent to 0.03% of the total company area.

9. CW6a – Transition and accelerated programme - Water network+ - Mains, communication pipes and other data

9.1 Whole table

CW6.1 - 23

9.1.1 This table has been left blank as there is no impact as a result of transitional and accelerated expenditure.

10. CW7 – Metering activities – Totex expenditure

10.1 Whole tables

Data quality confidence grade

10.1.1 We have graded this table data as B2.

General

10.1.2 The costs reported in CW7 exclude the impact of the frontier shift and real price effects assumptions included in table SUP11.

10.2 Metering activities – Totex expenditure

CW7.1 New optant meter installation for existing customers

10.2.1 For the remainder of AMP7 we are reporting a small reduction in expenditure, due to an expected small decline in new optant meter installation demand. In AMP8 we are expecting a further decrease in new optant meter installations (from circa 110k in AMP7 to circa 75k in AMP8) leading to reduced expenditure.

CW7.2 New selective meter installation for existing customers

10.2.2 For the remainder of AMP7 we are reporting a small reduction in expenditure, this is due to a small reduction in selective meter installations required to manage back to the circa 180k commitment in WRMP19. In AMP8 there is a significant increase in expenditure reported to align with our ambitious WRMP24 smart metering programme, meaning that our costs have increased to align with the expected circa 425k meter installs.

CW7.3 New business meter installation for existing customers

10.2.3 There is no material year on year expenditure variances as volumes remain relatively stable each year.

CW7.4 Residential meters renewed

10.2.4 For the remainder of AMP7 there is no material year on year expenditure variances as reactive residential volumes remain relatively stable. However in AMP8, as part of our WRMP24 smart metering programme, we are going to proactively replace and upgrade circa 250k existing meters to smart meters, which aligns with the increased expenditure.

CW7.5 Business meters renewed

10.2.5 For the remainder of AMP7 there is no material year on year expenditure variances as reactive business volumes remain relatively stable. However in AMP8, as part of our WRMP smart metering programme, we are going to proactively replace and upgrade circa 170k existing meters to smart meters, which aligns with the increased expenditure.

10.3 Metering activities - Explanatory variables

CW7.6 New optant meters installed for existing customers

10.3.1 Figures align to the metering strategies defined in our Water Resources Management Plans (WRMPs) – WRMP19 to the end of AMP7 and WRMP24 for AMP8 and beyond.

10.3.2 In our WRMP19, we are committed to installing circa 180k new household meters in AMP7 and, due to declining optant rates, we introduced our lowest bill guarantee and our enhanced/proactive metering programme (the meters installed as a result of this programme can be seen in line CW7.7 New selective meters installed for existing customers). As part of our WRMP24 smart metering ambitions, we plan to continue delivery using our enhanced/proactive metering programme and all meters installed from the beginning of AMP8 will be smart (AMI) – therefore, all AMI enabled meters have been mapped to the AMI meter columns. There are no changes in reporting method however due to us changing our strategy we are expecting that the mix of activity will change as we transition to smart metering.

CW7.7 New selective meters installed for existing customers

10.3.3 The area supplied by *UUW* is not classified as an area of serious water stress therefore, the option of charging by metered volume for all customers is not available.

10.3.4 Figures align to the metering strategies defined in our Water Resources Management Plans (WRMPs) – WRMP19 to the end of AMP7 and WRMP24 for AMP8 and beyond.

10.3.5 Please see above comment for CW7.6 regarding our enhanced metering programme and smart metering ambition.

CW7.8 New business meters installed for existing customers

10.3.6 Figures align to the metering strategies defined in our Water Resources Management Plans (WRMPs) – WRMP19 to the end of AMP7 and WRMP24 for AMP8 and beyond. Future forecast remains in line with historic trends.

CW7.9 Residential meters renewed

10.3.7 Figures align to the metering strategies defined in our Water Resources Management Plans (WRMPs) – WRMP19 to the end of AMP7 and WRMP24 for AMP8 and beyond. AMP8 sees an increase in the number of residential meters renewed as we transition to smart metering.

CW7.10 Business meters renewed

10.3.8 Figures align to the metering strategies defined in our Water Resources Management Plans (WRMPs) – WRMP19 to the end of AMP7 and WRMP24 for AMP8 and beyond. AMP8 sees an increase in the number of business meters renewed as we transition to smart metering.

CW7.11 Replacement of basic meters with smart meters for residential customers

10.3.9 Figures align to the metering strategies defined in our Water Resources Management Plans (WRMPs) – WRMP19 to the end of AMP7 and WRMP24 for AMP8 and beyond.

10.3.10 The proportion of basic residential meters replaced with a smart meter remains stable in AMP7. In AMP8, AMI meters will be used for all residential meter replacements.

CW7.12 Replacement of AMR meter with AMI meters for residential customers

10.3.11 Figures align to the metering strategies defined in our Water Resources Management Plans (WRMPs) – WRMP19 to the end of AMP7 and WRMP24 for AMP8 and beyond.

10.3.12 AMR to AMI meter replacements are introduced as a pilot in AMP7. In AMP8, AMI meters will be used for all residential meter replacements.

CW7.13 Replacement of basic meters with smart meters for business customers

10.3.13 Figures align to the metering strategies defined in our Water Resources Management Plans (WRMPs) – WRMP19 to the end of AMP7 and WRMP24 for AMP8 and beyond.

10.3.14 The proportion of basic business meters replaced with a smart meter remains stable in AMP7. In AMP8, AMI meters will be used for all business meter replacements.

CW7.14 Replacement of AMR meter with AMI meters for business customers

10.3.15 Figures align to the metering strategies defined in our Water Resources Management Plans (WRMPs) – WRMP19 to the end of AMP7 and WRMP24 for AMP8 and beyond.

10.3.16 AMR to AMI meter replacements are introduced as a pilot in AMP7. In AMP8, AMI meters will be used for all business meter replacements.

CW7.15 New residential meters installed for existing customers – supply-demand balance benefit

10.3.17 Figures align to our Water Resources Management Plans (WRMPs) supply-demand benefit assessment – WRMP19 to the end of AMP7 and WRMP24 for AMP8 and beyond. The supply-demand benefits presented are not cumulative.

10.3.18 Supply-demand balance benefit for new residential meters installed for existing customers remains stable in AMP7. Supply-demand balance benefit increases in AMP8 in line with our enhanced metering programme.

CW7.16 New business meters installed for existing customers – supply-demand balance benefit

10.3.19 Figures align to our Water Resources Management Plans (WRMPs) supply-demand benefit assessment – WRMP19 to the end of AMP7 and WRMP24 for AMP8 and beyond. The supply-demand benefits presented are not cumulative.

10.3.20 Supply-demand balance benefit for new business meters installed for existing customers remains stable in AMP7. Supply-demand balance benefit increases in AMP8 in line with our enhanced metering programme.

CW7.17 Replacement of basic meter with smart meters for residential customers – supply-demand balance benefit

10.3.21 Figures align to our Water Resources Management Plans (WRMPs) supply-demand benefit assessment – WRMP19 to the end of AMP7 and WRMP24 for AMP8 and beyond. The supply-demand benefits presented are not cumulative.

10.3.22 In AMP7 we are installing AMR meters which assume the same supply-demand balance benefit as a basic meter. Throughout AMP8, we see the installation of AMI meters which are recognised to provide a supply-demand balance benefit over basic or AMR meters.

CW7.18 Replacement of AMR meter with AMI meter for residential customers– supply-demand balance benefit

10.3.23 As per CW7.17 above.

CW7.19 Replacement of basic meter with smart meters for business customers – supply-demand balance benefit

10.3.24 Figures align to our Water Resources Management Plans (WRMPs) supply-demand benefit assessment – WRMP19 to the end of AMP7 and WRMP24 for AMP8 and beyond. The supply-demand benefits presented are not cumulative.

10.3.25 In AMP7 we are installing AMR meters which assume the same supply-demand balance benefit as a basic meter. Throughout AMP8, we see the installation of AMI meters which are recognised to provide a supply-demand balance benefit over basic or AMR meters.

CW7.20 Replacement of AMR meter with AMI meter for business customers– supply-demand balance benefit

10.3.26 As per CW7.19 above.

CW7.21 Residential properties - meter penetration

10.3.27 We have aligned to the Water Resources Management Plan definition of meter/metering penetration. Therefore, we are presenting the percentage of household customers charged by metered volume and not the percentage of household properties that have a meter installed. In line with the guidance, we have excluded void properties.

10.4 Per capita consumption (excluding supply pipe leakage)

CW7.22 Per capita consumption (measured)

10.4.1 In 2020/21, per capita consumption performance across the sector was impacted by COVID-19 pandemic lockdown measures, which had driven up household consumption, with more customers working at home and holidaying in the UK. There were also impacts from increased hygiene and cleaning requirements. In 2021/22, we saw reductions in per capita consumption, but it clearly continued to be impacted by changes in behaviour and continued homeworking. In 2022/23, we saw further reductions in per capita consumption, resulting in a 7.4% reduction from 2020/21.

10.4.2 The forecast for measured and unmeasured per capita consumption broadly aligns with the normal year forecast from our Revised Draft Water Resources Management Plan 2024 (WRMP24). However, as our Revised Draft WRMP24 does not include the outturn data for 2022/23, there may be slight adjustments to the near-term forecast (end of AMP7).

CW7.23 Per capita consumption (unmeasured)

10.4.3 As per CW7.22 above.

10.5 Average unit cost of typical metering activities - new meter installation

CW7.24 New meter installation - residential property - cost per property

10.5.1 Weighted average cost of new optant and new selective meter installations based on current unit rates applying an uplift for AMI meters instead of AMR.

CW7.25 New meter installation - business property - cost per property

10.5.2 Weighted average cost of compulsory business meter installations based on current rates applying an uplift for AMI meters instead of AMR.

10.6 Average unit cost of typical metering activities - meter replacement

CW7.26 Replacement of existing basic meter - residential property - cost per property - total cost

10.6.1 Weighted average cost of residential replacement installations (proactive and reactive) based on current rates, including an uplift for AMI meters instead of Basic meter.

CW7.27 Replacement of existing basic meter - residential property - enhancement element of total cost

10.6.2 Expected enhancement element of the meter replacement from Basic to AMI based on current best estimates.

CW7.28 Replacement of existing basic meter - business property - cost per property - total cost

10.6.3 Weighted average cost of business replacement installations (proactive and reactive) based on current rates including an uplift for AMI meters instead of Basic meter.

CW7.29 Replacement of existing basic meter - business property - enhancement element of total cost

10.6.4 Expected enhancement element of the meter replacement from Basic to AMI based on current best estimates.

CW7.30 Replacement of existing AMR meter - residential property - cost per property - total cost

10.6.5 Weighted average cost of residential replacement installations (proactive and reactive) based on current rates including an uplift for AMI meters instead of AMR meter.

CW7.31 Replacement of existing AMR meter - residential property - enhancement element of total cost

10.6.6 Expected enhancement element of the meter replacement from AMR to AMI based on current best estimates.

CW7.32 Replacement of existing AMR meter - business property - cost per property - total cost

10.6.7 Weighted average cost of business replacement installations (proactive and reactive) based on current rates including an uplift for AMI meters instead of AMR meter.

CW7.33 Replacement of existing AMR meter - business property - enhancement element of total cost

10.6.8 Expected enhancement element of the meter replacement from AMR to AMI based on current best estimates.

10.7 Average unit cost of typical metering activities - meter upgrade

CW7.34 to CW7.41

10.7.1 All lines are based on WRMP24 smart metering programme, we are not proposing to upgrade existing meters stock, therefore nil return.

10.8 Average benefits of typical metering activities - new meter installations

CW7.42 New meter installation - residential property - benefits per meter installation

10.8.1 Figures align to our Water Resources Management Plan 2024 (WRMP24) supply-demand benefit assessment.

10.8.2 Throughout AMP8, we plan to install AMI meters which are recognised to provide a higher average benefit than basic or AMR meters. The average benefit is calculated by using the consumption (wastage) or leakage benefit (depending on the specific cell being completed) of new meter installations over AMP8 and dividing this by the number of new meter installations over AMP8.

10.8.3 The area supplied by *UUW* is not classified as an area of serious water stress and, therefore, the option of charging by metered volume for all customers is not available. Therefore, the average consumption (wastage) benefits presented account for the fact that certain meters will not initially be used for billing/charging by metered volume.

CW7.43 New meter installation - business property - benefits per meter installation

10.8.4 Figures align to our Water Resources Management Plan 2024 (WRMP24) supply-demand benefit assessment.

10.8.5 Throughout AMP8, we plan to install AMI meters which are recognised to provide a higher average benefit than basic or AMR meters. The average benefit is calculated by using the consumption (wastage) or leakage benefit (depending on the specific cell being completed) of new meter installations over AMP8 and dividing this by the number of new meter installations over AMP8.

10.8.6 It's worth noting that the business (non-household) properties where new meter installations are planned are generally small and medium-sized enterprises (SMEs). Therefore, the percentage benefit is aligned to that for non-households, but is applied to domestic/household equivalent consumption (wastage).

10.9 Average benefits of typical metering activities - meter replacement

CW7.44 Replacement of existing basic meter - residential property - benefits per meter installation

10.9.1 Figures align to our Water Resources Management Plan 2024 (WRMP24) supply-demand benefit assessment.

10.9.2 Throughout AMP8, we plan to install AMI meters which are recognised to provide a higher average benefit than basic or AMR meters. The average benefit is calculated by using the consumption (wastage) or leakage benefit (depending on the specific cell being completed) of meter replacements over AMP8 and dividing this by the number of new meter installations over AMP8.

10.9.3 The leakage benefit for household meter replacements has been associated with the new household meter installs (line CW7.42), as the benefits we have included primarily relate to leakage detection

efficiency and are realised when we achieve high levels of metering penetration in district metered areas (DMAs).

CW7.45 Replacement of existing basic meter - business property - benefits per meter installation

10.9.4 Figures align to our Water Resources Management Plan 2024 (WRMP24) supply-demand benefit assessment.

10.9.5 Throughout AMP8, we plan to install AMI meters which are recognised to provide a higher average benefit than basic or AMR meters. The average benefit is calculated by using the consumption (wastage) or leakage benefit (depending on the specific cell being completed) of meter replacements over AMP8 and dividing this by the number of new meter installations over AMP8.

CW7.46 Replacement of existing AMR meter - residential property - benefits per meter installation

10.9.6 Figures align to our Water Resources Management Plan 2024 (WRMP24) supply-demand benefit assessment.

10.9.7 Throughout AMP8, we plan to install AMI meters which are recognised to provide a higher average benefit than basic or AMR meters. The average benefit is calculated by using the consumption (wastage) or leakage benefit (depending on the specific cell being completed) of meter replacements over AMP8 and dividing this by the number of new meter installations over AMP8.

10.9.8 The leakage benefit for household meter replacements has been associated with the new household meter installs (line CW7.42), as the benefits we have included primarily relate to leakage detection efficiency and are realised when we achieve high levels of metering penetration in district metered areas (DMAs).

CW7.47 Replacement of existing AMR meter - business property - benefits per meter installation

10.9.9 Figures align to our Water Resources Management Plan 2024 (WRMP24) supply-demand benefit assessment.

10.9.10 Throughout AMP8, we plan to install AMI meters which are recognised to provide a higher average benefit than basic or AMR meters. The average benefit is calculated by using the consumption (wastage) or leakage benefit (depending on the specific cell being completed) of meter replacements over AMP8 and dividing this by the number of new meter installations over AMP8.

10.10 Average benefits of typical metering activities - meter upgrade

CW7.48 Upgrade of existing basic meter - residential property - benefits per meter installation

10.10.1 Aligned to our Water Resources Management Plan 2024 (WRMP24), we are not planning to upgrade existing meter stock in AMP8. Our metering programme involves full replacement and the benefits of this are reflected in lines CW7.44 to CW7.47.

CW7.49 Upgrade of existing basic meter - business property - benefits per meter installation

10.10.2 Aligned to our Water Resources Management Plan 2024 (WRMP24), we are not planning to upgrade existing meter stock in AMP8. Our metering programme involves full replacement and the benefits of this are reflected in lines CW7.44 to CW7.47.

CW7.50 Upgrade of existing AMR meter - residential property - benefits per meter installation

10.10.3 Aligned to our Water Resources Management Plan 2024 (WRMP24), we are not planning to upgrade existing meter stock in AMP8. Our metering programme involves full replacement and the benefits of this are reflected in lines CW7.44 to CW7.47.

CW7.51 Upgrade of existing AMR meter - business property - benefits per meter installation

10.10.4 Aligned to our Water Resources Management Plan 2024 (WRMP24), we are not planning to upgrade existing meter stock in AMP8. Our metering programme involves full replacement and the benefits of this are reflected in lines CW7.44 to CW7.47.

11. CW7a – Transition and accelerated programme - Demand management - Metering activities

11.1 Whole table

CW7a.1-23

11.1.1 Not applicable for *UUW*.

12. CW8 – WRMP schemes (excluding leakage and metering activities)

12.1 Whole tables

CW8.1 - 51

12.1.1 Table CW8 includes all options agreed in the company revised draft WRMP24 (as of 03/08/2023, the final WRMP24 has not been agreed by Defra), excluding leakage and metering activities in accordance with PR24 guidance on this table.

12.1.2 As per the guidance, the WAFU benefits of supply-side options are for the 1:200 EDO DO metric, in alignment with WRMP Table 3b. Demand option benefits are also consistent.

12.1.3 Aligning to WRMP Table 8, the Rapid assessment costs associated with Severn Thames Transfer (STT) and North West Transfer (NWT) schemes have also been included. These are total expenditure costs in WRMP but are not associated with a specific project and therefore the WRMP scheme name is not applicable. The costs pre-2025/26 for this option align to those provided in CW3 for Strategic Regional Water Resource Solutions.

12.1.4 Costs for Strategic Regional Water Resource Solutions, categorised as Supply demand balance improvements delivering benefits starting from 2031 due to their delivery financial year (CW8.1, CW8.2, CW8.3, CW8.17), will be recuperated from recipient water companies through transfer pricing.

12.1.5 Costs were uplifted from 2020/21 (as per WRMP24) to 2022/23 prices using the financial year average Consumer Price Index (including housing costs). The inflation indices used are detailed in table PD1.

12.1.6 The following variations were made to WRMP24 scheme costs:

- Capital overheads updated to reflect cost efficiencies identified in the price review process; and
- WR685a WER-CRZ5_Rainwater harvesting and water reuse (new builds) option remains in the water resources delivery plan as per WRMP24, however costs were removed from the enhancement case as this is a R&D project. Costs will be pursued from dedicated R&D funding routes.

12.1.7 There were no schemes in CW8 making part of the Green Recovery programme.

12.1.8 Operational costs are based average modelled utilisation. The after 29/30 includes total capital costs and average operational costs up to 2049/50 (the end of the statutory planning period).

13. CW9 – Enhancement expenditure (cumulative) – water resources and water network +

13.1 Whole table

CW9.1 - 137

13.1.1 This table reflects cumulative expenditure on schemes completed in the year. The profiling of costs throughout AMP8 is reflective of work performed and length of time for schemes to complete, generally with an increasing completion year on year. More detail on schemes includes is given with commentary for table CW3.

13.2 Total enhancement

CW9.138 - 141

13.2.1 These are auto-calculated lines of the sub-totals from the above lines.

14. CW10 – Wholesale water local authority rates

14.1 Whole table

Composition of water liabilities

14.1.1 The business rates of *UUW*'s operational water assets are assessed on a cumulo basis which results in *UUW* being allocated a Rateable Values (RV) for all of their operational water assets combined. The RV in question is then allocated between England & Wales by the Valuation Office Agency (VOA) with the final liabilities collected by each countries respective governments.

14.1.2 *UUW* also incurs rates costs on offices and depots of which a large proportion is allocated to wholesale. A proportion of this is then capitalised where these costs contribute to various capital schemes. The remaining net liability is then allocated to water using the relevant FTE drivers.

14.1.3 [✂

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Calculation of water liabilities

14.1.4 The cumulo business rates liabilities for operational water assets are fundamentally based on the return the business expects to generate from the water business throughout the revaluation period. This is ultimately based on the outcome of the Final Determination with items such as allowed revenues, PAYG and RCV run-off predominantly determining the final cumulo business rates liabilities. The 2023 cumulo valuation is based on the PR19 FD with the 2026 and 2029 cumulo valuations to be based on the PR24 DD and FD respectively. The RV is then multiplied by a Business Rates Multiplier (BRM) to calculate the rates liability for the year. No transitional relief is applicable on these liabilities as the overall liabilities have reduced since the last revaluation period and as set out in the assumptions below transitional relief is expected to be removed by the next revaluation date.

14.1.5 For all offices and depots the rates liabilities are calculated as above. However instead of RV's being based on the return expected from the water business they are based on the rental value/hypothetical rental value of the property in question. In addition transitional relief will be available (2024 - 26 only) were hereditaments have seen large increase since the last revaluation.

14.1.6 With regards to the contribution made to Severn Trent for the Lake Vyrnwy Aqueduct. This recharge is a proportion of Severn Trent's cumulo liabilities. Hence *UUW*'s liabilities are based on this.

Rateable Values

14.1.7 The Rateable values included in line one are a combination of actual and company forecast valuations.

14.1.8 All Rateable values in 2022/23 to 2025/26 are actual valuations. However all rateable values from 206/27 onwards will be based on company forecasts as these liabilities are currently unknown as they will be adjusted by the VOA following the 2026 and 2029 revaluations.

14.1.9 The figures quoted in CW10.1 are absolute values and not 2022/23 CPIH deflated values per query response #312.

Transitional Relief

14.1.10 Transitional relief is only available on a selection of water assessments as the cumulo liabilities and a number of offices and depots liabilities have reduced since the last revaluation date. Where assessment have seen large increases relief is available and has been estimated on a site by site basis for each year in the current revaluation period (2024-26). This has been calculated in accordance with the transitional caps provided by government and has been reviewed by *UUW*'s external rates adviser to confirm accuracy.

14.1.11 The assumption has been made that Transitional relief will no longer be available from the April 2026 revaluation (2026-30). This is on the basis that moving to triennial revaluations will reduce the need for transitional relief as set out by government's fundamental review of business rates.

Impact of Revaluation Dates

14.1.12 As set out in the assumptions below further revaluations are expected at April 2026 and April 2029 in addition to the revaluation that has recently taken place at April 2023.

14.1.13 At the 2023 revaluation there was a significant reduction in the cumulo RV and associated liabilities as this valuation was based on the outcome of PR19 where there was a reduction in WACC in AMP7 compared to AMP 6. Hence there was a significant reduction in the expected return from the water business and an associated reduction in the cumulo business rates liabilities.

14.1.14 Conversely at the 2026 and 2029 revaluations significant increases in cumulo business rates liabilities are expected. These increases have been modelled using the current methodology implemented by the VOA to arrive at cumulo valuations. The key inputs to arrive at these valuations are the expected allowed revenues, PAYG and RCV run-off in the PR24 FD based on our current forecasts.

Adjustments to BRMs rate being different to CPIH

14.1.15 It is assumed that in line with previous increases the Business Rates Multipliers (BRMs) will rise by the September CPI figure prior to the year of assessment. However at the revaluation dates we expect a downwards adjustment to the BRMs. This takes into account the overall growth in RV's across UKPLC and is based on historical trends in government's setting of BRMs over the last 20 years.

14.1.16 When analysing the total movement in annual liabilities between years the element that relates to the movement in the BRMs rates being different to CPIH has been quantified.

Assumptions

- The Business Rates Multipliers (BRMs) will be increased by September CPI each year. With a downwards adjustment to the BRM at the revaluation date to take account of growth in overall RV's across UKPLC. This is based on historical trends seen in governments setting of the BRMs over the last c20 years;
- Business Rates revaluations will take place triennially in line with government's current stated intentions, with the next revaluations at April 2026 and April 2029;
- Transitional Relief will no longer be available from April 2026. This is on the basis that moving to triennial revaluations will reduce the need for transitional relief;
- The Antecedent Valuation Date (AVD) will continue to be two years before the revaluation date; and
- The cumulo valuation will be on the same basis as the 2023 revaluation, where the divisible balance is allocated on an asset split approach and a 15% adjustment is made for the tenant risk premium.

15. CW11 – Third party costs by business unit for the wholesale water service

15.1 Third party costs ~ price control (operating expenditure)

CW11.7 Third party water price control opex excluding developer services

15.1.1 This line remains relatively static into AMP8, as we expect any fluctuations to non-potable services to have minimal cost impact, and rechargeable works are inherently unpredictable and as such we have no basis to vary forecast costs.

CW11.8 - 10 Diversions

15.1.2 Diversions cost movements are predominantly due to client driven activity, with increased activity expected in the remaining years of the AMP7. In AMP8 we have used historic averages to understand S185 and NRWSA diversions activity, and assumed a flat profile over the five year period. However there is a large increase in other non-S185 diversions, predominantly due to the impact of HS2 activity within our region.

15.2 Third party costs ~ non price control (operating expenditure)

CW11.15 Third party water service costs ~ non price control (operating expenditure)

15.2.1 This expenditure remains relatively static into AMP8 as we expect any fluctuations to bulk supply services to have minimal cost impact

15.3 Third party costs

CW11.26 and CW11.30 Third party costs (capital expenditure)

15.3.1 There is not expected to be any third party capital, price control or non-price control, capital expenditure.

16. CW12 – Transitional expenditure – water resources and water network +

16.1 EA/NRW environmental programme (WINEP/NEP)

CW12.1 - 40

16.1.1 Transitional expenditure within EA/NRW environmental programme (WINEP/NEP) relates to investigations required ahead of the North West Transfer Strategic Resource Options selection, to align with RAPID gateways timeline. The objective the investigations is assessing the impact of abstractions on groundwater and/or surface water courses from a flow, ecological and sustainability perspective, and providing solutions so that UU can sustainably abstract without causing deterioration.

16.1.2 The transitional investment for a select number of WINEP projects is to ensure that we meet early regulatory dates in AMP8, and so that the specific projects in question can help to inform WRMP 29 and the delivery of Water Transfer solutions.

16.1.3 All AMP7 (PR19) WINEP commitments have been delivered to EA regulatory deadline. Outstanding commitments are all on track for delivery.

16.2 Supply-demand balance

CW12.41 - 56

16.2.1 There is no transitional expenditure proposed on these lines.

16.3 Metering

CW12.57 - 87

16.3.1 Transitional expenditure within metering relates to investment associated with the AMP8 smart metering programme. This project will provide the foundation for us to deliver against per capita consumption leakage reduction and targets for reductions in business consumption in line with WRMP24. The investment is required to mobilise the programme team; conduct procurement of communications network access, smart meter assets and installation partners; initiate technology development; design the future state smart customer business operating model; and commence pilot deployment of smart meters late in 2024/25.

16.3.2 Our PR19 enhancement programme for both transitional expenditure enhancement drivers is currently on track to deliver in AMP7.

16.4 Water quality improvements

CW12.88 - 114

16.4.1 There is no transitional expenditure proposed on these lines.

16.5 Water resilience and security

CW12.115 - 123

16.5.1 There is no transitional expenditure proposed on these lines.

16.6 Net zero

CW12.124 - 126

16.6.1 There is no transitional expenditure proposed on these lines.

16.7 Other enhancement (Freeform lines - by exception)

CW12.127 - 137

16.7.1 There is no transitional expenditure proposed on these lines.

16.8 Total transitional expenditure

CW12.138 - 140

16.8.1 These are auto calculated lines of the sub-totals from the above lines.

17. CW13 – Best value analysis (enhancement expenditure) – water resources and water network +

17.1 Whole table

17.2 CW13.1 – 208 Methodology

17.2.1 The present value calculations in CW13 uses the following assumptions:

- An appraisal period of 30 years has been used;
- The capex and opex used for the present value calculations are based on the post frontier shift efficiency and real price effects using the data from CW13;
- The present value calculations have been calculated for projects starting in AMP8 including any carryover into AMP9 until project completion;
- Opex is assumed to continue at the same value as Financial Year 2035 unless not expected to continue;
- Capex is allocated across asset life categories (Very Short, Short, Medium, Medium/Long, Long, Infrastructure and Land);
- The present value of capex is calculated by annualising the cost over the lives of the asset including an allowed return on capital using the WACC;
- Third party contributions and DPC capex have been excluded from the present value calculation as required by paragraphs 19.13 and 19.14 of the PR24 business plan table guidance section 3;
- The average asset lives used are consistent with those used in the financial model (see table below) unless more specific lives are appropriate;
- The WACC rate of 3.23% was obtained from the PR24 Final Methodology Appendix 11[1]; and
- Present values are calculated using the Social Time Preference Rate of 3.5% from the HM Treasury Green Book[2].

17.3 EA/NRW environmental programme (WINEP/NEP)

CW13.1 - 56

17.3.1 Lines completed in accordance with CW13.1 – 208 Methodology

17.4 Supply-demand balance

CW13.57 - 80

17.4.1 Lines completed in accordance with CW13.1 – 208 Methodology.

17.5 Metering

CW13.81 - 124

17.5.1 Lines completed in accordance with CW13.1 – 208 Methodology.

17.6 Water quality improvements

CW13.125 - 164

17.6.1 Lines completed in accordance with CW13.1 – 208 Methodology.

17.7 Water resilience and security

CW13.165 - 180

17.7.1 Lines completed in accordance with CW13.1 – 208 Methodology.

17.8 Net zero

CW13.181 – 184

17.8.1 Lines completed in accordance with CW13.1 – 208 Methodology.

17.9 Additional - freeform enhancement lines

CW13.185 - 208

17.9.1 Lines completed in accordance with CW13.1 – 208 Methodology.

17.10 Total enhancement

CW13.209 - 212

17.10.1 These are auto-calculated lines of the sub-totals from the above lines.

18. CW14 – Best value analysis of alternative option; enhancement expenditure water resources and water network +

18.1 Whole table

CW14.1 - 212

18.1.1 The present value calculations in CWW14 use the following assumptions:

- An appraisal period of 30 years has been used;
- The capex and opex used for the present value calculations are based on the post frontier shift efficiency and real price effects using the data from CWW14;
- The present value calculations have been calculated for projects starting in AMP8 including any carryover into AMP9 until project completion;
- Opex is assumed to continue at the same value as Financial Year 2035 unless not expected to continue;
- Capex is allocated across asset life categories (Very Short, Short, Medium, Medium/Long, Long, Infrastructure and Land) as detailed in Table 1 below;
- The present value of capex is calculated by annualising the cost over the lives of the asset including an allowed return on capital using the WACC;
- Third party contributions and DPC capex have been excluded from the present value calculation as required by paragraphs 21.13 and 21.14 of the PR24 business plan table guidance section 3;
- The average asset lives used are consistent with those used in the financial model (see Table 1 below) unless more specific lives are appropriate;
- The WACC rate of 3.23% was obtained from the PR24 Final Methodology Appendix 11[1]; and
- Present values are calculated using the Social Time Preference Rate of 3.5% from the HM Treasury Green Book [2].

Table 1: Average asset life

Category	Very short	Short	Medium	Medium Long	Long	Infrastructure	Land
Average asset life (years)	5	14	24	40	63	145	Infinite

[1] https://www.ofwat.gov.uk/wp-content/uploads/2022/12/PR24_final_methodology_Appendix_11_Allowed_return.pdf

[2] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1063330/Green_Book_2022.pdf

19. CW15 – Best value analysis; benefits – water resources and water network +

19.1 Whole table

CW15.1 - 502

19.1.1 The enhancement benefits forecast in CW15 represent the best value plan, which is *UUW*'s preferred plan. This plan has been built using the data used to populate this table to inform decisions being made on schemes and enhancement cases.

19.1.2 Benefits assessments that we have carried out are more likely to understate the benefits of programmes as we have taken a conservative approach to benefits and value assessment, including removing the risk of double counting by omitting benefits where double counting risk exists, using uncertainty weightings and using mid-range values where available.

19.1.3 To ensure alignment with OUT3, we have included absolute figures, as cumulative values are calculated in OUT3. The Present Value benefits assumes cumulative benefits.

19.1.4 The benefit types included in this table are summarised below:

- Performance Commitment benefit, aligning with OUT3, benefit values derived from Ofwat's incentive rates;
- WEO benefit, benefit values derived from the EA's Wider Environmental Outcomes guidance; and
- Other benefit, risk based measures from *UUW*s value framework, largely monetised avoided risk values.

19.1.5 All NPV calculations use a 30-year time horizon and are discounted using the social time preference rate as set out in the Governments 'The Green Book'.

19.1.6 All carbon benefit/dis-benefit in this table has been calculated using the PC method, with the exception of the WEO for Carbon Sequestration which is calculated in line with the EA's WEO methodology.

19.1.7 We will profile 'Other' and 'WEO' benefits on the assumption that 100% of the benefit would be achieved one year post the PIU date. PC benefits are profiled to align with Performance Commitment targets and expected performance.

19.1.8 Benefits assessments were not completed for investigation and monitoring schemes. Benefits have been assessed against the value framework detailed in Table 2 below.

Table 2: Benefit types

Measure category	Measure	Units	Dp	Confidence level
Performance Commitment	Leakage	% reduction in Ml/d for a three year average from 2019-20	1	High
Performance Commitment	Per capita consumption	% reduction in litres/person/day for a three year average from 2019-20	1	High
Performance Commitment	Operational greenhouse gas emissions (water)	Tonnes CO_2e	2	High
Performance Commitment	Business demand	% reduction in Ml/d for a three year average from 2019-20	1	High
Performance Commitment	Compliance risk index (CRI)	Numerical score	2	High
Performance Commitment	Water supply interruptions	Hours:minutes:seconds (HH:MM:SS) per property per year	0	High
Performance Commitment	Customer contacts about water quality	Customer contacts per 1,000 population	2	High
Performance Commitment	Biodiversity	Biodiversity units per 100km2 for which the company provides monopoly services	2	High
Performance Commitment	Serious pollution incidents	Number	0	High

Measure category	Measure	Units	Dp	Confidence level
Performance Commitment	Mains repairs	Number per 1,000 kilometres of mains	1	High
Performance Commitment	Unplanned outage	%	2	High
Other - WEO	Natural Environment – Air Quality	£m	3	High
Other - WEO	Natural Environment - Food - shellfish	£m	3	High
Other - WEO	Natural Environment - Water quality	£m	3	High
Other - WEO	Catchment Resilience - Hazard regulation - flood	£m	3	High
Other - WEO	Catchment Resilience - Water purification by habitats	£m	3	High
Other - WEO	Catchment Resilience - Water supply	£m	3	High
Other - WEO	Amenity, access, and engagement - Recreation	£m	3	High
Other - WEO	Amenity, access, and engagement - Angling	£m	3	High
Other - WEO	Amenity, access, and engagement - Volunteering	£m	3	High
Other - WEO	Amenity, access, and engagement - Education	£m	3	High
Other - Other	Trust & Reputation – Customers	£m	3	Low
Other - Other	Trust & Reputation – Regulators	£m	3	Low
Other - Other	Trust & Reputation – Shareholders	£m	3	Low
Other - Other	Finance – Avoided CAPEX	£m	3	High
Other - Other	Finance – Avoided OPEX	£m	3	High
Other - Other	Finance – Avoided Fines	£m	3	High
Other - Other	Service – Avoided Customer Contacts for Availability	£m	3	High
Other - Other	Service – Avoided Customer Contacts for Nuisance	£m	3	High
Other - Other	Service – Avoided Water Availability – Low Pressure	£m	3	High
Other - Other	Service – Avoided Extra Treatment Costs (Bioresources)	£m	3	Low
Other - Other	Service – Avoided Sludge Disposal (Bioresources)	£m	3	Low
Other - Other	Health & Safety – Avoided Accidents	£m	3	Medium
Other - Other	Health & Safety – Avoided Societal Risk	£m	3	Medium

19.1.9 Value measure confidence assessment are defined below in Table 3:

Table 3: Value measure confidence assessment

Confidence level	Definition
High	Valuation is sourced from a reputable source such as Central Government or Regulators.
Medium	Valuation is sourced from a reputable source such as Central Government or Regulators. However, some information may be inferred where there are gaps in the literature.
Low	Valuations classified as low have been constructed based on defined assumptions and interpretations.

19.1.10 *UUW45 - Our approach to deliver best value Totex* details our approach which supports the benefits presented in this table. The Data table commentary for Costs – Water includes:

- How consistency of benefit assessment and valuation has been driven through the assured PR24 value tool;
- How the benefits assessed create or erode value across the six capitals (benefits impact); and
- How decisions have been supported with information benefit and value assessment.

19.1.11 Additional details related to the value assessment are provided within the relevant enhancement case supplementary documents, alongside specific commentary on metering and lead enhancement cases below.

For our metering enhancement case:

- The area supplied by *UUW* is not classified as an area of serious water stress and the option of charging by metered volume for all customers is not available;
- Therefore, a proportion of new meters installed in AMP8 via our proposed metering enhancement case will not realise the full benefit to Per Capita Consumption (PCC) until after 2035;
- In line with WRMP24 projections, the full PCC benefit from new household meter installations will be achieved over the long-term;
- To ensure that the whole-life cost-benefit assessment for table CW15 includes the full estimated benefit to PCC we have adjusted AMP9 benefit values to include benefits that are expected to be realised after 2035 from meters installed in AMP8; and
- This results in a variance between values reported for the AMP9 period between CW15 and corresponding values in table OUT3.

For our lead enhancement case:

- For the proposed lead replacement programme, in completing CW15 we have included benefits associated with leakage, trust and the 'other' service measures using our value framework;
- The Drinking Water Inspectorate (DWI), supported by WRc, have completed a full cost-benefit assessment for lead pipe replacement and found that "lead pipe replacement to the compliance point is likely to be cost-beneficial overall, with the greatest benefit to cost ratio seen in high-risk zones"; and
- This assessment identified substantial public health and wider benefits from lead pipe replacement to the compliance point.

19.2 CW15 Greenhouse gas reduction (net zero) benefits

General

19.2.1 CW15 includes the greenhouse gas (GHG) emission benefits from the enhancements which is detailed in Table 4.

Table 4: CW16 enhancement benefits (GHG emissions)

Enhancement	Benefit type	Details	Benefit value
WINEP Water enhancement (tCO2e)	Operational greenhouse gas emissions (water)	Generation of GHG emissions as a result of the WINEP water enhancement programme. Emissions presented are the net annual operational emissions, calculated in line with the common performance commitment methodology which is set out in Ofwat's PR24 operational greenhouse gas emissions performance commitment definition document for water.	£130/tCO2e
Standard enhancements (tCO2e)	Operational greenhouse gas emissions (water)	Generation of GHG emissions as a result of standard enhancement water programmes, such as power resilience. Emissions presented are the net annual operational emissions, calculated in line with the common performance commitment methodology which is set out in Ofwat's PR24 operational greenhouse gas emissions performance commitment definition document for water.	£130/tCO2e
Standard enhancements (tCO2e)	Operational greenhouse gas emissions (water)	Savings of GHG emissions as a result of standard enhancement programmes, such as leakage and water efficiency. Emissions presented are the net annual operational emissions, calculated in line with the common performance commitment methodology which is set out in Ofwat's PR24 operational greenhouse gas emissions performance commitment definition document for water.	£130/tCO2e
Net zero enhancements PCL reductions (tCO2e)	Operational greenhouse gas emissions (water)	Savings of GHG emissions from our proposed net zero enhancement programme. This includes 6 projects that are expected to reduce our PCL for operational GHG emissions. Emissions presented are the net annual operational emissions, calculated in line with the common performance commitment methodology which is set out in Ofwat's PR24 operational greenhouse gas emissions performance commitment definition document for water.	£130/tCO2e
Net zero enhancements non PCL reductions (tCO2e)	Other	Savings of GHG emissions from our proposed net zero enhancement programme. This includes 5 projects that will not directly impact our PCL for operational GHG emissions. Emissions presented are the net annual operational emissions, calculated in line with the methodologies detailed in *UUW67 Cross Price Control Enhancement Case - Carbon Net Zero Enhancement*	£130/tCO2e

19.2.2 As per data table guidance for CW15, the impact of our proposed net zero enhancement projects on GHG emissions takes into account both the generation and savings of operational GHG emissions which result from the enhancement project.

19.2.3 The net operational GHG emission benefits in CW15 have been calculated in line with the common performance commitment methodology which is set out in Ofwat's PR24 operational greenhouse gas emissions performance commitment definition documents, unless stated otherwise. For additional information see data table outcome commentary for GHG operational emissions common PC water.

19.3 Net zero enhancement programme

CW15.435 - 445

19.3.1 Ofwat has requested that companies put forward interventions with a primary driver of GHG emissions reduction as net zero enhancements. Appendix 9, page 92 in the Final Methodology states "Ofwat has created a net zero enhancement challenge where companies that are stretching themselves and have efficient proposals will be priorities for additional enhancement funding to tackle operational GHG emissions."

19.3.2 This programme includes a suite of projects which all have a primary driver of emissions reduction, some of which we have put forward into Ofwat's net zero challenge. Through our assessments and optimisation we have included only the best possible projects in this programme and ensured multiple benefits and low regrets in securing the required levels of emissions reductions in AMP8 and essential enablers for our long term adaptive plan.

19.3.3 The 11 projects selected (see Table 5 below) as part of our net zero enhancement programme have been split into net zero enhancement cases and those for inclusion in Ofwat's net zero challenge. The net zero enhancement projects allocated to the water price control can be found in the PR24 data table CW21 and the anticipated long term GHG emissions reductions expected from these projects have been captured in this data table CW15. The eight cases classified as 'selected' in the table below have been submitted as net zero enhancement projects, outside of the challenge. A further three cases have been identified as 'feasible' for inclusion in the net zero enhancement challenge.

19.3.4 6 of our 11 projects are reportable against the common GHG PC methodology and as such can reduce the associated performance commitment level (PCL) by a total of 70,916 tCO_2e across all price controls. This goes beyond our base and standard enhancement programmes. These have been reported against the operational GHG PC benefit type in the CW15 data table. The remaining 5 projects that will not directly impact the PCL have been reported as other benefit type in the CW15 data table.

Table 5 Net zero enhancement programme

Project reference	Net Zero Enhancement Cases	Net zero Enhancement or Net zero Challenge fund	CW21 / CWW22 data table dropdown used	Price control deliverable (PCD) applied	Quoted tCO2e to reduce PCL directly
E00001337	Stationary fossil fuel reductions	Net zero enhancement	Selected	Yes	Yes
E00001340	Transport fossil fuel reductions – green fleet LCVs phase 1	Net zero enhancement	Selected	Yes	Yes
E00001341	Transport fossil fuel reductions – green fleet LCVs phase 2	Net zero enhancement	Selected	Yes	Yes
E00001342	Transport fossil fuel reductions - Green fleet Biomethane HGVs	Net zero enhancement	Selected	Yes	Yes
E00001346	Property emissions reductions	Net zero enhancement	Selected	Yes	Yes
E00001425	Net zero catchment strategy	Net zero enhancement	Selected	Yes	Yes

Project reference	Net Zero Enhancement Cases	Net zero Enhancement or Net zero Challenge fund	CW21 / CWW22 data table dropdown used	Price control deliverable (PCD) applied	Quoted tCO2e to reduce PCL directly
E00001344	Peatland restoration	Net zero enhancement	Selected	Yes	No
E00001345	Woodland creation	Net zero enhancement	Selected	Yes	No
E00001338	Process emissions (Bioresources)	Net zero challenge fund	Feasible	No	No
E00001339	Process emissions (Wastewater)	Net zero challenge fund	Feasible	No	No
E00001425	Phase 2 – Further low regrets emissions reductions in AMP8	Net zero challenge fund	Feasible	No	No

19.3.5 The emissions reduction benefits presented in line CW15.436 are associated with the net zero enhancement expenditure for those projects that will not directly impact the common PCL and therefore are not represented in OUT3 for methodological reasons and due to their uncertainty of approval within the challenge fund. For further technical detail please see *UUW67 - Cross Price Control Enhancement Case* - Carbon Net Zero Enhancement.

19.3.6 The emissions reduction benefits presented in line CW15.437 are associated with the net zero enhancement expenditure presented in OUT3 (overall performance from enhancements) for those projects that will directly impact the PCL for the operational GHG emissions common PC.

19.3.7 Both the above lines CW15.436 and CW15.437 equal the total net zero enhancement expenditure presented in CW3 as per Ofwat's PR24 data table guidance issued in August 2023.

19.3.8 As per PR24 final methodology data table guidance, the net operational emissions benefits from the net zero enhancement programme (tCO_2e) are presented as annual operational tCO_2e from AMP8 to 2055 and the benefits are stated as negative values. Benefits have calculated in line with the common performance commitment which aligns to Ofwat's methodology provided in the PR24 operational greenhouse gas emissions performance commitment definition document for water with the exception of the Peatland restoration and Woodland creation projects. For further technical detail please see *UUW67 - Cross Price Control Enhancement Case* - Carbon Net Zero Enhancement.

19.3.9 Increased emissions have been given a positive value and decreased emissions a negative value as per PR24 data table guidance for CW21 released by Ofwat in August 2023.

19.3.10 All net zero enhancements have been third party assured.

19.3.11 The total benefit value generated by projects starting in AMP8 has been calculated using our proposed ODI incentive rate of £130/tCO_2e for the PR24 operational greenhouse gas emissions performance commitment for water, see commentary document for OUT7.7.

19.4 Standard enhancement benefits

General

19.4.1 Outside of our net zero enhancement programme we have assessed the GHG operational emission impacts of all enhancement projects and those with a material impact have been provided within CW15, as per the Table 6 below. In line with the PR24 data table guidance for CW15, the impact of these

proposed enhancement projects on GHG emissions takes into account both the generation and savings of GHG emissions which result from the enhancement project.

Table 6: CW15 standard enhancements with GHG emission generation and savings

Data table enhancement name	Benefit type	Data table line reference
Leakage improvements delivering benefits in 2025-30	Operational greenhouse gas emissions (water)	CW15.157
New meters introduced by companies for existing customers	Operational greenhouse gas emissions (water)	CW15.203
Resilience	Operational greenhouse gas emissions (water)	CW15.401
Greenhouse gas reduction (net zero) Water WINEP AMP8 enhancement	Operational greenhouse gas emissions (water)	CW15.435
Major Projects (Strategic Water Resources)	Operational greenhouse gas emissions (water)	CW15.458

19.4.2 The net operational GHG emission benefits in CW15 have been calculated in line with the common performance commitment which aligns to Ofwat's methodology provided in the PR24 operational greenhouse gas emissions performance commitment definition documents. For additional information see data table outcome commentary for GHG operational emissions common PC water.

19.4.3 Emissions are presented as annual tCO_2e, a positive value represents an increase in emissions and a negative value for decreased emissions as per PR24 data table guidance for CW21 released by Ofwat in August 2023.

19.5 Bespoke performance commitments

General

19.5.1 Benefit valuations for bespoke PCs are not included in table CW15. Presentation of *UUW's* assessment of the marginal benefits associated with proposed bespoke PCs can be found in *UUW30 – Performance Commitment Technical Documents* Section 6 and *UUW31 – Customer Research Triangulation. Section 3*.

20. CW16 – Best value analysis of alternative option; benefits – water resources and water network +

20.1 Whole table

CW16.1 - 502

20.1.1 We have aligned the least cost plan in CW16 to the least cost plan presented to customers during acceptability testing. In optioneering, we considered some alternative least cost options which aren't presented in this table as this would create misalignment with acceptability testing.

20.1.2 In this scenario we submitted a plan which differed from the best value plan due to:

- Different suite of WINEP options, often without a hybrid solution. The best value options were selected for the preferred programme due to a higher cost benefit ratio during optioneering;
- Omitted Net Zero Enhancement programme;
- Omitted Lead Replacement enhancement programme; and
- Omitted Smart Metering enhancement programme (however FMO meters are still included in the least cost programme).

20.1.3 The methodology supporting the data in this table is in line with CW15.

20.2 CW16 Greenhouse gas reduction (net zero) benefits

General

20.2.1 CW16 includes the greenhouse gas (GHG) emission benefits from the following enhancements provided in Table 7 below.

Table 7 CW16 enhancement benefits (GHG emissions)

Enhancement	Benefit type	Details	Benefit value
WINEP Water enhancement (tCO2e)	Operational greenhouse gas emissions (water)	Generation of GHG emissions as a result of the WINEP water enhancement programme. Emissions presented are the net annual operational emissions, calculated in line with the common performance commitment (PC) which aligns to Ofwat's methodology provided in the PR24 operational greenhouse gas emissions performance commitment definition document for water.	£130/tCO2e
Standard enhancements (tCO2e)	Operational greenhouse gas emissions (water)	Generation of GHG emissions as a result of standard enhancement programmes, such as power resilience. Emissions presented are the net annual operational emissions, calculated in line with the common performance commitment methodology which is set out in Ofwat's PR24 operational greenhouse gas emissions performance commitment definition document for water.	£130/tCO2e

Enhancement	Benefit type	Details	Benefit value
Standard enhancements (tCO2e)	Operational greenhouse gas emissions (water)	Savings of GHG emissions as a result of standard enhancement programmes, such as leakage and water efficiency. Emissions presented are the net annual operational emissions, calculated in line with the common performance commitment methodology which is set out in Ofwat's PR24 operational greenhouse gas emissions performance commitment definition document for water.	£130/tCO2e

20.2.2 As per data table guidance for CW16, the impact of our proposed net zero enhancement projects on GHG emissions takes into account both the generation and savings of operational GHG emissions which result from the enhancement project.

20.2.3 The net operational GHG emission benefits in CW16 have been calculated in-line with the common performance commitment which aligns to Ofwat's methodology provided in the PR24 operational greenhouse gas emissions performance commitment definition documents, unless stated otherwise. For additional information see data table outcome commentary for GHG operational emissions common PC water.

20.2.4 There are no GHG emission benefits from our net zero enhancement programme (aligned to PR24 data tables CW21) or metering standard enhancement as these enhancements do not form part of our least cost plan.

20.3 Standard enhancement benefits

General

20.3.1 We have assessed the GHG operational emission impacts of all enhancement projects included within our least cost plan as per Table 8 below in order to populate CW16. In line with the PR24 data table guidance for CW16, the impact of these proposed enhancement projects on GHG emissions takes into account both the generation and savings of GHG emissions which result from the enhancement project.

20.3.2 The metering standard enhancement titled "new meters introduced by companies for existing customers" in the CW15 data table is not included in CW16 as it is not part of our least cost plan.

Table 8: CW16 standard enhancements with GHG emission generation and savings

Data table enhancement name	Benefit type	Data table line reference
Leakage improvements delivering benefits in 2025-30	Operational greenhouse gas emissions (water)	CW16.157
Resilience	Operational greenhouse gas emissions (water)	CW16.401
Greenhouse gas reduction (net zero) Water WINEP AMP8 enhancement	Operational greenhouse gas emissions (water)	CW16.435
Major Projects (Strategic Water Resources)	Operational greenhouse gas emissions (water)	CW16.447

20.3.3 The net operational GHG emission benefits in CW16 have been calculated in line with the common performance commitment which aligns to Ofwat's methodology provided in the PR24 operational greenhouse gas emissions performance commitment definition documents. For additional information see data table outcome commentary for GHG operational emissions common PC water.

20.3.4 Emissions are presented as annual tCO_2e, a positive value represents an increase in emissions and a negative value for decreased emissions as per PR24 data table CW15.

21. CW17 – Accelerated programme expenditure – water resources and network +

21.1 Whole table

CW17.1 - 140

21.1.1 The purpose of this table is for companies to identity water service capital and operating expenditure for approved accelerated schemes in both, the final two years of the current price control (2023/24 and 2024/25) and 2025-30 (AMP8).

21.1.2 This table is a nil return.

22. CW18 – Cost adjustment claims – base expenditure: water resources and water network +

22.1 Whole table

CW18.1 - 100

22.1.1 These numbers are unchanged from our early cost adjustment submission in June 2023.

22.1.2 The gross value of claim £216.568m minus implicit allowance of £30.078m produces a net claim value £186.490m.

23. CW19 – Demand management – Leakage expenditure and activities

23.1 Leakage expenditure – company level

General

23.1.1 Table CW19 provides information on *UUW*'s leakage expenditure and activities using the PALM (Prevent, Aware, Locate and Mend) model, consistent with Water UK's "A Leakage Routemap to 2050".

23.1.2 Aligned to *UUW*'s Water Resources Management Plan 2024, *UUW*'s leakage strategy is a transformation from find and fix to Dynamic Network Management (DNM), predicting and preventing leaks to drive continual improvement in our leakage performance. Building on the additional network sensors we installed in our water network in AMP6 and AMP7, and incorporating the learnings from the deployment our wastewater DNM operating model, water DNM will be transformative to the way we operate and manage our water network. Predictive analytics applied to the vast amount of data we have on our water network will support improved leakage detection targeting and a resulting efficiency. Combining this information with the game changer that is smart metering will allow us to truly understand if the water demand in our district metered areas (DMAs) is consumption/usage or leakage.

CW19.1 - 12 Leakage expenditure

23.1.3 Our costs forecasts for leakage expenditure are in line with the above leakage strategy and represent a shift from reactive locate and mend methodologies to more intelligent ways of working into AMP8 that promotes expenditure on prevent and aware activity instead. Base expenditure in AMP8 will allow us to maintain our leakage levels, establishing more mature maintenance programmes on existing assets such as pressure management and air valves. Expenditure will remain flat over AMP8 and any activity variations due to the natural rate of rise will be absorbed as cost efficiencies.

23.1.4 As part of our submission in CW3 we have included enhancement investment for leakage which forms the majority of reduce expenditure. We have assumed an element of base expenditure will also contribute to leakage reductions as we maintain new elements of the Network.

23.1.5 Indirect costs include an assumption for corporate overheads.

23.1.6 Mend supply pipe costs have been included in the mend element of maintain expenditure. They represent the direct construction cost plus initial investigation, coordination and contract support costs required to undertake the activity. All mend supply pipe activity is free of charge and so the total cost to *UUW* has been included.

23.1.7 Our methodology is in line with that submitted as part of 'IN 22/02 Cost assessment data requests' and also the WRMP submission.

23.2 Prevent activities and attributes - company level

CW19.13 - 16

23.2.1 Throughout AMP6 and AMP7, we invested in upgrading the capabilities of our pressure management valves (PMVs) to enable active pressure control remotely. We have a substantial PMV fleet and the focus in AMP8 is on maintaining this fleet, as well as the advanced capability. The number of new pressure managed areas (PMAs) and the increase in properties covered by new PMAs aligns to our forecasts of property and network growth. Any new PMVs will have active pressure control and, therefore, the number of properties covered by PMAs with fixed outlet pressure control remains broadly consistent.

23.3 DMA characteristics - company level

CW19.25 - 29

23.3.1 The forecast for the number of fully operating DMAs is aligned to our end of AMP8 expected DMA availability of 95%.

23.3.2 Where practicable, we plan to reduce the size of DMAs to support leakage detection.

23.4 Trunk main balances - company level

CW19.40 - 42

23.4.1 There are two primary approaches to define a trunk main:

- Solely diameter based categorisation; and
- Downstream of distribution input meter and upstream of a primary DMA meter (this is the Ofwat approach defined in these lines).

23.4.2 When trunk main classification was initially developed in the corporate GIS, the first approach was used but we are beginning to transition into the second. Corporate GIS is not yet fully set up to define trunk mains in line with the Ofwat definitions but work began in 2018-19 to trace trunk main tiles and continuous improvements to this data have been made, and will continue into the future. This is expected to be complete by the end of AMP7.

23.4.3 No changes to the total length of trunk mains are forecast before the end of AMP8 but as the tile tracing continues, we expect 100% of our trunk mains captured in the upstream balances by the end of 2024/25. The 2024/25 values will then be projected to 2029/30. There has been an increase in the total length of trunk mains in the historical data, but this is due to data improvements (discussed above) and the re-categorisation of mains as trunk mains following trunk main tile tracing. It has been assumed that this will not happen in the future.

23.4.4 Trunk main balance calculations use meter data; the current corporate GIS setup is not to the desired standard for a geographical representation required by this methodology. Improving the corporate data will ensure that the lengths of main between the meters used in the meter balances are captured in GIS, and in this methodology. However, this will have no impact on the calculation of upstream leakage.

23.5 Smart networks - company level

CW19.49 Smart networks coverage - permanent acoustic/noise loggers

23.5.1 No additional investment in permanent acoustic/noise loggers in AMP7.

23.5.2 Water Dynamic Network Management (DNM) to be delivered in AMP8, which is expected to increase the number of DMAs covered by smart networks to circa 42% by the end of AMP8.

23.5.3 The definition for this line refers to “permanent acoustic/noise loggers” and, while this technology will definitely be applicable in certain areas, we propose that other technologies (e.g. pressure monitoring combined with digital twin network modelling) may provide an alternative way of implementing smart networks.

23.6 Active leakage control - company level

CW19.52 Hours on ALC activity per annum

23.6.1 As we deliver Water Dynamic Network Management (DNM), the expectation is that we will be able to spend circa 20% less time on active leakage control (ALC) and still be as effective (or more effective) in identifying leak locations.

23.7 Repairs - company level

CW19.55-94

23.7.1 There is a general trend between all 4 of the repair categories (mains, mains fittings, communication pipes and supply pipes) of customer reported reducing and company detected remaining relatively flat or increasing during the planning period. The total mains repairs (customer reported plus company detected) aligns with our mains repair performance commitment level (PCL).

23.7.2 Repair run times remain flat through the planning period.

23.8 Leakage levels - company level

CW19.112 – Historical minimum achieved level of leakage

23.8.1 A sum of the historical minimum achieved level of leakage for each of our district metered areas (DMAs) at different dates and times, using the current reporting guidance methodology for bottom-up leakage estimation (aligned to the PR24 leakage performance commitment definition).

23.8.2 The minimum weekly achieved level uses a 5-year period, removing spurious values (inoperable data), to represent a true minimum achieved level obtained from weekly average leakage values. This shall be calculated at DMA level and extrapolated to company level using an appropriate means.

23.8.3 Forecast uses the minimum figure from 2017/18 to 2022/23.

CW19.113 – Volume of leakage that needs to be saved to maintain current level

23.8.4 This is the estimated natural rate of rise (NRR) in leakage (i.e. the amount leakage would increase if we did no proactive detection and repair).

23.8.5 Forecast increases with network growth (applying NRR per property to our PR24 property forecast) and has an allowance for weather impact, based on the average weather impact from 2017/18 to 2022/23.

24. CW20 – Water mains - asset condition

24.1 Commentary

Confirmation that the profile of mains length in each grade reconciles with the average number of bursts per annum repaired over the past five years

24.1.1 We have used three years of mains repair data rather than the requested five years. There are two reasons for this deviation from the data request:

- We implemented a new work management system for our network repairs in the autumn of 2019. In this system we routinely capture additional pipe information than the data captured in our previous system. This allows a better assurance that we are accurately associating the work to the correct asset. We have significantly higher confidence in the association of the work for the 3 full financial years since implementation; and
- The definition and application of the definition of regulatory reported mains repair has altered significantly for AMP7 compared to the definition applied previously. This is particularly in the case of accounting for fittings failures and for accounting for re-work on failures. Together these changes have led to a substantial change in the reported repair data from earlier than 3 years ago.

Sub-division of grading, together with the approach and cohort and grading criteria used to derive it.

24.1.2 We have used the pipe level modelling dataset that we prepare to forecast future performance and deterioration of our water mains as the basis of this data request.

24.1.3 We have used the following requested attributes to derive the requested cohorts for analysis:

- Pipe diameter bands;
- Material groups; and
- Age bands.

24.1.4 In addition, we have used the following further attributes to produce as granular cohorts as credible:

- Soil type; and
- Pressure bands.

24.1.5 We have not attempted to re-aggregate cohorts in order to meet the failure rate requirements specified as this would involve a disproportionate effort and provide little additional information as the re-aggregation would be arbitrary.

24.1.6 Details of the bands and enumerated categories for each attribute are provided.

Commentary on any cohort where it is not considered practical to arrange its size to fall within the defined tolerance.

24.1.7 Many of the cohorts have zero failures, there are a total of circa 15k cohorts, the failure rate distribution is provided as requested. We have attempted to minimise the size of the largest cohorts, whilst not artificially producing bands of diameter, pressure or age that indicate a level of accuracy not reflected in the source data. In a similar way we have not provided enumerated type data that implies a better understanding of asset data than is credible.

Companies approach if they have used a period longer than five years.

24.1.8 Not applicable

An explanation of any material variations between current and previous percentages of assets in each condition grade (e.g. PR09 data where available).

24.1.9 Not applicable

An explanation of any changes in reporting methods / assumptions that have led to a material change in reported figures.

24.1.10 Not applicable

An indication of the quality of data provided.

24.1.11 The data is broadly accurate for distribution mains, with less certainty on other mains where repairs may be carried out using a broad range of delivery routes. In line with APR confidence grading guidance, we have graded this data as B3.

Confirm that the condition grading system (set out in the guidance above) used for this submission has been prepared in line with the guidance and explain differences where they are not on the same basis as that used historically.

24.1.12 The data has been prepared in line with the guidance as far as practically possible. The three major non-compliances are:

- We only have 3 years of appropriate data, not the requested 5 years. Rather than blend the data from AMP6 with more recent data from AMP7 we have used the more robust recent 3 years of data. The updated definitions and additional clarification provided for AMP7 makes the older data much less comparable and the mapping of repairs to individual pipes of older data is a lot less accurate than when using data from AMP7:
- We are not readily able to differentiate between replaced mains and additional mains at individual main level, we have therefore completed the relevant lines as an aggregate of both; and
- We have returned data based upon cohorts that meet Ofwat's requirements as well as we can manage.

24.2 Length of potable mains by condition grade

CW20.1 - 2

24.2.1 The risk associated with the potable water network is not purely related to burst/repair rates, however it should be noted that our business plan includes the replacement of a similar total length of main as is currently reported in grades 4 and 5.

24.3 Analysed burst rate comparison

CW20.3 - 12

24.3.1 There has been no notable change in failure rate over the analysed period, as most significant changes are related to specific weather events.

24.4 Cohort Tables

24.4.1 For table CW20 as per Ofwat PR24 Final Methodology submission table guidance – section 3: Costs (wholesale) – Water V5 Page 121 section 26.11 *UUW* has provided a supporting .xls file which includes a full breakdown of cohorts and relative burst rate information. This is referenced under *UUW11- CW20 – cohort analysis.*

25. CW21 – Water – net zero enhancement schemes

25.1 Whole table

CW21.1 – 6

25.1.1 Please note Ofwat tables refer to these lines as CW19.1 – 6.

25.1.2 Ofwat has requested that companies put forward interventions with a primary driver of greenhouse gas (GHG) emissions reduction as net zero enhancements. Appendix 9, page 92 in the Final Methodology states: "Ofwat has created a net zero enhancement challenge where companies that are stretching themselves and have efficient proposals will be priorities for additional enhancement funding to tackle operational GHG emissions."

25.1.3 Working towards net zero is a priority to *UUW* and its customers as the affordability and resilience of our operations and services fundamentally rely on a stable climate and a healthy natural environment. We have produced an ambitious plan to reach net zero in scopes 1, 2 and 3 greenhouse gas (GHG) emissions by 2050, supporting the national legal requirements in the Climate Act 2008. Our net zero enhancement programme is central to our plan and crucial in AMP8 to achieve further GHG emissions reduction and work towards a science-based trajectory as part of our adaptive plan to net zero by 2050.

25.1.4 Our net zero enhancement programme targets a £196.3 million investment to deliver benefits across all aspects of our operational emissions plus essential enablers to future action and longer-term emissions benefits. The programme is summarised in the table below targeting a total emissions benefit of over 2 million tCO_2e by 2055. All cases provided in CW21 meet the criteria set out in Appendix 9 and noted above, with the primary enhancement driver to reduce operational GHG emissions.

25.1.5 Our justification for the selected versus feasible dropdown box within CW21 is aligned to the PR24 data table guidance accompanying the net zero enhancement data tables CW21 and CWW22. This guidance states: "selected schemes should make up the company level net zero enhancement programme (as presented in CW3 and CWW3) and those schemes not part of the company level programme but are suitable for consideration in the net zero challenge should be given the Feasible dropdown option."

25.1.6 The 11 projects selected as part of our net zero enhancement programme have been split into net zero enhancement cases and those for inclusion in Ofwat's net zero challenge.

25.1.7 The 8 cases classified as 'selected' in the table below have been submitted as net zero enhancement projects, outside of the challenge. These consist of project types which are more developed and relatively more readily deployable forms of innovation that require additional investment in AMP8 beyond base expenditure to cover new activities or an uplift in cost compared to traditional alternatives.

25.1.8 A further 3 cases have been identified as 'feasible' for inclusion in the net zero enhancement challenge. These cases consist of cutting edge innovation to help tackle systemic long term challenges to our and the sectors route to net zero 2050.

25.1.9 For further details see *UUW67 - Cross Price Control Enhancement Case* - Carbon Net Zero Enhancement.

Table 9 Net zero enhancement programme allocation to PCL

Project reference	Net Zero Enhancement Cases	Net zero Enhancement or Net zero Challenge fund	CW21 / CWW22 data table dropdown used	Price control deliverable (PCD) applied	Quoted tCO2e to reduce PCL directly	Water/ Wastewater allocation
E00001337	Stationary fossil fuel reductions	Net zero enhancement	Selected	Yes	Yes	Wastewater
E00001340	Transport fossil fuel reductions – green fleet LCVs phase 1	Net zero enhancement	Selected	Yes	Yes	Water & Wastewater
E00001341	Transport fossil fuel reductions – green fleet LCVs phase 2	Net zero enhancement	Selected	Yes	Yes	Water & Wastewater
E00001342	Transport fossil fuel reductions - Green fleet Biomethane HGVs	Net zero enhancement	Selected	Yes	Yes	Wastewater
E00001346	Property emissions reductions	Net zero enhancement	Selected	Yes	Yes	Water & Wastewater
E00001425	Net zero catchment strategy	Net zero enhancement	Selected	Yes	Yes	Wastewater
E00001344	Peatland restoration	Net zero enhancement	Selected	Yes	No	Water
E00001345	Woodland creation	Net zero enhancement	Selected	Yes	No	Water
E00001338	Process emissions (Bioresources)	Net zero challenge fund	Feasible	No	No	Wastewater
E00001339	Process emissions (Wastewater)	Net zero challenge fund	Feasible	No	No	Wastewater
E00001425	Phase 2 – Further low regrets emissions reductions in AMP8	Net zero challenge fund	Feasible	No	No	Water & Wastewater

25.1.10 As per PR24 final methodology data table guidance the net operational GHG emission benefits for the enhancement cases presented in CW21 are stated in tonnes equivalent of CO_2e as a cumulative impact annually from 2025 to 2030.

25.1.11 Increased emissions have been given a positive value and decreased emissions a negative value as per PR24 data table guidance for CW21 released by Ofwat in May 2023.

25.1.12 The operational greenhouse gas (GHG) emissions for these cases have been calculated in line with the common performance commitment which aligns to Ofwat's methodology provided in the PR24 operational greenhouse gas emissions performance commitment definition documents for both water and wastewater with the expectation of the Peatland restoration and Woodland creation projects, see below for further details.

25.1.13 For all cases presented below the impacts of each case on *UUW*s operational greenhouse gas (GHG) emissions are presented in columns 21 to 25. Column 26 then provides the overall scheme impact on *UUW*s net total greenhouse gas emissions by 2029-30 including both operational and embodied (cradle-to-build) emissions as per PR24 data table guidance.

25.1.14 The embodied emissions have been calculated in line with our PR24 carbon assessment framework. This takes a best practice emissions approach using expert third party support from our technical partners. Our approach uses bottom up data where available and the creation of benchmarks where it is not. For further detail see appendix d in *UUW - Our strategy to net zero 2050*.

25.1.15 All net zero enhancements have been third party assured.

25.2 Specific schemes

Transport fossil fuel reductions – Green fleet

25.2.1 **Headline**: Saving around 25,000 tonnes of GHG emission in AMP8 and over 250,000 tonnes by 2055 by transitioning all the cars and vans in our fleet to electric or other low carbon options.

E00001340 Transport fossil fuel reductions - Green fleet LCVs phase 1

25.2.2 **Headline**: Saving around 30,000 tonnes of GHG emission in AMP8 and over 250,000 tonnes by 2055 by transitioning all the cars and vans in our fleet to electric or other low carbon options, and enabling 20% of our HGVs to use clean energy from our biogas.

25.2.3 This enhancement case will provide GHG emissions reduction benefits in *UUW*'s Scope 1 emissions associated with transport (company owned or leased vehicles), progressing towards the Science-Based Target Scope 1and 2 reduction by 2030. This involves a transition to a green fleet by procuring zero emission (Electric Vehicle, EV) cars & vans.

25.2.4 This enhancement case does not overlap with any activities delivered through base. The capex cost data entered is based on manufacturer quotes provided for the low carbon vehicles we have already purchased in AMP7 and a standard uplift applied to reflect 2022/23 pricing. The Opex cost data has been provide as a negative value as this enhancement case is forecast to deliver an operational cost saving as it's more beneficial in the long term to operate and maintain an EV fleet compared to its diesel alternative

25.2.5 The annual GHG emission scheme benefits, presented as the cumulative impact on tCO_2e within columns 21 to 25 include all Scope 1, Scope 2 and Scope 3 emissions for upgrading our Light Commercial Vehicle (LCV) fleet from diesel to electric in line with the common performance commitment definition on GHG emissions reduction (water and wastewater).

25.2.6 The net operational GHG emissions impact for this enhancement case are stated in tonnes equivalent of CO_2e as a cumulative impact annually from 2025 - 2030. Increased emissions have been given a positive value and decreased emissions a negative value as per PR24 data table guidance for CW21 released by Ofwat in August 2023.

25.2.7 As this enhancement case is applicable to both water and wastewater the cost and total emissions calculated above have then been apportioned between both data tables CW21 and CWW22 in-line with the price control allocation spilt which is detailed in Table 10.

25.2.8 For further details see *UUW67 – Cross Price Control Enhancement Claims* - Carbon Net Zero Enhancement.

Table 10: E00001340 price control allocation split

Project reference	Enhancement case name	Water Resources	Water Network+	Wastewater Network+	Bioresources
E00001340	Green Fleet – phase 1	4%	32%	32%	33%

E00001341 Transport fossil fuel reductions - Green fleet LCVs phase 2

25.2.9 This enhancement cases will provide GHG emissions reduction benefits in *UUW*'s Scope 1 emissions associated with transport (company owned or leased vehicles), progressing towards the Science-Based Target Scope 1 and 2 reduction by 2030. This involves a transition to a green fleet by procuring zero emission (Electric Vehicle, EV) cars & vans.

25.2.10 This enhancement case is in addition to E00001340 above to deliver 100% LCV green fleet by 2030 and does not overlap with any activities delivered through base. The Capex cost data entered is based on manufacturer quotes provided for the 33 low carbon vehicles we have already purchased in AMP7 and a standard uplift applied to reflect 2022/23 pricing. The opex cost data has been provide as a negative value as this enhancement case is forecast to deliver an operational cost saving as it's more beneficial in the long term to operate and maintain an EV fleet compared to its diesel alternative.

25.2.11 Due to increasing costs of EVs within the market, our stretch proposal in particular does not present a particularly favourable cost per unit of operational GHG emissions (£ per tCO_2e) specifically within AMP8 when compared to our other net zero enhancements cases presented within the net zero challenge fund, however greening our fleet is imperative to our long term delivery strategy and net zero ambitions.

25.2.12 The annual GHG emission scheme benefits, presented as the cumulative impact on tCO_2e within columns 21 to 25 include all Scope 1, Scope 2 and Scope 3 emissions for upgrading our Light Commercial Vehicle (LCV) fleet from diesel to electric in line with the common performance commitment definition on GHG emissions reduction (water and wastewater).

25.2.13 The net operational GHG emissions impact for this enhancement case are stated in tonnes equivalent of CO_2e as a cumulative impact annually from 2025 - 2030. Increased emissions have been given a positive value and decreased emissions a negative value as per PR24 data table guidance for CWW22 released by Ofwat in August 2023.

25.2.14 As this enhancement case is applicable to both water and wastewater the cost and total emissions calculated above have then been apportioned between both data tables CW21 and CWW22 in line with the price control allocation spilt which is detailed in Table 11.

25.2.15 For further details see *UUW67 - Cross Price Control Enhancement Case* - Carbon Net Zero Enhancement.

Table 11: E00001341 price control allocation split

Project reference	Enhancement case name	Water Resources	Water Network+	Wastewater Network+	Bioresources
E00001341	Green Fleet – phase 2	4%	32%	32%	33%

E00001344 Peatland restoration

25.2.16 **Headline:** Restore around 1,500 hectares of peatland in the North West to store carbon and deliver wider benefits

25.2.17 As part of this enhancement case *UUW* will undertake habitat restoration works across 1,494 hectares of peatland by 2030, verified by Natural England (or equivalent standard). This enhancement case is

aligned to our long term delivery strategy to reach net zero, therefore carbon reduction benefits will be phased beyond AMP8 due to the length of time involved in restoring natural process in peatland hydrology and ecology; needed to have fully functioning, low emissions peatland.

25.2.18 This enhancement case does not overlap with any activities delivered through base as all viable emissions reductions that can be delivered through base expenditure have been explored. This case also does not overlap with any other enhancement case proposed within AMP8, the 1494 hectares associated with this case will be delivered as additional hectares of Peatland restoration above and beyond that proposed within our AMP8 WINEP programme.

25.2.19 The costs for this enhancement have been calculated using base costs from historical peatland delivery projects we have undertaken with the cost profile aligned to the anticipated restoration projects profile within AMP8. There are no Opex costs presented for this case as any Opex costs associated with ongoing maintenance will be covered under grant funding available.

25.2.20 Peatland restoration requires high expenditure as there is a lot involved within the projects however as well as delivery emissions benefits it delivers wider benefits on water quality, flood resilience etc. not just for customers. We have assumed grant funding will be available in AMP8 and this will make up 50% of the proposed costs. The costs within this enhancement case and provided for E00001344 Peatland enhancement case therefore represent 50% of the total to restore the full 1494 ha within AMP8.

25.2.21 The annual operational GHG emission scheme benefits, presented as the cumulative impact on tCO2e within columns 21 to 25 are 0 tCO_2e in the first 4 years, with a recognised benefit of 13,227 tCO2e in 2030 provided by pending issuance units. Following restoration, between 1 and 3 years after the restoration start date the project will be evaluated against the Peatland Code by an approved validation body (e.g. Natural England). Upon project validation Pending Issuance Units (PIUs) are listed for all carbon units within the project. Pending Issuance Units (PIU) act as a 'promise to deliver' Peatland Carbon Units. Upon issue of PIUs, verification takes place at year 5 of the project start date and at least every 10 years after and Peatland Carbon Code Units (PCU's) issued. Following verification by the Peatland Code, carbon units will be provided after 5 years post intervention. We intend to use these carbon units within our UK-based emissions reporting when reporting our total net emissions. Carbon units represent measurable amounts of carbon dioxide equivalent (CO_2e) reductions from the peatland. As per the Peatland code, one carbon unit equals 1 tonne of carbon dioxide equivalent.

25.2.22 In the short-term view, this could be seen as a more expensive option for emissions reduction, but it provides longer term GHG emission benefits which is imperative to our long term delivery strategy and net zero ambitions. For additional technical detail see Chapter 8, technical supplementary document on net zero enhancements.

25.2.23 For further details see *UUW67 – Cross Price Control Enhancement Claims* - Carbon Net Zero Enhancement.

E00001345 Woodland creation

25.2.24 **Headline:** Create over 450 hectares of woodland in the North West to store carbon and deliver wider benefits

25.2.25 As part of this enhancement case *UUW* will create 465 hectares of woodland from planting trees by 2030, verified by the Woodland Carbon Code (or equivalent standard). This enhancement case is aligned to our long term delivery strategy to reach net zero, therefore carbon reduction benefits will be phased beyond AMP8 due to tree lifecycles. This enhancement case does not overlap with any activities delivered through base as all viable emissions reductions that can be delivered through base expenditure have been explored.

25.2.26 The costs have been profiled within the first three years of AMP8 as upfront costs will be incurred to start the projects before any carbon benefit can be realised due to planting schedules and tree growth years. The costs provided are capex values only, there are Opex costs associated with the ongoing woodland maintenance however these are not included within this enhancement case as they will be

covered under a grant equivalent. Our cost estimations have assumed there will be some grant funding available from partnership funding and we have assumed this is likely to be a 50/50 spilt. The costs within this enhancement case therefore represent 50% of the total to create the full 465 ha within AMP8. This means that *UUW* are retaining some of the risk involved with this enhancement to present a cost efficient case.

25.2.27 The annual GHG emission scheme benefits, presented as the cumulative impact on tCO_2e within columns 21 to 25 are 0 tCO2e for the first 2 years, with a recognised benefit of 1,662 tCO_2e between 2027 and 2030 provided by pending issuance units. Due to the projects nature the carbon reduction benefits will be phased beyond AMP8. It takes on average 5 years of tree growth before any carbon benefits can be realised to support long term emissions reductions. However, upon project validation Pending Issuance Units (PIUs) are listed for all carbon units within the project. Pending Issuance Units (PIU) act as a 'promise to deliver' Woodland Carbon Units. Upon issue of PIUs, verification takes place at year 5 from the project start date upon which verified woodland carbon credits (WUCs) are issued

25.2.28 In the short-term view, this could be seen as a more expensive option for emissions reduction, but it provides longer term GHG emission benefits which is imperative to our long term delivery strategy and net zero ambitions.

25.2.29 Beyond AMP8, we anticipate a reduction of 141,803 tCO_2e by 2055. This is the forecasted total carbon sequestered between 2025 and 2055 from the 465 hectares planted. For additional technical detail see Chapter 8, technical supplementary document on net zero enhancements.

25.2.30 For further details see *UUW67 – Cross Price Control Enhancement Claims* - Carbon Net Zero Enhancement.

E0001346 Property emissions reductions

25.2.31 **Headline:** Saving over 6,000 tonnes of GHG emissions in AMP8, and over 35,000 tonnes by 2055, by switching energy sources needed for heating to reduce use of fossil fuels in key buildings

25.2.32 This enhancement case is focused on decarbonising heat within our *UUW* owned property portfolio, in particular the large office site at Lingley Mere. Through alternative heating systems and efficient boiler replacements this enhancement case is estimated to save 6,123 tCO2e for a cost of £3.59m.

25.2.33 The costs have been estimated utilising existing consumption data to estimate building heat demands and appropriately size the heat pump system required to power our head office at Lingley Mere. Supplier visits and boiler replacement estimates have been used, based on an average system size and cost model, however further on site investigations will be undertaken to ensure feasibility and firm up costs prior to 2025.

25.2.34 Operational GHG emissions benefits for this enhancement case include; Scope 1 emissions from fossil fuel use, Scope 2 emissions from purchased electricity and Scope 3 emissions from purchased electricity Transmission & Distribution.

25.2.35 As this enhancement case is applicable to both water and wastewater the cost and total emissions calculated above have then been apportioned between both data tables CW21 and CWW22 in-line with the price control allocation spilt which is detailed in Table 12.

25.2.36 For further details see *UUW67 – Cross Price Control Enhancement Claims* - Carbon Net Zero Enhancement.

Table 12: E0001346 price control allocation split

Project reference	Enhancement case name	Water Resources	Water Network+	Wastewater Network+	Bioresources
E0001346	Property emissions reductions	0%	33%	33%	33%

E00001426 Phase 2 – Further low regrets emissions reductions in AMP8 Phase 2 – Innovation in AMP8

25.2.37 **Headline:** As part of our net zero enhancement programme we have proposed a 'Phase 2 – AMP8 Innovation' project which will have GHG emissions reduction as the primary driver. Due to the uncertainty and rapid evolution within the market the potential cases within our proposed phase 2 require further investigation and will be defined within AMP8

25.2.38 We have proposed an enhancement cost of £81.6 million within our submission to Ofwat's net zero challenge to support this. We estimate this will deliver circa 55,000 tCO_2e reduction, which will be confirmed with Ofwat upon final technical review. These values have been calculated based on averages from other projects within our programme and therefore shouldn't be used to amend the PCL of the common performance commitment for operational GHG emissions.

25.2.39 As this enhancement case is applicable to both water and wastewater the cost and total emissions calculated above have then been apportioned between both data tables CW21 and CWW22 in line with the price control allocation spilt below.

25.2.40 For further details see *UUW67 Cross Price Control Enhancement Case* - Carbon Net Zero Enhancement.

Table 13: E00001426 price control allocation split

Project reference	Enhancement case name	Water Resources	Water Network+	Wastewater Network+	Bioresources
E00001426	Phase 2	1%	27%	32%	41%

Appendix A Compliance with reporting requirements

A.1 General

A.1.1 *UUW* has endeavoured to fully comply with all of the reporting requirements. In a small number of instances where this is not the case, we have fully explained this within the table commentaries with appropriate justification.

A.2 Ofwat query response ID-533

A.2.1 *UUW*, in response to query ID-533, has not trimmed our data to match Ofwat's defined number of decimal place requirements. For display purposes data will, however, always conform to the formatting rules as set within the Ofwat PR24 tables. We believe this to be fully aligned to the table requirements.

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