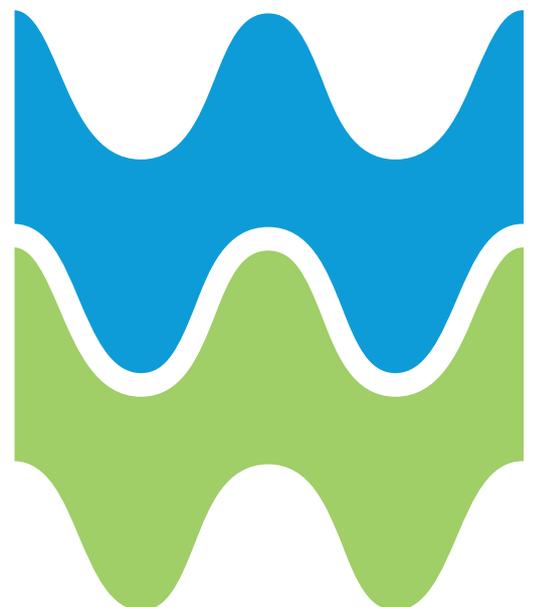


Accounting Separation Methodology Statement

2017/18



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1: Overview

Each company must produce and publish an accounting separation 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) 2017/18 APR.

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

- 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 3.10: Guidelines for the format and disclosures for the APR;
- RAG 4.07: Guideline for the table definitions in the APR;
- RAG 5.07: Guideline for transfer pricing;
- Information Notice 17/08: Regulatory accounting guidelines 2017/18;
- Information Notice 18/04: Expectation for companies in issuing long term viability statements;
- Information Notice 18/07: Expectations for monopoly company annual performance reporting 2017/18; and
- Information Notice 18/08: Expectations for companies reporting of financial flows for 2017/18.

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.

During the year, the group purchased two companies, 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 can be 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. 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 RAG4.07.

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 throughout AMP6. The RapidXtra system is a key enabler for our Retail 'cost-to-serve' challenge, providing additional opportunities for customer self-service, multi-skilling of staff and automation of support processes.

Electricity costs are 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. 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, 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. During 2017/18 we integrated HR, IT and finance support for RETL and Wholesale, allocating costs 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 an "end of line bucket" pending write-off. Write-offs are scheduled as part of a routine procedure. However, initiatives continue to be taken in respect of "end of line" debt to review collectability and debts are currently only written off post completion of these initiatives. Generally when debt reaches the "end of line bucket" the majority 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. As a consequence, the level of write-offs throughout the year is not monitored in isolation but as a component of the overall movement in collections when considering the level of bad debt provision required.

No changes have been made to the write-off policy or procedures during the year.

- 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.

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 structures 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 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 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 directly allocate most costs 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: 0946Q13S

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

- 09 = Sewerage 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		DESCRIPTION - WATER
INFRA	NON-INFRA	
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		DESCRIPTION - SEWERAGE
INFRA	NON-INFRA	
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 fifth to eighth digits denote purpose-type drivers:

- Q13S = Habitats driver

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 percent of expenditure in the year was suitable for this classification method. The remaining 10 percent 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. M & G 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 removal of capitalisation of borrowing costs under IAS23, 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 based on DCC's accounting policy in relation to asset lives. Whilst undertaking this service, ChandlerKBS maintains a record of each individual assessment. The assessments are compiled on a regular basis into an overall summary database. The database is used to produce generic asset life assessment models where details of individual projects are not known.

The following models were produced using the database:

	Sample size	Sample value
Water Treatment Works	33 Projects	£319m
Wastewater Treatment Works	309 Projects	£315m
Combined Sewer Overflows (CSO) and Untreated Intermittent Discharges (UID)	222 Projects	£414m
Habitats Projects	19 Projects	£19m
Water Ultraviolet 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 above models were checked and reviewed to ensure that they were consistent across the industry in general. For 2017/18 a relatively small number of fixed asset additions were calculated using the above models, as the majority had received a full detailed assessment.

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

There have been no further changes to the company's system.

2: Price control segments

2.1: How the company has applied the principles set out in RAG 2.07 and RAG 4.07

RAG 4.07 details the guidelines for the table definitions in the APR. We have applied the principles and guidance as set out in RAG 4.07 to prepare 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 method applied to allocate costs within the APR need to be transparent. This requires that the costs and revenues apportioned to each service and business unit should be clearly identifiable. The cost and revenue drivers used within the system should also be clearly explained to enable robust assurance against RAG 2.07:
 - 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 these tables. These contain specific cost centre groups for the business activities. A number of 'work management systems' have been introduced in recent years resulting 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 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 accounting system 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 method used is 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 sector and over time; regulatory incentives from comparative analysis apply fairly across companies and to 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 Separation 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.

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. In most cases these cost drivers are applied consistently.
 - 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, i.e. where we believe that these are more appropriate, other costs drivers have been used;
- 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 customer numbers;
- 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 97.6%: non households 2.4%) we have used the customer specific aged debt profile and the bad debt write-offs. This is in line with previous years whilst taking additional information into account.

How the company's management is 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 will be 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 or Finance team has 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 (KPMG).

The auditor's 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:

Third party services:

Bulk supplies export: £3.8m opex: £3.8m Water Resources

In 2017/18 third party operating expenditure has been derived by taking the volume exported for each supply and allocating abstraction and other operating costs accordingly. As a result abstraction costs of £1.2m and other operating expenditure costs of £0.1m are reported within third party costs. Infrastructure renewals expenditure of £2.4m on the Elan Valley dam is also reported within third party costs.

In prior years third party costs were calculated as a percentage of bulk supply export revenue and included within Treated Water Distribution (2017: £0.8m).

Third party services:

Non-potable water: £0.4m capex, £1.9m opex: £1.1m Water Resources; £1.2m Water Network+

For the eight non-potable supplies, the appropriate costs were derived by taking the costs relevant to each specific supply and adjusting for volume of non-potable supplies. As a result £1.9m opex and £0.4m capex are reported within third party costs.

In prior years the non-potable costs that were allocated to third party costs were derived by using the total volume of non-potable water against total volume of water and applying this to the cost of water (2017: £0.4m Water Resources; £2.7m Water Network+).

Third party services:

New connections: £5 opex, (£4.4m) grants and contributions: £1.1m Water Network+, (£0.5m) Waste Network+.

In line with the income categorisation guidance in RAG 4.07, new connection costs of £5m (2017: £4.8m) are not included as third party costs for this report year. These costs are reported in 2017/18 as other operating expenditure within Treated Water Distribution.

New connection income of £4.4m (£3.9m Water Network+, £0.5m Waste Network+) is shown as grants and contributions in this year (and not as revenue), in line with the RAG guidance.

Power

Following a detailed review of power allocation by the Energy department, the Water Resources Manager and Finance Business Partner, using the latest RAG boundary definitions it was found that one of our larger Water Pumping sites should be allocated entirely to Water Resources, whereas previously this was split 10% Water Resources and 90% Raw Water Transport. As a result £1.7m which would have been included within Raw Water Transport last year is now reported under Water Resources. In addition, other Water Resource allocations have been updated in line with the latest RAG guidance.

Following clarification from Ofwat, the power costs of pumping into supply from water treatment works of £3.8m are now reported under Treated Water Distribution. In previous years, these costs were reported within Water Treatment.

Recharges between Wholesale Water and Wastewater

RAG 2.07 states that recharges should be made for services that are provided across these units. As a result, water used by Wastewater amounting to £1.9m has been recharged (£1.4m Wastewater Network+; £0.5m Sludge). The income arising from this is shown as 'income treated as negative operating expenditure' in Wholesale Water and has been allocated across the regulatory areas using the water attribution model (Water Resources (£0.3m); Water Network+ (£1.6m))

£0.5m has been recharged by Wastewater for treatment of water sludge. The income is treated as negative operating expenditure in Wastewater with the charge included in Water Treatment.

Bulk supplies import

RAG 2.07 states that where companies import potable water, the costs should be split between Water Resources and Water Network+. Bulk supply import costs of £1.5m have been allocated across the regulatory units using the average cost of the exporting company (as reported in its APR).

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 higher than last year by £61m (10%); operating expenditure is £25m higher, capital expenditure £44m higher. This is offset by an increase in contributions of £8m.

Wholesale Water: Totex including cash items is £35m (11 %) higher than last year; £20m relates to an increase in Water Resources and £14m to Water Network+. The main changes are:

Operating expenditure: £30m higher than last year (£15m Water Resources and £15m Water Network+)

- Power costs have increased by £1.2m (6%) (£1.9m Water Resources; £ (0.7m) Water Network+). The increase in Water Resources reflects a change to the treatment of Nantgaredig WPS. This was previously reported within Raw Water Distribution, whereas in 2017/18 it has been treated as Water Resources. The overall movement in power relates mainly to price increases;
- The increase in income treated as negative expenditure of £4.1m (£2.6m Water Resources and £1.5m Water Network+). The main reasons for the increase in Water Resources are:
 - last year three dams were out of operation for a time;
 - reservoir levels were low; and
 - there was also an over accrual in 2016 of £1.2m relating to hydro income, meaning that last year's charge was lower than usual.

In addition, recharges of water to Wastewater accounts for £0.2m of the increase which has been allocated across the upstream services using the water attribution model. Water Network+ increase relates to the water recharge amounting to £1.7m;

- £1.4m of abstraction charges for non-potable and bulk water supplies are treated as third party costs in this report year which is the main reason why the abstraction charge is £0.8m lower than last year;
- Bulk supply costs have increased by £1.2m in Water Resources as last year costs included a release of a £2m provision relating to an old dispute;
- A cumulative decrease of £4m (£1.5m Water Resources; £2.5m Water Network+) reflects the lower charge to DCC following our successful appeal in 2015-16;
- IRE has increased by £25m (67%) (Water Resources £8m; Water Network+ £16.8m). The increase in Water Resources relates to the dam maintenance program increase of £10m to improve resilience. The Water Network+ increase reflects increased spend on the Zonal Studies programme to achieve efficiencies and early improvements. Leakage was also higher by £5m compared to last year due in part to the new Convergence spend, and also partly due to a weather incident in March 2018. Whereas contributions of £3m were netted off this cost last year, in 2017/18 these contributions are reported as grants and contributions as required by the latest RAG guidance;
- Other operating expenditure has increased by £14m (17%) in Wholesale Water which mainly relates to Water Network+ (£1m Water Resources, £13m Water Network+). The increase in Water Network+ reflects severe weather costs (£7m) and change in treatment of third party costs. Costs previously reported and treated as third party services are now included as 'other operating costs' (non-potable water £3m; new connections £5m and bulk supply export £1m). The increase in Water Resources relates mainly to employment costs; and
- A review of third party activities was carried out during the year to update the cost base used to calculate these costs. Third party costs in Wholesale Water amounts to £9.5m (non-potable water £1.9m; bulk supply export £3.8m; section 20 operating agreement £2.6m; rechargeable fire service £0.5m; third party water £0.7m) As a result of the change in the methodology third party costs have increased in Water Resources by £7m which was previously reported within Water Network+.

Grants and contributions: £8m higher than last year relating to Water Network+.

- Following further clarification in the latest RAGs new connections income of £3.9m (2017: £3.4m) which was previously reported as income is now included in grants and contributions in Water Network+; and
- Income of £3.3m (2017: £2.7m) relating to IRE schemes has been included in grants and contributions in Water Network+ whereas these were previously included in other operating expenditure - renewals expensed in the year.

Capital expenditure: £12m higher than last year.

- £6m increase in Water Resources; major spends in the year relate to £4m refurbishment of an abstraction source and £3m spent on Habitat Intake screens at Prioress Mill to comply with the new environmental legislation; and
- £6m increase in Water Network+; major spends in the year relate to £4m increase in costs relating to Tynywaun WTW and £3m relating to Glascoed WTW to upgrade the works .

Pension deficit recovery is in line with last year; this has been allocated based on parts of the business in which pension scheme members work or worked.

Wholesale Wastewater: Totex including cash items is £26m (9%) higher than last year; £3m relates to an increase in Wastewater+ and £23m to Sludge. The main changes are:

Operating expenditure: £5m (4%) lower than last year (£9m lower costs in Wastewater Network+ offset by increased cost in Sludge of £4m)

The main reasons for this are:

- The power cost increase of £1.5m in Wastewater relates to Sludge Treatment where one of our advanced digestion plants had operational issues during the year. This resulted in less power generated than in previous years and more having to be purchased from the grid;
- Local authority rates have decreased by £1.3m in Wastewater Network+ reflecting successful appeals in reducing our rateable values for some sites;
- Infrastructure costs are £7.6m lower as a result of lower spend in Sewage Collection; and
- Other operating expenditure – excluding renewals - is £3m (4%) higher than last year which mainly relates to Sludge; higher employment costs, chemicals and general and support costs

Capital expenditure: £32m (21%) higher than last year (£13m Wastewater Network+ and £19m Sludge).

The main reasons for this are:

- Maintaining long-term capability is £23m higher. £19.1m relates to sludge schemes and includes costs for Five Fords (£14m), Kinmel Bay (£1.4m), Llanfoist sludge scheme (£0.7m) and Aberystwyth Cake to Afan (£0.7m) as well as several other smaller schemes. The Five Fords scheme forms part of the larger North Wales Sludge Strategy programme where there will be a single sludge treatment centre in North Wales producing an enhanced treated bio-solid product through the provision of a THP 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. Wastewater Network+ has increased by £4.4m (6%). Two large schemes contribute to this increase: £4.2m work at Hereford Eign WwTW to improve poor performance and £3.4m at Llanfoist WwTW to refurbish the works as well as the inlet channel and screens; and
- Other capital expenditure has increased by £8m (6%) relating to Wastewater Network+. £11.5m costs have been incurred on the Rainscape schemes which will deliver a new surface water trunk sewer and terminal surface water pumping station to lift flows and discharge flows into the Loughor Estuary.

Grants and contributions: £0.2m higher than last year in Wastewater Network+.

The main reasons for this are:

- Following further clarification in the latest RAGs new connections income of £0.5m (2017: £0.8m) which was previously reported as revenue is now reported within grants and contributions;
- Income of £1.8m (2017: £0.5m) relating to IRE schemes is included in grants and contributions whereas this was previously reported as other operating expenditure - renewals expensed in the year; and
- Other movements relate to reduced contributions for capital schemes.

Pension deficit recovery is in line with last year; this has been allocated based the parts of the business in which pension scheme members work or worked.

Operating cost analysis - Retail (Table 2C)

Total operating costs for Retail activities are £1m (2%) lower than last year; household decrease of £0.7m, non-household decrease £0.3m.

Significant movements compared to last year are as follows:

- Customer services costs have increased by £3.7m as a result of increasing our customer service teams to reduce email response rates to 12 hours, as well as our investment in account management services for non-household customers;
- Debt management has seen a year on year reduction of £1.4m and reflects the success of applying greater sanctions for non-payment and our recovery strategies which also reduced the level of bad debt. This has been achieved despite our having a high proportion of customers in low income groups with high levels of personal debt;
- Doubtful debts are 5% lower than last year which is due to improving collection rates and the impact of charging orders from litigation activity, reducing the provision levels required on aged debt;
- The cost of our meter reading service is 12% lower than last year, reflecting the improvement in the effectiveness of our forecasting and scheduling activities;
- Other operating expenditure has decreased by £1.9m due to lower IT support costs; and
- Tangible asset depreciation and intangible asset amortisation are £2.6m higher than last year, reflecting a full year's charge on assets which were purchased/commissioned in the previous year.

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

Further detail is included in section 2.3

- The RAG guidance requires that the cost of pumping water from Water Treatment to Treated Water Distribution (£3.8m) is reported as Treated Water Distribution (previously reported as Water Treatment). During the year, cost centres were created so that these pumping costs can be readily identified. These cost centres are included in Treated Water Distribution and have been reported as such. This movement is all within the Water Network+ price control;
- £1.7m of power costs which would have been included as Raw Water Transport last year are reported as Water Resources due to a change in the allocation of power costs at Nantgaredig WPS following a boundary review. This has resulted in a movement of costs between the two price controls: Water Network+ and Water Resources;
- Following a detailed review of third party services the following changes have been made compared to last year: bulk supplies of £3.8m are treated as third party costs in Water which relate to £1.2m of abstraction costs, £2.4m IRE and £0.1m of other operating costs. In 2017, £0.8m was reported as third party costs in Treated Water Distribution and costs were taken from other operating expenditure. Although this change has no impact on total operating expenditure (including third party costs) between price controls, there is, however, a change in the treatment of the third party services and other cost types;
- As a result of the change in the treatment of non-potable water, £1.9m has been treated as non-potable third party costs (£1.1m Water Resources; £0.8m Water Network+) whereas in prior years £0.4m was included in Water Resources and £2.7m in Water Network+;
- Wholesale Water has recharged to Wastewater the cost of water used at its Wastewater sites. As a result, the following is reported in the price control units: income treated as negative expenditure – Water Resource (£0.3m); Water Network+ (£1.6m) and other operating expenditure – Wastewater Network+ £1.3m; Sludge £0.5m;

- Wastewater Wholesale has recharged Water for its treatment of water sludge. This has resulted in the following: income treated as negative expenditure – Wastewater Network+ £0.1m; Sludge £0.4m and in Wastewater Network+ (spread over different cost elements) £0.5m; and
- In line with the RAG guidance bulk supply imports have been split over the price control units based on the costs of the reporting company. As a result, £0.7m has been included in Water Resources and £0.8m in Water Network+. This is in line with the amount that would have been reported in 2016/17 (excluding a provision release in 2016/17).

2.6: Percentage split of power costs and other operating expenditure

- The percentage allocation split of power between directly coded and allocated cost based on consumption is as follows:

Power	Water Resources	Water network	Wastewater network	Sludge
Directly coded	80%	58%	57%	39%
Indirectly coded	20%	42%	43%	61%
	100%	100%	100%	100%
Savings from power generation				100%

- The percentage allocation split of other operating expenditure between directly and indirectly coded is as follows:

Other operating expenditure-excluding renewals	Water Resources	Water network	Wastewater network	Sludge	Retail
Directly coded	49%	66%	64%	76%	56%
Indirectly coded	51%	34%	36%	24%	44%
	100%	100%	100%	100%	100%

In 2016/17 Direct costs allocation was higher as the 'other operating expenditure' included renewals expenditure in the year (infrastructure).

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

Other operating expenditure including renewals	Water Resources	Water network	Wastewater network	Sludge	Retail
Directly coded	84%	78%	76%	76%	56%
Indirectly coded	16%	22%	24%	24%	44%
	100%	100%	100%	100%	100%

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

This cost includes all energy costs (including climate change levy costs). Electricity costs are 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 the asset's cost centre via an interface with SAP. 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. 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.

2.8: Management and general costs split across price control segments

Appendix 4 shows the percentage allocation across the price control units together with the rationale for using each cost driver.

2.9: Planned improvements for future years

In 2017/18 the following developments have supported a reduction in operational costs:

- Improvements to DCC's website, bringing increased take-up of our digital services;
- Advanced ICR improvements to further improve customer experience;
- Process efficiency improvements incorporating system automation using robotics for the first time;
- Re-procurement of debt collection agencies to lower our costs and improve collection rates;
- New dashboards to improve efficiency and data quality;
- Development and implementation of new treatment paths for final debt within Tallyman; and
- RapidXtra upgrade.

In 2018/19 we are making significant upgrades to our SAP platform which will benefit multiple areas of the business, specifically our operations call centre which will benefit from having more complete data available at all times. Other improvements planned for 2018/19 include:

- Further improvements to DCC's website to allow customers to self-serve;
- RapidXtra upgrade to enable system integration to DCC's website;
- Implementation of a new "single view" Retail desktop which will simplify and improve customer contact;
- Bill redesign – to simplify bills and reduce customers' need to contact us;
- Automation – using robotic tools to reduce manual effort for back office team;
- Quality management – to reduce failure demand and improve customer service; and
- Social tariff review – making sure we reach out to our most vulnerable customers.

2.10: Principal use rules applied

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

- £12.8m of capex spend has been reported in the service of principal use with recharges made to the other services as reported in Table 2A Segmental income statement. This reflects the accelerated depreciation on these assets. The amount recharged last year was £9.1m and the difference reflects the increase in capital expenditure of principal use assets;
- 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;
- The full cost of the assets has been recharged to the other services, reflecting a one-off charge with no further recharges being made for their use. The recharge does not include any financing cost; 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 £1.5m have been allocated across the regulatory units using the average cost of the exporting company (as reported in its APR).

3.4: Derivation of quantities used in unit cost data

Water Resources - Abstraction Licences

Licensed volume available

Data is taken as a summation of the annual licenced volume (MI) per abstraction licence provided by Natural Resources Wales and the Environment Agency in their annual abstraction licence charging sheet. The figure reported for 2017/18 is 1,682,027.83 MI (2017:1,679,667.43 ML). In the year one abstraction licence (Cwrt Gilbert Farm), which was licenced for 745.51 MI/Yr was removed. Last year’s number should have been 1,682,733 MI. In the course of preparing this table, it was noted that licence volume available and associated with two small sites had not been included. This accounts for the difference in the volume of 3,095 MI.

Water Resources – Raw Water Abstraction

Volume abstracted

Data is taken as a summation of the annual abstraction licence returns (MI) that are submitted per abstraction licence to Natural Resources Wales and the Environment Agency on a financial year basis. Our reported figure for 2017/18 of 505,739.420 MI includes the Elan Valley bulk supply to Severn Trent Water. This is the same approach taken last year. This year's figure includes an estimate for one abstraction at Llyn Y Fan Fach, due to an ongoing issue with the abstraction meter between 01 December 2017 and 31 March 2018. The quality of our 2017/18 reported figures has been enhanced by some improvements made to our methodology and data checks. The figure reported last year of 530,399.825 MI has now been recalculated as 509,007.33 MI. The difference is largely due to incorrect data being submitted for one abstraction licence (Lliw reservoir abstraction). In 2016/17, the original reported abstraction for this site was 34,770.54 MI. This data was calculated using an incorrect flow meter and the correct value for 2016/17 was 7,259.38 MI. The remainder of the difference is driven by slight changes noted across a number of other licences.

Raw Water Distribution - Raw Water Transport

Volume transported

The figure reported this year is 401,297.490 MI which includes the Elan valley bulk supply to Severn Trent Water. The quality of our 2017/18 reported figures has been enhanced by some improvements made to our methodology. The prior year figure of 530,399.825 MI has now been recalculated as 392,092.25 MI. The main reasons for this change include:

- A number of co-located sites were incorrectly included for reporting in 2016/17 which totalled 116,893 MI;
- The abstraction data submitted for Lliw reservoir of 34,770 MI was calculated using an incorrect flow meter, whereby the correct value should have been 7,259 MI. This means there was an additional volume of 27,511 MI incorrectly reported in APR 2016/17; and
- Some smaller differences noted in volumes transported across a number of other sites which makes up the remaining discrepancy.

Raw Water Distribution - Raw Water Storage

Average volume stored

The data is taken as a summation of the total storage volume available in those raw water reservoirs which do not have an abstraction licence or other legal agreement, or have greater than 15 days' storage. There are three reservoirs affected, namely Court Farm, Tynywaun and Canaston Bridge. For Court Farm and Tynywaun reservoirs, the figure is based on the average of daily readings of volume in the year but at Canaston Bridge reservoir we do not have the facility to calculate actual daily storage volumes and so have assumed the maximum capacity at this reservoir. This, however, only affects some 25MI of the 269.630MI reported (<10%).

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. As specified in RAG 4.07 this value has been calculated in line with the previous June Return guidance (Table 10 Line 26), but 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. As specified in RAG 4.07 this value has been calculated in line with the previous June Return guidance (Table 10 Line 26), but on an annual rather than daily basis.

Wastewater Services - Network+ (Sewage Collection)

Foul; surface water drainage; highway drainage - volume collected

This line 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 MI rather than MI/d. This line includes all sewerage collected from households, non-households, 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 18% and highway drainage 10%

Wastewater services - Network+ (sewage treatment and disposal)

Biochemical oxygen demand (BOD) in tonnes

The value for 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 89,772.110 (2016/17: 91,610.243).

Wastewater services - Network+ (Sludge Liquor Treatment)

The means of determining the mass of BOD in dewatering liquors returned to the treatment process at the Sludge Treatment Centre (STC) depends on data available at that site. Three methods were therefore developed therefore to cover all STCs to determine the flow.

The first method uses the mass of sludge cake produced for each STC which is measured at weighbridges at Afan WwTW and Cardiff WwTW advanced digesters using data stored on DCC's database. This is used to determine an estimate of liquors generated from the dewatering of the raw sludge (assumed at 2.5% dried solids) against an assumed concentration of the sludge cake (25% dried solids). Using a sludge cake density of 1.1 tonnes/m³ the volume of liquors can be calculated. The second method uses total flow meter readings available on site to measure the actual liquor total flow.

The third method is used when neither of the other methods can be used and uses the sludge imports from the database together with an estimate of the indigenous sludge produced from a population equivalent for the site, allowing for losses from storm spills etc. The total sludge treated and the volume of return liquor are determined as in the first method.

Typical BOD values determined from previous liquor sample analysis are used depending on the source of the sludge (e.g. surplus activated, raw primary or digested) to calculate the total BOD in the sludge liquors for the specific STC. However, if actual samples have been taken for that STC, these are used for BOD concentration.

The total BOD for all the STCs in DCC is determined by adding the mass of BOD in return liquors for each STC.

The value for BOD treated by STW sludge de-watering liquors in 2017/18 increased from 4,281.485 tonnes in 2016/17 to 4,739.750. A total of four additional sites has been included this year which accounts for an additional 184.544 tonnes BOD. Other changes arise from the use of different methods for calculating the loads, utilising actual flow data on site which we believe is a more accurate methodology. The sites where this made a significant difference were Kinmel Bay, Treborth, Gowerton, Merlins Bridge and Parc Y Splott.

Sludge Transport

Volume transported - Sludge transport m³

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 JRP and transactions into inlets have been removed. The recorded volume has then been totalled;
- Intersilting by truck – all JRP weighbridge intersilting cake movements data has been extracted. JRP records contain kg of product, with sludge corrected on the basis that 1m³ = 1100 kg. The haulage weight has then been totalled;
- Disposal by tanker – only one site’s sludge is now disposed of by tanker: Porthmadog (2017: three). 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;
 - Four sites that are not weighed and invoiced on a full skip basis. These weights are estimated by using the average weight of similar style skips for the 12 month reporting period;
 - 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 1 m³ = 1100 kg and summed.

The same methodology was applied last year.

Sludge Treatment

Dried solid mass treated (ttds)

The RAG guidance states that this is equivalent to the June Return 2011 definition for Table 15 Line 14, i.e. 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;
- Four sites that are not weighed and instead invoiced on a full skip basis. These weights are estimated by using the average weight of similar style skips for the reporting period;
- 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 QDB system of the last 5 years solids figures to remove any spikes in data. The conversion from wet sludge to dry solids is not treatment process specific. The 5 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 of the treatment processes the following calculations are made:
 - At advanced digestion sites the actual total feed is taken;
 - At conventional digestion where actual destruction figures are available, these are used and where available not an industry average of 35% destruction of dry solid mass is used;
 - For liming sites where lime addition is recorded, this quantity is removed from the total sludge disposed figure and where it is not recorded a company average of 8% 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 8% is deducted for the addition of lime.

Sludge Disposal

Dried solid mass treated (ttds)

The guidance states that this is equivalent to the June Return 2011 definition for Table 15 Line 15; 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 four sites that are not weighed and invoiced on a full skip basis. These weights are estimated by using the average weight of similar style skips for the reporting period;
- 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 QDB system of the last 5 years solids figures to remove any spikes in data. The conversion from wet sludge to dry solids is not treatment process specific. The 5 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 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

See Appendix 1.

3.7: Significant movements in unit cost

Water Resources

Abstraction Licence: Unit cost £6.058/ml (2017: £5.611/ml restated)

This has increased by 8% since last year as a result of increased abstraction licence costs

Raw Water Abstraction: Unit cost £58.228/ml (2017:£30.495/ml restated)

Operating expenditure has increased by 90% (£14m). The main reason for the increase relates to the increase in IRE (£8m) and third party costs (£6m) relating to the increased programme of work on impounding reservoirs.

Raw Water Distribution

Raw Water Transport: Unit cost £10.765/ml (2017: £15.968/ml restated)

The unit cost has decreased by 33%, reflecting a cost reduction of £2m (31%) (Including £1.7m relating to a change in the treatment of Nantgaredig WPS).

Raw Water Storage: Unit cost £3193.265/ml (2017:£4,048.251/ml)

The unit cost has decreased by 21%, which reflects £0.2m lower costs

Water Treatment

Water Treatment: Unit cost £130.285/ml (2017: £145.945/ml)

The unit cost has decreased by 11%. Operating expenditure costs have decreased by 10% (£4m) mainly in power and the volume increased by 1% (3,772MI).

Treated Water Distribution

Treated Water Distribution: Unit cost £416.572/ml (2017:£347.491/ml)

The unit cost has increased by 20%. The volume has increased by 1% with a cost increase of 22% (£22m increase); £7m is the result of severe weather costs and £4m is due to power cost increases (reflecting high lift pumps being reported as Treated Water Distribution), while an increase in IRE by £17m has been partially offset by the reduction in cumulo rates of £2m and an increase in negative expenditure of £1m.

Sewage Collection

Foul: £182.703/ml (2017: £232.836/ml); **surface water drainage** £258.902/ml (2017:£229.988/ml); **Highway drainage** £236.186 (2017: £261.903/ml)

Unit costs have (reduced)/increased as follows: foul (22%); surface water drainage 13%; highway drainage (10%). These are largely driven by cost movements as volumes have only increased by 3%. Operating expenditure has reduced in foul by £9m and increased in surface water drainage by £2m, mainly relating to Infrastructure cost movement.

Sewage Treatment

Sewage Treatment and Disposal: £645.969/t (2017 £645.736/t)

The unit cost is in line with last year.

Sludge Liquor: £855.530/t (2017: £1,046.599/t)

Unit cost has fallen by 18%. Volumes have increased by 11% following changes to the methodology as explained above, but operating expenditure have fallen by 0.4m (9%) mainly relating to a decrease in power usage.

Sludge

Sludge Transport: £8.280/m³ (2017:£10.623/m³)

The unit cost has decreased by 22%. The volume has increased by 9% with a reduction in costs of £1m (15%) mainly relating to lower general and support costs and a drop in hired and bought-in services.

Sludge Treatment: £130,416.081/ttds) (2017: £73,338.276/ttds)

The unit cost has increased by 78%. As volume has only moved by 6%, the main driver of the unit cost increase is operating expenditure which is £4m (88%) higher than last year. The main reason for the increase is the additional power costs of £1m reflecting operational issues at one of our AD plants together with increase in agency, chemicals and general and support costs.

Sludge Disposal: £108,107.454/ttds (2017: £100,344.269/ttds)

The unit cost has increased by 8%. Volumes have increased by 6% and costs by 15% (£1m) which mainly relates to increase in contractors costs.

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 PR14 Final Determination.

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

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Appendix 1

Disaggregation of Wholesale activities – upstream services

Introduction

RAG 4.07 requires companies to disaggregate their totex costs further in table 4D and 4E into the following upstream services:

Wholesale Water

Water Resources

Network +

Network +

Network +

Upstream services

Abstraction Licence

Raw Water Abstraction

Raw Water Transport

Raw Water Storage

Water Treatment

Treated Water Distribution

Wholesale Wastewater

Network+

Network +

Sludge

Sewage Collection - foul

Sewage Collection - surface water drainage

Sewage Collection - highway drainage

Sewage Treatment and Disposal

Sludge Liquor Treatment

Sludge Transport

Sludge Treatment

Sludge Disposal

The following details each individual upstream service and assumptions applied.

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

The Company records the cost of abstraction licences within a separate general ledger code in SAP and this is reported within the Water Resources accounting separation table as service charges. As this cost is readily identifiable no further allocation is required. Abstraction costs relating to third parties are shown as third party costs.

No assets are allocated to this service.

In previous years bulk supply export costs were reported as third party services in Treated Water Distribution.

After a review of our third party costs, £1.2m of costs are now reported as third party costs within the Abstraction Licence service and no longer in Treated Water Distribution.

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Appendix 1

Disaggregation of Wholesale activities – upstream services

Bulk supply import costs are allocated to upstream services based on the exporting company's costs reported in its APR. £31k (2016/17: none) of bulk supply costs are reported in the Abstraction Licence service. In prior years, there were no costs shown as third party services relating to our non-potable supplies. Following a detailed review of our non-potable costs, £0.4m is now reported as third party services. Wholesale Water has recharged Wastewater the cost of water used at its wastewater sites. As a result the following is reported in the upstream service area:

- income treated as negative expenditure:
 - Abstraction Licence £(0.1)m;
 - Raw Water Abstraction £(0.2)m;
 - Raw Water Transport £(0.1)m;
 - Water Treatment £(0.5)m; and
 - Treated Water Distribution £(1.1m).
- other operating expenditure:
 - Wastewater Treatment £1.3m; and
 - Sludge £0.5m.

These have been allocated across Water based on the water attribution model.

There are no other change to the methodology from last year.

Raw Water Abstraction

Guidance

The water abstraction service includes activities related to the identification of new sources, including 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 Distribution.

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

All other costs attributable to Water Resources apart from the Abstraction Licence costs above are included within Raw Water Abstraction.

Some costs relating to boreholes are split between Water Resources and Water Treatment where pumping supports both price controls. A desktop study was taken in 2017 of all the borehole sites where site data was obtained to identify the key variables to input into the formula. The revised % allocations were applied to the costs of these boreholes. This % allocation is updated annually with key variables to ensure that costs are being reported in the correct price control.

After a review of the price control boundaries in RAG 4.07, it was found that power costs for Nantgaredig WPS were being included in Raw Water Distribution. These costs amounting to £1.7m are now reported in Raw Water Abstraction.

In previous years bulk supply export costs were reported as third party services in Treated Water Distribution. After a review of our third party costs, £0.1m of costs are now reported as third party costs within Raw Water Abstraction and are no longer in Treated Water Distribution. In addition a further £2.4m is reported as third party which relates to IRE schemes on the Elan Valley dam.

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Appendix 1

Disaggregation of Wholesale activities – upstream services

Bulk supply import costs are allocated to upstream services based on the exporting company's costs as reported in its APR. £0.1m (2017: (£1.1m)) of bulk supply costs are reported in Water Resources. In prior years all the cost of the bulk supply would have been reported as Water Resources. The charge last year was a credit of £1.1m which reflected a release of a provision relating to an old dispute.

Wholesale Water has recharged Wastewater the cost of water used at its Wastewater sites. As a result the following is reported in the upstream service area:

- income treated as negative expenditure:
 - Abstraction Licence £(0.1)m;
 - Raw Water Abstraction £(0.2)m;
 - Raw Water Transport £(0.1)m;
 - Water Treatment £(0.5)m; and
 - Treated Water Distribution £(1.1m).
- other operating expenditure:
 - Wastewater Treatment £1.3m; and
 - Sludge £0.5m.

These have been allocated across water based on the water attribution model.

There are no other change 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 distribution 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

After a review of the price control boundaries in RAG 4.07, it was found that power costs for Nantgaredig WPS were being included in Raw Water Transport. These costs amounting to £1.7m are now reported in Raw Water Abstraction.

Bulk supply import costs are allocated to upstream services based on the exporting company's costs reported in its APR. £26k (2017: none) of bulk supply costs are reported in Raw Water Transport

The majority of the costs allocated to Raw Water Transport relates to the power costs of the pumped water.

There are no other change 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.

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Appendix 1

Disaggregation of Wholesale activities – upstream services

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. . Please see Appendix 2 for more detail. 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

Bulk supply import costs are allocated to upstream services based on the exporting company's costs reported in its APR. £9k (2017: none) of bulk supply costs have been reported in Raw Water Storage.

There are no other change to the methodology from last year.

Water Treatment

Guidance

Receive raw or partially treated (non-potable) water from the raw water distribution 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

Bulk supply import costs are allocated to upstream services based on the exporting company's costs reported in its APR. £0.2m (2017: £11k) of bulk supply costs are reported in Water Treatment.

In prior years costs of non-potable supplies which were shown as third party was based on the % of non-potable volume compared to total volume of water. This % was applied to the direct cost of water across the service area. Our methodology for calculating this cost has changed this year as we are looking at the costs specific to the non-potable supply. As the majority of the supplies are not treated water only £0.2m (2017:£1.4m are reported as third party costs.

Following clarification from Ofwat £3.7m of pumping costs for pumping water from treatment into the distribution system is now reported as Water Distribution.

Water Wholesale has recharged Wastewater the cost of water used at its Wastewater sites. As a result the following is reported in the upstream service area:

- income treated as negative expenditure:
 - Abstraction Licence £(0.1)m;
 - Raw Water Abstraction £(0.2)m;
 - Raw Water Transport £(0.1)m;
 - Water Treatment £(0.5)m; and
 - Treated Water Distribution £(1.1m).
- other operating expenditure:
 - Wastewater Treatment £1.3m; and
 - Sludge £0.5m.

These have been allocated across Water using the water attribution model.

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Appendix 1

Disaggregation of Wholesale activities – upstream services

Wastewater Wholesale has recharged water for its treatment of water sludge. This has resulted in the following:

- income treated as negative expenditure:
 - Wastewater Treatment £(0.1)m;
 - Sludge £(0.4)m; and
 - costs in Water Treatment (spread over different cost elements) £0.5m.

There is no other change to the methodology from last year.

Treated Water Distribution

Guidance

Treated Water Transport includes activities related to transporting 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

In 2016/17 all the costs for bulk supply for potable water was reported in Treated Water Distribution. In line with the guidance bulk supply import costs are now allocated to upstream services based on the exporting company's costs reported in its APR. £551k (2017: £929k) bulk supply costs are reported in Treated Water Distribution.

In 2016/17, costs of £759k relating to our bulk supply were shown as third party. During the year there was a review of third party activities and there are no costs shown as third party activities in this report year as they should have been reported within Water Resources.

In prior years costs of non-potable supplies which were shown as third party was based on the % of non-potable volume compared to total volume of water. This % was applied to the direct cost of water across the service area. Our methodology for calculating this cost has changed this year as we are looking at the costs specific to the non-potable supply. As a result there are no costs relating to non-potable supply within Treated Water Distribution reported as third party costs (2017: £1,939k).

New connections costs of £5m were reported as third party services in 2016/17. Following a review using the income categorisation schedule in Appendix 1 of RAG 4.07 new connections costs of £5m are no longer reported as third party and are included in other operating expenditure.

Water Wholesale has recharged Wastewater the cost of water used at its Wastewater sites. As a result the following is reported in the upstream service area:

- income treated as negative expenditure:
 - Abstraction Licence £(0.1)m;
 - Raw Water Abstraction £(0.2)m;
 - Raw Water Transport £(0.1)m;
 - Water Treatment £(0.5)m; and
 - Treated Water Distribution £(1.1m).
- other operating expenditure:
 - Wastewater Treatment £1.3m; and
 - Sludge £0.5m.

These have been allocated across water using the water attribution model.

Following clarification from Ofwat £3.8m of pumping costs for pumping water from treatment into the distribution system is now reported as Water Distribution.

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Disaggregation of Wholesale activities – upstream services

There are no other change 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 the previous two catchments to sixteen catchments. The hydraulic modelling capability has improved significantly since the original report. The hydraulic modelling of all sixteen chosen catchments had been reviewed under the Sustainable Drainage Planning programme. A mix of small, medium and large catchments were chosen, to provide understanding about how this 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 global average would better represent the range of catchments that DCC operates;
- 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;

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Disaggregation of Wholesale activities – upstream services

- The hydraulic model simulations have been run with the typical year dataset rather than estimate 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 is 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 sixteen 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	2016/17	2017/18
Foul	72%	74%
Surface water	17%	18%
Highway drainage	11%	8%

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	2016/17	2017/18
Foul	73%	66%
Surface water	17%	23%
Highway drainage	11%	11%

In addition the capital spend in Sewerage has been analysed between the three business units for 2017/18 resulting in the following allocation with:

Capital expenditure	Maintaining	Other capital expenditure
Foul	64%	60%
Surface water	25%	26%
Highway drainage	12%	14%

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

Water Wholesale has recharged Wastewater the cost of water used at its Wastewater sites. As a result the following is reported in the upstream service area:

- income treated as negative expenditure:
 - Abstraction Licence £(0.1)m;
 - Raw Water Abstraction £(0.2)m;
 - Raw Water Transport £(0.1)m;
 - Water Treatment £(0.5)m;
 - Treated Water Distribution £(1.1)m;
- other operating expenditure:
 - Wastewater Treatment £1.3m; and
 - Sludge £0.5m.

These have been allocated across water using the water attribution model.

Wastewater Wholesale has recharged Water for its treatment of water sludge. This has resulted in the following:

- income treated as negative expenditure:
 - Wastewater Treatment £(0.1)m; and
 - Sludge £(0.4)m.
- costs in Water Treatment (spread over different cost elements) £0.5m.

There is no other change 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 are carried out at a stand-alone liquor treatment plant (which will be included in the Sludge Treatment upstream service).

Methodology

There are no other changes to the methodology from last year.

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Disaggregation of Wholesale activities – upstream services

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 is no change 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

Water Wholesale has recharged Wastewater the cost of water used at its Wastewater sites. As a result the following is reported in the upstream service area:

- income treated as negative expenditure
 - Abstraction Licence £(0.1)m;
 - Raw Water Abstraction £(0.2)m;
 - Raw Water Transport £(0.1)m;
 - Water Treatment £(0.5)m; and
 - Treated Water Distribution £(1.1m).
- other operating expenditure:
 - Wastewater Treatment £1.3m; and
 - Sludge £0.5m.

These have been allocated across water using the water attribution model.

Wastewater Wholesale has recharged Water for its treatment of water sludge. This has resulted in the following:

- income treated as negative expenditure:
 - Wastewater Treatment £(0.1)m; and
 - Sludge £(0.4)m.
- costs in Water Treatment (spread over different cost elements) £0.5m.

There is no other change to the methodology from last year.

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Appendix 1

Disaggregation of Wholesale activities – upstream services

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 is no change to the methodology from last year.

Upstream Services: capital expenditure

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

Management and general assets are allocated using FTE numbers split of direct labour.

Explanation of cost movements from prior years

In the guidance documents there is a requirement to report costs that have significantly moved from last year.

The commentary below will provide explanations for any significant movement (above 10%).

Water Resources		Operating expenditure		
Service		Abstraction Licence	Raw Water Abstraction	Total
Total cost 2016/17	£m	9.4	15.5	24.9
Movements	£m	0.8	13.9	14.7
Total cost 2017/18	£m	10.2	29.4	39.6
Movement since last year		8%	90%	59%

A significant movement overall (>10%) compared to last year is as follows:

Abstraction Licence costs have increased overall by 8%; abstraction charges (excluding third parties) have reduced by £0.8m and third party services has increased by £1.6m

Raw Water Abstraction operating costs have increased by 90% (£13.9m). The reasons include:

- Power increase of £1.6m mainly relates to Nantgaredig WPS which should have all been reported as Raw Water Abstraction in prior years instead of raw water distribution;
- Income treated as negative expenditure increased by £2.6m. The main reason for this was that last year three dams were out of operation for a time; low reservoir levels and an over accrual in 2016 of £1.2m relating to hydro income meant that last year's charge was lower than usual. In addition recharges of water to Wastewater accounts for £0.2m of the increase which has been allocated across the upstream services using the water attribution model;

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Disaggregation of Wholesale activities – upstream services

- Bulk supply has increased by £1.2m: last year a provision of £2m was released as the debt fell outside the six year statutory limitation period. In addition, the treatment of bulk supplies has changed as the costs are allocated using the exporting company's costs reported in its APR;
- Other operating expenditure - renewals expensed in the year – infra has increased by £7.8m. This relates to a key strategic initiative within 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 practice safety guidance and maintain water resource resilience. During the year, there was significant investment on three schemes: Usk Spillway £3.2m; Talybont Reservoir £2.6m and Llanishen Reservoir £2.1m;
- Other operating expenditure- excluding renewals has increased by £1.5m: £1m of this relates to increased employment costs in Water Resources;
- Cumulo rates have decreased by £1.5m. In 2017 a £1.5m rebate was paid to NRW under the S20 operating agreement which was their share of a £20m rebate received in 2016; and
- Third party services have increased by £5.7m. The costs included in third party services of £5.9m consist of:
 - non potable opex £0.7m;
 - non-potable IRE £0.1m;
 - bulk supply IRE £2.4m;
 - EA operating costs £1.2m; and
 - EA IRE £1.4m.
- The IRE costs of £3.9m reflect the dam maintenance work on the Caban Coch reservoir which supplies Severn Trent Water.

Capex has increased by £5.8m. This is broken down between £2.7m maintenance and £3.1m enhancements. This reflects the increased spend to improve our infrastructure as explained above. Two notable schemes in the year were the refurbishment of Manorafon WPS (total investment of £5m) and work at Prioress Mill Habitat intake screen (total of £4m).

The pension deficit recovery payment has reduced by £0.1m which reflects a change in allocation as 2017/18 has been allocated based the parts of the business in which pension scheme members work or worked.

Table 4V

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

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

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.

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Disaggregation of Wholesale activities – upstream services

Raw water distribution		Operating expenditure		
Service		Raw Water Transport	Raw Water Storage	Total
Total cost 2016/17	£m	6.3	1.1	7.4
Movements	£m	- 2.0	- 0.2	- 2.2
Total cost 2017/18	£m	4.3	0.9	5.2
Movement since last year		-31%	-18%	-29%

Significant movements (>10%) compared to last year:

Raw Water Transport operating costs have reduced by 31% (£0.2m). The reasons include:

- A power decrease of £1.6m relates mainly to Nantgaredig WPS which should have all been reported as Raw Water Abstraction in prior years instead of Raw Water Transport;
- Other operating expenditure- renewals expensed in the year – infra has increased by £0.1m. This relates to a key strategic initiative within Water Operations;
- Cumulo rates have decreased by £0.047m (14%) which reflects the lower cumulo charge across the water services; and
- Third party services have increased by £0.2m and this reflects a change in methodology as explained above. The third party costs of £0.5m relate mainly to bulk supplies.

Raw Water Storage operating expenditure has decreased by 18% (£0.2m):

- this relates to a reduction in employment costs (£0.1m) and general and support activity (£0.1m).

Capex has decreased by £0.8m for Raw Water Distribution which mainly reflects the lower spend of £1m in enhancement schemes for Raw Water Storage.

Water Treatment		Operating expenditure
Total cost 2016/17	£m	42.5
Movements	£m	-4.1
Total cost 2017/18	£m	38.4
Movement since last year		-10%

Significant movements (>10%) compared to last year:

Water Treatment operating costs have reduced by 10% (£4.1m). Reasons include:

- Power cost has reduced by £3.4m (36%). This relates to power costs for high lift pumps now reported as Treated Water Distribution following clarification from Ofwat;
- Income treated as negative expenditure has increased by £0.7m. £0.5m relates to recharges of water to Wastewater which has been allocated across the upstream services using the water attribution model;
- Bulk supply costs have increased by £0.2m. The reason for the increase is that costs in 2017/18 are allocated across the water using the exporting company's APR whereas previously this was all reported as Water Resources;
- Cumulo rates have decreased by £0.3m which reflects the lower cumulo charge across the water services; and
- Third party services have reduced by £1.2m. This relates to the change in treatment of non-potable costs. Last year, the costs of were derived by applying the % split of non-potable across water direct costs and this has changed as costs are being captured at specific non-potable supply level.

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Appendix 1

Disaggregation of Wholesale activities – upstream services

Capex has increased by £4.9m (9%). Base maintenance has increased by £10m (32%) to £42m whereas enhancements has reduced by £5.5m (23%) to £24m. Capital costs will vary depending on the programme of work carried out in the year.

Treated Water Distribution		Operating expenditure
Total cost 2016/17	£m	102.0
Movements	£m	22.0
Total cost 2017/18	£m	124.0
Movement since last year		22%

A significant movement overall (>10%) compared to last year is as follows:

Treated Water Distribution operating costs have increased by 22% (£22m). The reasons include:

- Power increase £4.4m; £3.8m relates to reclassification of power for pumping water into the distribution system from Water Treatment to Treated Water Distribution;
- Income treated as negative expenditure has increased by £1.1m and relates to recharges of water to Wastewater which has been allocated across the upstream services using the water attribution model;
- Bulk supply have reduced by £0.4m. The reason for the decrease is the costs in 2017/18 are allocated across the water using the exporting company's APR whereas previously the potable supply was all treated as Water Treatment;
- Other operating expenditure –renewals expensed in the year - infra has increased by £17m (59%). This relates to costs for our Zonal Studies programme to achieve efficiencies and early improvements. Leakage was also higher by £5m compared to last year due in part to the new Convergence spend, and also partly due to a weather incident in March 2018;
- Other operating costs have increased by £12m (28%). This relates to the change in treatment of new connection costs (£5m), the effect of the severe weather in March (£7m) and costs no longer reported as third party services (£3m);
- Cumulo rates have decreased by £2.1m (which reflects the lower cumulo charge across the water services; and
- Third party services have reduced by £7.7m. This relates to the change in treatment of non-potable costs, bulk supplies and new connections. In line with the income categorisation schedule in the RAGs new connection costs of £5m are no longer treated as third party but are included in other operating expenditure. The reason for the movement in non-potable and bulk supplies has been mentioned above. The costs included as third party for 2017/18 are:
 - non-potable supplies £nil (2017: £1.9m);
 - bulk supplies £nil (2017: £0.8m);
 - rechargeable fire service £0.5m (2017:£0.3m); and
 - third party water £0.7m (2017:£1.3m).

Capex has increased by £2.1 (3%). Base maintenance has decreased by £6.9m to £49m whereas enhancements has increased by £8.9m to £19m. Capital costs will vary depending on the programme of work carried out in the year.

Grants and contribution have increased by £7.8m. £3.9m relates to new connection contributions previously reported as revenue but, in line with the latest guidance, is now reported as contributions and £3.3m income from IRE schemes that were previously reported in other operating expenditure.

Dŵr Cymru Cyfyngedig

Appendix 1

Disaggregation of Wholesale activities – upstream services

Sewage Collection		Operating expenditure			
Service		Foul	Surface water	Highway drainage	Total
Total cost 2016/17	£m	47.3	11.2	7.0	65.5
Movements	£m	- 9.0	1.9	- 0.5	- 7.6
Total cost 2017/18	£m	38.3	13.1	6.5	57.9
Movement since last year		-19%	17%	-7%	-11%

A significant movement overall (>10%) compared to last year is as follows:

- Overall total Sewage Collection operating costs has decreased by £7.6m (11%) which relates principally to an IRE reduction of £12m (Foul £9.1m, Surface water drainage £3.1m) offset in part by an increase in power of £0.6m and an increase in employment and general and support costs of £3.7m.

Capex has increased by £0.7m for Sewage Collection (1%).

Sewage Treatment		Operating expenditure		
Service		Sewage Treatment	Imported Sludge Liquor	Total
Total cost 2016/17	£m	59.2	4.5	63.7
Movements	£m	- 1.2	- 0.4	- 1.6
Total cost 2017/18	£m	58.0	4.1	62.1
Movement since last year		-2%	-9%	-3%

Significant movement overall (>10%) compared to last year is as follows:

Sewage Treatment costs have decreased by £1.2m (2%), and the main reason for this is:

- Income treated as negative expenditure has increased by £0.3m. £0.1m relates to recharge to water for treatment of water sludge, together with an increase in power income; and
- Local authority rates for Sewage Treatment sites have reduced by £1.2m and this reflects rebates received and lower rateable values, following appeals from our rating advisors.

Imported Sludge Liquor has decreased by £0.4m (10%) mainly relating to lower power incurred.

Capex has increased by £11.9m for Sewage Treatment. This is broken down between a base maintenance increase of £2.2m (4%) and an enhancement increase of £9.7m (44%). Capex will change on an annual basis based on the programme of works scheduled in the year.

Pension deficit payments have increased by £0.4m as 2017/18 costs have been allocated based the parts of the business in which pension scheme members work or worked.

Disaggregation of Wholesale activities – upstream services

Sludge		Operating expenditure			
		Sludge Transport	Sludge Treatment	Sludge Disposal	Total
Service					
Total cost 2016/17	£m	5.5	4.8	4.0	14.3
Movements	£m	- 0.8	4.3	0.5	4.0
Total cost 2017/18	£m	4.7	9.1	4.5	18.3
Movement since last year		-14%	90%	13%	28%

Significant variances (>10%) compared to last year:

Overall Sludge costs have increased by 28% (£4.0m). The Sludge Transport cost reduction of £0.8m related to lower costs of haulage. The Sludge Treatment cost increase of £4.3m reflects:

- Power increase £1.5m relating to the Afan AD site. There were operational issues during the year and we had to purchase power from the grid; and
- Other operating expenditure increase of £3m (43%) reflecting an increase in the volume of tankering between sites, maintenance and agency costs (£1m), chemicals £0.9m and general and support costs £0.9m (which reflects an increase in the headcount allocated to Sludge).

The Sludge Disposal costs increase of £0.6m reflects an increase in contractor costs.

Capex costs have increased for Sludge Treatment by £18.6m. 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 (£14m) and Porthmadog (£2m). In addition, 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.

Pension deficit payments across Sludge have reduced by £0.029m as the 2017/18 costs have been allocated based the parts of the business in which pension scheme members work or worked.

Cost Assessment tables

Some of the tables included in the APR this year formed part of the Cost Assessment table (CAT) submission last year. The following changes are reflected in this year's APR tables as a result of further clarification or further information becoming available. As the financial impact of these is not material, no restatement has been made in respect of the 2016/17 APR.

- Raw Water Abstraction: the total cost remains the same. £0.364k has moved between cost types: a contribution originally included in other operating expenditure is now reported within grants and contributions in the CAT table 1: WW Expenditure by business unit. (This is consistent with the 2017/18 APR treatment).
- Treated Water Distribution: the total cost remains the same. £1.625m has moved between cost types in CAT table 1 (this is consistent with the 2017/18 APR treatment):
 - other operating expenditure has increased by £1.625m;
 - £2.337m of contributions are now reported within grants and contribution; and
 - £0.712m of diversion costs are shown as other capital expenditure – infra.
- Sewage Collection: the total cost remains the same. £3.941m has moved between cost types in CAT table 8, WWW Expenditure by unit (this is consistent with the 2017/18 APR treatment):
 - other operating expenditure has increased by £3.941m;
 - £0.478m of contributions are reported within grants and contributions; and
 - £3.463m has been taken off other capital expenditure – infra following further information becoming available.

Dŵr Cymru Cyfyngedig

Appendix 2

Retail: Wholesale cost allocation

Cost driver used for 2017-18

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 service schedules the first job following its trigger by a customer call.

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 a customer contact.

Call to customer for issue resolution

Management estimates the time spent on customer contact to resolve each issue, as there are some Wholesale activities associated with the work.

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 OAC and filtered by cause to establish the cost of non-network visits.

Call to customer for issue resolution

Management estimates the time spent on customer contact to advise that remedial work has been completed.

Debt management

Debt management

Wholly in Retail.

Customer doubtful debt

Wholly in Retail, as there is no provision for Wholesale revenue e.g. bulk supplies or third parties.

Meter reading

Costs incurred by Wholesale and recharged to Retail - water inspectors

Wholly in Retail.

Customer liaison for meter queries: a list of all jobs is extracted which involve an inspector's visit following a customer's contact with a billing query.

Services to developers

Costs are apportionment by management estimate.

Other operating expenditure

Demand-side water efficiency initiatives

Costs incurred by Wholesale

These are treated as Wholesale activities as they relates 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.

Dŵr Cymru actuarial costs

Defined benefit and defined contribution pension scheme costs are allocated based on membership numbers.

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.

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 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

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

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

Allocation is based on FTEs.

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 for company-wide activities.

Other business activities (regulation costs)

1/9th to Retail.

Local authority office rates

Allocation is based on FTEs.

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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 allocated 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 an understanding of the business.

	Water Resources	Raw Water Distribution	Water Treatment	Water Distribution	Sewerage	Sewage Treatment	Sludge Transport and Treatment	Sludge Disposal
	£m	£m	£m	£m	£m	£m	£m	£m
	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B
Power	This includes all energy costs, including the climate change levy, and income from energy generation. Electricity costs are allocated to assets via Dŵr Cymru's electricity management system (ARIES) which receives electronic power bills from energy providers and, by reference to the supply point, charges relevant costs to an asset's cost centre via an interface with SAP. Each Water and Wastewater service asset has a unique supply point allowing actual power costs to be charged directly to the asset and its associated activity. Where a supply point provides power for more than one activity (e.g. a wastewater treatment works which also contains a sludge treatment facility), sub-meter data is used where possible. Where sub-meter data is not available, the amount attributable to each activity is determined by reference to the location of equipment, the output of that item, its frequency of use and the pumping head involved.							
Natural Resources Wales/Environment Agency service charges	Abstraction charges received from Natural Resources Wales (NRW) and the Environment Agency (EA) are allocated to Water Resources. Discharge consent payments made to NRW and the EA are supported by a site-by-site breakdown which is used to allocate costs to appropriate activities and processes.							
Bulk supply imports	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 is split between Water Resources and Water Network+ using the cost split of the exporting company as reported in its Annual Performance Report.							
Other operating expenditure	A/B	A/B	A/B	A/B	A/B	A/B	A/B	A/B
Employment costs	Following the introduction of the above SAP work management systems, the majority of the operational staff's cost allocation is automated, minimising the need for manual allocations. Furthermore, many operational staff cost centres relate to a specific activity, with few instances of staff working across more than one activity. 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 Wastewater business, where Wastewater operatives rarely work on 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. Management estimates are also used to allocate any under- or over-recoveries in operatives' home cost centres.							
Hired and contracted services	Hired and contracted services are charged directly to business units by procurers who are generally dedicated to that activity. Where 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. The Works Order determines the destination cost centre (for opex) or internal order (for capex) associated with the asset, job type and location.							
Chemicals	Chemical costs are charged directly to business units by procurers who are generally dedicated to that activity. Where 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. The Works Order determines the destination cost centre (for opex) or internal order (for capex) associated with the asset, job type and location.							
Materials and consumables	Materials and consumables are charged directly to business units by procurers who are generally dedicated to that activity. Where 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. The Works Order determines the destination cost centre (for opex) or internal order (for capex) associated with the asset, job type and location.							
Other	Other costs include the cost of insurance relating to wholesale activities, allocated on an FTEs basis for employer's liability insurance and for uninsured losses based on the claims history.							
General and support expenditure	The cost allocation for general and support expenditure is shown in Appendix 4							
Scientific services	B/C	B/C	B/C	B/C	B/C	B/C	B/C	B/C
	Scientific services costs are allocated to activities based on management assessment, which considers sample volumes 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 Water and Wastewater 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 the Water services, four for the Wastewater service and one for Retail).							
Local authority rates	B	B	B	B	B	A/B	B	B
	These costs consist of 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 each business unit. Cumulo rates associated with the Environment Agency operating agreement are charged to third party services. Non-domestic rates relating to Wastewater sites are allocated primarily to the Sewage Treatment activity. Where there is a Sludge Treatment activity at a Wastewater Treatment site, a percentage (based on rateable values) is charged to the Sludge Treatment activity. Non-domestic rates relating to offices are allocated directly to business units where possible; where this is not possible, the costs are allocated based on employment costs or floor space.							
Third party services - opex	C	C	C	C	C			
	Third party services include costs associated with the supply of non-potable water, the supply of standpipes, ships' water, bulk supply, reservoir agreements and rechargeable works.							

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Appendix 4
General and support allocation

Cost category	Cost driver (basis for indirect cost allocation)	Rationale	Water Resources	Water Network+	Sewage Network+	Sludge	Retail	Non-appointed
Chief Executive	Company revenues	Considered most appropriate driver for Chief Executive of whole organisation	3%	36%	42%	11%	7%	0%
UK Water	Equal split across nine business units	Per Ofwat guidance for regulatory costs	11%	33%	22%	22%	11%	0%
Finance Director	Company revenues	Considered most appropriate driver for Finance Director of whole organisation	4%	35%	43%	10%	7%	0%
Chief Operating Officer	Wholesale revenues	Considered most appropriate driver for head of Wholesale operations	4%	38%	46%	11%	0%	0%
General Counsel	Company revenues	Considered most appropriate driver for company-wide function	4%	35%	43%	10%	7%	0%
Legal costs	Management assessment	Based on a detailed analysis of costs	4%	46%	46%	0%	6%	-2%
Regulatory Compliance	Equal split across nine business units	Per Ofwat guidance for regulatory costs	11%	33%	22%	22%	11%	0%
Company Secretary	Company revenues	Considered most appropriate driver for company-wide function	4%	35%	43%	10%	7%	0%
HR								
Human resources: other	Company FTEs	Considered most appropriate driver for company-wide function	3%	30%	24%	6%	35%	2%
Employee services	Company FTEs	Considered most appropriate driver for company-wide function	4%	36%	29%	7%	23%	1%
HR business partners	Company FTEs	Considered most appropriate driver for company-wide function	4%	35%	27%	6%	27%	0%
Talent	Management assessment	Management assessment on review of training programme activity	5%	42%	37%	9%	8%	0%
Training programme	Management assessment		4%	39%	27%	22%	8%	0%
Business Assurance	Management assessment	Time sheet review driving management assessment	4%	35%	38%	9%	13%	0%
Communications								
Communications	Management assessment	Communications Director's assessment of cost split over all business units	4%	34%	29%	7%	24%	2%
Planning and Regulation								
Planning and Regulation Director	Equal split across nine business units	Per Ofwat guidance for regulatory costs	11%	33%	22%	22%	11%	0%
Economic and charges	Company revenues	Considered most appropriate driver for company-wide function	4%	35%	43%	10%	7%	0%
Economic regulation team	Equal split across nine business units	Per Ofwat guidance for regulatory costs	11%	33%	22%	22%	11%	0%
Regulatory strategy	Equal split across nine business units	Per Ofwat guidance for regulatory costs	11%	33%	22%	22%	11%	0%
Finance								
Tax & Treasury	Company revenues	Considered most appropriate driver for company-wide function	4%	35%	43%	10%	7%	0%
Commercial Finance	FTEs within Finance team	Direct allocation where appropriate and manager assessment of split roles	4%	38%	29%	7%	20%	3%
Corporate finance	Company revenues	Considered most appropriate driver for company-wide function	4%	35%	43%	10%	7%	0%
Finance business partners	Company revenues	Considered most appropriate driver for company-wide function	4%	35%	43%	10%	7%	0%
Release of GR/IR	Management assessment	Split of purchases in 2015/16 considered most appropriate	0%	54%	25%	14%	6%	1%
External audit and related costs	Company revenues	Considered most appropriate driver for group audit fees	4%	35%	43%	10%	7%	0%
Pension service charge	FTEs (defined benefit scheme membership)	Based on scheme members' work areas	7%	54%	20%	3%	17%	0%
Environment	Management assessment	Head of department's assessment; Wholesale only	10%	46%	36%	8%	0%	0%
Business Information Services								
Business Information Services	Direct allocation and FTE split	Direct allocation where possible and appropriate FTE split thereafter	3%	32%	64%	15%	-14%	0%
Commercial and contracts	Direct allocation and FTE split	Direct allocation where possible and appropriate FTE split thereafter	5%	36%	29%	7%	23%	0%
Information security	Company revenues	Considered most appropriate driver for company-wide function	4%	35%	43%	10%	7%	0%
Architecture	Company revenues	Considered most appropriate driver for company-wide function	4%	35%	43%	10%	7%	0%
Infrastructure	Direct allocation, equipment, and FTE split	Previously company revenues was used as a cost driver but management considers that allocation based on the nature of IT costs, equipment and FTEs to be more appropriate	4%	33%	32%	8%	23%	0%
Programme and services	Company revenues	Considered most appropriate driver for company-wide function	4%	35%	43%	10%	7%	0%
Services	Direct allocation, equipment, and FTE split	Previously company revenues was used as a cost driver but management considers that allocation based on the nature of IT costs, equipment and FTEs to be more appropriate	4%	33%	31%	8%	25%	0%
Enablement and transformation	Company revenues	Considered most appropriate driver for company-wide function	4%	35%	43%	10%	7%	0%
Health & Safety	Management assessment	Considered most appropriate driver	3%	42%	37%	9%	8%	0%
Operational Services								
Emergency planning	Management assessment	Head of department's assessment of cost split	6%	80%	9%	4%	0%	0%
Smart HUB	Management assessment	Head of department's assessment of cost split	0%	56%	43%	1%	0%	0%
Lean	Management assessment	Head of department's assessment of cost split	0%	50%	50%	0%	0%	0%
IMS and audit	Management assessment	Head of department's assessment of cost split	2%	48%	20%	20%	10%	0%
Developer services	Management assessment	Head of department's assessment of cost split	10%	80%	5%	5%	0%	0%
Other operational service costs	Management assessment	Head of department's assessment of cost split	0%	49%	45%	1%	3%	2%
Procurement and Estates								
Head of Procurement and Estates	Management assessment	Head of department's assessment of cost split	2%	53%	23%	15%	6%	1%
Facilities	Site-based headcount	Headcount occupation at sites	4%	32%	30%	7%	25%	1%
Procurement	Bought-in services costs	Split in proportion to company's bought-in services costs	-1%	55%	25%	14%	6%	1%
Estates	Net book value of non-infra assets	Split in proportion to net book value of non-infrastructure assets	3%	43%	49%	6%	0%	0%
Insurance	Based on MEAV, FTEs and claim history	Considered most appropriate driver	2%	48%	47%	1%	1%	0%
Energy team	Power costs	Considered most appropriate driver	10%	37%	50%	2%	0%	0%
Dŵr Cymru Retail	Wholly Retail		0%	0%	0%	0%	100%	0%
Total General and support			5%	31%	31%	7%	25%	1%

Dŵr Cymru Cyfyngedig
Appendix 5
Household: Non-household split

	2016/17 cost driver (basis for indirect cost allocation)	2017/18 cost driver (basis for indirect cost allocation)	H : NH split	
			H	NH
Customer services				
Billing	Bills raised	Unchanged from 2016/17	92%	8%
Payment handling and remittance	Transaction charges, per RAG2.07	Unchanged from 2016/17	96%	4%
Non - Network customer enquiries and complaints			77%	23%
Customer relations	Correspondence contacts	Unchanged from 2016/17	82%	18%
BPO	BPO contacts	Unchanged from 2016/17	96%	4%
Postage	Printing and postage charges (non-billing)	Unchanged from 2016/17	92%	8%
Call centre and training	Call centre contacts	Unchanged from 2016/17	92%	8%
Customer retail team	All Non-household		0%	100%
Network customer enquiries and complaints			90%	10%
OCC	OCC contact call time	Unchanged from 2016/17	89%	11%
Postage	Printing and postage charges (non-billing)	Unchanged from 2016/17	92%	8%
Dŵr Cymru Wastewater				
Schedulers	Volume and type of network customer enquiries passed to scheduler	Unchanged from 2016/17	93%	7%
Aborted jobs	Call data	Unchanged from 2016/17	93%	7%
Call to customer for issue resolution	Volume and type of network customer enquiries passed to scheduler	Customer numbers	93%	7%
Trade effluent sampling	All Non-household	Unchanged from 2016/17	0%	100%
Dŵr Cymru Water				
Scheduling jobs	Volume and type of network customer enquiries passed to scheduler	Customer numbers	93%	7%
Investigation of problem	Actual Household:non-household activity	Customer numbers	93%	7%
Call to customer for issue resolution	Volume and type of network customer enquiries passed to scheduler	Customer numbers	93%	7%
Debt management			91%	9%
Collections	Collections work	Unchanged from 2016/17	87%	13%
Affordability	Affordability	Unchanged from 2016/17	100%	0%
DCA charges	Accounts referred to DCAs	Unchanged from 2016/17	99%	1%
Postage	Printing and postage charges (non-billing)	Unchanged from 2016/17	92%	8%
Water company commissions	Customer numbers	Unchanged from 2016/17	93%	7%
Council commissions	Affordability	Unchanged from 2016/17	100%	0%
Customer doubtful debt			98%	2%
Local authority bad debt	All Household	Unchanged from 2016/17	100%	0%
Doubtful debt	Write offs	Unchanged from 2016/17	98%	2%
Meter reading			82%	18%
Field operational work	Number of metered customers	Field operational work	83%	17%
Dŵr Cymru water inspectors	Volume and type of calls raised	Customer numbers	93%	7%
Other operating costs				
Disconnections and reconnections	All Non-household	Unchanged from 2016/17	0%	100%
Customer-side leaks	Job type		0%	0%
Dŵr Cymru actuarial costs	Defined benefit scheme membership	Unchanged from 2016/17	92%	8%
General and support expenditure			91%	9%
Dŵr Cymru Retail: other general and support costs	Customer numbers	Unchanged from 2016/17	93%	7%
Dŵr Cymru				
IT department	Headcount and nature of support	Unchanged from 2016/17	89%	11%
Other general and support costs	Customer numbers	Unchanged from 2016/17	93%	7%
Facilities				
Dŵr Cymru	Customer numbers	Unchanged from 2016/17	93%	7%
Other general and support costs			93%	7%
Quality and assurance	Management assessment	Customer numbers	93%	7%
Health and safety	Customer numbers	Unchanged from 2016/17	93%	7%
Tax and capital markets	Customer numbers	Unchanged from 2016/17	93%	7%
Other business activities (regulation costs)	Customer numbers	Unchanged from 2016/17	93%	7%
Developer services	All Non-household	Unchanged from 2016/17	0%	100%
2017/18 overall percentage split			91%	9%

Dŵr Cymru Cyfyngedig

Appendix 6

Measured and unmeasured split

Costs have been split between customer types (i.e. Water-only, Wastewater-only, and Water and Wastewater) have been split based on customer numbers.

The following drivers are therefore relevant only to the allocations between Household measured and unmeasured customers.

Heading per Table 4F	Cost	Cost driver	Rationale
Customer services	Billing	Bills raised for each customer type	As per RAG 2.07 guidance
Customer services	Payment handling, remittance and cash handling: transaction charges	Cost per transaction of each type, multiplied by the number of transactions of from each customer type	Enables an accurate allocation of banking and third party payment provider costs
Customer services	Payment handling, remittance and cash handling: staff costs	Number of payments received from each customer type	Reflects the staff costs spent logging and resolving queries on customer payments
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: compensation payments	Allocated directly	As per RAG 2.07 guidance
Customer services	Non-network customer enquiries and complaints: postage	Printing and postage charges (non-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	Call time and after-call time spent on network enquiries from each customer type	Reflects the staff costs of dealing with enquiries and complaints
Customer services	Network customer enquiries and complaints: postage	Printing and postage charges (non-billing) for each customer type	Reflects the costs of postage incurred in responding to contacts
Customer services	Network customer enquiries and complaints, Wastewater: schedulers	Billed customer numbers in each of the six customer types	Considered the most appropriate basis for allocating costs as we do not record customer type for this work
Customer services	Network customer enquiries and complaints, Wastewater: aborted jobs	Billed customer numbers in each of the six customer types	Considered the most appropriate basis for allocating costs as we do not record customer type for this work
Customer services	Network customer enquiries and complaints, Wastewater: call resolution	Billed customer numbers in each of the six customer types	Considered 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	Billed customer numbers in each of the six customer types	Considered 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	Billed customer numbers in each of the six customer types	Considered 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	Billed customer numbers in each of the six customer types	Considered the most appropriate basis for allocating costs as we do not record customer type for this work
Debt management	Debt management team	Debt management team staff time spent on each customer type	Enables an accurate allocation of staff costs
Debt management	Affordability	Affordability team staff time spent on each customer type	Enables an accurate allocation of staff costs
Debt management	Debt Collection Agency (DCA) charges	Number of accounts referred to DCAs by customer type	Enables an accurate allocation of DCA costs
Debt management	Debt management postage	Printing and postage charges (non-billing) for each customer type	Reflects the costs of postage incurred in contacting customers
Debt management	Commissions payable to other water companies	Customer numbers	As we do not have access to other water companies' customer data, we assume that their proportion of customer types is similar to ours
Debt management	Council commissions	Affordability team staff time spent on each customer type	The distribution of measured and unmeasured customer types for which council commissions are payable is assumed to be in line with the work of the affordability team, whose work is focussed on similar customer groups
Doubtful debts	Doubtful debts charge excluding councils	Write-offs	Direct allocation to customer type
Doubtful debts	Doubtful debts charge - councils	Write-offs excluding Non-household	We assume that the proportion of local authority Household measured and unmeasured properties is in line with the rest of our Household customers.
Meter reading	Meter reading (including transport)	Performed exclusively for measured customers	Direct allocation to customer type
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 transport)	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