Dŵr Cymru
Welsh Water

Accounting Methodology Statement 2018-19

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Accounting Methodology Statement 2018/19

1: Overview

Each company must produce and publish an accounting methodology statement alongside its Annual Performance Report (APR). The purpose of this statement is to enable Ofwat and other stakeholders to understand the systems, processes and allocation methodologies used to populate the totex and operating cost analysis tables in Parts 2 and 4 of the Dŵr Cymru Cyfyngedig (DCC) 2018/19 APR.

This report has been prepared in accordance with the following Regulatory Accounting Guidelines (RAGs) and Information Notices:

- RAG 1.08: Principles and guidelines for regulatory reporting under the 'new UK GAAP' regime;
- RAG 2.07: Guideline for classification of costs across the price controls;
- RAG 3.11: Guidelines for the format and disclosures for the APR;
- RAG 4.08: Guideline for the table definitions in the APR;
- RAG 5.07: Guideline for transfer pricing;
- Information Notice 19/03: Regulatory accounting guidelines 2018/19; and
- Information Notice 19/6: Expectations for monopoly company annual performance reporting 2018/19.
- Information Notice 19/7: Expectation for companies in issuing long term viability statements.

1.1: Company structure

DCC is a 'not-for-profit' company which has been wholly owned by Glas Cymru since 2001. Glas Cymru does not have shareholders, and any financial surpluses are reinvested in the business for the benefit of customers. DCC is the group's principal trading company. Its principal activity is the supply of water and treatment and disposal of wastewater under the instrument of Appointment made by the Secretary of State for Wales under the Water Act 1989.

The group purchased two companies in 2017/18, Welsh Water Organic Energy Ltd and Welsh Water Organic Energy (Cardiff) Ltd. Welsh Water Organic Energy (Cardiff) Ltd operates a waste recycling plant generating energy which is sold to DCC for use at its co-located sludge plant in Cardiff. Power is charged at commercially negotiated arm's length prices and therefore adheres to the principles set out in RAG 5.07.

There are no other associated companies that trade with DCC.

Structure

DCC is split into three reporting areas: Chief Executive Officer, Finance, and Operations. Each of these areas is managed by an Executive Director of the Company. Operations comprises the Water, Wastewater and Retail services, headed by a Managing Director of Water, Wastewater and Retail respectively (none of whom is an Executive Director of the company).

The finance team provides dedicated support to the operational teams and support functions. Monthly management accounts are prepared which highlight variances against budget; the finance department and the budget holder work together to identify reasons for the movement. Following this, at the department's team meeting, cost performance against budget is reviewed.

At year end, the finance team, working with the operational and support teams, extracts income and cost data from SAP and formats this into the regulatory reporting table structures for each area of the business, primarily using Excel spreadsheets. These spreadsheets are consolidated and their outputs are used to populate the APR. The processes used to generate the regulatory reporting allocations are reviewed each year to reflect any organisational and regulatory changes.

There are governance review processes to ensure that all the information within the regulatory financial statements is consistent with the latest regulatory guidance before the financial statements are published. Further details can be found in our Data assurance plan which is published at the same time as the APR and can be found at www.dwrcymru.com .There is no change to this process from last year.

1.2: Systems

DCC uses SAP as an integrated financial and business management system. SAP information is either downloaded into spreadsheets or extracted using Business Warehouse. All operating costs are recorded in SAP against an account code and a cost centre and are aligned to regulatory business units and their relevant regulatory cost group, as shown below. Each time a new account or cost centre is created within the corporate finance system, it is linked to the appropriate business unit or cost type with reference to the latest RAGs.

- Power
- Power income/income treated as negative expenditure
- EA service charge
- Bulk supply
- Employment cost
- Hired and bought-in services
- Materials and consumables
- Other direct costs
- Doubtful debts
- General and support costs
- Rates

Further adjustments are made for third party and non-appointed costs following a full analysis of costs and with reference to guidance in the income categorisation table in RAG 4.08.
For the population of the APR a cost centre hierarchy has been created in SAP which is different from the internal management accounting structure (which is based on budget holder accountability). This means that directly coded Water, Wastewater and Retail operational costs can largely be assigned to the appropriate regulatory unit and cost headings. Where costs cannot be directly allocated, allocations are used which are summarised in the following appendices:

- Retail: Wholesale cost allocation Appendix 2
- Wholesale cost allocation Appendix 3
- General and support allocation Appendix 4
- Retail: household/non-household split Appendix 5
- Retail (household): measured/unmeasured split Appendix 6

In 2014/15 we replaced our legacy billing engine, Customer Accounting System (CAS), with a new billing system (RapidXtra) provided by Echo Managed Services. The RapidXtra system is designed specifically for the water sector and is currently used by a number of UK water companies. We are continuing to improve our debt collection system, Tallyman, which interfaces with RapidXtra, and will continue to develop new strategies into AMP7. In the year we upgraded our SAP operational customer platform by introducing C4C, the cloud version of SAP. We also upgraded Sitecore, our web site platform, which is a key enabler for our digital strategy.

Electricity costs are normally allocated to assets via DCC's electricity management system (ARIES) which receives electronic power bills from energy providers and, by reference to the supply point, charges the cost to an asset's cost centre via an interface with SAP. ARIES also records consumption and, based on historical data, generates accruals when actual bills are not received. For this report year, however, ARIES was not available and we had to revert back to the backup solution i.e. using the excel backing sheets received from the energy suppliers to generate the total power consumption for each supply point; additional data integrity checks were carried out to ensure accuracy of the data. Each Water and Wastewater service asset has a unique supply point allowing the actual power costs to be charged directly to the asset and its associated activity. Where a supply point provides power for more than one price control unit, a percentage split is applied that is specific to the associated supply point. The percentage split is determined by estimating the power cost per price control unit, by undertaking site audits. This generally involves identifying all of the power users on site, associating them with the price control unit and identifying power rating and average run time.

We also have SAP work management systems, such as Above Ground Asset (AGA) Water, Mechanical, and Electrical and Instrument (ME&I), Planned Maintenance and Switch (below ground asset maintenance). The systems recognise the asset upon which we are working, its geographical location and the type of work being performed. Based on this information the system charges costs to predetermined revenue or capital cost collectors.

1.3: Structure underlying core customer services activity

The structure is as follows:

- Income collection and billing services are provided by the Retail service (RETL). This part of the business is independent of the Wholesale activities and has its own Managing Director, support staff and a unique SAP company code. Support service costs such as HR, IT and finance are allocated across price controls based on the most appropriate cost driver (as shown in Appendix 4);
  - DCC also has outsourced arrangements with local authorities and water companies for billing and collection which are all reported within RETL. The risk of collection is transferred to the local authority/water company and a commission is paid to them to reflect this arrangement; and
- The company does not issue bills addressed to 'the occupier'. Our policy is to write off debt when it has been established that a debt is not collectable. A debt is regarded as not being collectable when one of the following conditions has been satisfied:
  - the debtor has been declared bankrupt;
  - the debtor cannot be traced;
  - the debtor has died without an estate;
  - all reasonable legal remedies have been exhausted and two collection agencies have failed to recover the debt; or
  - the debt is too small to pursue beyond specified recovery action.

All debt that has gone through the full recovery process listed above is held in a ring-fenced account pending write-off. Write-offs are scheduled as part of a routine procedure. However, initiatives continue to be taken in respect of debt with a low likelihood of recovery to review the probability of collection and debts are currently only written off post completion of these initiatives. Generally when debt is deemed irrecoverable, the debt will have been fully provided for in the bad debt provision. As a result the timing of the write-off has little impact on the overall charge for bad debts in any year – and the level of write-offs throughout the year is therefore not monitored in isolation but as a component of the overall movement in collections when considering the level of bad debt provision required.

There has been minor changes to the write off policy during the year which has very little financial impact. The changes are:

- reflect the organisational and personnel changes since 2015
- Incorporate an internal audit recommendation to include Individual Voluntary Arrangements (IVA) as a reason for write-off
- Confirm that small balances, less than £10, that are uneconomic to collect, may be written off and do not require supporting evidence.

- DCC operates an operational call centre which is part of RETL. Calls which require a visit to a customer are passed to schedulers who make the appropriate arrangements for an initial visit.
  - For calls relating to the water network the costs within Retail also include the inspectors' time if after investigation it is found that the fault was not a network issue. For those that did relate to a network issue the costs of the customer liaison team (who call the customer advising that the issue has been resolved) are treated as Retail costs; and
  - For calls relating to the Wastewater network, a team is despatched so that any network issue can be resolved as soon as possible. If, when attending the site, they find that this is not a network issue then the call is aborted and these costs are included as Retail. For those that did relate to a network issue the costs of the customer liaison team (who call the customer advising that the issue has been resolved) are treated as Retail costs;
- DCC has inspectors who attend customer premises in relation to metering billing queries. The costs included in Retail relate to visits made in relation to the following activities resulting from a customer's request:
  - final meter reading;
  - check meter reading;
  - customer billing meter query;
  - meter-reading work - abortive; determine property supplied by meter and site meeting to show location of meter.

  The latter two relate to billing and customer–facing activities hence they are treated as Retail costs;
- Support costs: all of RETL direct costs are allocated to Retail, along with a proportion of support costs which are incurred by DCC. DCC support costs are allocated to Retail based on various costs drivers, as shown in Appendix 4; and
- Other business activities include Ofwat fees, Water UK costs and regulation department costs; 1/9th of these costs has been allocated to Retail in line with the RAG guidance. The split between household and non-household is based on customer numbers.

This is the same as last year , with no changes during the year.

1.4: Capitalisation policy

Costs charged to capital follow the company's accounting policy. This states that capital expenditure includes the following categories of cost:

- Property, plant and equipment;
- Infrastructure assets (i.e. mains and sewers, impounding and pumped raw water storage reservoirs, dams, sludge pipelines and sea outfalls); and
- Other assets (including properties, over ground operational structure and equipment, and fixtures and fittings).

The cost of property, plant and equipment additions includes a provision for a contractual "pain/gain" share. Forecast final expenditure associated with completed, or substantially completed, Capital Alliance-delivered projects is compared to either the business plan or unit cost database-derived value, with significant differences being provided for in accrued "pain" or "gain"-share calculations at half-year and year-end.

For accounting purposes, the Water and Wastewater system is segmented into components representing categories of assets with similar characteristics and useful lives. In accordance with RD 06/02, all leakage monitoring and reporting costs are treated as operating expenditure. The cost of maintaining the level of leakage is also classified as such, unless it falls clearly into other areas e.g. replacement of capital items. The costs of leak detection and repairs which contribute to achieving the economic level of leakage are treated as infrastructure renewals expenditure and are expensed in the income statement.

Additions are recorded at cost, and reflect the purchase price together with any expenditure directly attributable to bringing the asset into use, including directly-attributable internal costs. Costs incurred on development projects are recognised as intangible assets when the relevant recognition criteria are met.

Capitalisation of salaries

The cost of employees working directly on capital projects is calculated using an hourly recharge rate which is reviewed by management annually. Each set of rates is broken down by bands based on

average salary and includes national insurance, superannuation, bonus payments, overtime, car allowances, personal protective equipment, mobile phone and training costs.

A planned maintenance system integrated in SAP records mechanical and electrical maintenance, labour, materials and bought-in services costs at asset level. Craftsman time is recorded on handheld devices ("Toughbooks") and job-types determine the classification of work as operating or capital expenditure.

Integrated work scheduling and cost systems record work scheduled on the system and allocate the work to process operators and network teams via handheld devices. Details of time spent and materials used are allocated to jobs via these handheld devices. The final status of a job determines whether it is operating or capital expenditure (using predefined settlement tables held within SAP).

Capitalisation of overheads

DCC's internal costs incurred in supporting the capital programme are capitalised as overheads using an appropriate recovery rate. The recovery rate is generated from a review undertaken to identify costs which demonstrate a clear link to the capital programme. The assumptions and the recovery rate used are reviewed every six months by the finance team.

1.5: Additional analyses or adjustments that the company has made to data extracted from systems

Fixed assets overview

Additions

The principal data source for the fixed asset tables is the capital expenditure regulatory reporting database which is extracted from SAP. This information source provides sufficient information to allocate most costs directly to the accounting separation business units.

The regulatory reporting and accounting separation databases hold scheme information analysed by asset type. For the purpose of completing the regulatory accounts, they also identify whether the assets are 'infrastructure' or 'non-infrastructure' and categorise Retail assets separately.

- Infrastructure assets include the following: underground systems of mains and sewers, impounding and pumped raw storage reservoirs, dams, sludge pipelines and sea outfalls. Some information about infrastructure assets (general mapping and updating of network records) is also regarded as an infrastructure asset;
- Operational assets include the following: intake works, pumping stations, treatment works, boreholes, operational land, offices, depots, workshops, residential properties directly connected with Water and Sewerage services. Land which is not currently in operational use but is expected to come in to use in the foreseeable future is included, as is plant, machinery and telemetry inherent in the nature of the works. Also included are non-operational plant, non-operational machinery, vehicles, surplus land and all assets not previously listed; and
- Retail operational assets include the following: buildings and offices, fixtures and fittings, IT systems and other operational assets directly involved in providing the Retail service.

New expenditure incurred during the year is added to the database and is analysed as follows: costs are recorded at scheme level and are allocated to business type based on an analysis of the scheme design and target costs. This is the same principle for allocation of capital expenditure to business units that has been used in previous years. The aim is to map expenditure incurred to either a one-to-one relationship, or on a proportional allocation basis as directed in the RAGs.

On the assumption that the Quality, Base, Enhancement and Growth (QBEG) analysis continues to be a regulatory requirement, the asset categories are further extended to allow for those four descriptions of asset purpose. For the purpose of our systems' data capture, the above translates to an asset classification list of eight-digit codes.

Example: 0946Q50S

The first two digits denote asset type and follow the requirements of the previous June Return Table 32 line item:

- 09 = Sewage treatment works

The third digit represents business activity areas and the fourth infrastructure or non-infrastructure depending on whether the asset relates to Water or Sewerage:

CODE		
INFRA	**NON-INFRA**	**DESCRIPTION - WATER**
11	12	Abstraction Licence
21	22	Raw Water Abstraction
31	32	Raw Water Transport
41	42	Raw Water Storage
	52	Water Treatment
61	62	Trunk Treated Distribution
71	72	Local Treated Distribution
81	82	Management and General

CODE		
INFRA	NON-INFRA	DESCRIPTION - SEWERAGE
15	16	Foul
25	26	Surface Water Drainage
35	36	Highway Drainage
	46	Sewage Treatment and Disposal
55	56	Sludge Transport
	66	Sludge Treatment
	76	Liquor Treatment
85	86	Sludge Disposal
95	96	Management and General

The fifth digit denotes the purpose:

- M = Base/maintenance
- E = Enhanced service level
- N = New development
- G = Growth
- Q = Quality

The sixth to eighth digits denote purpose-type drivers:

- 50S = NEP – Reduction in sanitary parameters.

The database queries use the data contained in the classification code to sort and group the year-end figures to allow grouping by asset type, business activity and QBEG classification as necessary. Some 90% of expenditure in the year was suitable for this classification method. The remaining 7% is for items of IT and management and general costs that cannot be directly allocated to a specific business unit. This expenditure has been proportionally allocated across the business activities using FTE numbers as the cost driver.

The IRE programme is included in the above costs and analysed across price controls accordingly. DCC's policy is to expense IRE to the income statement unless there is an enhancement element to the cost; these costs are adjusted out of capital and included within other operating expenditure, renewals expensed in year (infrastructure).

Fixed asset register

The company maintains its fixed asset register in the SAP accounting system. The assets are split by service type using evaluation class. For assets under construction, this is allocated to price controls using the capital expenditure regulatory reporting database. Management and general assets are split using FTE numbers as a cost driver.

The majority of the fixed asset and depreciation data in the APR use the IFRS basis of reporting, adjusted for the reversal of borrowing cost capitalisation (IAS 23), as required by the RAGs.

DCC does not maintain a full current cost fixed asset register. The current cost depreciation reported in table 4G has been calculated by indexing the prior year values and adjusting for additions and disposals.

Asset lives

ChandlerKBS provide an asset life assessment service to DCC. Assessments are carried out at project level based on detailed cost records, and DCWW's accounting policy is followed to assign appropriate asset lives. Whilst undertaking this service, ChandlerKBS maintains a record of each individual assessment. The assessments are then compiled into an overall summary database. The database generates asset life models which can then be used where appropriate.

The following are examples of the project types produced using the database:

	Sample size	Sample value
Water Treatment Works	36 Projects	£332m
Wastewater Treatment Works (corrected sample size)	251 Projects	£377m
Combined Sewer Overflows (CSO) and Untreated Intermittent Discharges (UID)	225 Projects	£423m
Sludge Treatment Advanced Digestion	4 Projects	£114m
Water Ultra Violet Treatment (UV) projects	20 Projects	£16m

ChandlerKBS also produce asset life assessments for several other water and sewerage companies. Using this knowledge and experience, the models are checked and reviewed to ensure that they are consistent across the industry in general.

1.6: Changes to the company's systems year-on-year

There have been no changes to the company's systems.

2: Price control segments

2.1: How the company has applied the principles set out in RAG 2.07 and RAG 4.08

RAG 4.08 details the guidelines for the table definitions in the APR.

RAG 2.07 covers the principles and cost drivers to be used to attribute and allocate capital and operating costs in the APR between:

- Appointed and non-appointed activities within the appointee (APR Parts 1 and 2);
- Price control units (APR Part 2);
- Household and non-household Retail services (APR Parts 2 and 4); and
- Services for measured and unmeasured customers (APR Parts 2 and 4).

We have applied the principles and guidance as set out in these RAGs to prepare the APR.
RAG 2.07 states that the cost allocation principles need to comply with the following general principles:

- Transparency**:** the cost attribution and allocation methods applied to allocate costs within the APR need to be transparent. The costs and revenues apportioned to each service and business unit should be clearly identifiable, with clear explanation of cost and revenue drivers:
  - As part of DCC's overall accounting separation cost centre group, alternative cost centre structures have been created in SAP in a format that facilitates the completion of the APR data tables. These contain specific cost centre groups for the business activities. A number of 'work management systems' result in greater accuracy of cost allocation and reduced reliance on manual allocations across activities. Asset-related cost centres and most operational support staff can be attributed directly to a business activity. Non-operational staff costs are allocated directly to activities where possible. Where this has not been possible cost drivers have been used to apportion departmental costs in line with Ofwat's hierarchy of cost drivers.

  - Each business area prepares its costs in the accounting separation format and forwards to the Regulatory Accountant for consolidation. The consolidated spreadsheet details the costs for each business area which can be traced back to SAP. The costs drivers used are shown in the following appendices:

    - Retail: Wholesale cost allocation *Appendix 2*
    - Wholesale cost allocation *Appendix 3*
    - General and support allocation *Appendix 4*
    - Retail: household/non-household split *Appendix 5*
    - Retail (household): measured/unmeasured split *Appendix 6*

  - Transparency is provided by the production and publication of this methodology statement.

- Causality: cost causality requires that costs (and revenues) are allocated to those activities and services that cause the cost (or revenue) to be incurred. This requires that the attribution of costs and revenues to activities and services should be performed at as granular a level as possible.
  - In respect of costs that are directly attributable to a business activity, costs are allocated to these activities; and
  - Where any costs are not directly attributable, the most appropriate cost drivers are used relating to that specific cost.

- Non-discrimination: the attribution of costs and revenues should not favour any business unit within the regulated company and it should be possible to demonstrate that internal transfer charges are consistent with the prices charged to external third parties.
  - Transport activities are recorded in a standalone SAP company code where costs are recharged to price control units using predetermined rates for the assets based on asset value deterioration and maintenance costs. We do not have any other internal transfer charges. Any general and support costs that are allocated over price control units are based on cost drivers shown in Appendix 4;
  - Power from other group companies is purchased at market value in line with RAG 5.07; and
  - Cost allocation is made on an objective basis without any intention of discrimination.

- No cross-subsidy between price controls: following the introduction of separate binding price controls at the 2014 price review, companies cannot transfer costs between the price controls in setting prices and preparing the APR. The revenue allowance for each price control is determined by the costs specific to that particular price control.
  - There is a separate SAP company code for Retail activities. This means that the majority of Retail costs can be directly attributed;
  - Head office costs such as human resources, IT and finance activities require allocation across all business areas. The allocation methods used are shown in Appendix 4;
  - All costs allocated such as power are based on cost and not on market price; and
  - For water used at sewage works, the appropriate tariff has been used by Water to recharge to Wastewater.

- Objectivity: the cost and revenue allocation criteria need to be objective and should not intend to benefit any price control unit or appointed/non-appointed business. Cost allocation must be fair, reasonable and consistent.
    - The allocation methods that we have used are not intended to benefit any business unit or service and have been applied objectively.

- Consistency: costs should be allocated consistently from year to year to ensure meaningful comparison of information across the sector and over time; regulatory incentives from comparative analysis apply fairly across companies and enable monitoring of companies' performance against price control assumptions. Changes to the attribution methodology from year to year should be clearly justified and documented in the Accounting Methodology Statement.
    - We aim to be as consistent as possible. However, if we identify an opportunity to use another cost driver that is more appropriate then we will use this and explain our rationale for the change in this Methodology Statement; and
    - Any changes in treatment of costs included in the RAGs will affect the consistency of our treatment of costs. These will also be disclosed in this Methodology Statement.

- Principal use: where possible, capital expenditure and associated depreciation should be directly attributed to one of the price control units. Where this is not possible as the asset is used by more than one service, it should be reported in the service of principal use with recharges made to the other services that use the asset reflecting the proportion of the asset used by the other services.
    - Assets that are used by more than one service such as IT costs are attributed to the service of principal use. Recharges made to the other services are based on depreciation

2.2: Cost drivers used for allocating between price controls

- Where costs relate explicitly to a specific business unit, the expenditure has been coded directly to the business unit that consumed the good or the service. Where direct coding is not possible, an appropriate allocation has been made using specific cost drivers.
- The Retail/Wholesale cost allocation table (Appendix 2) provides an explanation of how operating costs have been allocated to Retail for each line of the table;
- Wholesale cost allocation is included in Appendix 3;
- General and support costs allocation is included in Appendix 4; and
- The Retail household/non-household table (Appendix 5) provides detail of cost drivers used to allocate costs.

Why these allocations are considered appropriate

- We consider that the allocations are appropriate as, in most cases, we have used the cost drivers mentioned in the RAGs: in certain cases other costs drivers have been used, i.e. where we believe that these are more appropriate;
- A high proportion of employment costs is allocated directly to business units, however some costs are allocated using assessment cycles. In the majority of cases these are cycled to the same business unit, however there is a small amount that is allocated to other business activities. These cost assessment cycles are monitored on a regular basis, and a thorough review takes place every six months;
- We have discussed the RAGs with the business to ensure that we are adhering to the guidance with regard to network customer enquiries and complaints. For the split between household and non-household we have used job types;
- We have confirmed that the customer numbers that we are using in the household/non-household split is in line with the definition set out in the RAGs;
- Where management judgement has been used we have examined the rationale to satisfy ourselves that it is reasonable; and
- In allocating the bad debt charge (households 95.8%: non households 4.2%) we have used the customer specific aged debt profile and the bad debt write-offs. This approach is in line with previous years.

How the company's management are satisfied that they are reasonable

- Most cost drivers are applied on a consistent basis, however where there has been a change this is discussed with the relevant department to ensure that it is reasonable. Any changes are disclosed in the Methodology Statement.
- Managers are rewarded on their performance and this includes financial performance. Monthly reports are produced by the finance team which they and the budget manager examine closely to highlight any cost variances and to identify any costs that should not be included in that area. This will include extraneous cost assessment cycles. Any costs that should not be included within a particular area will be transferred out. Therefore, due to this rigorous system, management is satisfied that the costs are being reported in the correct area.

Assurance process

All data reported in the APR is subject to a structured three lines of assurance process:

- In the first line of assurance management has accountability for identifying risks and managing these by developing and maintaining sound processes, systems and controls (in the normal course of operations);
- In the second line of assurance the Regulation and Finance teams have accountability for providing the framework and governance for regulatory reporting; and
- The third line of assurance provides independent audit and assurance activity through our Business Assurance team, who both review the assurance framework and provide risk based assurance on individual elements. The information contained within this document is also reviewed by our independent external auditor or the Technical Auditor.

The auditors' findings are reported to the Dŵr Cymru Executive team, the Audit Committee and the Board of Directors, each of which reviews and approves documents prior to their publication.

2.3: Changes in the methodology compared to previous year

We have changed the cost drivers or cost treatment for the following costs:

Power: In prior years the costs reported in this line includes electricity and gas. However, further to clarification within Table 4Q which states that '*power should include all energy costs (including electricity, gas and fuel for vehicles, plant and machinery) which is consistent with the power lines in Table 2B'*, fuel costs are now also reported as power.

Principal use: where an asset is used by more than one service, it should be reported in the service of principal use with recharges made to the other services that use the asset, reflecting the proportion of the asset used by those services. In prior years, the recharges was based on the full cost of the asset, reflecting accelerated depreciation on these assets. For this report year (and reflecting the treatment in PR19) only the depreciation charged in the year for these shared assets, has been recharged to the other services, as this reflects the proportion of the asset used by these services in the year.

There have been no other changes.

2.4: Significant changes in costs at price control level compared to previous year

Totex analysis - Wholesale Water and Wastewater (Table 2B)

Totex (including cash items) for Wholesale activities is £53m (8%) higher than last year; operating expenditure is £15m higher and capital expenditure £41m higher. This is partially offset by an increase in contributions by £3m.

Wholesale Water: Totex including cash items is £13m (4%) higher than last year; £10m relates to an increase in Water Resources and £3m to Water Network+. The increase mainly relates to increases in opex of £11m, capex £5m partially offset by an increase in contributions by £3m.

Wholesale Wastewater: Totex including cash items is £40m (13%) higher than last year; £19m relates to an increase in Wastewater+ and £21m to Sludge.

Movements and explanations are shown in the tables overleaf.

Changes compared to last year: Wholesale water

(For further details see Appendix 1)

	Movements (£m)				Movements (%)		
	Water resources	Wholesale water network+	Total		Water resources	Wholesale water network+	Total
	£m	£m	£m		%	%	%
Operating expenditure							
Power	0.6	3.9	**4.5**		14%	21%	**19%**
	Water Resources increase reflects £0.1m fuel costs included as power and increase in consumption and wholesale price. Network+ movements of £3.9m: fuel costs of £1.1m are reported as power in Network+ in current year whereas previously this was reported as other operating expenditure (see section 2.3); adverse weather costs shown as atypical in table 4J of £1.8m (£1.3m Water Treatment and £0.5m Treated Water Distribution); and increase in Treated Water distribution of £1.1m reflecting price and consumption pumping increases.						
Income treated as negative expenditure	0.9	(0.6)	**0.3**		(20%)	26%	**(4%)**
	Water resources lower due to low reservoir levels during the long dry weather. Network+ increase relates to Water Treatment which reflects ROCS recycle premium increase.						
Abstraction charges/discharge consents	0.1	-	**0.1**		1%	5%	**1%**
	No material change compared to last year.						
Bulk supply	-	(0.1)	**(0.1)**		(21%)	(12%)	**(14%)**
	No material change compared to last year.						
Other operating expenditure – renewals expensed in year (infra)	(5.9)	3.8	**(2.1)**		(38%)	8%	**(3%)**
	Water resource movements relate to less dam safety work being classed as maintenance (more enhancement schemes, included in Table 4 Line 23). The increase in Network+ relates to additional work carried out during the adverse weather totaling £5m (this is classed as atypical costs in Table 4J).						
Other operating expenditure – excluding renewals	0.2	11.5	**11.7**		3%	13%	**12%**
	There is no material change in Water Resources. The increase in Network+ relates to adverse weather costs of £14m (included in atypical costs Table 4J Line 25). This relates to increase in employment costs (£2m), hired and bought in services (£11m) and materials (£1). This is offset in part by fuel costs of £1.1m being reported as power (see section 3.6 for further explanation)						
Local authority and Cumulo rates	-	0.5	**0.5**		6%	4%	**4%**
	Relates to Cumulo inflationary cost increase of 3%.						
Total operating expenditure exc third party services	**(4.0)**	**19.0**	**15.0**		**(13%)**	**11%**	**8%**
Third party services	(3.6)	0.1	**(3.5)**		(48%)	4%	**(37%)**
	In previous year this included dam maintenance work on the Caban Coch reservoir which supplies Severn Trent Water of £3.9m.						
Total operating expenditure	**(7.6)**	**19.1**	**11.5**		**(19%)**	**11%**	**6%**
	Movements (£m)				**Movements (%)**		

Changes compared to last year: Wholesale water

(For further details see Appendix 1)

	Water resources	Wholesale water network+	Total		Water resources	Wholesale water network+	Total
	£m	£m	£m		%	%	%
Capital expenditure							
Maintaining long-term capability of assets - infra	2.9	(6.0)	**(3.1)**		(542%)	(27%)	**(14%)**
	Water Resources costs relate to the accelerated spends on impounding reservoir and MITIOS schemes that maintain the long term capability of the asset whilst delivering the base level of services. The majority of the schemes relate to studies and investigation of £1m in preparation of capital spend, with the remainder relating to impounding reservoirs. Network+ decrease reflects reduction in Treated Water Distribution costs due to lower zonal studies.						
Maintaining long-term capability of assets – non-infra	(6.4)	(6.8)	**(13.2)**		(59%)	(10%)	**(17%)**
	Water Resources decrease of £6m relates mainly to Manorafon WPS scheme which is £5m lower than last year. Network+ decrease reflects that large maintenance project costs were incurred last year for Water treatment works of £7m including run to waste scheme costs £1.7m, DAF plant £1.8m and new filters £1.1m as well as other water treatment schemes						
Other capital expenditure - infra	12.1	5.7	**17.8**		933%	38%	**109%**
	The increase in Water Resources relates to the increase in the costs relating to the dam safety program. The following schemes were classed as IRE in 2019 but are now included as enhancement: the spend incurred in the year amounts to £6m at Talybont reservoir, £2m at Llanishen reservoir and £0.9m relating to the Usk spillway upgrade. Network+ increase relates to treated water distribution mainly due to Hereford City Growth scheme (£3.5m) and work on trunk mains in Porth (£1.5m) and Maerdy (£1.3m).						
Other capital expenditure – non-infra	8.2	(9.0)	**(0.8)**		(101%)	(42%)	**(3%)**
	The increase in Water Resources relates mainly to Prioress Mill Habitat intake screen costs to comply with new environmental legislation, which is £8.9m above last year. The decrease in Network+ reflects lower spend in water treatment reflecting lower costs in Tynywaun WTW (£4.2m) and Bryn Cowlyd WTW (£6.6m) as majority of spend to upgrade these works were incurred last year.						
Infrastructure renewals reinforcement	-	0.4	**0.4**		-	84%	**84%**
	The increase reflects in part an improvement in our data collection process but also an indicator of the potentially volatile nature of this work, as this type of work is intermittent.						
Total gross capital expenditure excluding third party services	**16.8**	**(15.7)**	**1.1**		**85%**	**(12%)**	**1%**
Third party services	3.8	(0.1)	**3.7**		31,842%	(15%)	**645%**
	Water Resources increase mainly relates to Llyn Brenig impounding reservoir improvements totaling £3m.Last year £0.012m included as third party.						
Total gross expenditure	**20.6**	**(15.8)**	**4.8**		**105%**	**(12%)**	**3%**
Grants and contributions	3.4	(0.2)	**3.3**		-	(1%)	**27%**
	The increase in Water Resources relates to income received from the NRW relating to work carried out on impounding reservoirs under the s20 operating agreement.						
Totex	**9.6**	**3.5**	**13.0**		**16%**	**1%**	**4%**
Pension deficit recovery payments	-	-	**-**		-	-	**-**
	No movement compared to last year						
Totex including cash items	**9.6**	**3.5**	**13.0**		**16%**	**1%**	**4%**

Changes compared to last year: Wholesale wastewater

(For further details see Appendix 1)

	Movements (£m)				Movements (%)		
	Wastewater network+	Sludge	Total		Wastewater network+	Sludge	Total
	£m	£m	£m		%	%	%
Operating expenditure							
Power	0.9	0.6	**1.5**		4%	52%	**6%**
	Fuel costs are included in this line of £0.8m for Sludge and £0.6m for Wastewater Network+ which was previously reported as other operating expenditure (see section 2.3). In addition there is £1m of power costs shown as atypical in table 4K for network+.						
Income treated as negative expenditure	(0.1)	0.2	**0.1**		12%	(7%)	**(3%)**
	Network+ increase relates to increase in ROCS as electricity production resumed in the year. The reduction in sludge relates to two CAD sites closing and moved to raw sludge liming as well as reduced gas to grid income due to closure of plant as a result of ongoing capital schemes.						
Abstraction charges/discharge consents	0.1	-	**0.1**		1%	-	**1%**
	No material change from last year.						
Other operating expenditure – renewals expensed in year (infra)	3.6	-	**3.6**		14%	-	**14%**
	The increase in the year in network+ reflects that the costs in 2018 were lower than previous year						
Other operating expenditure – excluding renewals	0.7	0.4	**1.1**		1%	2%	**1%**
	Network+ increase relates mainly to sewage treatment for compliance tankering, skip and water consumption which is offset in part by fuel costs included in power. Sludge increase relates mainly to sludge disposal where cost increases incurred due to a change of contract as a result of operational issues which again, is partially offset by fuel costs included as power						
Local authority and Cumulo rates	(2.8)	(0.2)	**(3.0)**		(30%)	(38%)	**(31%)**
	Relates to rates refund accrual at Swansea WWTW of £2m and lower provision of unassessed sites of £2m offset in part by lower rates refunds received (excluding Swansea refund) of £1m						
Total operating expenditure excluding third party services	**2.4**	**1.0**	**3.4**		**2%**	**5%**	**2%**
Third party services	0.6	-	**0.6**		837%	-	**837%**
	The costs reflect increase in rechargeable works for sewer collections.						
Total operating expenditure	**3.0**	**1.0**	**4.0**		**2%**	**5%**	**3%**
Capital expenditure							
Maintaining long term capability of assets - infra	1.2	-	**1.2**		11%	-	**11%**
	Network+ movement relates to sewage collection which includes some increases in large schemes in the year (Cardiff Bay LG tank network £0.5m, Llangennech rising main £1m).						

Changes compared to last year: Wholesale wastewater

(For further details see Appendix 1)

	Movements (£m)				Movements (%)		
	Wastewater network+	**Sludge**	**Total**		**Wastewater network+**	**Sludge**	**Total**
Capital expenditure (continued)	**£m**	**£m**	**£m**		**%**	**%**	**%**
Maintaining long term capability of assets – non-infra	12.9	16.2	**29.1**		19%	44%	**27%**
	Increase in Network+ relates to sewage collection (£4m) and sewage treatment (£8m); relating to increased work at Kinmel Bay for new inlet works, Archimedes screw pump replacement at Pen y Bont and new process installed at Hirwaun WwTW. Sludge increase relates to our sludge strategy programme with increased spends at Cog Moors (£8.2m), Five Fords (£1.9m), Kinmel Bay (£2.1m), Treborth (£1.5m) and Chester (£1m). The sludge strategy programme in North Wales consists of having a single sludge centre producing an enhanced treated bio-solid product through the provision of a TPH upstream of the existing digestion process at Five Fords WWTW, and the conversion of five North Wales satellite sludge treatment centres to sludge cake export centres supplying the new advanced anaerobic digestion plant. In addition, maintenance capex includes investment in the South Wales and Hereford sludge strategy which aims to mitigate the current issues associated with the treatment and disposal of bio-solids waste and to bolster the resilience and reliability of the sludge base across these regions						
Other capital expenditure - infra	8.4	-	**8.4**		30%	-	**30%**
	Network+ increase all relates to sewage collection and reflects work incurred to reduce the number of spills to river courses as well as additional costs incurred as part of the sewer flooding programme to alleviate flooding at named sites due to hydraulic overload.						
Other capital expenditure – non-infra	(5.7)	4.0	**(1.7)**		(16%)	-	**(5%)**
	Reduction in Network+ relates to sewage collection (£1.9m) and sewage treatment (£8.5m). Sewage treatment decrease reflects that in 2018 there were some large growth schemes; two schemes at Chester WwTW and Llanfaethlu WwTW are £4.6m lower than last year. In addition a scheme relating to the countryside and rights act of way is £1.6m lower than last year.						
Infrastructure renewals reinforcement	(1.4)	-	**(1.4)**		(47%)	-	**(47%)**
	The reduction reflects the volatile nature of this work, as this type of work is intermittent with lower schemes in the year						
Total gross capital expenditure excluding third party services	**15.4**	**20.2**	**35.6**		**11%**	**55%**	**19%**
Third party services	0.3	-	**0.3**		662%	-	**662%**
	Third party costs relate to the cost of building over sewers.						
Total gross expenditure	**15.7**	**20.2**	**35.9**		**11%**	**55%**	**20%**
Grants and contributions	(0.1)	-	**(0.1)**		(1%)	-	**(1%)**
	No material change from last year						
Totex	**18.8**	**21.1**	**39.9**		**7%**	**38%**	**13%**
Pension deficit recovery payments	-	-	**-**		-	-	**-**
	No change compared to last year.						
Totex including cash items	**18.8**	**21.1**	**39.9**		**7%**	**38%**	**13%**

Changes compared to last year: Operating cost analysis - Retail (Table 2C)

Total operating costs for Retail activities are £2.7m (4%) lower than last year, all of which relate to household

	Movements (£m)				Movements (%)		
Operating expenditure	**Household**	**Non-household**	**Total**		**Household**	**Non-household**	**Total**
	£m	**£m**	**£m**		**%**	**%**	**%**
Customer services	0.7	0.1	**0.8**		6%	3%	**5%**
	The increase is a result of action taken to recover our customer service performance following Storm Emma at the end of 2017/18. Temporary resource was in place for eight months in order to recover day bands, the number of days it takes to respond to receipt of complaints and general correspondence responses.						
Debt management	(0.8)	(0.1)	**(0.9)**		(10%)	(7%)	**(10%)**
	Debt management continues to fall on an annual basis. The reduction in 2018/19 can be attributed to re-procurement of debt collection agencies and payment processing contracts as well as the net benefit that we have begun to experience from charging order activity in prior years, which is offset against the cost of legal action.						
Doubtful debts	(1.5)	0.4	**(1.1)**		(7%)	69%	**(5%)**
	The overall cost reduction reflects the improvement in collections rate resulting from our litigation strategy and the support we provide to our customers who benefit from more affordable bills under our social tariffs schemes. The movement in NHH doubtful debt costs is reflective of the data we are able to obtain for customer types, and is reflective of the provision movement taken against NHH customers in the period.						
Meter reading	0.1	0.1	**0.2**		4%	28%	**8%**
	The proportion of metered customers increased in the year to 49% (2018: 48%), with meter reading costs increasing as a consequence. Cost increases arise from additional meter readers and back office support to manage a larger meter book. Future planned innovations in this area will help to restrict further cost increases.						
Services to developers	-	(0.1)	**(0.1)**		-	(28%)	**(28%)**
	No material increase from last year.						
Other operating expenditure	(1.4)	(0.3)	**(1.7)**		(14%)	(26%)	**(15%)**
	The reductions reflect £1.5m lower BIS costs due to an improved allocation methodology which allocates BIS spend based on the number of computers utilising systems instead of FTE numbers (i.e. more reflective of the use of BIS costs). In addition, there has been a £0.3m reduction in HR costs due to an improvement in allocation methodology to allocate expenditure based upon the direct use of HR resources per price control, a £0.4m reduction in facilities costs due to a re-procured facilities management contract with lower spend on office equipment and a £0.6m increase in Retail direct other opex due to increased project resources.						
Total operating expenditure	**(2.8)**	**0.1**	**(2.7)**		**(5%)**	**3%**	**(5%)**
Depreciation - tangible	**0.1**	**-**	**0.1**		**24%**	**(16%)**	**20%**
	No material increase from last year.						
Depreciation – intangible	**-**	**(0.1)**	**(0.1)**		**1%**	**(20%)**	**(2%)**
	No material increase from last year.						
Total operating costs	**(2.7)**	**-**	**(2.7)**		**(5%)**	**2%**	**(4%)**

Changes compared to last year: Operating cost analysis - Retail (Table 2C)

	Movements (£m)				Movements (%)		
	Household	Non-household	Total		Household	Non-household	Total
	£m	£m	£m		%	%	%
	(7.1)	(0.6)	(7.7)		(23%)	(40%)	(23%)
Debt written off	The HH/NH write-off split has moved by 1%, from 95%/5% to 96%/4%. The allocation of write off between HH and NHH is based upon actual write-offs per internal data records. In 2018/19, the hot weather experienced in the summer months resulted in a short term, but material increase in water consumption. As a result we had a material number of payment plans for measured customers reset, increasing estimated future usage and increases in measured bills and payments. This resulted in material credit balances as the reset consumption levels was higher than the actual consumption in the following read cycle. These credits were "one-offs" in the period and will be adjusted in 2019/20; as such they have been discounted from the assessment of write off allocations.						

2.5: Significant movement in a particular cost type between price control segments

There have been no movements of cost types between price control segments

2.6: Percentage split of power costs and other operating expenditure

- The percentage allocation split of power costs between directly coded and indirectly coded (allocated based on consumption) is as follows:

Power	Water Resources	Water network	Wastewater network	Sludge
Directly coded	81%	58%	58%	45%
Indirectly coded	19%	42%	42%	55%
	100%	100%	100%	100%
Savings from power generation				100%

- The percentage allocation split of other operating expenditure between directly and indirectly coded excluding renewals expensed in the year is as follows:

Other operating expenditure- exc renewals	Water Resources	Water network	Wastewater network	Sludge	Retail
Directly coded	51%	72%	66%	79%	77%
Indirectly coded	49%	28%	34%	21%	23%
	100%	100%	100%	100%	100%

The allocation split of other operating expenditure after including renewals expenditure in year (infrastructure) is as follows:

Other operating expenditure- inc renewals	Water Resources	Water network	Wastewater network	Sludge	Retail
Directly coded	78%	81%	78%	79%	77%
Indirectly coded	22%	19%	22%	21%	23%
	100%	100%	100%	100%	100%

2.7: Disaggregation of power costs when consumed at sites with more than one price control segment

Power costs include all energy costs (including climate change levy costs). Electricity costs are normally allocated to assets via DCC's electricity management system (ARIES) which receives electronic power bills from the energy providers and, by reference to the supply point, charges the cost to an asset's cost centre via an interface with SAP. For this report year, however, ARIES wasn't available, hence we had to revert to the back-up solution, i.e. used the Excel backing sheets received from the energy suppliers to generate the total power consumption for each supply point**;** additional data integrity checks were carried out to ensure accuracy of the data. Each Water and Wastewater service asset has a unique supply point allowing the actual power costs to be charged directly to the asset and its associated activity.

Where a supply point provides power for more than one price control unit, a percentage split is applied that is specific to the associated supply point. The percentage split is determined by estimating the power cost per price control unit by undertaking site audits. These involve cataloguing all the electrical equipment on site. The running hours and loading of each piece of equipment are estimated/determined to calculate annual power consumption and this is allocated to regulatory cost accounting areas. The equipment's power use as a proportion of the total site's power consumption is used to establish the cost centre splits.

Power costs also include fuel costs, which are allocated to the cost centres where the asset which consumes the fuel is located. For assets that support more than one price control segment, the costs are allocated based on the most appropriate cost centres based in Ofwat's hierarchy of cost drivers.

2.8: Management and general costs split across price control segments

Capital expenditure: Management and general costs for those that cannot be directly allocated are allocated across price control segments using FTE as the cost driver. The costs splits are as follows:

Capital expenditure- Management and General	Water Resources	Water network+	Wastewater network+	Sludge	Retail	Total	% split
Allocated by:	£m	£m	£m	£m	£m	£m	%
FTE	1.1	15.1	12.1	3.2	1.1	32.7	80%
Direct					8.3	8.3	20%
Total	1.1	15.1	12.1	3.2	9.4	41.0	100%

Capital expenditure-Management and General	Water Resources	Water network+	Wastewater network+	Sludge	Retail	Total
split						
FTE	3%	46%	37%	10%	3%	100%
Direct	0%	0%	0%	0%	100%	100%
Total	3%	37%	30%	8%	23%	100%

Operating expenditure: Management and general costs (including other business activities) for those that cannot be directly allocated are allocated across price control segments using cost drivers as reported in Appendix 4.

Operating expenditure-General and support and other business activity costs	Water Resources	Water network+	Wastewater network+	Sludge	Retail	non appointed	Total	% split
Allocated by:	£m	£m	£m	£m	£m	£m	£m	%
Allocated using cost drivers [1]	1.3	19.1	15.4	3.3	5.2	0.8	45.1	74%
Directly allocated	1.6	1.2	4.4	1.4	3.5	0.0	12.1	20%
Other Business Activities	0.4	1.2	0.8	0.8	0.4	0.2	3.7	6%
total	3.3	21.5	20.6	5.5	9.1	1.0	61.0	100%

[1] Cost drivers used are shown in Appendix 4

	Water Resources	Water network+	Wastewater network+	Sludge	Retail	non appointed	Total
split							
Allocated using cost drivers	3%	42%	34%	7%	12%	2%	100%
Directly allocated	13%	9%	36%	12%	29%	0%	100%
Other Business Activities	10%	32%	22%	21%	10%	5%	100%
	5%	35%	34%	9%	15%	2%	100%

2.9: Planned improvements for future years

Planned improvements for future years (Retail)

In 2018/19, the following developments have mitigated cost pressures and supported the ongoing reduction in operational costs:

A bill redesign has simplified the presentation of customer bills and reduced customer calls by 5%;

- Automated ID&V for our webchat channel, which has reduced the average handling time of these contacts by three minutes;
- The Re-procurement of our print and mail agreement, which will save over £100k annually at the current level of outbound mail;
- Transformed our scanning and indexing processes resulting in a 30% reduction in manual work in this area; and
- Developed 'Submit a Meter Reading' which allows our customers to submit a meter read online and receive an immediate update to their bill resulting in an end to end customer self-service.

In 2019/20 we plan to deliver the following improvements:

- Roll-out of a revised Vulnerable Customer Policy, expanding our reach of services for our most vulnerable customers;
- A “My Account “capability and an automated online service, improving our online billing services to customers;
- Procurement and implementation of new hand held technology for our meter readers;
- Enhancements to case management and introduction of a new complaint handling methodology;
- Improved performance management and insight capability;
- Upgrades to our telephony system which will enable us to progress our 'single view of the customer' for front line agents; and
- Review of our service offering for our Welsh Language customers to comply with new legislation.

Planned improvements for future years (Wholesale)

Planned improvements for Wholesale are:

- Improved site optimisation by embedding 'lean' ways of working and best practice to focus on assets, chemicals, energy and reactive efficiencies;
- Replacement of legacy IT software and hardware with more appropriate intuitive solutions, improving the user experience and supporting smarter ways of working to enhance productivity;
- Continued collaboration and alliance with Morrison's Utility Services to operate, maintain and upgrade our water networks in the most efficient manner;
- Implementation of Network Optimisation control systems to harness real time energy management and optimisation of pump operations for water distribution networks;
- Continued focus on minimising the amount of energy used to deliver compliance and customer service objectives, whilst increasing levels of self-generated energy wherever feasible and economic to do so;
- Enhancement of an asset-specific, risk-based maintenance strategy to improve performance, reducing costs by increased levels of preventative maintenance;
- Retendering of third party contracts where applicable to ensure access to the latest technologies and working practices at competitive rates; and
- Continued advancements in the latest "SMART" operational technology and predictive data analytics to improve controls and preventative modelling to minimise incidents.

2.10: Principal use rules applied

Principal use applies where an asset is used by more than one service: it should be reported in the service of principal use with recharges made to other services that use the asset, reflecting the proportion of usage by those other services. In 2018/19 have applied the principal use rule as follows:

- £12.5m of capex spend in the year has been reported in the service of principal use and relates to IT and other 'management and general' items.
- Recharges made to the other services are reported in Table 2A Segmental income statement. This recharge is based on the depreciation on these assets with no financing adjustment. This is different from the basis used last year which recharged the full amount of capital expenditure as accelerated depreciation, as this reflects our PR19 treatment. The amount recharged in the year amounts to £4.9m (2018: £12.8m); the difference reflects the change in methodology;
- The recharges made to other services use FTE numbers as the cost driver as the assets are "management and general" in nature. The split between household and non-household has been based on customer numbers; and
- For Tables 2B (Totex analysis Wholesale), 2C (Operating cost Retail), 4D (Wholesale totex Water) and 4E (Wholesale totex Wastewater) assets are included in the business area where they are being used, i.e. not on a principal use basis. The reason for this treatment is to reflect the PR14 submission. It would be difficult to compare actual to Final Determination costs on a principal use basis. In addition, RAG 2.07 states that the principal use method is not required in Part 4 of the APR.

2.11: Recharges to non-appointed activities

Costs relating to tankered Wastewater, property searches and restaurant and visitor centres are allocated directly to non-appointed activities with no recharges made for these costs. Tankered Wastewater costs are allocated to non-appointed activities using the Mogden formula.

3: Wholesale upstream services

3.1: Disaggregation of operating costs across upstream services

This is detailed in Appendix 1.

3.2: Disaggregation of power costs across upstream services

This is covered in paragraph 2.7 headed "disaggregation of power costs" above.

3.3: Bulk supply imports

Bulk supply import costs of £1m have been allocated across the regulatory units using the average cost of the exporting company (as reported in its latest published APR).

3.4: Derivation of quantities used in unit cost data

Water Resources - abstraction licenses

Licensed volume available

Data is taken as a summation of the annual licenced volume (Ml) per abstraction licence provided by Natural Resources Wales (NRW) and the Environment Agency in their annual abstraction licence charging sheet. For APR 2018/19 we are reporting a total annual licensed volume available of 1,682,460.83 Ml. This is 433 Ml more than the volume reported in 2017/18 of 1,682,027.83 Ml, equivalent to a 0.026% change. Upon review of the license charging check sheet received from NRW, we identified some minor discrepancies at five of our abstraction sites. There are a further seven sites where we have revoked the abstraction license during 2018/19. In aggregate, these give an overall difference of 433 Ml:

License No.	Site Name	Volume change (Ml/yr) from 2017/18	Note
20/56/35/0008	Ffynon Ivan spring	(10.00)	License revoked 2018-19
20/56/36/0021	Llanbedr point 8	(10.00)	License revoked 2018-19
20/56/37/0002	Transfer from Nant	(795.55)	License revoked 2018-19
20/56/22/0026	Craig y Pandy	(581.89)	License revoked 2018-19
20/56/31/0054	Spring at cherry orchard	(24.96)	License revoked 2018-19
20/56/21/0029	Waun springs	(68.03)	License revoked 2018-19
23/66/10/0011	Transfer Dylan to Bach	(316.00)	License expired 2018-19
22/61/4/0003	Llysyfran	(1,818.40)	Incorrect volume in 2017-18
19/55/1/0007	Elan Valley	117.12	Incorrect volume in 2017-18
20/56/22/0027	Llandegfedd	3,300.41	Incorrect volume in 2017-18
22/63/1/0005	Llyn Llygad Rheidol sch A	1,569.50	Incorrect volume in 2017-18
22/63/1/0005	Llyn Llygad Rheidol sch B	(929.20)	Incorrect volume in 2017-18
Total		**433.00**	

Water Resources – Raw Water Abstraction

Volume abstracted

The data reported is a summation of the annual abstraction licence returns (Ml) that are submitted per abstraction licence to Natural Resources Wales and the Environment Agency on a financial year basis, using metered flow data from all of our abstraction sites. For APR 2018/19 we are reporting a total abstracted volume available of 513,798.41 Ml, compared to a value of 505,739.42 Ml reported in APR 2017/18. A 1.6% increase is explained by the hot, dry weather we experienced last summer which caused increased demand from our customers. The figures reported include the Elan Valley bulk supply to Severn Trent Water.

Raw Water Distribution - Raw Water Transport

Volume transported

For APR 2018/19 we are reporting a total transported volume available of 411,257.74 Ml, compared to a value of 401,297.49 Ml reported in APR 2017/18. The increase is explained by the hot, dry weather we experienced last summer which caused increased demands from our customers. The data used is the same as that for Raw Water Abstraction, being metered flow data from all of our abstraction sites. To derive the Raw Water Transport value those sites that are classed as 'co-located' are excluded from our calculations. The figures reported include the Elan Valley bulk supply to Severn Trent Water.

Raw Water Distribution - Raw Water Storage

Average volume stored

The data reported is a summation of the total storage volume available in raw water reservoirs which do not have an abstraction licence or other legal agreement, or have greater than 15 days' storage. For such reservoirs the storage volume is calculated using the average of daily readings of volume in the year or, where no daily data is available, we use the maximum capacity of the reservoir.

For APR 2018/19 we are reporting an average volume stored of 278.36 Ml/d. This is approximately 9 Ml/d (3.2%) more than the volume reported in 2017/18 of 269.63 Ml/d due principally for two main reasons:

- Upon further review, we have concluded that the raw water storage reservoir at Pendine treatment works should be included within this category. This holds around 14 Ml which is equivalent to approximately three days' average supply of Pendine WTW; and
- The average volume stored at Court Farm is 5.5 Ml less this year than in 2017/18, due to the increased demands caused by the hot, dry weather last summer.

Water Treatment

Distribution input from Water Treatment

Distribution input is the average amount of potable water entering the distribution system and supplied to customers within the company's area of supply, on an annual rather than daily basis.

Treated Water Distribution

Distribution input – treated water

Distribution input is the average amount of potable water entering the distribution system and supplied to customers within the company's area of supply, but on an annual rather than daily basis.

Wastewater Services - Network+ (Sewage Collection)

Foul; surface water drainage; highway drainage - volume collected

Table 4E line 25 to has been produced using the same methodology as used previously for the June Return tables 14 and 17, although the volume collected in the APR Table 4E is reported in Ml rather than Ml/d. This line includes all sewage collected from households and non-households, as well as trade effluent and tankered wastewater.

In 2015, we commissioned Mouchel to calculate the proportion of total sewerage received at our wastewater treatment works from foul sewerage, surface water and highway drainage. The report

estimated that foul sewerage accounts for 73% of the total volume collected; surface water drainage 17% and highway drainage 10%.

Wastewater services - Network+ (sewage treatment and disposal)

Biochemical oxygen demand (BOD) in tonnes

The value for Table 4E line 25 here has been calculated in line with the guidance for the June Return Table 15, Line 5.

This value is the daily population equivalent data that has been converted to kg/BOD/day (for June Return Table 17d) and subsequently to tonnes/BOD/year. Tankered volumes are also added to give the total load entering the sewage system in tonnes/BOD/year.

The value for this year is 89,928.680 tonnes (2017/18: 89,772.110 tonnes).

Wastewater services - Network+ (Sludge Liquor Treatment)

There has been an increase in total BOD load in sludge liquors by 399.080 tonnes (8.4%) compared to 2017/18. This is mainly due to an improvement in the methods of calculation used in our South West Wales area, namely:

- Last year at Aberystwyth WWTWS we used standard strengths for the BOD concentration (1500mg/l). This year by using sample data we have found the BOD concentrations to be much higher. In addition, for 2018/19 we have been able to use data from a flow meter installed on the return liquors instead of the estimate used for 2017/18 (based on cake exports) which gave a higher volume;
- The sample data used at Parc y Splott this year found that the liquor strength was much higher than the standard strength used last year, although the volumes were similar;
- Penybont was assessed using actual sample data this year and was found to have a 2.5 times higher BOD concentration than the standard strength used last year; and
- Swansea WWTW was assessed using actual sample data this year which was found to have a 4 times higher BOD concentration than the standard strength used last year.

Other factors affecting this year's reported figure are as follows:

- Porthmadoc WWTWs was assessed using population and sludge import data this year compared to centrifuge flow data last year; and
- Afan, Garnswllt, Pembroke Dock and Merlins Bridge were assessed using actual sample data for liquor BOD concentration and all were found to be lower than the standard strength used last year.

Whilst return liquor sample data has been collected for South West Wales area, the other two areas (North and South East) were carried out with the standard strength for BOD as a comparison.

The total BOD for South West area using this standard strength method was found to be 1,618.497 tonnes, a 38% lower value than the calculated figure using actual sample data.

The reported value for the South West area is therefore more accurately assessed since actual sampling data has been used. By using the standard strength assessment for two areas there is an element of uncertainty in the data accuracy which is reflected in our confidence grade of B4.

Sludge Transport

Volume transported - Sludge transport m^3

The unit information was derived by totalling the following information:

- Intersilting by tanker - Ofwat has clarified that only sludge tankered to sludge treatment centres should be included; all transactions are extracted from our logger system and transactions into inlets have been removed. The recorded volume has then been totalled;
- Intersilting by truck – all logger weighbridge intersilting cake movements' data has been extracted. The records contain kg of product, with sludge corrected on the basis that $1m^3$ = 1,100 kg. The haulage weight has then been totalled;
- Disposal by tanker – only one site's sludge is disposed of by tanker: Porthmadog (2018: one). The haulage contractor reports the volumes disposed of, which are then totalled; and
- Disposal by truck – this has been derived as follows:
  - Actual data from digester output is used for two sites where actual feed weights are recorded;
  - For all other sites supplier invoices which include recorded weight disposed are used to calculate the volume of sludge removed; and
  - All this data is captured monthly in the bio-solids monthly report "M R Wales MASTER xx". All above data records bio-solids cake in wet weight and this is converted to a volume on the basis $1m^3$ = 1,100 kg and summed.

The same methodology was applied last year.

Sludge Treatment

Dried solid mass treated (ttds)

The RAG guidance states that this is the total amount of sewage sludge produced during the report year expressed in thousands of tonnes of dry solids of sludge produced by the whole service.

This has been derived as follows:

- Actual data is used for two sites where actual weights are recorded both as a feed and output to/from the digester;
- For all other sites supplier invoices which include recorded weight disposed are used to calculate the volume of sludge removed;
- All of this data is captured monthly in the bio-solids monthly report "M R Wales MASTER xx";
- We convert the wet sludge totals into dry solid figures taking an average from the Quality Database system of the last five years' solids figures to remove any spikes in data. The conversion from wet sludge to dry solids is not treatment process specific. The five-year % tds data is reviewed and outliers, liquid over 10% and cake over 50% removed as erroneous results. The % year data is plotted and a trend line added to ensure a representative result is achieved for the reporting period; and
- To calculate the digestion losses for each treatment process:
  - At advanced digestion sites the actual total feed is taken;
  - At conventional digestion where actual destruction figures are available, these are used else an industry average of 35% destruction of dry solid mass is used;
  - For sites where lime addition is recorded, this quantity is removed from the total sludge disposed figure and where not recorded a company average of 12% is removed; and
  - At two sites where both lime and conventional treatment occurs 35% destruction of dry solids is assumed for the process and a further 12% is deducted for the addition of lime.

Sludge Disposal

Dried solid mass treated (ttds)

The guidance states that this is the total for all sewage Sludge Disposal. This should include disposal to farmland, landfill, incineration, composting and other routes.
This has been derived as follows:

- Actual data from digester output is used for two sites where actual feed weights are recorded;
- For all other sites supplier invoices which include recorded weight disposed are used to calculate the volume of sludge removed;
- All this data is captured monthly in the bio-solids monthly report "M R Wales MASTER xx"; and
- We convert the wet sludge totals into dry solid figures taking an average from the Quality Database system of the last five years' solids figures to remove any spikes in data. The conversion from wet sludge to dry solids is not treatment process specific. % year data is plotted and a trend line is added to ensure that a representative outcome is achieved for the reporting period.

3.5: Significant changes in costs at upstream level service compared to previous year

See Appendix 1.

3.6: Significant changes in a particular cost type at upstream level compared to previous year

Power: In prior years the costs reported in this line includes electricity and gas. However, further to clarification within Table 4Q which states that '*power should include all energy costs (including electricity, gas and fuel for vehicles, plant and machinery) which is consistent with the power lines in Table 2B*', fuel costs for direct services are now also reported as power.

The following costs are therefore reported as power in the 2018/19 APR whereas in 2017/18 APR these were reported as other operating expenditure.

- Water resources £0.1m
- Water treatment £0.4m
- Treated Water distribution £0.7m
- Sewage collection £0.4m
- Sewage treatment £0.2m
- Sludge £0.8m

3.7: Significant movements in unit cost

Further details on the cost movements are included in appendix 1.

Water Resources

Abstraction License: Unit cost £5.941/ml (2018: £6.058/ml)

This has decreased by 2% since last year as a result of a reduction in abstraction licence costs of £0.2m (2%) relating to third party services. Licensed volumes remain in line with last year.

Raw Water Abstraction: Unit cost £42.890/ml (2018:£ 58.228/ml)

This has decreased by 26% and mainly relates to decreased operating expenditure of £7.4m (25%) as volume abstracted has only increased by 2%. The cost increase is primarily as a result of lower infrastructure renewals expenditure (IRE) (£5.9m) and third party services (£3.4m) compared to 17/18

(which itself was £14m higher than the previous year as a result of increased work on impounding reservoirs).

Raw Water Distribution

Raw Water Transport: Unit cost £12.761/ml (2018: £10.765/ml)

The unit cost has increased by 19%, primarily as a result of increased operating expenditure (£0.9m) relating to power (£0.4m) and increased other operating expenditure (£0.6m). Volume transported has increased by 2%.

Raw Water Storage: Unit cost £3,445.129/ml (2018 £3,193.265/ml)

The unit cost has increased by 8%, which reflects £0.1m(11%) increased costs in other operating expenditure. Another factor why the unit costs have only increased by 8% is that the average volume stored has increased by 3%.

Water Treatment

Water Treatment: Unit cost £134.141/ml (2018: £130.285/ml)

The unit cost has increased by 3%: Distribution input volume has increased by 3% and Operating expenditure by 6% (£2m). The cost increase is mainly in power (£1m) and other operating expenditure (£1m). The power increase reflects increased costs due to the hot weather in summer 2018 which have been classed as atypical in Table 4J. The increase in other operating expenditure reflects increased hire and bought-in services (£0.8m) and material and chemical increases (0.4m).The hired and bought in service increase relates partly to accrual for pain/gain, emergency planning tankering costs and building maintenance work. Chemical increases relates to cost increase in caustic soda used to balance PH and additional costs of Sodium Hypochloride at court Farm.

Treated Water Distribution

Treated Water Distribution: Unit cost £454.898/ml (2018:£416.572/ml)

The unit cost has increased by 9% which reflects a cost increase of £16m (13%) and volume increase of 3%. Atypical cost increases account for £11.4m of this (2018/19: hot weather £18.7m; 2017/18: storm Emma £7.3m). Other cost increases relate to power (£1.8m), due to additional pumping costs and price increase and other operating expenditure (£1.9m), reflecting chemical and hired and bought-in services relating to a new minor works contract and additional costs from emergency planning and compensation payment relating to customer minutes lost incident at the start of the year.

Sewage Collection

Foul: £192.200/ml (2018: £182.703/ml); surface water drainage £278.403/ml (2018: £258.902/ml); Highway drainage £244.363 (2018 £236.186/ml)

Unit costs have increased as follows: foul 5%; surface water drainage 8%; highway drainage 3%. These are largely driven by cost movements as volumes have only increased by 1%. Operating expenditure has increased in foul by £2m and in surface water drainage by £1m, mainly relating to infrastructure renewals expenditure in the year which has increased by £3.6m. The increase in 2019 reflects that IRE cost in 2018 were lower than the previous year. The costs incurred will vary on a year by year basis as this is dependent on the weather and the condition of the assets.

Sewage Treatment

Sewage Treatment and Disposal: £625.863/t (2018 £645.969/t)

The unit cost has fallen by 3%. Volumes have remained in line with last year while costs have fallen by £1.7m (3%). Rates have decreased by £3m as a result of rates rebate at (Swansea WWTW) of £2m and release of provision offset with lower refunds than last year on other sites (£1m). This has been partially offset by increases in other operating expenditure (mainly hired and bought-in services).

Sludge Liquor: £945.935/t (2018: £855.530/t)

Unit cost has increased by 11%. Volumes have increased by 8% and costs have also risen by 20% (£0.8m). The increase in volume reflects a change in the methodology as actual sample data was used for some sites to determine the strength instead of the standard strength used last year (Further detail can be found in section 3.4) .The cost increase reflects that the strengths were higher than last year, due to the hot weather, and that actual data was being used instead of the standard strength – this resulted in a higher percentage of sewer treatment costs being allocated to sludge liquor.

Sludge

Sludge Transport: £8.828/m^3 (2018: £8.280/m^3)

The unit cost has increased by 7%. The volume has increased by 18% with an increase in costs by £1.2m. Power costs have risen by £0.7m reflecting the inclusion of fuel, together with a higher support cost allocation due to increased FTE numbers.

Sludge Treatment: £107,990.527/ttds) (2018: £130,416.081/ttds)

The unit cost has decreased by 17%; volume treated has increased by 8% whereas costs have decreased by 11% (£1m). In 2017/18 additional power costs of £1m reflected operational issues at one of our AD plants.

Sludge Disposal: £104,003.636/ttds (2018: £108,107.454/ttds)

The unit cost has decreased by 4%. Volumes have increased by 20% and costs by 16% (£1m) which relates mainly to an increase in contractor costs following operational issues.

3.8: Completion of Tables 4D and 4E

Principal use basis in line with the guidance in RAG 2.07 we have opted not to use the principal use method in Part 4 of the APR as this will make it easier to compare actual costs with the PR14 Final Determination.

The cost allocations used to complete Tables 4D and 4E are included in the attached Appendices.

Appendix 1

Disaggregation of Wholesale activities – upstream services

Introduction

RAG 4.08 requires companies to disaggregate their totex costs further in Tables 4D and 4E into the following upstream services:

Wholesale Water	Upstream services
Water Resources	Abstraction Licence
	Raw Water Abstraction
Network +	Raw Water Transport
	Raw Water Storage
Network +	Water Treatment
Network +	Treated Water Distribution

Wholesale Wastewater	
Network+	Sewage Collection -foul
	Sewage Collection - surface water drainage
	Sewage Collection - highway drainage
Network +	Sewage Treatment and Disposal
	Sludge Liquor Treatment
Sludge	Sludge Transport
	Sludge Treatment
	Sludge Disposal

The following details each individual upstream service and assumptions applied.

Appendix 1

Disaggregation of Wholesale activities – upstream services

Water Services: operating expenditure

Abstraction Licence

Guidance

This service has been identified separately from the Raw Water Abstraction service because of the potential for a market to emerge in the future, which would enable abstraction licences to generate a separate income stream.

This service includes activities related to negotiating with third parties to obtain abstraction rights and to agree charges, as well as the annual cost of the licence itself. This service should not include activities that are incurred in choosing abstraction sites, optimising abstraction or ensuring compliance with licence conditions. All such abstraction planning activities and licence administration activities should be included in the Raw Water Abstraction service. This also includes transfer licences where they are to support another transaction.

Methodology

There are no changes to the methodology from last year.

Raw Water Abstraction

Guidance

The water abstraction service includes activities related to the operation of existing water resource sites, identification of new sources, catchment management, licence management, management of schemes in accordance with Acts of Parliament and other legal obligations, and the abstraction infrastructure which may include pre-treatment where it is upstream of Raw Water transport.

Pre-treatment processes can vary, from a relatively simple physical separation of the largest impurities, to more complex chemical treatments.

In some circumstances, transport from the water abstraction site is included within the abstraction service rather than in Raw Water Transport. Where raw water is transported between Water Resources assets, the assets supporting this transport should also be included in Water Resources – Raw Water Abstraction

The activities relating to the inspections, operation and maintenance of assets in this price control unit are included in this service.

Methodology

There are no changes to the methodology from last year.

Raw Water Transport

Guidance

This service includes the activities related to transporting the raw water or pre-treated water from the boundaries of the abstraction site/assets or pre-treatment assets through a transport network to a treatment works, a Raw Water Storage facility (balancing reservoirs/tanks), or to customers that require untreated or non-potable water (including third party water companies).

It can also include blending of water from different sources.

Where a water abstraction site and water treatment works are co-located on the same site, then the raw water effectively 'by-passes' the Raw Water Transport stage.

The activities allocated to this service primarily include the development and maintenance of the physical Raw Water Transport network. This includes pipelines and aqueducts.

Methodology

There are no changes to the methodology from last year.

Raw Water Storage

Guidance

This service includes activities related to the construction, operation and maintenance of Raw Water Storage facilities. In general, no Raw Water Transport costs should be allocated to this service, since the cost of Raw Water Transport should be included within the Raw Water Transport service.

Associated activities, such as inlet flow control to prevent overfilling and outflow control (which ensures continuity of availability of supply) and planned and emergency drawdown and discharge facilities (with associated permitting) are included in this service.

Activities related to determining losses due to leakage and to ensuring security of the site from contamination are also included.

Reservoirs/other storage assets that are not covered by the definitions in Raw Water Abstraction and have less than 15 days' usable storage should be included as Raw Water Storage.

Appendix 1

Disaggregation of Wholesale activities – upstream services

Where pre-treatment is downstream of Raw Water Storage it should be included in Raw Water Storage. (Note the location of pre-treatment determines whether it should be accounted for as Raw Water Abstraction or Raw Water Storage).

Methodology

There are no changes to the methodology from last year.

Water Treatment

Guidance

Receive raw or partially treated (non-potable) water from the raw water transport network and undertake treatment processes. This may include water softening.

Inputs: Raw water and pre-treated (non-potable) water from raw water distribution network.

Outputs: Treated water (potable and non-potable) fed into the distribution network or directly to an end user customer. Waste by-products from treatment processes into the sewerage network.

Methodology

There are no changes to the methodology from last year.

Treated Water Distribution

Guidance

Treated Water Transport includes activities related to distributing treated water from the treatment works to the customer and includes secondary disinfection and other chemical dosing. This includes all trunk and distribution network repair and maintenance activities, as well as activities associated with any new network development.

Inputs: Treated (potable) water from treatment sites and third parties.

Outputs: Supply of treated (potable) water to customers and new appointees.

Methodology

There are no changes to the methodology from last year

Sewerage services: operating expenditure

Foul, surface water and highway drainage

Foul

Guidance

This service is for the collection of foul sewage from customers' properties. This includes development, repair and maintenance of the Sewage Collection infrastructure. Other specific activities are the provision and maintenance of ancillaries such as overflows, screens, on-line and off-line retention tanks, rising main wells and pumps and flow measurement.

Surface water drainage

Guidance

This service is for the collection of surface water from exterior areas of customers' properties. This includes development, repair and maintenance of the Sewage Collection infrastructure. Other specific activities are the provision and maintenance of ancillaries such as overflows, screens, on-line and off-line retention tanks, rising main wells and pumps and flow measurement.

Highway drainage

Guidance

This service includes the activities related to collection of surface water that runs off roads and pavements. The activities included in this service relate to the development, repair and maintenance of the Sewage Collection infrastructure. Other activities that should be considered within this service may include the provision and maintenance of ancillaries such as overflows, screens, on-line and off-line retention tanks, rising main wells and pumps and flow measurement.

Methodology

Prior to 2015, the split between surface water and highway drainage was based on a study prepared in 1999 by external consultants. This study was used as the basis for setting our tariff charges.

During 2014/15 we commissioned a further study by external consultants to update the findings of this original report, and to produce a model that could be used to split the costs between the upstream activities

This report incorporated the following improvements compared to the original study:

- Increasing the number of modelled catchments from two to sixteen. The hydraulic modelling capability has improved significantly since the original report. The hydraulic modelling of all 16 chosen catchments had been reviewed under the Sustainable Drainage Planning programme. A mix of small, medium and large catchments was chosen, to provide

Appendix 1

Disaggregation of Wholesale activities – upstream services

understanding about how each could impact on the flows. The sixteen catchments were also chosen to include two catchments from each of the eight DCC operational areas, to ensure that the overall average would be representative of the range of DCC's catchments;

- The method for applying a flow split between surface water flows that derive from customers' properties, and those that derive from highways and footpaths, was previously based on small sample areas. With the improvements in technology, we reviewed the entire catchment using data included within OS mapping layers on ArcGIS. This gave a far greater confidence in the split between surface water drainage and highway drainage;
- The updated hydraulic modelling review used the latest verified data for DWF, plus it also used the diurnal flow profile which had previously been ignored;
- The hydraulic model simulations have been run with the typical year dataset rather than estimates for the 1997/98 flows that had been used in the 1999 report (based on proportioning from the 1985 rainfall data);
- CSO spills were previously ignored, with the 1999 report only considering storm flows spilling at the treatment works. With the advances in hydraulic modelling, we have now gathered this additional data to understand the storm flow discharged from the system in a typical year; and
- The cost split in 1999 included the cost of treatment, whereas the requirement for Ofwat in 2015 was to provide the split for sewerage costs only.

Quality assurance of model

- The criteria for inclusion within the study were that the hydraulic models had to show reasonable accuracy, be geographically spread across the operating area and also show a mix of catchment sizes. To assess what could count as 'reasonable', all selected hydraulic models had been utilised on modelling schemes within the last five years which would indicate a reasonable level of confidence in modelling methodology and best practice. The majority of the catchments have had Sustainable Drainage Plans (SDP) completed in AMP5. The total population equivalent represented by the chosen catchments equated to over half a million people;
- The model data was sense checked by our external consultants (Mouchel). In addition, further checks were undertaken by our Asset Capability team, including re-running three of the 16 models to verify the results. The outputs from the analysis were also compared to other catchments to determine whether the results were sensible; and
- One of the areas that was identified to improve on was the confidence in the assigned split of 'Other operational expenditure' as these splits were based on engineering estimates and did not reflect the nature of the work. An exercise was carried out to determine the most accurate method of splitting out these costs between foul, surface water and highway drainage. Working alongside network managers and taking samples of incidents to record the nature of the work, a new split was derived as follows and applied in this report year.

Other operating expenditure splits used for report year	**2017/18**	**2018/19**
Foul	74%	75%
Surface water	18%	19%
Highway drainage	8%	7%

The % allocation is updated annually and as a result the % changes within areas is as follows:

Operating expenditure (excluding IRE) splits used for report year	**2017/18**	**2018/19**
Foul	66%	67%
Surface water	23%	22%
Highway drainage	11%	11%

In addition the capital spend in Sewerage has been analysed between the three business units for 2018/19 resulting in the following allocation:

Capital expenditure	**Maintenance**	**Other capital expenditure**
Foul	58%	43%
Surface water	27%	37%
Highway drainage	15%	20%

There are no changes to the methodology from last year.

Appendix 1

Disaggregation of Wholesale activities – upstream services

Sewage Treatment and Disposal

Guidance

This activity comprises the receipt of untreated sewage from the Sewage Collection system into treatment works, undertaking treatment processes and the discharge of treated wastewater into rivers, etc., and the transport of sewage sludge to sludge treatment processes. This includes all direct costs associated with Sewage Treatment including terminal pumping costs. The activities of emptying septic tanks or very small sewage works, by transporting the contents periodically to the inlet of a larger sewage treatment works, are also Sewage Treatment activities.
Inputs: Untreated sewage from the Sewage Collection network.
Outputs: Treated wastewater into receiving watercourses, discharge of sewage sludge for transporting to sludge treatment processes.
Excludes imported liquor treatment.

Methodology

There are no changes to the methodology from last year.

Sludge Liquor Treatment

Guidance

This includes all activities in transporting and treating liquors at a sewage treatment plant that have been generated during the Sludge Treatment process. This includes transporting and treating liquors that have been partially treated and are returned for final treatment at a sewage treatment plant.
It excludes liquor treatment which is carried out at a stand-alone liquor treatment plant (which will be included in the Sludge Treatment upstream service).

Methodology

There are no changes to the methodology from last year.

Sludge Transport

Guidance

This service includes the transport of sludge from the sewage treatment plant to the sludge treatment plant. All types of transport, and associated fuel costs, are included within this service. However, transport within the sludge treatment plant or between sludge treatment plants is not included in this service, which is instead an activity of the Sludge Treatment service.

Methodology

Costs of our internal and contracted Sludge Transport service are used to manage routine haulage work and these costs are separately identifiable.
There are no changes to the methodology from last year.

Sludge Treatment

Guidance

All Sludge Treatment activities including;

- Thickening of treated sludge;
- De-watering of thickened sludge;
- Incineration of non-treated sludge; and
- Treatment of sludge liquors in a stand-alone liquor treatment plant.

While different technologies exist for sludge treatment, Sludge Treatment is defined as a technology-neutral service for the purpose of the APR. Where income is received for energy generation then this should be shown as 'negative expenditure' in table 4E.

Methodology

There are no changes to the methodology from last year.

Sludge Disposal

Guidance

The collection of treated sludge from collection point, onward transport and disposal to landfill, agricultural land, land reclamation sites and to other end users in various forms including:

- Treated sludge;
- Incinerated sewage sludge ash (ISSA);
- Composted sludge; and
- Sludge cake.

If incineration of completely treated sludge takes place, then this should be included in Sludge Disposal.
Where income is received for treated sludge, then this should be shown as 'negative expenditure' in table 4E.

Methodology

There are no changes to the methodology from last year.

Appendix 1

Disaggregation of Wholesale activities – upstream services

Upstream Services: capital expenditure

As mentioned earlier, the majority of capital expenditure can be allocated directly to the business areas as a result of its coding structure and model.

Management and general assets are allocated using FTE numbers split based on direct labour(see section 2.8 for further information)

Explanation of cost movements from prior years

In RAG 3.11 there is a requirement to report costs that have significantly moved from last year.

The commentary below provides explanations for all significant movements (above 10% or £0.5m) compared to 2017/18.

Water Resources		Operating expenditure		
Service		Abstraction Licence	Raw Water Abstraction	Total
Total cost 2017/18	£m	10.2	29.4	39.6
Movements	£m	(0.2)	(7.4)	(7.6)
Total cost 2018/19	£m	10.0	22.0	32.0
Movement since last year		(2%)	(25%)	(19%)

Significant movements (>10% or £0.5m) compared to last year are summarised below:

Abstraction licence opex costs have decreased overall by 2%; abstraction charges (excluding third parties) are in line with last year whereas third party services relating to Elan Valley have decreased by £0.2m (13%) relating to lower volume abstracted.

Raw Water Abstraction operating costs have decreased by 25% (£7.4m). The reasons include:

- Power increase of £0.6m (14%) reflects £0.1m fuel costs previously reported as other operating expenditure together with increase in consumption and wholesale price increase;
- Income treated as negative expenditure has reduced by £1m (22%); lower hydro-generation income due to low reservoir levels;
- A bulk supply reduction of £55k (41%) relates to a small fee reduction as well as £25k included as abstraction licences;
- Other operating expenditure: renewals expensed in the year – infra has reduced by £5.9m (38%). This mainly relates to two schemes where in 2017/18 the costs for these schemes, amounted to £2.6m for Talybont and £3.2m for Usk Spillway; and
- Third party services have decreased by £3.4m (57%) reflecting higher spend in 2018: £3.9m costs in 2018 for dam maintenance work on the Caban Coch reservoir which supplies Severn Trent Water.

Capex has increased by £20.6m, from £19.7m to £40.3m. There has been a £3.4m reduction in maintenance, a £20.2m increase in enhancement and a £3.8m increase in third party services.

- In 2017/18 maintenance costs included a scheme for the refurbishment at Manorafon WTW of £5m, while in 2018/19 this has reduced to £0.7m.
- The enhancement increase relates to work at Prioress Mill Habitat intake screen (total of £13m – increase of £9m on last year); refurbishment of Llanishen reservoir £2m; Talybont reservoir (£6m) and Usk Spillway (£1m) that was previously included as IRE. The costs relates to a key strategic initiative , which commenced in 2018, by the Water Operations directorate to increase funding in the dam safety programme, to ensure that we continue to meet changes in reservoir legislation, new best safety guidance and to maintain water resource resilience.
- The third party increase relates to work carried out at our Llyn Brenig reservoir which will be recharged to NRW under the s20 operating agreement.

Grants and contributions totalled £3.4m (2018: nil), being income received from the NRW for third party work carried out at specific impounding reservoirs.

In summary, Raw Water Abstraction totex (including cash items) has increased by £10m (20%); a £7m drop in opex and £3m additional grants and contributions partially offset a higher level of capital investment (£20m)

Table 4V

Water Resources costs are further disaggregated into the following asset type in table 4V:

- impounding reservoir;
- pumped storage;
- river abstraction;
- ground water excluding MAR water supply schemes;
- artificial recharges water supply schemes;
- aquiver storage and recovery water supply schemes; and

Appendix 1

Disaggregation of Wholesale activities – upstream services

- other.

Direct costs that are coded to sites are allocated directly to asset type. The cost driver used for costs that cannot be directly allocated are:

- Cumulo rates - MEAV;
- Scientific services - asset allocation;
- Water recharged to waste – EA licences; and
- Other costs - direct cost proportions.

Raw water distribution		Operating expenditure		
Service		Raw Water Transport	Raw Water Storage	Total
Total cost 2017/18	£m	4.3	0.9	5.2
Movements	£m	0.9	0.1	1.0
Total cost 2018/19	£m	5.2	1.0	6.2
Movement since last year		21%	7%	19%

Significant movements (>10% or £0.5m) compared to last year are summarised below:

Raw Water Transport operating costs have increased by 21% (£0.9m). The reasons include:

- Power increase of £0.4m (14%) relating mainly to Nantgaredig WPS which is £0.3m higher than last year reflecting price increase;
- Other increases:
  - Income treated as negative expenditure reduction of £0.02m (27%).
  - Bulk supply increase £0.02m (58%) reflecting change in price control allocation by the exporting water company.
  - Other operating expenditure - renewals expensed in the year – infra has reduced by £0.04m (34%); and
  - Other operating expenditure has increased by £0.6m reflecting work carried out during the year (increase in bought in services , employment costs and materials)

In summary, Raw Water Transport totex (including cash items) has increased by £1m (20%) reflecting higher opex.

Raw Water Storage capex has increased by £0.3m which mainly reflects the increased spend of £0.5m in maintaining the long term capability of the assets – non-infra relating to additional spend on management and general assets.

Totex (including cash items) for raw water storage has increased by £0.4m (35%); £0.1m opex and £0.3m capex

Water Treatment		Operating expenditure
Total cost 2017/18	£m	38.5
Movements	£m	2.4
Total cost 2018/19	£m	40.9
Movement since last year		6%

Significant movements (>10% or £0.5m) compared to last year are summarised below:

Water Treatment operating costs have increased by 6% (£2.4m). Reasons include:

- Power costs have increased by £1.3m (21%). £1.3m relates to atypical costs for power (reported in table 4J) as a result of the prolonged hot weather experienced in the summer; £0.4m fuel costs now reported as power offset in part by £0.3m carbon reduction costs included in 2018; and
- Income treated as negative expenditure has increased by £0.5m (44%) from £1.1m to £1.6m; ROCS recycle premium increase of £0.5m;
- Bulk supply costs have reduced by £0.1m (31%) which reflects lower values invoiced and a change in price control allocation by the exporting water company;
- Other operating expenditure (excluding renewals) has increased by £1.5m (5%) which reflects inflationary as well as operational increases: hired and bought in service increases (£0.6m), water sludge disposal (£0.2m), materials and chemicals (£0.4m) and employment costs £0.2m. The hired and bought in service increase relates partly to accrual for pain/gain, emergency planning tankering costs and building maintenance work. Chemical increases relates to cost increase in caustic soda used to balance PH and additional costs of Sodium Hypochloride at court Farm.; and
- Third party services have increased by £0.1m (42%) reflecting additional costs incurred from the non-potable supplies.

Capex has decreased by £17.9m (30%): base maintenance has decreased by £8m (19%) to £34m; enhancement has reduced by £9.8m (54%) to £8.3m whereas third party services have increased

Appendix 1

Disaggregation of Wholesale activities – upstream services

by £0.1m (29%) to £0.3m. Capital costs will vary depending on the programme of work carried out in the year; the enhancement reduction mainly relates to two schemes: Tynywaun WTW(scheme to provide new improved coagulation, flocculation and clarification process , and at Bryn Cowlyd WTW (new water treatment process to include new dissolved air flotation process followed by single stage of gravity filters) which are £4.2m and £6.6m lower than last year respectively as the schemes have been completed; the maintenance reduction relates to several schemes encompassing filter maintenance, DAF plant and run to waste schemes that are lower than last year.

In summary, Water Treatment totex (including cash items) has decreased by £15m (15%); £2m of opex increases are more than offset by £18m lower capex. Opex includes atypical hot weather costs of £1.3m whereas the capex reduction relates to schemes being completed in the year, with the majority of the costs being incurred last year.

Treated Water Distribution		**Operating expenditure**
Total cost 2017/18	£m	124.0
Movements	£m	15.6
Total cost 2018/19	£m	139.6
Movement since last year		13%

Significant movements (>10% or £0.5m) compared to last year are summarised below:

Treated Water Distribution operating costs have increased by 13% (£15.6m). The reasons include:

- Power increases of £2.2m (23%) relate to atypical pumping costs relating to the hot weather (£0.5m); fuel costs reported as power (£0.7m) with remaining increase relating to the wholesale price increase together with consumption increases; and
- Other operating expenditure – renewals expensed in the year - infra has increased by £4m (8%): £4.7m relates to additional costs incurred during the hot weather and has been classed as atypical in table 4J; and
- Other operating costs excluding renewals have increased by £9m (17%): atypical costs relating to the hot weather amounts to £14m, which is £7m higher than the atypical costs reported in 2018. Other cost increases relate to a new minor works contract and additional costs from emergency planning and compensation payment relating to customer minutes lost incident at the start of the year, which is offset in part by £0.7m moved to power.

Capex has increased by £2m (3%). Base maintenance has decreased by £5m to £44m whereas enhancement has increased by £7m to £26m. The enhancement increase relates to growth schemes at Hereford (£3.5m) and meter optants (£0.5) with increases in quality schemes for trunks mains at Porth (£1.5m) and main at Maerdy (£1.3m).

In summary, totex (including cash items) for treated water distribution has increased by £18m (10%); £16m opex and £2m capex. The majority of this increase relates to atypical hot weather costs amounting to £20m.

Sewage Collection		**Operating expenditure**			
Service		**Foul**	**Surface water**	**Highway drainage**	**Total**
Total cost 2017/18	£m	38.3	13.1	6.5	57.9
Movements	£m	2.4	1.1	0.3	3.9
Total cost 2018/19	£m	40.7	14.2	6.8	61.8
Movement since last year		6%	8%	5%	7%

Significant movements (>10% or £0.5m) compared to last year are summarised below:

- Overall total Sewage Collection operating costs have increased by £3.9m (7%) which relates principally to an IRE increase of £4m (Foul £2.1m, Surface water drainage £1m and highway drainage £0.5m); the increase in 2019 reflects that IRE cost in 2018 were lower than the previous year. The costs incurred will vary on a year by year basis as this is dependent on the weather and the condition of the assets.

Capex has increased by £11m for Sewage Collection (18%); surface water drainage (£8m) and highway drainage (£5m) offset by a reduction in foul (£2m). Enhancement spend has increased by £7m with maintenance increasing by £5m and infrastructure network reinforcements reducing by £1m.The enhancement increase reflects additional work on schemes to reduce the number of spills to river courses in the Loughor, Llanelli and Gowerton area as well as costs incurred as part of the sewer flooding programme to alleviate flooding at named sites due to hydraulic overload. Maintenance schemes reflect schemes for rising main at Llangennech and Barry (£1.3m), LG tank network at Cardiff Bay for £2.1m, sustainable draining plans £0.6m and seafront rainscape scheme at Colwyn Bay of £0.6m.

Appendix 1

Disaggregation of Wholesale activities – upstream services

Sewage Collection totex (including cash items) has increased by £16m; £4m opex, £11m capex and lower grants and contributions (£1m).

Sewage Treatment		Operating expenditure		
Service		Sewage Treatment	Imported Sludge Liquor	Total
Total cost 2017/18	£m	58.0	4.1	62.1
Movements	£m	(1.7)	0.8	(0.9)
Total cost 2018/19	£m	56.3	4.9	61.1
Movement since last year		(3%)	20%	(2%)

Significant movements (>10% or £0.5m) compared to last year are summarised below:

Sewage Treatment operating costs have decreased by £1.7m (3%); the main reasons for this are:

- Power costs have increased by £0.2m (1%); £0.2m fuel is included in power following clarification in the guidance, and price increase is offset by a £0.4m increase in the allocation to liquor treatment;
- Income treated as negative expenditure has increased by £0.1m (18%) relating to higher ROC income;
- Other operating expenditure (excluding renewals) has increased by £1m (4%); hired and bought in services have increased by £3m relating to additional compliance tankering (£1m), skip, wet well and water consumption increase (£1m). These have been offset by a reduction in materials (£0.9m), general and support costs (£1m) and fuel costs now included in power (£0.2m); and
- Local authority rates for Sewage Treatment sites have reduced by £3m (31%) principally the result of a Swansea WWTW rates rebate (£2m) and lower provision for unassessed sites (£2m) offset by lower refunds received of £1m.

Capex has increased by £4.7m (5%), this is broken down between base maintenance increase of £8.5m and an enhancement decrease of £3.8m. Capex will change on an annual basis, based on the programme of work scheduled in the year. The maintenance movements relates in part to increased costs at Kinmel Bay relating to new inlet works which is the maintenance element of the major strategic development at Bodelyddan (£3.2m), Archimedes screw pump replacement at Pen y Bont WwTW (£1.9m) and a new process installed at Hirwaun to meet the water framework directive. The enhancement decrease reflects costs incurred on large schemes last year with lower costs in the current year; Growth scheme at Chester WwTw and Llanfaethlu WwTw with costs in 2018 of £3.3m account for this decrease as well as schemes at Llanberis WwTw of £1.6m relating to Countryside and rights of Way Act (Crow).

Grants and contribution increase of £0.5m to £0.6m relates to developer contribution of £0.4m at Clehonger WTW relating to growth scheme and £0.2m contribution for Chester SPS scheme relating to terminal pump.

In summary, Sewage Treatment totex (including cash items) has increased by £2m (2%); £2m lower opex, £5m higher capex and increased grants and contributions (£1m).

Imported Sludge Liquor has increased by £1m (24%) mainly relating to higher power (£0.4m) and other operating expenditure (£0.4m) reflecting increase in Biological Oxygen Demand (BOD) by 8%. The increase reflects that actual strengths of liquids are being used instead of standard strength to allocate the costs in some sites due to better information becoming available.

Sludge		Operating expenditure			
Service		Sludge Transport	Sludge Treatment	Sludge Disposal	Total
Total cost 2017/18	£m	4.7	9.1	4.5	18.3
Movements	£m	1.2	(1.0)	0.8	1.0
Total cost 2018/19	£m	5.9	8.1	5.3	19.3
Movement since last year		26%	(11%)	17%	6%

Significant movements (>10% or £0.5m) compared to last year are summarised below:

Overall Sludge operating costs have increased by 6% (£1m).

Sludge Transport costs have increased by £1.2m. A £0.8m power increase relates to fuel costs that are now reported in this line. Other operating expenditure increases of £0.4m relate to general and

Appendix 1

Disaggregation of Wholesale activities – upstream services

support (£0.7m), employment costs (£0.2m) partially offset by a reduction in hired and bought-in services (£0.4m).
Capex has increased by £0.6m and reflects the purchase of vehicles as well as the allocation of 'management and general' additions such as IT.

In summary totex (including cash items) for Sludge Transport has increased by £1.8m (36%); £1.2m opex and £0.6m capex.
Sludge treatment opex costs have decreased by £1.0m (11%) and reflect:

- Power decrease £0.2m (19%); in 2017/18 there were operational issues and additional power was purchased from the grid;
- Other operating expenditure decreased by £0.7m (7%) reflecting a reduction in chemicals (£0.3m) and general and support costs by £0.5m (emergency planning £0.1m, facilities charge £0.2m and lower support service costs); and
- Local authority rates have decreased by £0.2m (38%) as a result of a £0.1m refund and £0.1m lower rates charge.

Sludge treatment capex costs have increased by £20m (57%); £16m maintenance and £4m enhancement.
This relates mainly to work carried out as part of the larger North Wales Sludge Strategy Scheme and in particular costs incurred at Five Fords (£2m) Kinmel Bay (£2m), Treborth and Chester £2m. In addition, maintenance capex includes investment in the South Wales and Hereford Sludge Strategy which aims to mitigate the current issues associated with the treatment and disposal of bio-solids waste and to bolster the resilience and reliability of the sludge base across these regions (Cog Moors £8m and Llanfoist £1m). The enhancement increase relates to £3m Cog Moor WwTW scheme costs and £1m for Five Fords WwTW; this is the growth element relating to the sludge strategy schemes included as maintenance.

In summary, Sludge Treatment totex (including cash items) has increased by £19m (43%); a £1m reduction in opex partially offsets the increase in capex of £20m, as mentioned above.

The Sludge Disposal costs increase of £1m (17%) reflects an increase in contractor costs due to operational issues.
Capex has reduced by £0.5m relating to a lower 'management and general' asset cost allocation to Sludge Disposal.

In summary, Sludge Disposal totex (including cash items) has increased by £0.3m (5%); a £0.7m increase in opex has been more than offset by a decrease in capex of £0.5m.

Appendix 2

Retail: Wholesale cost allocation

Cost Allocation	Cost Driver
Customer Services	
Billing	Wholly in Retail.
Payment handling and remittance	Wholly in Retail.
Non – Network customer enquiries and complaints	Wholly in Retail.
Network customer enquiries and complaints	
Dŵr Cymru Waste Wholesale	
Scheduling jobs	A team within the Wastewater services schedules the first job following its trigger by a customer contact. Management estimates the time spent on the initial call made to the customer to schedule a visit.
Aborted jobs	A SAP report identifies the cost of all jobs aborted as a result of customer contact.
Call to customer for customer call to be resolved	Management estimates the time spent on customer contact to close off the call as the contact is made directly by the wholesale team to the customer and not via the retail call centre.
Dŵr Cymru Water Wholesale	
Scheduling jobs	Management estimates the time spent on the initial call made to the customer to schedule a visit.
Inspector's first visit	The number of jobs requiring a customer visit is despatched from the Operational call centre within retail and filtered by cause to establish the cost of non-network visits.
Call to customer for customer call to be resolved	Management estimates the time spent on customer contact to close off the call as the contact is made directly by the wholesale team to the customer and not via the retail call centre
Debt Management	
Debt management	Wholly in Retail.
Customer Doubtful Debt	
Customer doubtful debt	Wholly in Retail, as there is no provision for Wholesale revenue e.g. bulk supplies or third parties.

Cost Allocation	Cost Driver
Meter Reading	
Meter reading	Wholly in Retail.
Services to Developers	
Services to developers	Costs are apportionment by management estimate. Costs in retail are only for providing developer information and administration for new connections.
Other operating expenditure	
Demand-side water efficiency	
Costs incurred by Wholesale	These are treated as Wholesale activities as they relate to Wholesale outcomes (a sole exception is a small amount of Retail expenditure which reflects customer service advisors' time linked to affordability initiatives promoting the potential benefits of metering).
Customer side leaks	
Costs incurred by Wholesale	These are treated as Wholesale activities as they relate to Wholesale outcomes
Other direct costs	
Retail segment	Wholly in Retail.
Dŵr Cymru insurance costs	Insurance costs are allocated to Retail by FTE.
Dŵr Cymru actuarial charges	Defined benefit and defined contribution pension scheme costs are allocated based on membership numbers.
Disconnections and reconnections	
Disconnections and reconnections	Decision and administration costs only are allocated to Retail.
General and support expenditure	
IT Costs:	
Retail segment	Wholly in retail.
Dŵr Cymru IT department	Allocation is based on a combination of company revenues, FTEs, number of computers and system types.
Finance:	
Retail segment	Wholly in retail.

Appendix 2

Retail: Wholesale cost allocation

Cost Allocation	Cost Driver
Dŵr Cymru Finance	Allocated directly where appropriate and management assesses the cost apportionment of roles which cover for company-wide activities.
Dŵr Cymru Charges team	Allocation is based on company revenues.
HR:	
Retail segment	Wholly In Retail.
Dŵr Cymru HR department	Allocated directly where appropriate only and by FTEs where this is not possible.
Executive team:	
Dŵr Cymru Chief Executive and Finance Director	Allocation is based on company revenues.
Dŵr Cymru Company Secretariat, Executive, Non-Executive Directors and Members' costs.	Allocation is based on company revenues.
General management:	
Retail segment	Wholly In Retail.
Facilities:	
Retail segment	Wholly in Retail.
Dŵr Cymru	Allocation is based on FTEs.
Other general and support costs:	
Retail segment general and support costs:	
Meter reading	Wholly in Retail.
Training and quality	Wholly in Retail.
Web	Wholly in Retail.
Business change	Wholly in Retail.
Compliance	Wholly in Retail.
Key and business customers	Wholly in Retail.
Dŵr Cymru general and support costs:	
Communications team	Allocated directly where appropriate and, where this is not possible, by management judgement.
Quality and assurance	Management time spent on Retail/Wholesale audit work.
Health and safety	Allocated directly where appropriate and management assesses the cost apportionment of roles which cover company-wide activities.
Tax and capital markets	Allocation is based on company revenues.
Finance planning	Allocated directly where appropriate and management assesses the cost apportionment of roles which cover company-wide activities.
Other business activities	
Regulation costs	1/9th to Retail.
Local authority rates	
Local authority rates	Allocation is based on FTEs.

Appendix 3

Wholesale cost allocation

Allocation bases

Cost Driver A – Direct costs can be mapped directly from a cost centre to the relevant accounting separation business unit.
Cost Driver B – Mapping is not direct, but a specific cost driver is used to allocate the cost to the appropriate accounting separation business unit.
Cost Driver C – Mapping is not direct, allocations are worked out using appropriate judgements based on available data and understanding of the business.

	Water Resources	Raw Water Distribution	Water Treatment	Water Distribution	Sewerage	Sewage Treatment	Sludge Transport & Treatment	Sludge Disposal
	£m	£m	£m	£m	£m	£m	£m	£m
Power	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B
	This category includes all energy costs (including climate change levy costs) and income from energy generation. It consists of electricity costs, income received, gas and climate change levy. Electricity costs are allocated to assets via DCC's electricity management system (ARIES) which receives electronic bills from the energy providers and, by reference to the supply point, charges the cost to the asset's cost centre via an interface with SAP. For this report year, however, ARIES wasn't available, hence we had to revert to the back-up solution, i.e. used the Excel backing sheets received from the energy suppliers to generate the total power consumption for each supply point; additional data integrity checks were carried out to ensure accuracy of the data. Each Water and Sewerage service asset has a unique supply point allowing the actual power costs to be charged directly to the asset and its associated activity. Where a supply point provides power for more than one price control unit, a percentage split is applied that is specific to the associated supply point. The percentage split is determined by estimating the power cost per price control unit by undertaking site audits. The site audits involves cataloguing all the electrical equipment on site. The running hours and loading of each piece of equipment are estimated/determined, to calculate annual power consumption and this is allocated to regulatory cost accounting areas. The sum of the equipment power use as a proportion of the metered total site power consumption is used to establish the cost centre splits. Fuel costs are included within power, and costs of fuel will be charged to the cost centre of the asset.							
EA Service Charges	A	-	A	-	A	A	-	-
	Abstraction charges received from the Natural Resources Wales are allocated to water resources. Discharge consent payments to the Environment Agency are supported by a site-by-site breakdown and this is used to allocate the cost to the appropriate activities and processes.							
Bulk Supply Imports	A/B	A/B	A/B	A/B	-	-	-	-
	Bulk supply imports relate to the purchase of potable water and non-potable water. The non-potable element is allocated to Water Resources. The cost of imported potable bulk water supplies are split between Water Resources and Water Network+ using the cost split of the exporting company as reported in their latest published Annual Performance Report.							

Appendix 3

Wholesale cost allocation

Allocation bases

Cost Driver A – Direct costs can be mapped directly from a cost centre to the relevant accounting separation business unit**.**
Cost Driver B – Mapping is not direct, but a specific cost driver is used to allocate the cost to the appropriate accounting separation business unit**.**
Cost Driver C – Mapping is not direct, allocations are worked out using appropriate judgements based on available data and understanding of the business.

	Water Resources	Raw Water Distribution	Water Treatment	Water Distribution	Sewerage	Sewage Treatment	Sludge Transport & Treatment	Sludge Disposal
	£m	£m	£m	£m	£m	£m	£m	£m
								Other operating expenditure
Employment Costs	A/B	A/B	A/B	A/B	A/B	A/B/C	A/B/C	A/B
	Following the introduction of the above SAP work management systems, the majority of operational staff's workload and the related allocation of cost is automated. As a consequence, the need for manual allocations of people's time is minimised. Furthermore, many operational staff and their associated cost centres can be attributed to one particular activity and instances of staff working across more than one activity are relatively low. For example, Water Distribution employees rarely work on Water Resources, Raw Water Distribution or Water Treatment assets, while Water Treatment operatives rarely carry out any work within Water Distribution. The situation is similar within the Sewerage business, where sewerage operatives rarely perform Sewage Treatment and Sludge Treatment activities. However at co-located sludge centres, management estimates are used to allocate costs between sewage treatment and sludge activities. Managers' estimates are used to allocate any under or over-recoveries in operatives' home cost centres.							
Hired and Contracted Services	A	A	A	A	A	A	A	A
	Hired and contracted services are charged directly to business units by procurers who are generally dedicated to that activity. Where the costs relate to Switch, AGA or ME&I generated work, they are charged directly to a works order which is a unique cost collector for a specific job. These works orders settle costs to the cost centres or capital internal orders associated with the asset, job type and location.							
Chemicals	A	A	A	A	A	A	A	A
	Chemicals are charged directly to assets and activities by procurers who are generally dedicated to those activities. Where the costs relate to Switch, AGA or ME&I generated work, they are charged directly to a works order which is a unique cost collector for a specific job. These works orders settle to the cost centres or capital internal orders associated with the asset, job type and location.							
Materials and Consumables	A	A	A	A	A	A	A	A
	Materials and consumables are charged directly to assets and activities by procurers who are generally dedicated to those activities. Where the costs relate to Switch, AGA or ME&I generated work, they are charged directly to a works order which is a unique cost collector for a specific job. These works orders settle to the cost centres or capital internal orders associated with the asset, job type and location.							
Other	B/C	B/C	B/C	B/C	B/C	B/C	B/C	B/C

Appendix 3

Wholesale cost allocation

Allocation bases

Cost Driver A – Direct costs can be mapped directly from a cost centre to the relevant accounting separation business unit.

Cost Driver B – Mapping is not direct, but a specific cost driver is used to allocate the cost to the appropriate accounting separation business unit.

Cost Driver C – Mapping is not direct, allocations are worked out using appropriate judgements based on available data and understanding of the business.

	Other costs include insurance costs relating to wholesale activities. Insurance costs have been allocated based on FTE for employer's liability and for uninsured provision based on claims history.							
	Water Resources	**Raw Water Distribution**	**Water Treatment**	**Water Distribution**	**Sewerage**	**Sewage Treatment**	**Sludge Transport & Treatment**	**Sludge Disposal**
	£m	**£m**	**£m**	**£m**	**£m**	**£m**	**£m**	**£m**
General and Support Expenditure	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**
	The cost allocation for general and support expenditure is shown in Appendix 4.							
Scientific Services	**C**	**C**	**C**	**C**	**C**	**C**	**C**	**C**
	Laboratory services costs are allocated across the various activities based on management estimates which used the amount of samples plus other relevant cost factors.							
Other Business Activities	**B**	**B**	**B**	**B**	**B**	**B**	**B**	**B**
	This includes the cost of regulation, including all incremental managerial costs of regulation associated with a periodic review, licence fees payable to Ofwat in respect of regulation, certification fees associated with the Licence requirements and staff and associated costs incurred in the preparation of submissions to, and liaison with, regulators. Costs are allocated equally across nine activities (four for water services, four for sewerage services and one for retail services.							
Local Authority Rates	**B**	**B**	**B**	**B**	**B**	**A/B**	**B**	**B**
	This relates to the cost of local authority rates and includes both local authority rates and Cumulo rates. Cumulo (water-only) rates are allocated across activities in proportion to the gross MEA value of assets assigned to the business. Cumulo rates associated with the Environment Agency operating agreement are charged to third party services. Non-domestic rates relating to sewerage sites are allocated primarily to the sewage treatment activity. Where there is a sludge treatment activity at a sewage treatment site, a percentage (based on rateable values) is charged to the sludge treatment activity.							
Third Party Services	**A/C**	**A/C**	**A/C**	**A/C**	**-**	**-**	**-**	**-**
	Third party services includes costs associated with the supply of non-potable water, the supply of standpipes, ships water, bulk supply, reservoir agreements and rechargeable works. Rechargeable works, standpipes, ships water and reservoir agreement costs are extracted from our accounting system and an element of general and support costs are added to this. Bulk supply third party costs consists of the abstraction licence relating to this together with allocation for general and support costs							

Appendix 4

General and support allocation

Cost Category	Base for split of costs that are not directly allocated – Cost Driver	Rationale	Water Resources	Water Network+	Sewage Network+	Sludge	Retail	Non-Appointed
Chief Executive Officer	Company revenues	Considered most appropriate driver for Chief Executive of whole organisation	4%	37%	41%	11%	7%	-
UK Water	Equal split across nine business units	Per Ofwat guidance for 'regulatory' costs	11%	33%	22%	22%	11%	-
Finance Director	Company revenues	Considered most appropriate driver for FD of whole organisation	4%	37%	41%	11%	7%	-
Chief Operating Officer	Wholesale revenues	Considered most appropriate driver Head of wholesale operations	5%	40%	44%	12%	-	-
General Counsel	Company revenues	Considered most appropriate driver for company-wide function	4%	37%	41%	11%	7%	-
Legal Costs	Management assessment	Head of Legal detailed analysis of costs	4%	37%	37%	10%	12%	-
Regulatory Compliance	Equal split across nine business units	Per Ofwat guidance for 'regulatory' costs	11%	33%	22%	22%	11%	-
Company Secretary	Company revenues	Considered most appropriate driver for company-wide function	4%	37%	41%	11%	7%	-
HR								
HR other	Company FTEs	Considered most appropriate driver for HR function that supports whole organisation	5%	45%	30%	8%	11%	1%
Employee Services	Company FTEs and management assessment	Considered most appropriate driver for HR function that supports whole organisation	4%	36%	28%	8%	22%	2%
HR Business Partners	Company FTEs	Considered most appropriate driver for HR function that supports whole organisation	5%	41%	22%	6%	21%	5%
Talent	Management assessment	Management assessment on review of training programme	5%	40%	36%	9%	8%	3%
Training Programme	Management assessment	Management assessment on review of training programme	4%	37%	28%	8%	21%	-
Business Assurance								
Business Assurance	Management assessment	Time sheet together with management estimate	4%	37%	28%	8%	17%	6%
Communications								
Communications	Management assessment	Communications Director assessment of costs over the business areas	5%	35%	27%	8%	20%	6%

Appendix 4

General and support allocation

Cost Category	Base for split of costs that are not directly allocated – Cost Driver	Rationale	Water Resources	Water Network+	Sewage Network+	Sludge	Retail	Non-Appointed
Planning & Regulation								
Planning & Regulation Director	Equal split across nine business units	Per Ofwat guidance for 'regulatory' costs	11%	33%	22%	22%	11%	-
Economic & Charges	Company revenues	Considered most appropriate driver for company-wide function	4%	37%	41%	11%	7%	-
Economic regulation - team	Equal split across nine business units	Per Ofwat guidance for 'regulatory' costs	11%	33%	22%	22%	11%	-
Regulatory Strategy	Equal split across nine business units	Per Ofwat guidance for 'regulatory' costs	11%	33%	22%	22%	11%	-
Finance								
Tax and Treasury	Company revenues	Considered most appropriate driver for company-wide function	4%	37%	41%	11%	7%	-
Commercial Finance	FTEs within Finance team	Direct allocation where appropriate and manager assessment of split roles	4%	35%	36%	10%	13%	2%
Corporate Finance	Company revenues	Considered most appropriate driver for company-wide function	4%	37%	41%	11%	7%	-
Finance Business Partners	Company revenues	Considered most appropriate driver for company-wide function	4%	37%	41%	11%	7%	-
Release of GR/IR	Split in proportion to direct costs	Split of purchases in 2018/19 considered most appropriate	9%	37%	37%	13%	3%	-
External Audit	Company revenues	Considered most appropriate driver for company-wide function	4%	37%	41%	11%	7%	-
Pension Service Charge	FTE in DB scheme	Defined benefit scheme membership split	7%	54%	20%	3%	17%	-
Environment								
Environment	Management assessment	Head of Department assessment of budget split – wholesale only	4%	44%	42%	10%	-	-

Appendix 4

General and support allocation

Cost Category	Base for split of costs that are not directly allocated – Cost Driver	Rationale	Water Resources	Water Network+	Sewage Network+	Sludge	Retail	Non-Appointed
Business Information Services								
Business Information Services	Direct allocation, equipment and FTE split	As stated in RAG 2.07	5%	43%	30%	8%	14%	-
Commercial and contracts	Direct allocation, equipment and FTE split	As stated in RAG 2.07	5%	43%	30%	8%	14%	-
Information Security	Company revenues	Considered most appropriate driver for company-wide function	4%	37%	41%	11%	7%	-
Architecture	Company revenues	Considered most appropriate driver for company-wide function	4%	37%	41%	11%	7%	-
Infrastructure	Direct allocation, equipment and FTE split	As stated in RAG 2.07	5%	43%	30%	8%	14%	-
Programmes and Services	Company revenues	Considered most appropriate driver for company-wide function	4%	37%	41%	11%	7%	-
Services	Direct allocation, equipment and FTE split	As stated in RAG 2.07	5%	40%	28%	8%	19%	-
Enablement and Transformation	Company revenues	Considered most appropriate driver for company-wide function	4%	37%	41%	11%	7%	-
Health and Safety								
Health and Safety	Management assessment	Considered most appropriate cost driver	5%	40%	35%	10%	9%	1%

Appendix 4

General and support allocation

Cost Category	Base for split of costs that are not directly allocated – Cost Driver	Rationale	Water Resources	Water Network+	Sewage Network+	Sludge	Retail	Non-Appointed
Operational Services								
Emergency Planning	Management assessment	Head of Department assessment of cost split	(6%)	119%	(3%)	(10%)	0%	0%
Smart HUB	Management assessment	Head of Department assessment of cost split	1%	55%	43%	1%	0%	0%
Lean	Management assessment	Head of Department assessment of cost split	0%	50%	50%	0%	0%	0%
IMS & Audit	Management assessment	Head of Department assessment of cost split	2%	48%	20%	20%	10%	0%
Developer Services	Management assessment	Head of Department assessment of cost split	10%	80%	5%	5%	0%	0%
Other	Management assessment	Head of Department assessment of cost split	0%	50%	50%	0%	0%	0%
Procurement and Estates								
Head of Procurement and Estates	Management assessment	Head of Department assessment of cost split	9%	37%	37%	13%	3%	0%
Facilities	Site based headcount	Headcount occupation at sites	3%	48%	26%	4%	15%	4%
Procurement	Bought in service costs	Split in proportion to WWR bought-in services costs	9%	37%	37%	13%	3%	0%
Estates	Net book value of non-infra assets	Split in proportion to WWR NBV of non-infra assets	3%	43%	50%	4%	0%	0%
Insurance	Based on MEAV, FTEs and claim history	Considered most appropriate driver	2%	39%	54%	4%	1%	0%
Energy Team	Power costs	Considered most appropriate driver	14%	39%	40%	7%	0%	1%
Dŵr Cymru Retail segment	Wholly Retail		0%	0%	0%	0%	100%	0%
Total General and Support			**5%**	**35%**	**34%**	**9%**	**15%**	**2%**

Appendix 5

Household: Non-household split

Cost Category	Cost Driver used for Regulatory 2017/18 Accounts	Cost Driver used for Regulatory 2018/19 Accounts	H : NH split	
			H	NH
Customer Services				
Billing			**89%**	**11%**
Billing	Bills raised	Unchanged from 2018 basis	91%	9%
Billing resolutions team	Not used in 2018, new metric for 2019	Volume of billing queries and work orders	85%	15%
Payment handling and remittance	Transaction charges in accordance with RAG 2.05	Updated, volume of payments as per RAG 2.07	**97%**	**3%**
Non – Network Customer Enquiries and Complaints			**82%**	**18%**
Customer relations	Correspondence contacts	Unchanged from 2018 basis	82%	18%
BPO	BPO contacts	Unchanged from 2018 basis	97%	3%
Postage	Printing and postage charges – Non-billing	Unchanged from 2018 basis	92%	8%
Call centre and training	Call centre contacts	Unchanged from 2018 basis	91%	9%
Customer retail team	All non-household	Unchanged from 2018 basis	0%	100%
Network Customer Enquiries and Complaints			**86%**	**14%**
OCC	OCC contact call time	Updated – volume of operational contacts logged	88%	12%
Postage	Printing and postage charges – Non-billing	Unchanged from 2018 basis	92%	8%
Webchats and social media	Not used in 2018, new metric for 2019	Volume of webchats and social media contacts	95%	5%
Dŵr Cymru Waste				
Schedulers	Volume and type of network customer enquiries passed to scheduler	Updated – based on total volume of waste calls received	86%	14%
Aborted jobs	Based on call data	Updated – based on total volume of waste calls received	86%	14%
Call to customer for call to be resolved	Volume and type of network customer enquiries passed to scheduler	Updated – based on total volume of waste calls received	86%	14%
Trade effluent sampling	All non-household	Unchanged from 2018 basis	0%	100%
Dŵr Cymru Water				
Scheduling jobs	Volume and type of network customer enquiries passed to scheduler	Updated – based on customer numbers	93%	7%
Investigation of problem	Based on actual Household: Non – household activity	Updated – volume of network inspector aborted jobs raised	87%	13%
Call to customer for call to be resolved	Volume and type of network customer enquiries passed to scheduler	Updated – based on customer numbers	93%	7%

Appendix 5

Household: Non-household split

Cost Category	Cost Driver used for Regulatory 2017/18 Accounts	Cost Driver used for Regulatory 2018/19 Accounts	H : NH split	
			H	NH
Vulnerable customer schemes	Not shown in 2018	All household	**100%**	**0%**
Debt Management			**91%**	**9%**
DCCS: collections	Collections work	Unchanged from 2018 basis	87%	13%
Affordability	Affordability	Unchanged from 2018 basis	100%	0%
DCA charges	Accounts referred to DCAs	Unchanged from 2018 basis	100%	0%
Postage	Printing and postages charges – Non-billing	Unchanged from 2018 basis	92%	8%
Water company commissions	Customer numbers	Unchanged from 2018 basis	93%	7%
Council commissions	Affordability	Unchanged from 2018 basis	100%	0%
Customer Doubtful Debt			**96%**	**4%**
Local authority bad debt	All household	Unchanged from 2018 basis	100%	0%
Doubtful debt	Write offs	Unchanged from 2018 basis	96%	4%
Meter Reading			**79%**	**21%**
Field operations support	Not used in 2018, new metric	Volume of rejected/abnormal meter reading	77%	23%
Filed operational work	Number of metered customers	Updated – number of attempted meter read visits (with NHH weighting)	80%	20%
Dŵr Cymru water inspectors	Volume and type of calls raised	Updated – based on volume of network inspector meter jobs	79%	21%
Other Operating Costs				
Disconnections and reconnections	Entirely non-household	Unchanged from 2018 basis	0%	100%
Customer side leaks	Job type	Updated to customer numbers	93%	7%
Dŵr Cymru customer services team	Cost identified that could be directly attributed and remaining costs split using customer numbers	Unchanged from 2018 basis	93%	7%
Dŵr Cymru actuarial charges	Defined benefit pension scheme membership split	Unchanged from 2018 basis	92%	8%
General & Support Expenditure				
Dŵr Cymru Retail			**93%**	**7%**
Other general and support costs	Customer numbers	Unchanged from 2018 basis	93%	7%

Appendix 5

Household: Non-household split

Cost Category	Cost Driver used for Regulatory 2017/18 Accounts	Cost Driver used for Regulatory 2018/19 Accounts	H : NH split	
			H	NH
Dŵr Cymru				
IT department	Headcount and nature of support	Unchanged from 2018 basis	93%	7%
Other general and support costs	Customer numbers	Unchanged from 2018 basis	93%	7%
Facilities				
Dŵr Cymru	Customer numbers	Unchanged from 2018 basis	93%	7%
Other General and Support Costs			**93%**	**7%**
Quality and assurance	Customer numbers	Unchanged from 2018 basis	93%	7%
Health and safety	Customer numbers	Unchanged from 2018 basis	93%	7%
Tax and capital markets	Customer numbers	Unchanged from 2018 basis	93%	7%
Other Business Activities (Regulation costs)	Customer numbers	Unchanged from 2018 basis	**93%**	**7%**
Developer Services				
Developer services	Entirely non-household	Unchanged from 2018 basis	**0%**	**100%**
Regulatory Accounts 2018-19			**91%**	**9%**

Appendix 6

Measured and unmeasured split

Costs between water-only, wastewater-only, and water and wastewater customers have been split based on customer numbers (including dual service weighting); the following therefore refers to the allocations between household measured and unmeasured customers only.

Table 4F heading	Cost	Cost Driver	Justification
Customer services	Billing	Bills raised for each customer type	As per RAG 2.07 guidance
Customer services	Billing resolutions team	Volume of billing queries and work orders	Enables a more accurate reflection of the work this team does, than purely using bills raised
Customer services	Payment handling, remittance and cash handling	Number of payments received from each customer type	As per RAG 2.07 guidance
Customer services	Non network customer enquiries and complaints: Customer Relations Team	Number of non-network customer enquiries to this team from each customer type	As per RAG 2.07 guidance
Customer services	Non network customer enquiries and complaints: Outsourced Team	Number of non-network customer enquiries to this team from each customer type	As per RAG 2.07 guidance
Customer services	Non network customer enquiries and complaints: Postage	Printing and postage charges (excluding billing) for each customer type	Reflects the cost of postage incurred in responding to contacts
Customer services	Non network customer enquiries and complaints: Call Centre Costs	Number of non-network customer enquiries to this team	As per RAG 2.07 guidance
Customer services	Network customer enquiries and complaints: OCC	Volume of network customer enquiries and complaints recorded in SAP for each customer type	As per RAG 2.07 guidance
Customer services	Network customer enquiries and complaints: Postage	Printing and postage charges (excluding billing) for each customer type	Reflects the cost of postage incurred in responding to contacts
Customer services	Network customer enquiries and complaints: waste: Schedulers	Customer numbers with dual service weighting for each of the six customer types	Reflects the most appropriate basis for allocating costs as we do not record customer type for this work
Customer services	Network customer enquiries and complaints: waste: Aborted jobs	Customer numbers with dual service weighting for each of the six customer types	Reflects the most appropriate basis for allocating costs as we do not record customer type for this work
Customer services	Network customer enquiries and complaints: waste: Call resolution	Customer numbers with dual service weighting for each of the six customer types	Reflects the most appropriate basis for allocating costs as we do not record customer type for this work
Customer services	Network customer enquiries and complaints: water Schedulers	Customer numbers with dual service weighting for each of the six customer types	Reflects the most appropriate basis for allocating costs as we do not record customer type for this work
Customer services	Network customer enquiries and complaints: water Investigation	Customer numbers with dual service weighting for each of the six customer types	Reflects the most appropriate basis for allocating costs as we do not record customer type for this work
Customer services	Network customer enquiries and complaints: water Call resolution	Customer numbers with dual service weighting for each of the six customer types	Reflects the most appropriate basis for allocating costs as we do not record customer type for this work

Appendix 6

Measured and unmeasured split

Costs between water-only, wastewater-only, and water and wastewater customers have been split based on customer numbers (including dual service weighting); the following therefore refers to the allocations between household measured and unmeasured customers only.

Table 4F heading	Cost	Cost Driver	Justification
Debt management	Commissions payable to other water companies	Customer Numbers (with dual service weighting)	We do not have access to other water companies' customer data thus we make the assumption that their proportion of customer types is similar to ours
Debt management	All debt management costs excluding water companies commissions	Debt outstanding for more than 30 days	As per RAG 2.07 guidance.
Doubtful debts	Doubtful Debts Charge excluding Local Authorities	Write-offs	Direct attribution to customer types
Doubtful debts	Doubtful Debts Charge for Local Authorities	Write-offs excluding NHH	Assumes local authority household metered and unmetered property proportions are in line with the rest of our household customers
Meter reading	Meter reading (includes cost of Motor Vehicles)	100% performed for metered customers	Does not apply to unmetered customers
Other operating expenditure	Other direct costs	Customer Numbers (with dual service weighting)	As per RAG 2.07 guidance
Other operating expenditure	General and support (excluding Motor Vehicles)	Customer Numbers (with dual service weighting)	As per RAG 2.07 guidance
Other operating expenditure	Other Business Activities	Customer Numbers (with dual service weighting)	As per RAG 2.07 guidance